



UK Hydrometric Register



**Centre for
Ecology & Hydrology**
NATURAL ENVIRONMENT RESEARCH COUNCIL



**British
Geological Survey**
NATURAL ENVIRONMENT RESEARCH COUNCIL

Hydrological data UK

UK HYDROMETRIC REGISTER

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ISBN 978-0-9557672-2-7

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This report was produced by independent scientists from the Centre for Ecology & Hydrology (CEH – www.ceh.ac.uk), the UK's centre of excellence for research in the land and freshwater environmental sciences, and the British Geological Survey (BGS – www.bgs.ac.uk), the UK's premier centre for earth science information and expertise. Funding was provided by the Natural Environment Research Council (NERC - www.nerc.ac.uk).

The acquisition, archiving and validation of the bulk of the hydrological data featured in this publication was undertaken as part of the National River Flow Archive (NRFA) project at the Centre for Ecology and Hydrology, Wallingford. Liaison with the Measuring Authorities (see page 191) was undertaken by a team of regional representatives. In addition to the editors and the Head of the National River Flow Archive (Gwyn Rees), this team currently includes, Cedric Laize, Matt Fry and Felicity Sanderson. Martin Lees, Tracey Haxton and David Morris made important contributions to the Hydrometric Register during the preparatory stages.

The style and contents of the UK Hydrometric Register, and the scope of the data retrieval service which complements it, reflect over 25 years of archive system development undertaken primarily by Oliver Swain who was also responsible for preparing the text and tables for publication. Cedric Laize was responsible for the preparation of the maps and the compilation of much of the catchment spatial information featured in the Register.

The British Geological Survey was responsible for the acquisition, appraisal and archiving of the featured hydrogeological information. Andrew McKenzie is the National Groundwater Level Archive manager and Rosemary Fry undertook the acquisition and validation of the groundwater level data. Rose Hargreaves and Melinda Lewis provided technical guidance on a range of hydrogeological issues.

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This report should be cited as:

Marsh, T. J. and Hannaford, J. (Eds). 2008. UK Hydrometric Register. Hydrological data UK series. Centre for Ecology & Hydrology. 210 pp.

Publication Address

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Printed in Europe by the Alden Group Ltd, Oxfordshire.

The materials used in the production of this volume are made from the pulp of softwood trees in managed sustainable forests in which every tree cut down is replaced by at least one more, thus replacing the Earth's forests.

Hydrological data UK

UK HYDROMETRIC REGISTER

A catalogue of river flow gauging stations and
observation wells and boreholes in the United Kingdom
together with summary hydrometric and spatial statistics

FOREWORD

The primary objective of the UK Hydrometric Register is to catalogue the national hydrometric monitoring networks and provide a range of reference and statistical information to enable the basic hydrometric data to be used more effectively by a rapidly expanding community of data users. The Register is structured to allow the selection of appropriate datasets for particular projects, and to assist in the interpretation of analyses based on nationally archived hydrological data.

Hydrometric data provide the foundation for both water science and water management. Skilful management and manipulation of river flow and groundwater level data underpin the development of improved engineering design procedures and more effective strategies to reconcile the often competing demands of man and the aquatic environment on the UK's limited water resources.

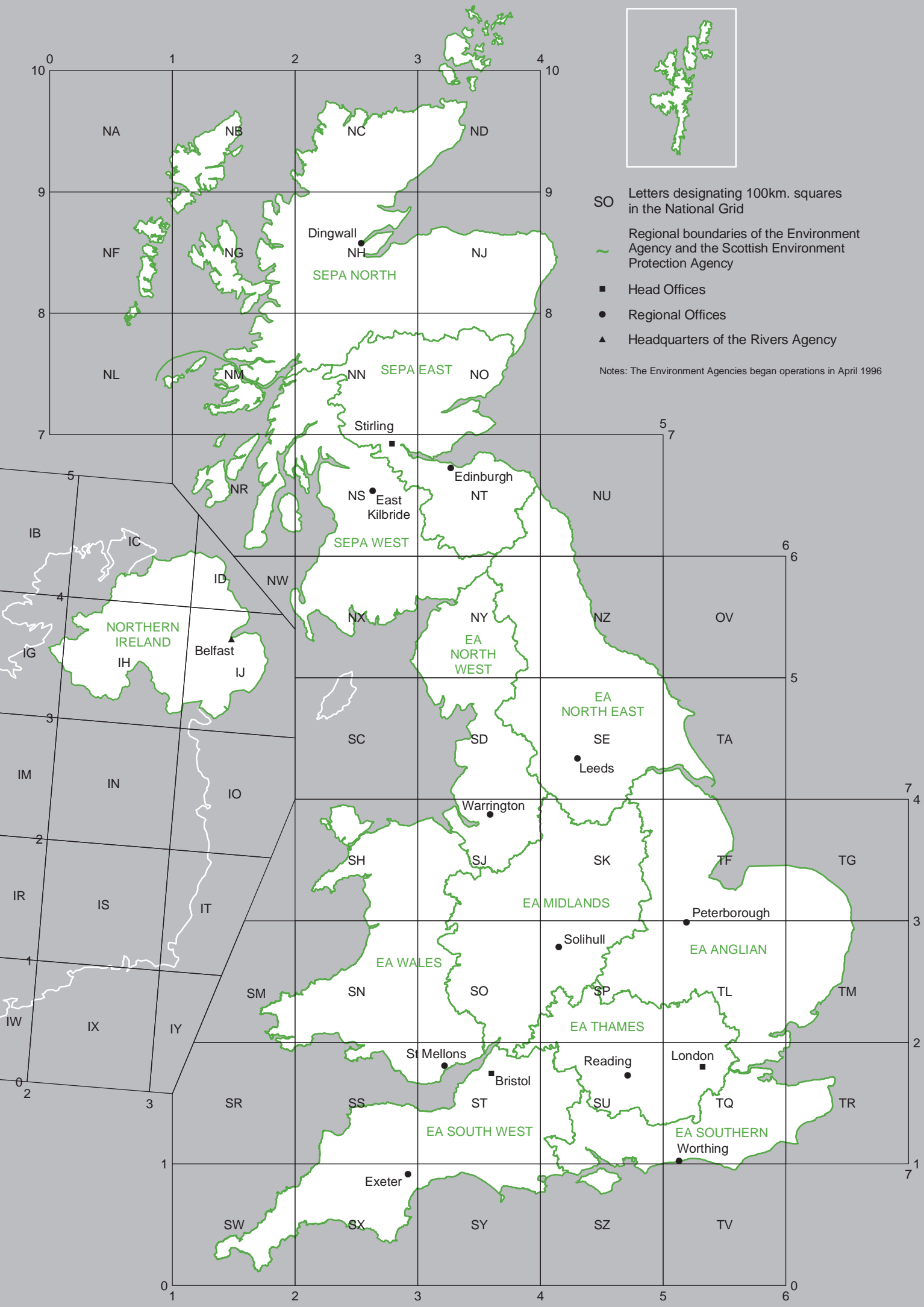
The strategic value of hydrometric data assumes a particular importance at a time of actual, or anticipated, hydrological change. The early years of the 21st century have been very volatile in hydrological terms with notable drought and flood episodes underlining the UK's vulnerability to extreme rainfall conditions. Whilst demographic change is likely to exacerbate the pressure on water resources, global warming is expected to have an increasing impact on river flows, aquifer recharge patterns and the health of the aquatic environment. Identifying, quantifying and attributing hydrological change will be an essential pre-requisite for the design of scientifically-based mitigation strategies to moderate the impact of future floods and droughts, and to minimise the risks to our rivers and wetlands.

River flows and groundwater levels in the United Kingdom reflect more than just the intensity and distribution of rainfall and the magnitude of evaporation losses. Geology and land use influence river runoff and aquifer recharge patterns, and the natural variations of each are often substantially disturbed by the complex and evolving pattern of water utilisation. Careful stewardship is therefore required to maximise the utility of the substantial volume of hydrometric data held in the National River Flow and National Groundwater Level Archives.

This report has been assembled with the active cooperation of the principal measuring authorities in the UK: the Environment Agency, the Scottish Environment Protection Agency and, in Northern Ireland, the Rivers Agency. It stands as a testament to the expertise and commitment of hydrometric field and office personnel in maintaining the continuity and integrity of the featured river flow and groundwater level data.

The work of the National River Flow and Groundwater Level Archives is overseen by a steering committee that includes representatives of Government departments, the environment agencies and the water industry from England, Wales, Scotland and Northern Ireland. Their support for, and contribution to, this publication is gratefully acknowledged.

Professor Pat Nuttall
Director, Centre for Ecology & Hydrology

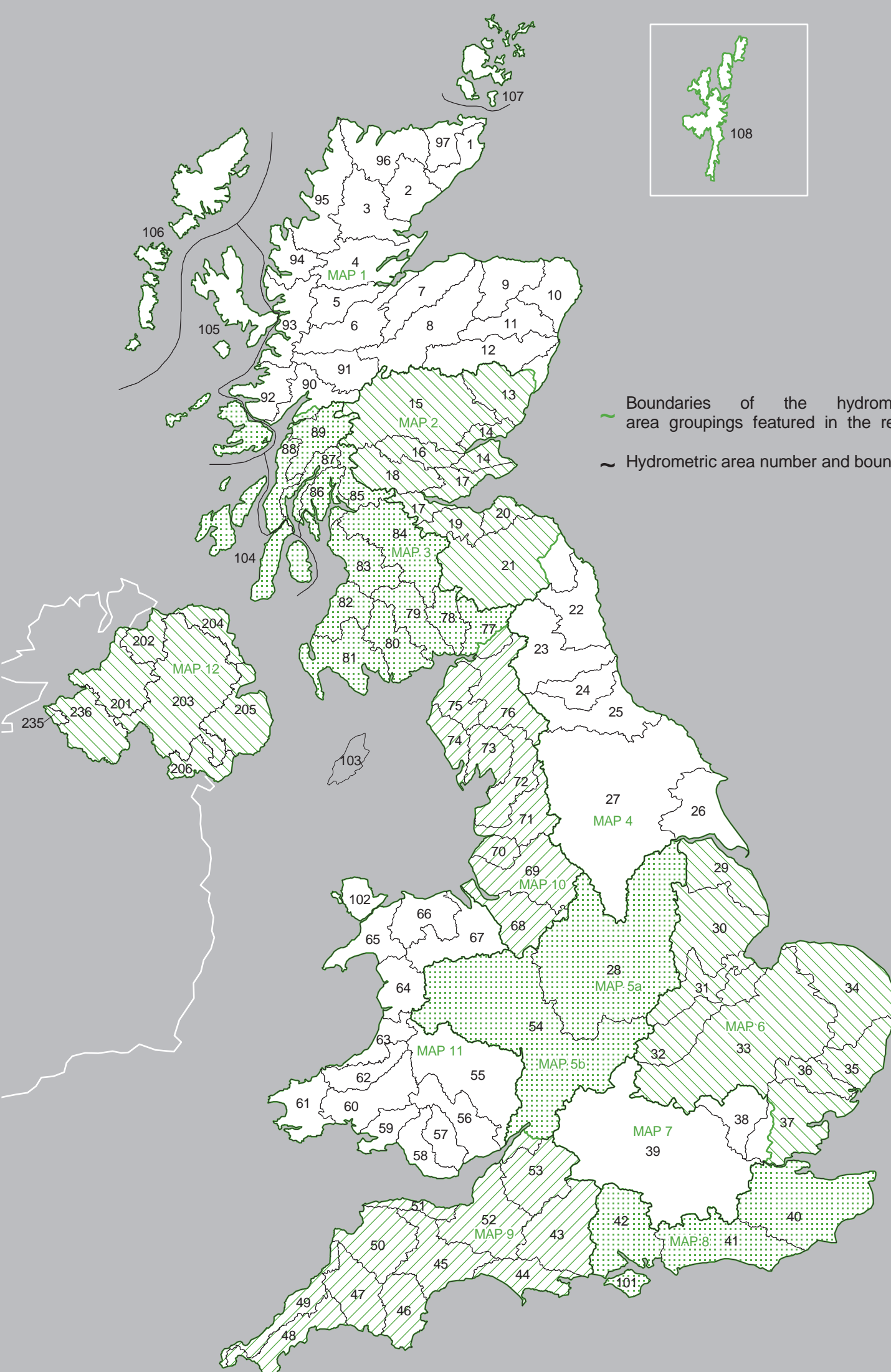


SO Letters designating 100km. squares in the National Grid

Regional boundaries of the Environment Agency and the Scottish Environment Protection Agency

- Head Offices
- Regional Offices
- ▲ Headquarters of the Rivers Agency

Notes: The Environment Agencies began operations in April 1996



— Boundaries of the hydrometric area groupings featured in the report
 Hydrometric area number and boundary

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Background

The UK Hydrometric Register is the fifth publication in the Hydrological UK series which serves as a comprehensive reference source for hydrometric information and statistics. It differs in format from its precursors which featured summary hydrological statistics for gauging stations and boreholes for each year in a five-year timespan. Annual assessments of water resources status and hydrological variability are now published through the National River Flow Archive (NRFA) website (see page 189). The structure and contents of the new Hydrometric Register reflects its complementary role relative to the extensive river flow and groundwater level information now released over the NRFA and British Geological Survey (BGS) websites.

The UK Hydrometric Register comprises two major components cataloguing the UK surface water and, less comprehensively, groundwater monitoring networks. The Gauging Station Register, provides details of around 1500 UK gauging stations, and the Well Register provides information relating to around 160 index wells and boreholes. The featured information has been compiled in close collaboration with the principal UK measuring authorities (see page 191) and draws primarily on the data held in the National River Flow Archive – maintained by the Centre for Ecology and Hydrology Wallingford (CEH), and the National Groundwater Level Archive (NGLA) – maintained, also at Wallingford, by the British Geological Survey (BGS). Both CEH and BGS are component bodies of the Natural Environment Research Council.

The hydrometric and hydrological information featured in the Register is grouped according to the major hydrological divisions in the UK (see below) – these may not correspond to the administrative divisions of the principal measuring authorities (see Frontispiece I and page 191). An outline is provided of the information and data retrieval facilities of the NRFA and NGLA. Details are also given of all publications in the Hydrological data UK series, many of which are now released through the NRFA website.

Sources of information

Responsibility for the collection and initial processing of hydrometric data in England and Wales rests principally with the Environment Agency. A few of the featured monitoring sites

are maintained by the water services companies and a number of research organisations. In Scotland, the acquisition and processing of hydrometric data rests principally with the Scottish Environment Protection Agency (SEPA). In Northern Ireland primary responsibility rests with the Rivers Agency (Department of Agriculture and Rural Development). Additional data have been provided by the Geological Survey of Northern Ireland, the Borders Regional Council and by various research bodies and public undertakings (see page 191).

River flows in the United Kingdom are often difficult to measure precisely – particularly in flood or drought conditions – and can be substantially affected by the geological and land-use characteristics of individual catchments, and by the net impact of water use patterns above each gauging station. Such artificial influences range from a large diminution in flows caused by a major abstraction immediately upstream of the gauging station to the, normally, more subtle impact of land use change on river flow patterns. Groundwater levels may also be heavily influenced by man's activities – abstraction rates in particular. An appreciation of these effects is necessary to exploit the archived data most effectively. For this publication, important material relating to the impact of changing patterns of water utilisation on river flow regimes and groundwater level behaviour was supplied by the UK measuring authorities.

Summary information relating to catchment land-use patterns has been synthesised using data collated as part of the Countryside Survey 2000 (see page 10) and the catchment hydrogeological information derives from the BGS 1:625,000 Hydrogeological Map (see page 10).

Apart from the figures for CEH Wallingford's own experimental basins, the great majority of the areal rainfall data presented in this volume is derived from validated rainfall data provided by the Met Office.

Maintaining and upgrading the quality and consistency of UK hydrometric datasets is a continuing process. Anyone discovering errors or omissions in the Hydrometric Register is encouraged to contact the NRFA or NGLA so that the appropriate records can be updated. The relevant contact addresses are given on page 189.

The Natural Environment Research Council acknowledge and extend their appreciation to all who have assisted in the collection and provision of information for this publication; the community at large gains considerably from the efforts of those who take the initial field observations and those who process them in hydrometric offices.

UK HYDROMETRIC REGISTER – SURFACE WATER

The UK gauging station network

The national gauging station network – currently comprising over 1500 stations – has evolved over more than 100 years to service changing strategic and operational water management needs. The current network is dense in global terms; a necessary response to the density of the drainage network and the diversity of the UK in terms of its climate, geology, land use and patterns of water utilisation. A distinguishing characteristic of the network is the variety of flow measurement techniques deployed.¹ The modest size, and limited navigational use, of UK rivers is reflected in the widespread use of flow measurement structures (of many different designs and configurations); weirs and flumes constitute a much higher proportion of the gauging station network than in the rest of the world. Many UK stations are ‘hybrid’ (exploiting different flow measurement techniques for different flow ranges) and a significant minority are multi-site (e.g. where high and low flow measurement is undertaken at separate locations). Such gauging arrangements normally require more complex data processing procedures to derive flows for archiving purposes.

The acquisition, computation and accuracy of gauged flows

Gauged flows are generally calculated by the conversion of the record of stage, or water level, using a stage-discharge relation, often referred to as the rating or calibration. Stage is measured and recorded against time by instruments usually actuated by a float in a stilling well; solid state loggers are deployed to record water level at over 98% of the operational gauging stations featured in this volume. At a large majority of the gauging stations in the United Kingdom provision is made for the routine transmission of river levels directly to the processing centre, by telephone line or, less generally, by radio; on occasions satellites have been used to receive and re-transmit the radio signal. The rapid growth in the use of the public telephone network for the transmission of river level and flow data has enabled hydrometric data acquisition to proceed on a near real-time basis in most areas. Typically, levels are recorded at 15-minute intervals and stored on-site for overnight transmission to allow the initial processing to be completed on the following day; provision for the immediate transmission is made at flood warning stations and some other sites. At most gauging stations, back-up water level recording capabilities provide a measure of security against loss of record caused by instrument malfunction (e.g. an auxiliary logger or, less commonly, an autographic recorder as back-up to the primary recording device).

The stage-discharge relation is obtained either by installing a gauging structure, usually a weir or flume with known hydraulic characteristics, or by measuring the stream velocity and cross-sectional area (which are combined to give a measurement of flow) at points throughout the range of flow at a site characterised by its ability to maintain the relationship.

The accuracy of the processed gauged flows therefore depends upon several factors:

- i. accuracy and reliability in measuring and recording water levels,
- ii. accuracy and reliability of the derived stage-discharge relation, and
- iii. concurrency of revised ratings and the stage record with respect to changes in the station control.

Most gauging stations rely on a sensibly stable relationship between river level and flow, but this relationship may be disturbed by changes to the hydraulic characteristics of the gauging reach, for example due to changes in the bed profile following a flood or the seasonal impact of aquatic plant growth. For ultrasonic gauging stations however, a stable relationship between river level and flow is not a necessary requirement: flows are computed on-site where the times are measured for acoustic pulses to traverse a river section along an oblique path in both directions. The mean river velocity is related to the difference in the two timings and the flow is then assessed using the river’s cross-sectional area. Accurate computed flows can be expected for stable river sections and within a range in stage that permits good estimates of mean channel velocity to be derived from a velocity traverse set at a series of fixed depths.

Flow data from electromagnetic gauging stations may also be computed on-site. The technique requires the measurement of the electromotive force (emf) induced in flowing water as it cuts a vertical magnetic field generated by means of a large coil buried beneath the river bed or constructed above it. This emf is sensed by electrodes at each side of the river and is directly proportional to the average velocity in the cross-section. As a consequence of technical, maintenance and health and safety issues there are only a modest number of operational electromagnetic stations in the UK.

British and International Standards are followed as far as possible in the design, installation and operation of gauging stations. Most of these Standards include a section devoted to accuracy and many include recommendations for reducing uncertainties in discharge measurements and for estimating the extent of the uncertainties which do arise.

The National River Flow Archive (NRFA) exists to provide not only a central database and retrieval service but also an extra level of hydrological validation. To further this aim, NRFA staff at CEH Wallingford liaise with their counterparts in the measuring authorities on a regional basis and, by visiting gauging stations and data processing centres, endeavour to maintain the necessary knowledge of local conditions and problems which is essential to help identify and rectify anomalous flow data. CEH Wallingford and the measuring authorities are actively developing improved data validation and auditing mechanisms to increase the utility of the hydrometric data and the homogeneity of river flow time series.

The NRFA is principally a database of daily and monthly flows. Monthly peak values are archived to provide a guide to

overall flow variability but their accuracy can vary widely. The primary sources of nationally archived flood data are the HiFlows database (see page 7) and the Flood Estimation Handbook².

Scope of the Gauging Station Register

Hydrometric information relating to the gauging stations and the catchments they command is presented for the major hydrological regions in Britain, and for Northern Ireland (where some catchments extend into the Irish Republic). The regional divisions follow catchment boundaries and are shown in Frontispiece II (the administrative boundaries of the Environment Agency, Scottish Environment Protection Agency and the Rivers Agency are featured on Frontispiece I). Details of those few gauging stations operated by other organisations are included in the relevant hydrological regions. For each of the major hydrological regions data are presented in four parts:

- i. *Gauging Station Location Map* showing the general location of the stations featured in the Gauging Station Register;
- ii. *Gauging Station Register – Part I* incorporates reference and summary information relating to the gauging stations and their associated river flow time series. The gauging stations are tabulated in numerical order in each part of the Gauging Station Register.
- iii. *Gauging Station Register – Part II* provides further reference information together with selected topographical, land use and hydrogeological characteristics of each of the featured catchments.
- iv. *Gauging Station Register – Part III* provides a descriptive guide to the characteristics of the station, its flow record and the catchment it commands. The objectives of this summary information are to assist data users in the selection of gauging station records appropriate to their needs, and to assist in the interpretation of analyses based upon the flow data for individual gauging stations – particularly where the natural flow pattern is significantly disturbed by artificial influences.

Explanatory notes

The following explanatory notes are provided to assist in the interpretation of particular items in the maps or the tabular material.

Some slight variations from contributors' figures may occur; these may be due to different methods of computation or the need for uniformity in presentation. Constraints of space have required a number of abbreviations and acronyms to be used, particularly in the descriptive material in Part III of the Gauging Station Register. These, together with selected technical terms, are defined in the Glossary (page 195).

Gauging Station Location Maps

Thirteen regional maps – covering the hydrological regions of the Environment Agency, the Scottish Environment Protection Agency and, in Northern Ireland, the Rivers Agency – give the location of the gauging stations featured in the Register. The scale varies between maps in order to make the most effective use of the available space. 100 km grid squares are identified by standard letters (see Frontispiece I) shown in black on the map and numeric codes (shown on the map frame). Hydrometric Areas (see Frontispiece II) are referenced by large green numerals. These constitute the first part of the Station Number (see below); the remaining element of the station number is given adjacent to the gauging station on the location map. In England & Wales, the administrative boundaries of the Environment Agency regions are shown as a grey trace; in some areas these correspond with national boundaries. To improve clarity, a few gauging stations are shown slightly displaced from their true national grid location. Open circles are used to identify gauging stations for which no post-2000 data are held on the NRFA. A few decommissioned gauging stations with limited record lengths have been omitted, others may appear without their associated station numbers (e.g. in areas where a number of stations are closely clustered). Map inserts have been provided for additional clarity in areas where the local network is especially dense.

The Gauging Station Register – Part I

Gauging stations having at least two sensibly complete years (no more than two missing days) of river flow data, up to and including 2005, held on the NRFA are featured in this section. The measuring authority with operational responsibility for each station is given in Part III of the Register.

The quality and completeness of the flow data for individual stations may have changed through time, for instance where a station has been upgraded to primary status; further details are given in the Station Descriptions featured in Part III of the Register.

Station number

The gauging station number is a unique six digit reference number (leading zeros may be omitted) which serves as the primary identifier of the station record on the NRFA. The first digit is a regional identifier being 0 for mainland Britain, 1 for the islands around Britain and 2 for Ireland. This is followed by the Hydrometric Area (HA) number given in the second and third digits. HAs are either integral river catchments having one or more outlets to the sea or tidal estuary, or, for convenience, they may include several contiguous river catchments having topographical similarity with separate tidal outlets. In mainland Britain they are numbered from 1 to 97 in clockwise order around the coast commencing in northeast Scotland. Ireland has a unified numbering system from 1 to 40 commencing with the River Foyle catchment and circulating clockwise; not all Irish Hydrometric Areas, however, have an outlet to the coast. The numbers and boundaries of the UK Hydrometric Areas are shown on Frontispiece II and appear on the regional maps.

The fourth, fifth and sixth digits comprise the number, usually allocated chronologically, of the gauging station within the Hydrometric Area. An asterisk following the station number identifies those gauging stations for which notification of closure has been given or no post-2003 data are held on the NRFA – in the majority of cases the stations have been closed or are no longer of primary status. For some, however, flow data have been combined with those for a more recently commissioned replacement (but not necessarily coincident) gauging station; further details are normally given in the Station Description (see page 10).

River and station name

The river and station name assigned by the appropriate measuring authority. Space constraints require that abbreviations be used for a number of gauging stations.

Grid reference

Standard two-letter and six figure (100m) map reference using the National Grid in Great Britain and the Irish Grid in Northern Ireland. (The Irish Grid has only one prefix letter but it is common practice to precede it with the letter I to make identification clear.)

Catchment area

The surface catchment area, projected onto a horizontal plane, draining to the gauging station in square kilometres. Most (>95%) of the quoted areas have been derived using the Centre for Ecology and Hydrology's Integrated Hydrological Digital Terrain Model (IHDTM) or its precursor,³ the remainder derive from a variety of sources and are not of uniform precision. Delineation of catchment boundaries can be especially difficult in areas of very subdued relief. In such circumstances information on drainage directions supplied by the measuring agencies may be used to determine catchment boundaries. Errors in the assessment of the areas of small catchments in particular can substantially affect runoff values. There are a significant number of gauging stations where, because of geological considerations, or as a result of water transfers (for instance, the use of catchwaters to increase reservoir yield), the actual contributing area may differ appreciably from that defined by the topographical boundary. In consequence, the river flows, whether augmented or diminished, may cause the runoff values (see page 6) to appear anomalous.

Station type

The gauging station type is coded by the following list of abbreviations. Two abbreviations may be applied to each station relating to the measurement of low or high flows; the symbol '+' indicates that a station comprises two (or more) elements in separate channels, the total flow being derived by summation.

B	Broad-crested weir
C	Crump profile (triangular, 1:2 upstream, 1:5 downstream slopes) single-crest weir
CB	Compound broad-crested weir. The compounding may include a mixture of types such as rectangular profiles, flumes and Flat Vs (with or without divide walls)
CC	Compound Crump weir
EM	Electromagnetic gauging station
EW	Essex weir (single Crump weir modified with angled, sloping, triangular profile flanking crests) in trapezoidal channel
FL	Flume
FV	Flat V triangular profile weir (variety of cross slopes 1:10-1:40)
MIS	Miscellaneous
TP	Rectangular thin-plate weir
US	Ultrasonic gauging station
VA	Velocity-area gauging station
VN	Triangular (V notch) thin-plate weir

SLA – Service Level Agreement

An asterisk in this column indicates a Service Level Agreement station – constituting part of a national network, designated in collaboration with the Measuring Authorities, embracing the more strategically important gauging stations. For example, the SLA network incorporates the UK Benchmark Catchment network which was designated to facilitate the detection and interpretation of hydrological trends and flow regime changes.^{1,4} Data from SLA stations are subjected to more rigorous quality control than is applied to the generality of monitoring sites. For a minority of the stations, the SLA designation is provisional, and subject to a further examination of the hydrometric performance of the gauging station.

Period of record

The first and last year (up to, and including, 2005) for which daily river flow data are held on the NRFA. Data for periods preceding the first year, often of a sporadic nature or of poorer quality, may occasionally be available from measuring authorities or other sources. Areal rainfall data and, particularly, monthly peak flows may not be available for the full period of record.

An 'n' following the period of record indicates that the flow and runoff entries have been derived using naturalised flows (gauged flows adjusted to account for the net impact of upstream abstractions and discharges).

Percentage complete

The percentage completeness of the daily gauged flow time series over the given period of record. For some stations, a relatively low percentage completeness may reflect large gaps in the record (e.g. where a station has been recommissioned after several years without active monitoring).

Base Flow Index

The Base Flow Index (BFI) was developed at the Institute of Hydrology (now CEH Wallingford) during the Low Flow Study to help assess the low flow characteristics of rivers in the United Kingdom (for details of the procedures used to compute the BFI, see Gustard et al 1992⁵). In this volume, the BFI has been computed using the archived record of gauged daily mean flows. The BFI may be thought of as a measure of the proportion of the river runoff that derives from stored sources; the more permeable the rock, superficial deposits and soils in a catchment, the higher the baseflow and the more sustained the river's flow during periods of dry weather. Thus the BFI is an effective means of indexing catchment geology. For instance, rivers draining impervious clay catchments (with minimal lake or reservoir storage) typically have baseflow indices in the range 0.15 to 0.35 whereas most Chalk streams have a BFI greater than 0.9 as a consequence of the high groundwater component in the river discharge.

BFI values computed using less than five years of flow data should be regarded as provisional.

Mean ann. rain

The mean annual rainfall over the catchment in millimetres. Generally the mean relates to the given period of record (rainfall data preceding the start of the corresponding river flow record are ignored); the mean rainfall is shown in italics where monthly catchment rainfall totals are available for less than 80 per cent of the corresponding runoff record.

The mean annual rainfall is derived from the monthly catchment rainfall totals held on the NRFA. Beginning with January 1986 these totals have been derived from a one kilometre square grid of rainfall values generated from all daily and monthly rainfall data available from the Met Office. The method used conforms with that recommended in the British Standard's Institution's Guide to the Acquisition and Management of Meteorological Precipitation Data.⁶ Validation procedures allow for the rejection of obviously erroneous raingauge observations prior to the gridding exercise. A computer program then calculates catchment rainfall by averaging the values (either in millimetres or as percentages of the 1961-90 average) at the grid points lying within the digitised catchment boundary.*

Up to and including 1985, monthly catchment areal rainfall totals were normally computed by first obtaining the long period (1941-70) average annual rainfall for each catchment derived by the Met Office based on 1:250,000 isohyets; then, for a selected number of raingauges chosen to represent the catchment, the monthly rainfall was expressed as a percentage of its annual average rainfall. The percentage values of rainfall for each raingauge were summed and their mean obtained to give a catchment percentage value for the month, which was then converted to monthly mean rainfall.

The mean annual rainfall is computed from the monthly

* Note: This method has also been used to fill gaps in the earlier monthly catchment rainfall records.

mean rainfalls using data only for years where the monthly rainfall record is complete. Accuracy depends largely on the reliability of the assessment of the areal annual average and on the adequacy of the network of raingauges used to represent an area. Where, as for instance in some mountainous catchments, raingauges are few, their siting and exposure is not ideal, and particularly where snowfall is common, great precision in the areal rainfall assessments cannot be expected. Under such circumstances rainfall can often be significantly underestimated. More generally, some underestimation of mean rainfall may occur – the catch of standard raingauges is known to be systematically lower than that for co-located ground-level raingauges. Changes in the raingauge network and, more subtly, the proportion of total precipitation represented by snowfall, can affect the accuracy of the monthly catchment rainfall totals and the homogeneity of the time series.

Mean ann. runoff

The mean annual runoff is the notional depth of water in millimetres over the catchment equivalent to the mean annual flow as measured at the gauging station. It is computed using the relationship:

$$\text{Runoff in mm} = \frac{\text{Mean Flow (m}^3\text{s}^{-1}) \times 86.4 \times 365}{\text{Catchment Area (km}^2\text{)}}$$

The mean annual runoff is rounded to the nearest millimetre.

As a consequence of missing data there will not be full equivalence between the mean annual rainfall and the mean annual runoff for some catchments. Runoff statistics and the corresponding mean flow are computed on the basis of naturalised flows for the small minority of catchments where sensibly continuous daily, or monthly, naturalised data are held on the NRFA. The uncertainty in the magnitude of the necessary adjustments to the gauged flows may be considerably greater than the uncertainty associated with the gauged flows themselves.

The net impact of abstractions and discharges may result in unrepresentative mean annual runoff figures. More commonly, a lack of coincidence between the topographical catchment divide and the true extent of the contributing area (which may be substantially different for permeable catchments) can produce anomalous mean annual runoff totals. Note also that measurement limitations – especially precipitation assessments in very wet upland catchments – may give rise to runoff which approaches, or even exceeds, the corresponding catchment rainfall. Guidance as to how representative the mean annual runoff is of the natural flow regime may be found in the Factors Affecting Runoff (F.A.R.) codes (see page 8) and the Station Descriptions featured in Part III of the Register.

Mean ann. loss

The mean annual loss is the difference between the mean annual catchment rainfall and the mean annual catchment runoff. Entries are confined to catchments where there is good

agreement between the periods for which rainfall and runoff are held on the National River Flow Archive. The mean annual loss provides a guide to average annual evaporative losses but limited precision in the rainfall and runoff figures, the net effect of artificial influences on the mean runoff and, particularly, a lack of congruency between the topographic and the true catchment areas (see page 5) may all combine to produce unrepresentative mean losses. For those few catchments where computed mean runoff exceeds computed mean rainfall no mean annual loss is given. The F.A.R. codes (see page 8) and the relevant Station Descriptions in Part III of the Register should be consulted to assess the credibility of the featured mean annual losses.

Mean flow

The average, weighted to account for the different number of days per month, of the mean monthly flows for the period of record.

Q₉₅ (the 5 percentile flow)

The flow in cubic metres per second which was equalled or exceeded for 95% of the flow record. The Q₉₅ flow is a significant low flow parameter particularly relevant in the assessment of river water quality consent conditions. Q₉₅ flows greater than zero but less than 0.005 m³s⁻¹ appear as '>0.0'.

Q₉₅ values should be used with caution in view of the problems associated with both the measurement of very low discharges and the increasing proportional variability between the natural flow and the net impact of artificial influences, such as abstractions, discharges, and storage changes as the river flow diminishes.

Q₇₀ (the 30 percentile flow)

The flow in cubic metres per second which was equalled or exceeded for 70% of the flow record. Q₇₀ flows greater than zero but less than 0.005 m³s⁻¹ appear as '>0.0'.

Q₅₀ (the 50 percentile flow)

The flow in cubic metres per second which was equalled or exceeded for 50% of the flow record. Q₅₀ flows greater than zero but less than 0.005 m³s⁻¹ appear as '>0.0'.

Q₁₀ (the 90 percentile flow)

The flow in cubic metres per second which was equalled or exceeded for 10% of the specified term – a high flow parameter which, when compared with the Q₉₅ flow provides a measure of the variability, or 'flashiness', of the flow regime.

In all cases, the percentiles are computed using daily flow data only for those years with five days, or fewer, missing on the NRFA.

Median ann. flood

The median annual flood (QMED) is the median of the annual (or water-year) maximum series. Generally, the QMED values were obtained from the HiFlows database[†] but in some cases they have been computed using monthly instantaneous peak flows (for at least 10 years) held on the National River Flow Archive; these have not been subject to vigorous quality control. For some gauging stations – mostly decommissioned prior to 1995 – QMED values are taken from an earlier dataset compiled as part of the Flood Studies project⁷ and updated during the Flood Estimation Handbook project²; significant further updating remains to be done.

QMED is preferred to the mean of the annual maxima because it is unaffected by the size of an exceptionally large flood event and can be directly interpreted as the two-year return period flow (having a 50% probability of being exceeded in any given year). For a few stations the QMED has been determined on the basis of the highest daily mean flows. The QMED has been omitted for some stations where catchment changes – normally the construction of a major reservoir – make the computed QMED unrepresentative of current conditions.

Accurate high flow measurement can present severe logistical and hydrometric difficulties and flood discharges may often be based on substantial extrapolations of the stage-discharge relation. Correspondingly, the uncertainty associated with QMED values may vary substantially from station to station; information relating to hydrometric performance in the high flow range appears in the Station Descriptions.

Peak flow / Date of peak

The value and date of occurrence of the peak flow (in cubic metres per second) for the period of record up to and including 2005 (more recent maxima may be noted in the Station Descriptions or be featured on the NRFA website). Peak flows are only given for stations with at least five years of high flow data on the NRFA. The date of occurrence normally relates to the water-day (which commences at 09.00 hours) but for some stations the calendar day applies. Italicised dates are used for flood events prior to 1900. Where the peak flow recurs, the date corresponds to the last occurrence.

Where available, the period-of-record (POR) maximum flows generally derive from the HiFlows database[†]. However, this embraces only around two-thirds of the featured maxima. Additional POR maximum, generally of lower credibility, have been abstracted from series of monthly peak flows held on the NRFA or, more rarely, from the Flood Estimation Handbook. In a minority of cases, a detailed review of the HiFlow peaks, in collaboration with the measuring authorities, indicated the need for a revised maximum flow. In such circumstances an alternative provided by the Measuring Authority, or abstracted from the NRFA, may have been substituted. Some peak flows for years with incomplete flow data have been included (where, for example, there is strong evidence that the flow was not eclipsed during the remainder of the year). Where instantaneous flows are not recorded or where the peak value in an incomplete

[†] See: <http://www.environment-agency.gov.uk/hiflowsuk/>

series is exceeded by the highest daily mean flow, the latter may be substituted. Revised POR maxima for a few gauging stations may be based on recently reprocessed flow data using a stage-discharge relation which differs from those used to process the generality of daily flows stored on the NRFA. A few of the featured POR maxima pre-date the daily flow series held on the NRFA.

Generally, flow measurement is challenging during major flood episodes, particularly when levels substantially exceed bankfull. Correspondingly, POR maxima may have a wide uncertainty band associated with the quoted flow. Reviews of high flow data for an appreciable minority of gauging stations in the UK are currently being undertaken.

A significant number of period-of-record maximum flows were exceeded during 2007; further information is given in the National Hydrological Monitoring Programme's report on the exceptional summer floods.⁸

Reference to the reprint of Vol. IV of the Floods Studies Report or the Flood Estimation Handbook should be made to check for historical flood events which may exceed the peak falling within the gauged flow record. An excellent source of additional historical river flow (and groundwater) information is the British Hydrology Society's Chronology of British Hydrological Events website:

<http://www.dundee.ac.uk/geography/cbhe/>

Min 7-day / Date of min.

The value and date of occurrence of the lowest 7-day mean flow in cubic metres per second for the period of record up to and including 2005; no entry is given where less than five sensibly complete years of flow data are available. The date, normally relating to the water-day, is the mid-point of the 7-day sequence. In a record in which the 7-day minimum value recurs (e.g. for streams where zero flow is common), the date is that of the last occasion. Where low flow patterns are primarily artificial (e.g. downstream of a major reservoir), the 7-day minimum may be omitted. Please refer to the Station Description for guidance relating to other influences on the low flow regime (e.g. flow augmentation schemes).

River flow measurement becomes increasingly imprecise at very low flow rates. Very low velocities and the insensitivity of stage-discharge relations combine with the difficulty of measuring limited water depths to substantially increase the uncertainty associated with assessments of extremely low flows.

The Gauging Station Register – Part II

The gauging station number, river name, station name and catchment area featured in Part I are repeated in Part II.

Sensitivity

The percentage change in flow associated with a 10 mm increase in stage at the Q_{95} flow; the higher the sensitivity, the greater the

uncertainty in computed flows associated with a given systematic error in stage measurement. The limited depth of many UK rivers, especially during periods of low flow, places a premium on the accurate measurement of water levels. Systematic errors in the measurement of stage – resulting, for instance, from imprecise datum settings, algal growth on weir crests or ice on natural controls – are the major factor influencing low flow uncertainty. The sensitivity index provides a guide to the susceptibility of low flows at individual stations to errors arising from imprecise stage measurement; commonly these produce an overestimation of flows.

Bankfull/structurefull

The flow in cubic metres per second at which the river begins to overlap the banks, or the wingwalls of a structure, at a gauging station. The discharges have been obtained from stage-discharge relations and since they are at the upper limit of the in-tank flow they may be derived by extrapolation. At a significant minority of weirs and flumes, the upstream channel capacity may be less than the capacity of the structure. Under such circumstances bypassing will commence before structurefull is reached.

This item is unavailable for a substantial number of gauging stations and may be omitted where the bankfull and structurefull discharges are considered unreliable.

Factors affecting runoff

The Factors Affecting Runoff (F.A.R.) codes provide an indication of the various types of artificial influences operating within the catchment which alter the natural runoff. For some areas the allocation of F.A.R. codes is incomplete and for all catchments the codes are subject to continuing review. The absence of F.A.R. codes does not imply a natural flow regime. An explanation of the code letters is given below. With the exception of the induced loss in surface flow resulting from underlying groundwater abstraction, these codes and descriptions refer to quantifiable variations and do not include the progressive, and difficult to measure, modifications in flow regimes related to land use changes.

Until recently, assignment of F.A.R. codes has been largely determined by expert local judgement of the magnitude of the impact of artificial influences at individual gauging stations. Access to the Low Flows 2000⁹ and other databases, is beginning to allow a more objective and quantitative approach to assignment of F.A.R. codes. Low Flows 2000 assessments of artificial influences have been used here, generally for stations commissioned during the last decade, to guide F.A.R. designations and is expected to be exploited more fully in future editions of the UK Hydrometric Register.

Except for a small set of gauging stations for which the net variation (i.e. the sum of abstractions and discharges) is assessed in order to derive the 'naturalised' flow from the gauged flow, the record of individual abstractions, discharges and changes in storage, as indicated in the F.A.R. codes is not held centrally.

CODE EXPLANATION

- N Natural, i.e. there are no abstractions and discharges or the variation due to them is so limited that the gauged flow is considered to be within 10% of the natural flow at, or in excess of, the Q_{95} flow.
- S Storage or impounding reservoir. Natural river flows will be affected by water stored in a reservoir situated in, and supplied from, the catchment above the gauging station.
- R Regulated river. Under certain flow conditions the river will be augmented from surface water and/or groundwater storage upstream of the gauging station.
- P Public water supplies. Natural runoff is reduced by the quantity abstracted from a reservoir or by a river intake if the water is conveyed outside the gauging station's catchment area.
- G Groundwater abstraction. Natural river flow may be reduced or augmented by groundwater abstraction or recharge. This category includes the diminishing number of catchments where mine-water discharges influence the flow regime.
- E Effluent return. Outflows from sewage treatment works will augment the river flow if the effluent originates from outside the catchment.
- I Industrial and agricultural abstractions. Direct industrial and agricultural abstractions from surface water and from groundwater may reduce the natural river flow.
- H Hydro-electric power. The river flow is regulated to suit the need for power generation; catchment to catchment diversions may also significantly affect average runoff.

Descriptors

Most of the following catchment descriptors are based, directly or indirectly, on the Integrated Hydrological Digital Terrain Model (IHDTM) and may differ slightly from corresponding descriptors derived using different digital terrain models. For a few gauging stations where the drainage paths are difficult to determine (e.g. for some spring sources) or do not reflect local topography (e.g. artificial channels used for water transfers), realistic catchment descriptors cannot be derived. Details of the derivation and utility of these descriptors are given in Volume 5 of the Flood Estimation Handbook.²

BFIHOST

This base flow index is a measure of catchment responsiveness derived using the 29-class Hydrology Of Soil Types (HOST) classification.¹⁰ The HOST dataset is available as a 1 km grid which records, for each grid square, the percentage associated with each HOST class present. Using IHDTM boundaries for

each gauged catchment, the soil characteristics of the catchment can be indexed and by exploiting the relationship between soil typologies and runoff response an aggregated assessment of BFIHOST for the catchment can be derived.

Note: there is a strong general association between BFIHOST and the Baseflow Index derived using the hydrograph separation approach (see page 6) but no close equivalence can be expected where the natural flow regime is substantially disturbed e.g. by compensation flows or major augmentation from sewage effluent.

FARL

Any reservoirs or lakes within a catchment will tend to have some effect on flood response, but it is those directly linked to the stream network that are most likely to produce an attenuation effect. The Flood Attenuation by Reservoirs and Lakes (FARL) index developed for the Flood Estimation Handbook, provides a guide to the degree of flood attenuation attributable to reservoirs and lakes in the catchment above a gauging station. Values close to unity indicates the absence of attenuation due to lakes and reservoirs whereas index values below 0.8 indicate a substantial influence on flood response.

PROPWET

Dry soils tend to inhibit flood formation whilst, in contrast, saturated soil conditions precede and contribute to many large flood events. This catchment wetness index (PROPortion of time soils are WET), developed for the Flood Estimation Handbook, provides a measure of the proportion of time that catchment soils are defined as wet (in this context, when soil moisture deficits are less than 6 mm). PROPWET values range from over 80% in the wettest catchments to less than 20% in the driest parts of the country.

DPSBAR

This landform descriptor (mean Drainage Path Slope) provides an index of overall catchment steepness. It was developed for the Flood Estimation Handbook and is calculated as the mean of all inter-nodal slopes (derived using the IHDTM) for the catchment. The index is expressed in metres per kilometre with values ranging from >300 in mountainous terrain to <25 in the flattest parts of the country.

Elevation

The following columns give the height (to the nearest metre above Ordnance Datum or, in Northern Ireland, Malin Head Datum) of the gauging *Station Level*, the *Maximum level* in the catchment and the level below which 10%, 50% and 90% of the catchment lies.

Note that although the gauging station datum is often closely related to the level of zero discharge, it is the practice in some areas for an arbitrary height, typically one metre, to be added to the level of the lowest crest of a measuring structure to avoid the possibility of false recording of negative values by some digital recorders.

Catchment permeability

Catchment permeability is indexed separately for bedrock and the overlying superficial deposits (where present).

Bedrock

A broad characterisation of the proportion of the catchment which is underlain by rock formations of *high*, *moderate* or *very low permeability*. Where the rounded percentages of these three categories do not sum to 100%, the remainder of the catchment comprises formations of mixed permeability (this percentage is not tabulated). Except in Northern Ireland, the percentages in each category are based on the digital version of the 1:625000 Hydrogeological Map prepared by the British Geological Survey. For details of how the permeability categories were determined see Appendix 1.

Superficial Deposits

A broad characterisation of the proportion of the catchment which is underlain by superficial deposits. Superficial deposits generally have much more spatially variable permeability than bedrock. Correspondingly, the categories featured are: *generally high*, *mixed permeability* and *generally low*. Superficial deposits vary greatly in their extent across the UK, some catchments having very extensive cover whilst others have negligible cover. Therefore, the percentages in each category do not sum to 100% in most catchments. For details of how the permeability categories were determined see Appendix 1.

Land use

These columns provide a general characterisation of the proportion of land use types in each catchment.

The Woodland, Arable/Horticultural, Grassland and Mountain/Heath/Bog (MHB) categories provide rounded percentages for each land use based on the Centre for Ecology and Hydrology's Land Cover Map 2000¹¹ (LCM2000); Appendix 2 outlines the categorisation procedure used. The area of land in the MHB category is small in most parts of the UK and the proportion of each of the component land use types is spatially very variable. To provide guidance on this variability, the percentage of MHB in each catchment (provided that it is not less than 1%) is followed by a letter indicating which component predominates (e.g. 'H' indicates that heathland predominates); two letters signify that the land use categories are of similar extent (see page 199).

Urban Extent

Provides a guide to the percentage of urban cover in a catchment. It is a composite index, developed at CEH Wallingford¹² and based on a refined version of the data for the LCM2000 classes Suburban, Urban and Inland Bare Ground. Percentages of urban cover given in Part III of the Register may derive from different sources.

The Gauging Station Register – Part III

Part III of the Gauging Station Register provides concise station and catchment descriptions for the gauging station featured in Parts I and II. The NRFA station number, river and station name are given together with a Measuring Authority code referencing the organisation (or its precursors) responsible for the operation of the gauging station – this code may be omitted for long decommissioned gauging stations. A list of measuring authority codes and addresses is given in the Directory of Measuring Authorities on page 191.

The descriptive material has been developed in collaboration with the principal UK measuring authorities); for a few stations one, or both, descriptive components have yet to be completed. Reference to the Glossary should be made for an explanation of technical terms, abbreviations and acronyms used in Part III of the Register. The Station and Catchment Descriptions are under continuing review – reflecting the availability of more information, changing hydrometric conditions at individual gauging stations, and changing land and water usage patterns within the catchment. Date of last revisions incorporated in this publication: December 2007.

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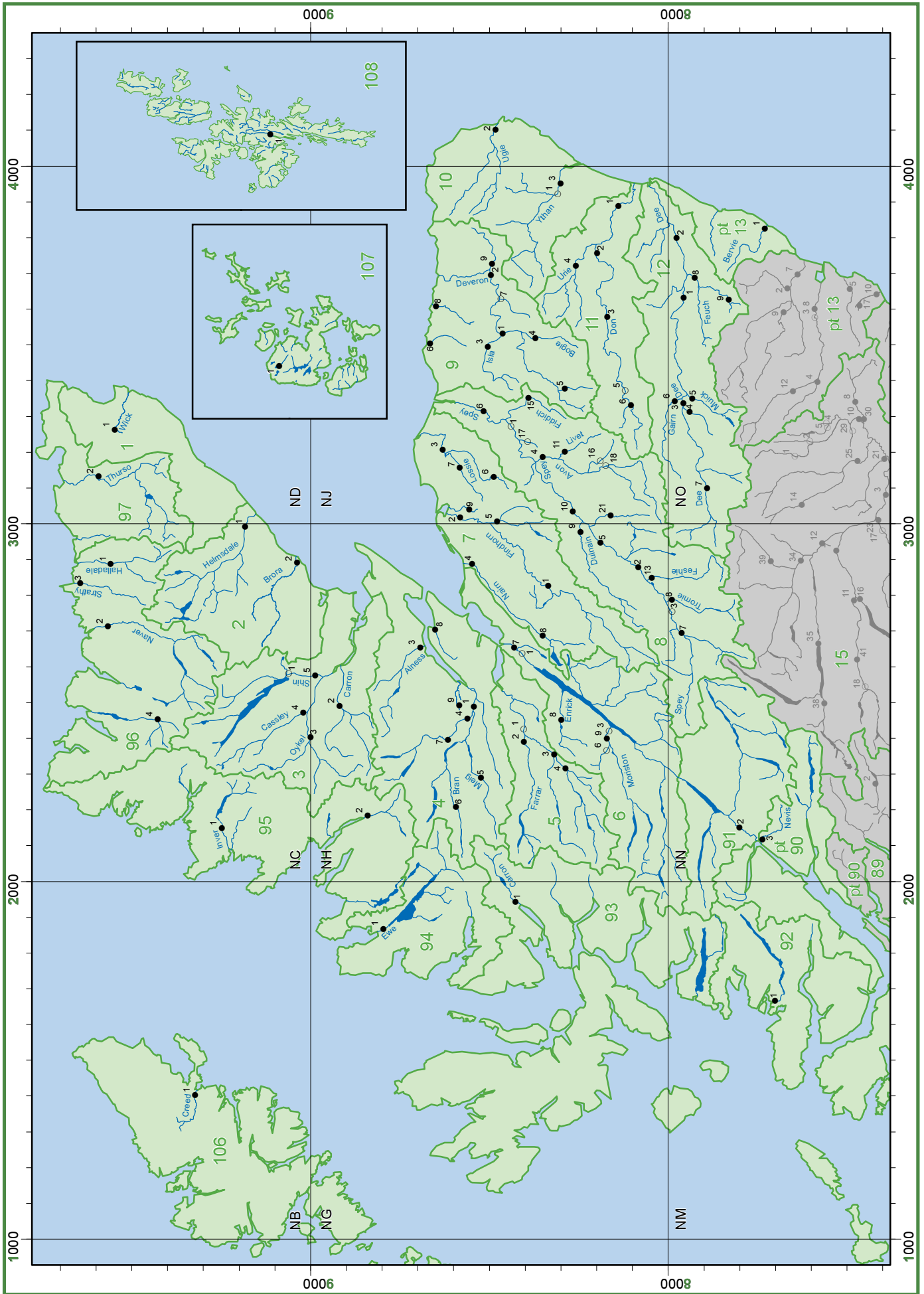
GAUGING STATION REGISTER

Region: SEPA North

Area: 33,530 km²

Average rainfall (1971-2000): 1568 mm

Map 1: NORTH



Gauging Station Register I

Station number	River name	Station name	Grid reference	Catchment area	Station type	SLA	Period of record	Percent complete	Base Flow Index	Mean ann. rain (mm)	Mean ann. runoff (mm)	Mean ann. loss (mm)	Mean flow (m ³ /s)	Q95 (m ³ /s)	Q70 (m ³ /s)	Q50 (m ³ /s)	Q10 (m ³ /s)	Median ann. flood (m ³ /s)	Peak flow (m ³ /s)	Date of peak	7-day min. (m ³ /s)	Date of min.
1001	Wick	Tarroul	ND262549	161.9 VA	*	1995-05	100	.39	966	594	372	3.04	0.12	0.62	1.68	7.7	32.2	40.5	19/08/01	0.03	27/08/03	
2001	Helmsdale	Kilphedir	NC997181	551.4 VA	*	1975-05	100	.47	1118	752	366	13.12	3.08	4.60	7.90	29.2	168.4	272.4	06/10/93	0.97	04/09/76	
2002	Brora	Bruchrobie	NC892039	434.4 VA	*	1993-05	100	.30	1248	898	350	12.13	0.96	3.03	6.09	30.8	143.6	239.2	25/11/05	0.39	18/08/95	
3001*	Shin	Lairg	NC581062	494.6 VA	*	1953-57	100	.55	1592	1043	549	15.20	2.18	5.98	10.70	33.7				0.53	29/08/55	
3002	Carron	Sgodachail	NH490921	241.1 VA		1974-05	100	.30	1924	1178	746	8.98	0.96	2.67	4.52	20.8	182.7	342.8	21/02/02	0.36	19/08/95	
3003	Oykel	Easter Turnaig	NC403001	330.7 VA	*	1977-05	100	.23	1992	1556	436	16.34	1.09	3.89	8.01	40.3	341.2	823.5	05/10/78	0.36	20/08/95	
3004	Cassley	Rosehall	NC472022	187.5 VA		1979-05	100	.23	2210	1211	999	7.22	0.73	1.81	3.08	17.1	188.1	314.2	05/12/99	0.22	20/08/95	
3005	Shin	Inveran	NH574974	575.0 VA		1981-05	100	.61	1547	257	1290	4.77	1.67	3.07	3.45	5.9	0.0	187.7	16/01/83	1.28	27/11/93	
4001	Conon	Moy Bridge	NH482547	961.8 VA	*	1947-05	90	.57	1831	1628	203	49.21	10.40	24.69	39.90	96.3	283.2	1076.0	17/12/66	1.54	25/07/49	
4003	Alness	Alness	NH654695	201.0 VA	*	1974-05	100	.44	1429	970	459	6.17	0.90	2.19	3.75	13.7	82.1	253.0	07/10/93	0.34	03/09/76	
4004	Blackwater	Contin	NH455563	336.7 VA		1981-05	100	.40	1604	555	1049	6.03	1.45	2.10	3.21	13.1	80.5	192.8	06/02/89			
4005	Meig	Glenmeannie	NH286528	120.5 VA	*	1986-05	100	.26	2265	1793	472	6.83	0.58	1.71	3.35	16.7	114.9	212.8	16/01/93	0.19	09/08/95	
4006	Bran	Dosmucheran	NH205602	116.1 VA	*	1989-05	100	.28	2286	1907	379	6.97	0.56	1.68	3.60	17.5	85.2	120.8	02/01/92	0.15	20/08/95	
4007	Blackwater	Garve	NH396617	289.0		1989-05	98	.35	1807	541	1266	4.86	1.10	1.56	2.23	11.1	113.5	181.8	30/01/00			
4008	Newhall Burn	Newhall Bridge	NH702652	41.0 VA		1996-05	98	.47	836	379	457	0.49	0.03	0.13	0.26	1.1		25.5	18/05/97	0.02	15/08/03	
4009	Peffery	Strathpeffer STW	NH492586	17.3 VA		1995-05	87	.43	1119	444	675	0.24	0.02	0.06	0.13	0.6		7.1	08/04/98	0.01	04/09/03	
5001*	Beaully	Erchless	NH426405	849.5 VA		1953-62	100	.50	2197	1650	547	45.63	14.16	26.62	34.83	85.8		594.7	12/02/62	7.63	28/08/55	
5002	Farrar	Struy	NH390405	311.3 VA		1986-05	100	.58	2168	1950	218	19.37	6.18	7.88	13.20	42.3	116.7	216.1	05/03/90			
5003	Glass	Kerrow Wood	NH354321	481.8 VA	*	1988-05	100	.57	2244	2097	147	32.06	8.74	15.94	24.67	61.5	187.5	320.8	05/02/90			
5004	Glass	Fasnakyle	NH315288	277.5 VA		1990-05	100	.43	2208	536	1672	4.70	1.15	1.71	2.51	9.5	97.3	231.4	01/03/97			
6001*	Ness	Ness Castle Farm	NH639410	1792.3 VA		1935-63	89	.54	1820	1290	530	73.77	12.46	33.41	54.20	154.9	368.1	591.8	20/12/36	7.42	31/08/55	
6003*	Moriston	Invermoriston	NH416169	391.0 VA		1929-45	100	.29	2374	1649	725	20.73	1.84	5.75	10.71	51.0	309.0			0.72	21/06/40	
6006*	Alt Bhlaraidh	Invermoriston	NH377168	27.5 CB		1953-62	100	.29	1667	988	679	0.88	0.06	0.24	0.45	2.2		23.2	27/10/57	>0.00	10/08/55	
6007	Ness	Ness-side	NH645427	1839.1 VA	*	1973-05	100	.61	1826	1527	299	88.84	19.69	43.73	65.59	183.2	388.8	801.2	07/02/89	11.10	18/08/84	
6008	Enrick	Mill of Tore	NH450300	105.9 VA	*	1979-05	100	.31	1416	975	441	3.27	0.07	0.67	1.47	8.4	51.3	97.2	01/03/97	>0.00	22/08/95	
6009	Moriston	Lewishie	NH404175	403.1 VA		1994-05	100	.43	2194	475	1719	6.06	0.70	1.79	2.33	11.9	198.6	420.9	26/04/94	0.52	20/04/03	
7001	Findhorn	Shenachie	NH826337	415.6 VA		1960-05	100	.36	1263	1051	212	13.82	2.01	4.83	7.95	31.3	241.2	485.5	20/09/81	1.05	15/08/03	
7002	Findhorn	Sherris	NJ018583	781.9 VA	*	1958-05	100	.40	1102	784	318	19.37	3.26	7.20	11.52	42.5	312.0	1112.6	16/08/70	1.77	25/08/76	
7003	Lossie	Ferferrills	NJ194626	216.0 VA		1963-05	99	.53	842	393	449	2.70	0.72	1.20	1.69	5.2	43.4	151.4	16/11/02	0.39	24/08/76	
7004	Naim	Firhall	NH882551	313.0 VA		1979-05	100	.45	1020	557	463	5.52	0.84	2.01	3.24	12.2	105.5	314.1	01/07/97	0.49	20/08/95	
7005	Divie	Dunphail	NJ005480	165.0 VA	*	1977-05	89	.42	907	548	359	2.89	0.52	1.05	1.62	6.1	60.4	141.7	01/07/97	0.33	18/08/95	
7006	Lossie	Tonwinny	NJ135489	20.0 VA	*	1987-05	100	.45	962	583	379	0.37	0.10	0.15	0.21	0.7	7.8	23.5	15/11/02	0.07	18/08/95	
7007	Black Burn	Monaghty	NJ155584	44.0 VA		1990-04	73	.47	823	509	314	0.55	0.09	0.20	0.29	0.8				0.06	30/07/92	
7008	Naim	Balnafoich	NH686352	128.1 VA		1993-05	99	.35	1099	704	395	2.82	0.26	0.67	1.29	6.2				0.11	19/08/95	
7009	Mosset Burn	Wardend Bridge	NJ039558	28.3 VA		1998-05	72	.47	928	426	502	0.38	0.03	0.12	0.22	0.8				0.01	24/08/03	
8001*	Spey	Aberlour	NJ278439	2654.7 VA		1938-74	97	.58	1136	665	471	56.35	16.81	31.41	42.45	106.4	415.6	1179.3	17/08/70	8.98	05/08/55	
8002	Spey	Kinnara	NH881082	1011.7 VA		1951-05	98	.55	1336	698	638	22.37	5.85	11.09	15.54	44.4	140.5	361.5	18/12/66	2.43	27/08/84	
8003*	Spey	Ruthven Bridge	NN759996	533.8 VA		1951-73	100	.50	1394	552	842	9.36	2.72	4.70	6.26	18.2	100.5	222.4	18/12/66	1.37	29/08/55	
8004	Avon	Delnashaugh	NJ186352	542.8 VA	*	1952-05	100	.56	1085	850	235	14.63	4.06	7.84	10.61	27.6	219.6	435.7	25/08/60	2.18	26/08/76	
8005	Spey	Boat of Garten	NH946191	1267.8 VA		1951-05	100	.59	1285	723	562	29.03	8.40	15.93	21.53	55.3	163.7	392.8	18/12/66	4.17	04/09/76	
8006	Spey	Boat o Brig	NJ318518	2861.2 VA	*	1952-05	100	.60	1124	721	403	65.43	19.02	36.42	50.51	123.7	472.1	1059.0	17/08/70	10.25	15/08/55	
8007	Spey	Invertrum	NN687962	400.4 VA		1952-05	92	.52	1490	464	1026	5.87	1.57	2.92	3.76	10.0	100.8	274.7	17/12/66	0.45	04/09/76	
8008	Tromie	Tromie Bridge	NN789995	130.3 VA		1952-05	98	.61	1433	605	828	2.49	1.20	1.46	1.68	3.8	50.9	116.5	06/09/58	0.40	05/08/55	
8009	Dulnain	Balnaan Bridge	NH977247	272.2 VA	*	1952-05	96	.45	1015	695	320	5.98	1.08	2.40	3.69	12.8	94.4	182.1	04/02/90	0.61	20/08/95	
8010	Spey	Grantown	NJ033268	1748.8 VA		1953-05	100	.59	1193	677	516	37.51	10.53	20.26	28.21	72.5	222.1	507.2	06/02/90	6.11	04/09/76	
8011	Livet	Minmore	NJ201291	104.0 VA	*	1978-05	97	.63	1031	685	346	2.26	0.76	1.25	1.68	4.0	31.0	61.3	26/11/05	0.53	17/08/03	
8013	Feshie	Feshie Bridge	NH849047	231.0 VA	*	1992-05	92	.47	1273	1047	226	7.72	1.70	3.40	5.12	15.9	132.8	222.5	23/12/99	0.92	19/08/95	
8015	Fiddich	Auchindoun	NJ355399	44.5 VA		1991-04	89	.54	1043	705	338	0.99	0.28	0.47	0.64	1.7	16.0			0.23	20/08/03	
8016*	Avon	Auchriachan	NJ175191	40.8 VA		1992-95	98	.56	1029	640	389	0.81	0.24	0.41	0.55	1.5						
8017*	Burn of Carron	Daluisaine	NJ237415	15.2 VA		1991-94	98	.43	916	539	377	0.26	0.06	0.11	0.16	0.5						
8018*	Avon	Tomintoul	NJ161176	185.0 VA		1993-03	86	.54	1329	1370		7.27	2.05	3.91	5.62	13.6				0.32	18/08/95	
8021	Nethy	Forest Lodge	NJ022162	38.8 VA		1996-04	71	.58	1297	939	358	1.27	0.35	0.65	0.90	2.2						
9001	Deveron	Avochie	NJ532464	441.6 VA		1959-05	100	.59	1000	627	373	8.79	2.24	4.16	6.13	16.6	123.3	258.2	15/11/02	1.34	24/08/76	
9002	Deveron	Muiesk	NJ705498	954.9 VA	*	1960-05	100	.57	932	552	380	16.79	3.63	7.27	11.43	33.4	247.7	530.7	12/09/95	2.13	25/08/76	
9003	Isla	Grange	NJ494506	176.1 VA	*	1969-05	97	.52	896	495	401	2.75	0.57	1.13	1.69	5.5	46.4	96.1	01/07/97	0.29	25/08/76	
9004	Bogie	Redcraig	NJ519373	179.0 VA	*	1980-05	100	.70	990	554	436	3.16	0.89	1.60	2.33	6.0	27.7	95.6	15/11/02	0.68	17/09/03	
9005	Alt Deveron	Cabrach	NJ378291	67.0 CB	*	1948-05	98	.50	1075	737	338	1.57	0.44	0.73	0.98	3.0	29.7	43.2	07/09/95	0.28	06/10/59	
9006	Deskford Burn	Cullen	NJ504666	46.5 VA		1989-04	74	.50	823	338	485	0.51	0.08	0.18	0.29	1.1		31.9	12/09/95	0.04	20/08/95	
9007*	Forgue Burn	Inverkeithny	NJ627469	88.3 VA		1990-95	95	.67	877	331	546	0.94	0.18	0.43	0.65	1.9		23.5	07/10/93			
9008	Burn of Boyne	Scotsmill	NJ6																			

Gauging Station Register I cont'd

Station number	River name	Station name	Grid reference	Catchment area	Station type	SLA	Period of record	Percent complete	Base Flow Index	Mean ann. rain (mm)	Mean ann. runoff (mm)	Mean ann. loss (mm)	Mean flow (m ³ /s)	Q95 (m ³ /s)	Q70 (m ³ /s)	Q50 (m ³ /s)	Q10 (m ³ /s)	Median ann. flood (m ³ /s)	Peak flow (m ³ /s)	Date of peak	7-day min. (m ³ /s)	Date of min.
90003	Nevis	Claggan	NN116742	69.2 VA	*	1982-05	100	.26		3067	2970	97	6.54	0.67	1.79	3.32	16.0	124.8	222.8	06/01/05	0.20	24/08/84
91002	Lochy	Camisky	NN145805	1252.0 VA	*	1980-05	100	.39		2264	1497	767	59.57	5.62	17.91	31.95	150.3	729.8	1524.0	02/01/92	1.22	24/08/84
92001	Shiel	Shielfoot	NM666702	256.0 VA	*	1995-05	100	.61		2957	2587	370	20.80	3.77	9.99	16.21	44.2	72.7	112.9	13/02/98	1.95	05/06/98
93001	Carron	New Kelso	NG942429	137.8 VA	*	1979-05	100	.26		2745	2476	269	10.80	1.07	2.82	5.51	26.3	172.7	313.4	02/01/92	0.46	25/06/82
94001	Ewe	Poolewe	NG859803	441.1 VA	*	1970-05	100	.64		2428	2119	309	29.63	5.60	13.60	21.91	63.1	127.8	220.5	07/02/89	2.08	17/05/74
95001	Inver	Little Assynt	NC147250	137.5 VA	*	1977-05	97	.65		2201	1932	269	8.46	1.89	4.37	6.68	16.6	39.0	59.1	07/02/89		
95002	Broom	Inverbroom	NH184842	141.4 VA	*	1985-05	100	.25		2036	1620	416	7.24	0.61	1.73	3.49	17.6	135.4	237.4	05/02/89	0.23	20/08/95
96001	Halladale	Halladale	NC891561	204.6 VA	*	1976-05	100	.26		1147	776	371	5.02	0.28	1.06	2.28	13.0	105.5	191.2	16/08/90	0.14	25/08/84
96002	Naver	Apigill	NC713568	477.0 VA	*	1977-05	100	.43		1451	1047	404	15.78	1.30	5.19	9.79	37.0	141.8	236.0	04/10/81	0.38	05/07/92
96003	Strathy	Strathy Bridge	NC836652	111.8 VA	*	1985-05	100	.31		1108	754	354	2.68	0.20	0.66	1.37	6.5	48.4	104.6	09/11/00	0.11	02/07/92
96004	Strathmore	Allnabad	NC453429	105.0 VA	*	1987-05	100	.20		2576	2194	382	7.29	0.48	1.68	3.47	18.1	193.6	331.0	06/12/99	0.17	18/08/95
97002	Thurso	Halkirk	ND131595	412.8 VA	*	1972-05	100	.46		1055	684	371	8.93	0.59	3.15	5.21	20.8	96.5	179.2	07/10/93	0.22	26/08/76
106001	Creed	Creed Bridge	NB403325	43.4 CC	*	1993-05	70	.44		1526	1212	314	1.62	0.15	0.54	1.08	3.8		30.8	21/07/98	0.07	05/08/00
107001	Durkadale	Durkadale	HY295253	19.0 VA	*	1999-05	100	.42		1094	776	318	0.48	0.04	0.12	0.28	1.2				0.03	19/07/02
108001	Weisdale Burn	Weisdale Mill	HU394530	12.6		2003-04	98	.23		1312	1573		0.59	0.05	0.12	0.21	1.2					

Gauging Station Register II

Station number	River name	Station name	Catchment area	Sensitivity	Bankfull/structurefull	Factors affecting runoff	Descriptors				Elevation				Bedrock			Superficial			Landuse						
							BFIHOST	FARL	PROPWET	DPSBAR	Station level (mOD)	10 percentile (mOD)	50 percentile (mOD)	90 percentile (mOD)	Maximum level (mOD)	High perm. (%)	Moderate perm. (%)	Very low perm. (%)	Gen. high perm. (%)	Mixed perm. (%)	Gen. low perm. (%)	Woodland (%)	Arable/horticultural (%)	Grassland (%)	Mountain/heath/bog (%)	Urban extent (%)	
1001	Wick	Tarroul	161.9	20	31.2		.30	0.860	56	30	13	30	79	135	241	0	100	0	0	48	48	10	6	42	39	B	0
2001	Helmsdale	Kilphedir	551.4	9	103.6	R	.32	0.858	65	97	17	127	200	323	689	0	1	99	0	31	62	5	<1	7	84	HB	0
2002	Brora	Bruachrobie	434.4	11	39.3		.35	0.845	59	97	9	140	240	416	711	0	10	89	0	34	58	4	<1	7	87	BH	0
3001	* Shin	Lairg	494.6	6			.37	0.671	78	99	82	106	219	392	870	0	0	100	0	44	39	17	0	13	63	H	0
3002	Carron	Sgodachail	241.1	14	161.6	H	.44	0.974	81	218	71	216	428	680	952	0	0	100	0	44	29	5	0	9	83	H	0
3003	Oykel	Easter Turnaig	330.7	14	582.8	N	.36	0.915	81	148	16	155	273	475	1006	0	0	100	0	55	29	9	0	26	63	H	0
3004	Cassley	Rosehall	187.5	6	51.0	N	.39	0.902	82	140	3	124	288	482	1060	0	0	100	0	48	31	3	0	17	78	H	0
3005	Shin	Inverran	575.0	7	80.7	H	.38	0.690	76	98	4	105	216	375	870	0	0	100	0	46	38	17	0	15	62	H	0
4001	Conon	Moy Bridge	961.8	6	185.0	H	.36	0.742	75	199	10	150	353	632	1100	0	2	98	<1	39	15	10	<1	11	74	H	0
4003	Alness	Alness	201.0	9		SR	.38	0.908	63	148	12	192	409	578	835	0	17	83	<1	31	42	13	1	14	68	H	0
4004	Blackwater	Contin	336.7	11	59.2	H	.36	0.783	74	196	20	188	382	689	1083	0	<1	100	<1	56	15	13	<1	10	73	H	0
4005	Meig	Glenmeanie	120.5	13	103.3	N	.39	0.918	76	289	121	225	460	704	1053	0	0	100	0	4	12	6	0	10	83	H	0
4006	Bran	Dosmucheran	116.1	13	80.5	N	.33	0.814	83	165	119	171	327	558	914	0	0	100	0	22	13	2	0	14	80	H	0
4007	Blackwater	Garve	289.0	9	66.0		.35	0.843	75	201	71	250	403	710	1083	0	0	100	0	56	15	9	<1	8	79	H	0
4008	Newhall Burn	Newhall Bridge	41.0	78	9.1		.67	0.997	42	51	8	42	118	189	255	0	100	0	<1	94	0	37	25	25	11	H	0
4009	Peffery	Strathpeffer STW	17.3	60	12.0		.49	0.973	74	152	36	83	207	400	753	0	32	68	8	65	16	60	6	24	8	H	1
5001	* Beauly	Erchless	849.5	3	240.0	H	.40	0.782	74	264	44	221	450	776	1183	0	0	100	0	34	5	8	0	11	76	H	0
5002	Farrar	Struy	311.3	6	152.1	H	.39	0.769	74	266	51	225	458	747	1152	0	0	100	0	24	5	1	0	9	84	H	0
5003	Glass	Kerrow Wood	481.8	4	124.8	H	.40	0.772	75	274	53	242	477	809	1183	0	0	100	0	42	5	10	0	13	73	HM	0
5004	Glass	Fasnakyle	277.5	51	102.2	H	.39	0.807	74	258	80	245	450	790	1183	0	0	100	0	44	8	13	0	11	73	H	0
6001	* Ness	Ness Castle Farm	1792.3			H	.41	0.676	72	180	9	127	352	682	1110	0	9	91	1	35	10	17	1	13	62	H	0
6003	* Moriston	Invermoriston	391.0	10			.36	0.813	74	210	35	207	396	653	1110	0	0	100	<1	38	9	11	<1	9	75	H	0
6006	* Allt Bhlaraidh	Invermoriston	27.5	33	5.6		.28	0.751	70	109	107	340	492	558	676	0	0	100	0	0	15	5	0	<1	87	H	0
6007	Ness	Ness-side	1839.1	4	646.6	H	.42	0.679	71	179	7	124	348	681	1110	0	10	90	2	35	10	17	1	13	62	H	0
6008	Enrick	Mill of Tore	105.9	25	22.9	N	.43	0.839	70	118	109	188	336	519	671	0	0	100	0	18	1	21	<1	13	64	H	0
6009	Moriston	Levischie	403.1	18		H	.36	0.811	74	209	46	210	398	654	1110	0	0	100	<1	38	9	11	<1	9	76	H	0
7001	Findhorn	Shenachie	415.6	15	265.6	N	.45	0.982	68	139	252	340	559	760	935	0	0	100	2	39	44	8	0	17	74	M	0
7002	Findhorn	Forres	781.9	16	151.4	N	.43	0.973	56	117	10	231	408	725	935	1	0	99	8	46	35	13	<1	15	71	H	0
7003	Lossie	Sheriffmills	216.0	11	35.7	P	.58	0.979	42	79	18	42	196	325	522	18	0	82	21	63	11	41	10	26	22	H	0
7004	Nairn	Firhall	313.0	12	61.5	PN	.59	0.923	50	103	7	88	259	519	803	0	31	69	15	46	22	28	5	21	43	H	0
7005	Divie	Dunphail	165.0	12	50.4	N	.35	0.925	48	77	117	227	313	405	544	0	0	100	14	53	21	11	<1	11	76	H	0
7006	Lossie	Torwinny	20.0	15		N	.30	0.956	42	87	199	270	344	428	522	0	0	100	2	86	0	57	0	17	26	H	0
7007	Black Burn	Monaughty	44.0	11		P	.66	0.983	42	108	49	80	163	266	370	3	0	97	39	50	<1	48	13	27	11	H	0
7008	Nairn	Balnafoich	128.1	19	33.7		.53	0.845	68	130	175	216	338	600	803	0	21	79	2	37	31	22	<1	17	55	H	0
7009	Mosset Burn	Wardend Bridge	28.3	85	24.3	N	.61	0.998	42	61	45	92	190	292	368	19	0	81	49	44	5	50	5	22	22	H	0
8001	* Spey	Aberlour	2654.7	4	390.0	H	.48	0.956	65	158	79	239	436	759	1303	0	2	97	4	52	13	16	<1	15	66	H	0
8002	Spey	Kinrara	1011.7	5	161.2	H	.45	0.927	71	175	210	284	515	810	1262	0	0	100	1	46	17	10	<1	11	76	HM	0
8003	* Spey	Ruthven Bridge	533.8	7	100.0	H	.42	0.954	73	178	221	294	476	789	1047	0	0	100	0	52	11	8	<1	12	77	H	0
8004	Avon	Delnashaugh	542.8	4	364.5	N	.45	0.989	63	178	150	310	492	765	1303	0	9	86	<1	43	16	12	<1	17	70	H	0
8005	Spey	Boat of Garten	1267.8	9	402.0	H	.47	0.917	70	174	197	264	497	813	1292	0	0	100	4	45	14	14	<1	10	73	HM	0
8006	Spey	Boat o Brig	2861.2	3	730.8	H	.49	0.959	63	157	43	229	420	748	1303	0	2	96	4	53	13	18	1	16	63	H	0
8007	Spey	Invertrum	400.4	8	189.0	H	.41	0.945	75	181	243	308	482	787	1047	0	0	100	0	49	8	9	<1	11	76	H	0
8008	Tromie	Tromie Bridge	130.3	5	151.7	H	.45	0.898	72	212	210	411	625	820	947	0	0	100	0	22	41	3	0	5	89	M	0
8009	Dulnain	Balnaa Bridge	272.2	11	100.0	N	.50	0.994	68	118	224	274	447	672	875	0	0	100	1	58	23	15	<1	13	71	H	0
8010	Spey	Grantown	1748.8	5	520.0	H	.48	0.938	69	159	193	253	463	782	1292	0	<1	100	5	49	15	16	<1	12	70	H	0
8011	Livet	Minmore	104.0	9	45.0	N	.45	1.000	63	168	215	306	407	652	803	0	4	96	0	62	9	15	<1	29	55	H	0
8013	Feshie	Feshie Bridge	231.0	8		N	.48	0.993	70	181	232	327	618	911	1262	0	0	100	1	39	19	13	0	3	83	M	0
8015	Fiddich	Auchindoun	44.5	11		N	.39	0.998	61	191	180	261	388	561	776	0	0	100	0	61	0	36	1	14	48	H	0
8016	* Conglass Water	Auchriachan	40.8	12		N	.32	1.000	63	157	335	386	502	654	794	0	34	66	0	42	32	13	0	21	65	H	0
8017	* Burn of Carron	Dailuaine	15.2	18		EI																					

Gauging Station Register II cont'd

Station number	River name	Station name	Catchment area	Sensitivity	Bankfull/structurefull	Factors affecting runoff	Descriptors				Elevation				Bedrock			Superficial			Landuse						
							BFIHOST	FARL	PROPWET	DPSBAR	Station level (mOD)	10 percentile (mOD)	50 percentile (mOD)	90 percentile (mOD)	Maximum level (mOD)	High perm. (%)	Moderate perm. (%)	Very low perm. (%)	Gen. high perm. (%)	Mixed perm. (%)	Gen. low perm. (%)	Woodland (%)	Arable/horticultural (%)	Grassland (%)	Mountain/heath/bog (%)	Urban extent (%)	
90003	Nevis	Claggan	69.2	9	108.1	P	.43	0.998	81	442	4	93	518	881	1341	0	0	93	<1	36	0	8	0	25	55	HM	0
91002	Lochy	Camisky	1252.0	5	324.4	SH	.39	0.778	83	243	12	128	429	752	1231	0	<1	98	1	47	6	13	<1	17	61	H	0
92001	Shiel	Shielfoot	256.0	10	39.5	N	.36	0.701	78	308	3	8	224	567	943	0	0	100	1	20	4	17	0	29	46	H	0
93001	Carron	New Kelso	137.8	10	239.2	N	.41	0.858	83	292	6	86	342	641	1047	0	0	100	0	11	4	7	0	12	78	H	0
94001	Ewe	Poolwe	441.1	3	62.3	N	.37	0.664	83	222	5	29	310	580	1004	0	0	100	<1	33	4	4	0	6	77	H	0
95001	Inver	Little Assynt	137.5	7	40.5	N	.40	0.670	77	190	60	79	268	533	1109	0	0	87	0	2	12	<1	0	19	71	H	0
95002	Broom	Inverbroom	141.4	19	49.0	H	.37	0.909	77	217	5	239	393	660	1103	0	0	100	0	61	0	4	0	16	77	H	0
96001	Halladale	Halladale	204.6	17	100.5	N	.30	0.955	69	55	23	110	167	252	569	0	0	100	0	15	80	18	<1	5	76	B	0
96002	Naver	Apigill	477.0	12	30.1	N	.34	0.822	73	112	5	97	187	402	959	0	0	100	1	48	33	7	0	23	67	H	0
96003	Strathy	Strathy Bridge	111.8	20	55.9	N	.29	0.895	60	58	5	76	159	257	345	0	9	91	0	13	80	20	0	4	73	B	0
96004	Strathmore	Allnabad	105.0	19	112.4	N	.35	0.938	85	192	87	150	305	534	851	0	0	100	0	42	4	1	0	21	77	H	0
97002	Thurso	Halkirk	412.8	21	164.1	RP	.29	0.861	58	38	30	70	142	225	435	0	64	36	<1	18	79	11	1	15	69	B	0
106001	Creed	Creed Bridge	43.4	34		IN	.23	0.719	70	47	37	67	97	134	277	0	0	100	0	0	94	4	0	7	85	B	0
107001	Durkadale	Durkadale	19.0			N	.30	0.975	56	70	28	39	97	162	222	0	100	0	0	31	60	0	1	34	64	HB	0
108001	Weisdale Burn	Weisdale Mill	12.6	15			.53	0.999	52	157	9					0	0	100	0	42	54						0

Gauging Station Register III

SEPA North

1001 Wick at Tarroul

SEPA North

Station: Velocity-area station with cableway in relatively straight (formalised) section. Rarely by-passed; MAF probably contained. Natural flow regime.

Catchment: Relatively dry and flat catchment given over largely to agriculture (arable and pasture). Almost entirely covered with superficial deposits.

2001 Helmsdale at Kilphedir

SEPA North

Station: Velocity-area station; approx. 35m wide river section with flows outflanking cableway on rb at extreme stages. Adequately gauged to bankfull. Ratings extrapolated beyond 2.2m. Loch Badanloch and An-Ruathair used for river regulation (to benefit fisheries) utilising 30% of catchment, reduced to 24% in Nov 1986 following removal of control structure on Loch An-Ruathair. Data available on storage changes in both lochs.

Catchment: Typical Scottish upland impermeable bedrock catchment almost entirely covered with superficial deposits. Mix of hill pasture and moorland with some 20 sq.km of surface storage distributed over several medium size lochs.

2002 Brora at Bruachrobie

SEPA North

Station: Velocity-area station about 40 m wide with relatively stable cobble control at the end of the measuring reach. Ratings extrapolated beyond 1.8m. Mainly natural regime. Small headwater diversion into the Shin catchment (HEP). Major storage in Loch Brora (no control).

Catchment: Mountainous headwaters, often snowy in winter. Bedrock predominantly impermeable with extensive superficial deposits. Rough pasture and moorland, some forest, with arable land d/s.

3001 Shin at Lairg

Station: River section between main Loch Shin (HEP) dam and diversion dam at Lairg. 1953-56 data pre-dates the start of impoundment (and includes important 1955 recession). 1957 data are compensation flows only.

3002 Carron at Sgodachail

SEPA North

Station: Velocity-area station; river section about 35m wide, natural control. Well gauged to bank-full. Gravel bed with problems of stability in low flow control necessitating revised rating from time to time. Ratings extrapolated beyond 2.5m. Computed low flows are natural in relation to about 80% of catchment; remainder of headwaters are diverted at low and medium flows to Conon Valley hydro scheme.

Catchment: Approx. 80% of this remote Highland catchment is below 600m with a few hilltop tarns but no significant storage. Impermeable mountainous catchment, often snowy in winter. Landuse rough pasture with some forest cover.

3003 Oykel at Easter Turnaig

SEPA North

Station: Velocity-area station; 40m wide river section. Flows fully contained except in extreme circumstances (e.g. Oct 1978). Construction of random stone crows immediately d/s (Feb 1986) affected low flow rating significantly; relatively unstable gravel control remains subject to change after moderate flood events. 100% natural flow regime with little loch storage.

Catchment: Catchment is typical Highland mix of rough grazing and moorland with some afforestation in middle reaches. Mountainous headwaters, often snowy in winter. Impermeable bedrock with >80% overlain by superficial deposits.

3004 Cassley at Rosehall

SEPA North

Station: Velocity-area station; cableway at 35m wide river section located 400m d/s of stage measuring site. Stable gabion groyne control adequately gauged to bankfull. Runoff (apart from compensation flows and spillage) from 14% of upper catchment diverted to Shin hydro scheme. No significant surface storage.

Catchment: Typical Highland mix of rough grazing and moorland with some afforestation.

3005 Shin at Inveran

SEPA North

Station: 30m wide river section contained at all but historic stages by lh floodbank. Fully calibrated to bankfull with stable gravel control. Station measures only compensation flows and spillage from Shin Dam along with natural runoff from 44 sq.km. Turbine discharges bypass station but are recorded. Natural catchment is increased by 20% through interbasin transfers from R. Cassley, Hope, Naver and Brora - but large net export.

Catchment: Catchment is mainly rough grazing and moorland.

4001 Conon at Moy Bridge

SEPA North

Station: Velocity-area station; 80m wide river section with cableway in straight reach (which stands appreciably above the valley bottom). Rare bypassing, via right floodbank, during extreme flows (notch installed in floodbank, following 1989 flood, to avoid catastrophic failure). Station resited 20m u/s in Jan 1976, early flows less reliable. Patchy records prior to 1970. Gauged to bankfull. Catchment enhanced by 20% due to transfers from the Orrin, Ewe, Broom and Carron catchments for power generation. Extensive volumes of surface storage controlled for power generation (but no further development after 1960). Hydrograph dominated by influence of Torr Achilty power station. Particularly low flows during commissioning of HEP scheme (e.g. Sept 1956).

Catchment: Impermeable bedrock with >50% overlain by superficial deposits. Mountainous with some afforestation.

4003 Alness at Alness

SEPA North

Station: Velocity-area station; 20m wide fully contained river section with stable boulder control. Difficulties in c/m low flows. Adequately gauged to MAF but upgrading of high flow rating anticipated. Barrage on Loch Morie, through which 45% of catchment drains, was constructed in 1979 for river regulation (to benefit fisheries).

Catchment: Mountainous headwaters, often snowy in winter. Bedrock predominantly Devonian sandstone with areas of Moinian metamorphics in the upper reaches of the catchment. Landuse mainly rough grazing and moorland with forestry.

4004 Blackwater at Contin

SEPA North

Station: Velocity-area station; 50m wide river section with cableway and gravel control. Requires regular recalibration at low flows. MAF readily contained. Runoff from 50% of natural catchment, along with interbasin transfers from rivers Broom and Carron amounting to 20% of natural catchment, bypass station for power generation and discharge to Loch Luichart. Storages in Loch Vaich and Loch Glascarnoch controlled for power generation.

Catchment: Typical Highland mix of rough grazing and moorland with some afforestation in middle reaches. Impermeable bedrock with two thirds covered by superficial deposits.

4005 Meig at Glenmeannie

SEPA North

Station: Velocity-area station; 25m wide river section. Unstable gravel and boulder control. Overtops lb during extreme floods (rb is eroding). Adequately gauged to bankfull. Levels may drop below tapping pipe in extreme droughts. Ratings extrapolated beyond 1.8m. No artificial influences thereby providing a useful indication of natural runoff. Only significant surface storage in Loch Beannacharain through which 70% of catchment drains.

Catchment: Typical Scottish upland catchment. Impermeable bedrock, approx. 15% overlain by superficial deposits. Mountainous headwaters, often snowy in winter, with rough pasture and moorland, and some woodlands.

4006 Bran at Dosmucheran

SEPA North

Station: Velocity-area station; about 30 m wide with gravel control. Cableway capacity considerably exceeds bankfull. All flows to date contained. Ratings extrapolated beyond 1.9m. Substantial storage in Loch Croisg (commands 45% of catchment), lochans also common between 300-400 m, but flow regime is responsive and natural.

Catchment: Very wet, rugged, Highland catchment developed mainly on Moinian metamorphics (impermeable); approx. a third covered with superficial deposits. Mountainous headwaters, often snowy in winter. Moorland and rough grazing predominate, little afforestation; Achnasheen is the only significant settlement.

4007 Blackwater at Garve

SEPA North

Station: VA station; 30m wide with gravel control. All flows contained. Substantial storage u/s for HEP. Gauged flows include comp. flow, runoff from unimpounded catchment and res. spills. Considerable u/s inter-catchment transfers via tunnels. Not a primary gauging station, stage-discharge relations are limited range: no cableway, wading only. Flood Warning Site.

Catchment: Rugged, Highland catchment underlain by impermeable Pre-Cambrian rock. Predominantly moorland and rough grazing with substantial forestry below 400m.

4008 Newhall Burn at Newhall Bridge

SEPA North

Station: VA station. Concrete covered water pipe crossing river acts as control. All flows contained. Not a primary gauging station - stage continuously monitored but stage discharge relations are limited range: no cableway, gauged by wading.

Catchment: Lowland catchment underlain by Lower and Middle Old Red Sandstone. Predominantly arable and pasture with some forestry and rough pasture in upper catchment.

4009 Peffery at Strathpeffer STW

SEPA North

Station: Flat V Crump weir with cableway for high flow calibration. Floodbanks contain >MAF. Significant shrub/tree colonisation of channel banks. Previously, limited range secondary VA station (for pollution investigation); 2m wide controlled by Armco culvert, gauged by wading. Floods fields on lhb d/s of culvert. Natural catchment apart from diversion of sewage effluent (outside the catchment) when flows fall below a trigger threshold; runoff is appreciably reduced.

Catchment: Upper catchment forested, underlain by impermeable Prec-Cambrian rocks. Lower catchment mainly arable and pasture underlain by Lower and Middle Old Red Sandstone with Quaternary coastal and river alluvium in valley floor. Strathpeffer (Spa) is a short distance u/s.

5001 Beauly at Erchless

Station: 40m wide, fully contained river section currently gauged to 65 m³s⁻¹ (control drowns). Flow regime reflects generating pattern of Culligran Power Station immediately u/s. 100% of natural catchment runoff passes station but extensive storage in Loch Monar and the smaller Loch Beannacharain used for power generation.

5002 Farrar at Struy

Station: Velocity-area station; flows well contained at all stages. Low flows reflect compensation releases from Loch Beannacharain and flow regime is heavily influenced by operation of HEP station <1.5km u/s. Substantial HEP storage in Loch Monar but no import/export of water to/from the catchment.

Catchment: Typical Scottish upland impermeable catchment with some afforestation in lower reaches.

SEPA North**5003 Glass at Kerrow Wood**

Station: Velocity-area station; 50m wide, with gravel control. Flows >200 m³s⁻¹ inundate extensive floodplain on lb. Very complex flow regime; substantial loch storage exploited for HEP generation (station d/s of Fasnaklye Power Station), compensation flows from Loch Mullardoch and transfers via two tunnels, but no net import or export of water.

Catchment: Rugged, Highland catchment developed mostly on Moinian Series metamorphics (impermeable). Approx. 50% covered with superficial deposits. Landuse predominantly moorland and rough grazing but substantial afforestation below 400m.

SEPA North**5004 Glass at Fasnaklye**

Station: Velocity-area station, 30m wide, with gravel control. All flows contained. Flood warning station. HEP generation affects flow pattern: net import of water (from Loch Mullardoch) but substantial bypassing direct to power station, station monitors only a proportion of the runoff. Low flows dominated by compensation releases from Loch Benevean.

Catchment: Typical Highland catchment with afforestation on valley flanks in lower reaches.

SEPA North**6001 Ness at Ness Castle Farm**

Station: River section, 3 km south-west of Inverness. Reservoirs: Quoich, Garry, Cluanie and Loyne in the catchment (1960s); abstractions for the Caledonian Canal also significant (c3.5 cumecs). Records ending in 1963 because of lack of reliability (but captured 1955 drought); station then superseded by d/s 6007 (area difference ~ 27 km²).

Catchment: Predominantly impermeable bedrock. Land use: heath, woodlands, grasslands.

6007 Ness at Ness-side

Station: Velocity-area station; 80m wide fully contained river section. Frequent recalibration of low flow rating due to alteration of stop-log configuration on weir which forms control. Fully calibrated to maximum recorded flow. HEP schemes on Garry, Moriston and Foyers tributaries utilise runoff from 56% of catchment. Caledonian Canal lockages bypass station but, overall, small net impact. Hydrograph damped by influence of Loch Ness.

Catchment: Large SW/NE trending Highland catchment. Predominantly impermeable bedrock with significant afforestation and grasslands.

SEPA North**6008 Enrick at Mill of Tore**

Station: Velocity-area station; 15m wide river section. Prior to 1991, bypassing on rb at extreme flows. Well established, stable rating up to bankfull (extrapolated beyond 2m). Computed flows 100% natural but whole catchment drains through Loch Meiklie (1 sq.km). Flows recede to unexpected low levels possibly due to sub-surface flows below station.

Catchment: Typical upland catchment. Impermeable with approx. 20% superficial deposits. Mountainous headwaters, often snowy in winter. Rough grazing and moorland with increasing afforestation (approx. 20% of catchment) especially around Loch Meiklie.

SEPA North**6009 Moriston at Levishie**

Station: VA station; 40m wide with gravel and boulder control. All flows contained. Substantial u/s storage for HEP. D/s of Dundreggan Res., bypassed by tunnel to power station. Gauged flows include: comp. flows, runoff from unimpounded catchment and res. spill. Flood warning station.

Catchment: Rugged, Highland catchment, underlain by impermeable Pre-Cambrian rock, with small intrusive area around Loch Cluanie. Predominantly moorland and rough grazing with substantial forestry below 400m.

SEPA North**7001 Findhorn at Shenachie**

Station: Velocity-area station; 50m wide river section with a boulder control adequately gauged to bankfull. Flow contained under cableway up to 3.9m. Liable to extremely rapid rises in level. Prior to Jan 1978, station located 700m u/s and cableway 500m d/s of present site. Ratings extrapolated beyond 2.3m. High flow rating revised in 2003. 100% natural runoff with minimal surface storage (but significant winter snow cover).

Catchment: Rough pasture and moorland with mountainous headwaters, often snowy in winter, developed on metamorphic bedrock (impermeable; approx. 85% superficial deposits). Extensive blanket peat over long, narrow, steep-sided catchment which is nested within that of station 7002. Some afforestation.

SEPA North**7002 Findhorn at Forres**

Station: Velocity-area station; 50m wide river section in mobile gravel reach which necessitates frequent recalibration of low flow rating. Flows contained under cableway up to 3.8m. Adequately gauged to bankfull. High flow gauging on the Findhorn is difficult and substantial extrapolation of the rating was needed to compute the exceptional August 1970 peak; subsequently revised (2002) to 1113 m³s⁻¹ - this was substantially exceeded during the 'Muckle spate' of 1829. 100% natural catchment with minimal surface storage.

Catchment: The catchment drains the Monadhliath Mountains; predominantly metamorphic bedrock with granitic intrusions with extensive blanket peat cover. There is a narrow agricultural coastal plain.

SEPA North**7003 Lossie at Sheriffmills**

Station: Velocity-area station; about 23m wide section. Cableway rated. The main control is a long and insensitive stone weir 350m d/s. Levels recorded from 20/06/58, flows from 01/10/63. Station was moved upstream by 150m in Sep 1978. Rating for pre-1978 site good for all high flows; rating for present site underestimates highest flows (bypassing occurring above 2.3m). Flood warning station. Glenlatterach Res. provides supply for Elgin. Abstraction has moderate impact on flows (approx. 20% of the 95% exceedance flow).

Catchment: Bedrock Schists, gneisses with some ORS. Extensive superficial deposits. Moorland and substantial afforestation in headwaters and arable landuse in valley bottoms.

SEPA North**7004 Nairn at Firhall**

Station: Velocity-area station; 20m wide river section with overbank flow at extreme levels. Adequately gauged to bankfull and a rock protection to a d/s pipeline provides a stable low flow control. All flows contained to date. Ratings extrapolated beyond 2.1m. Sensibly natural regime; only net abstraction is PWS for Inverness from Loch Duntelchaig through which only 7% of upper catchment drains. No other significant surface storage. Daily level observations from Apr 1974 to Jan 1976.

Catchment: Mountainous headwaters, often snowy in winter. Largely impermeable bedrock with >80% overlain by superficial deposits. Hill pastures and peat moorland except for the lower 20% of catchment which is cultivated. Significant forest cover.

SEPA North**7005 Divie at Dunphail**

Station: Velocity-area station; 15m wide fully contained river section. Unstable gravel control requires recalibration of low flows following flood events. Calibrated to 60 m³s⁻¹. Computed flows 100% natural. 20% of catchment drains through Lochindorb (surface area: 2.3 sq.km), the only significant storage.

Catchment: Upland catchment with 20% draining through Lochindorb (surface area 2.3 sq.km). Bedrock predominantly Moinian metamorphic with granitic intrusions. Extensive superficial deposits. Peat moorland and rough pasture with some forestry.

SEPA North**7006 Lossie at Torwinny**

Station: Velocity-area station with gabion control (sloping); about 4m wide section. Curved approach but good low flow calibration. Ratings extrapolated beyond 1m. All flows contained to date. Occasional ice build-up in very cold weather. Natural regime, no abstractions. Flood warning station.

Catchment: Small upland catchment. Impermeable catchment developed on metamorphics with significant superficial deposits. Heavily forested (>50%); some rough moorland remains in headwaters.

SEPA North**7007 Black Burn at Monaughty**

Station: Velocity-area station constructed approx 250m u/s of road bridge in 1999. Control is an old weir. Records exist for daily-read post gauge at the road bridge (Aug 1975 to Mar 1990), later upgraded to continuous recording until closure at end of June 1997. High flows can be gauged by A-frame from bridge. Flood warning station.

Catchment: Area of gentle topography underlain by mixed metamorphics and alluvial deposits in valleys. Pasture and arable farming in valley bottoms, remainder rough grazing and forestry.

SEPA North**7008 Nairn at Balnafoich**

Station: VA station; 10m wide with new concrete bridge invert control. Fields flood on r/b. Not a primary gauging station - stage continuously monitored but stage discharge relations are limited range: no cableway, gauged by wading. Flood warning station.

Catchment: Rugged Highland catchment underlain by impermeable Pre-Cambrian rock with Quaternary river alluvium in valley floor. Moorland and rough grazing, with some forestry on upper slopes. Limited arable and pasture on valley floor.

SEPA North**7009 Mosset Burn at Wardend Bridge**

Station: VA station used as flood warning station for the town of Forres (3 km d/s); Mosset Burn lies between Findhorn and Lossie and enters the sea at Findhorn Bay. High flows gauged from bridge where station is located.

Catchment: Small, compact, low-lying catchment. Mix of ~80% impermeable/20% permeable bedrock, with complete cover of superficial deposits (half permeable). Sparsely populated. Land use is primarily forest (~50%) and a little open moorland.

SEPA North

- 8001 Spey at Aberlour** **SEPA North**
Station: Velocity-area station; operated as a level-only site since 1974. Significant fraction (380 sq.km) of catchment controlled for HEP production - but limited net export of water (relative to annual runoff).
Catchment: Diverse catchment (mountain, moorland, hill grazing, some arable farming in lower valley) developed mostly on granites and Moinian metamorphics.
- 8002 Spey at Kinrara** **SEPA North**
Station: Velocity-area station; about 50m wide section. Cableway rated to bankfull, natural control; frequent rating changes. Station is 5km d/s of confluence with R. Feshie. Well inlet pipes fractured in early 1980s (giving some data problems), re-laid Mar 1987. Different high flow rating is used after 1990 spate, believed to have caused the upstream movement of the control. Flow of 232 m³s⁻¹ gauged in both 1962 and 2006. 380 sq.km controlled for HEP with diversions and storage; substantial net export.
Catchment: Mountainous headwaters, often snowy in winter. Bedrock predominantly Moinian metamorphic and granites; impermeable with approx. two thirds covered by superficial deposits. High mountain and moorland, some forestry and valley grazing.
- 8003 Spey at Ruthven Bridge**
Station: Velocity-area station; discontinued Dec 1973. 287 sq.km controlled for HEP production; major net export.
- 8004 Avon at Delnashaugh** **SEPA North**
Station: Velocity-area station with cableway, natural control; unstable rating. Lowest levels not recorded 1981-84 (fell below inlet pipe). Rating liable to change after major floods. Improved hydrometric performance following station reconstruction (1985). Catchment rainfall is probably underestimated.
Catchment: Gneisses and metamorphosed l'st with some igneous, some s'st. Mountain catchment draining N side of highest Cairngorm peaks with moorland and rough grazing; a little arable farming in valley bottom.
- 8005 Spey at Boat of Garten** **SEPA North**
Station: Velocity-area station; cableway rated with natural control, relatively frequent rating changes (extrapolated beyond 3.3m). Nearly all flows contained. 380 sq.km controlled for HEP with diversions and storage; substantial net export.
Catchment: Upland catchment with mountainous headwaters often snowy in winter. Bedrock granites and Moinian metamorphics; overlain by superficial deposits over more than 50% of catchment. High mountain, moorland, some forestry, pastoral and some arable farming.
- 8006 Spey at Boat o Brig** **SEPA North**
Station: Velocity-area station; cableway rated 65m wide section with natural control, extreme floods bypass station on lb. Lowest station currently operating on the Spey. Ratings extrapolated beyond 2.5m. 380 sq.km controlled for HEP with diversions and storage; limited net impact on annual runoff (small loss).
Catchment: Mountainous catchment (includes all north slopes of Cairngorms), often snowy in winter. Bedrock is predominantly Moinian metamorphics with granite intrusions. Landuse is moorland, hill grazing, forest cover, with limited arable land downstream.
- 8007 Spey at Invertruim** **SEPA North**
Station: Highest station on the Spey. Cableway rated 45m wide section with natural control; frequent rating changes. Flows suspect from winter 1994/95 as inlet pipes broken. Level-only station from 1995 until re-built station opened in May 2000. 200.4 sq.km controlled for HEP by British Aluminium, 86.4 sq.km controlled by Scottish Electric plc (total 72%); diversions and storage influence regime, major reduction in runoff.
Catchment: Granite and Moinian metamorphic. Mountain, moorland, pastoral.
- 8008 Tromie at Tromie Bridge** **SEPA North**
Station: Cableway rated with natural control; frequent rating changes. Very turbulent flow. Large proportion (>70%) of catchment controlled for HEP with major diversions out of catchment.
Catchment: Mountain, moorland, pastoral.
- 8009 Dulnain at Balnaa Bridge** **SEPA North**
Station: Velocity-area station; about 22m wide section. Cableway rated with natural control, subject to relatively frequent change but generally good low flow calibration. Ratings extrapolated beyond 2.3m; bypassing can occur above 2.5m. Natural regime, not affected by diversions or storage. Patchy records for mid-50s. Frozen catchment can produce notable low flows (e.g. 22/1/85). Flood warning station.
Catchment: Upland catchment; mountainous headwaters, often snowy in winter. Granites and Moinian metamorphic rocks dominate bedrock geology; significant superficial deposits. Landuse is moorland and forestry with some pastoral in valley bottoms.
- 8010 Spey at Grantown** **SEPA North**
Station: Velocity-area station; about 60m wide section. Cableway rated with natural control. Improved data quality following move of recorder and cableway to a united site in mid-1987. All flows contained to date. 22% of catchment controlled for HEP with diversions and storage; significant net export.
Catchment: Upland catchment, often snowy in winter. Granites and Moinian metamorphic bedrock with significant superficial deposits. Landuse is moorland, forestry, pastoral with arable in valley bottoms.
- 8011 Livet at Minmore** **SEPA North**
Station: Velocity-area station; about 13m wide section. Boulder/rubble control (remnant of an old weir), good low flow calibration. Ratings extrapolated beyond 1.47m. Some bypassing can occur on LHB at extreme flows. Tapping pipe shortened in 1986 to avoid velocity drawdown. Natural regime, no significant abstractions.
Catchment: Upland catchment. Mountainous headwaters, often snowy in winter. Moorland with some afforestation developed on complex basement geology - metamorphics and igneous rocks, overlain by significant superficial cover.
- 8013 Feshie at Feshie Bridge** **SEPA North**
Station: Velocity-area station with a boulder control, reasonably stable but liable to considerable movement in extreme spates. All flows contained. Cableway rated. Natural flow regime. Old station, 0.5 km upstream, operated between 1951-1975 (no flow data published).
Catchment: Upland catchment. Moinian metamorphics of Grampian Mountains overlain with glacial material, and granite of Cairngorms. Mountainous moorlands, pasture with some forestry in lower reaches.
- 8015 Fiddich at Auchindoun** **SEPA North**
Station: Velocity-area station on deep, wide pool. Rock bar provides control. A new downstream bridge enables high flows to be gauged, otherwise by wading. Well is erected in channel behind a tree and rests on bedrock. Former post gauge 700m d/s records from Feb 1974 - Jun 1990.
Catchment: Upland catchment. The Fiddich rises in hills to NE of Cairngorm plateau and drains an area of mixed metamorphic geology; >50% covered by superficial deposits. Significant forestry (>1/3) and grasslands.
- 8016 Conglass Water at Auchriachan** **SEPA North**
Station: Post-gauge installed 1974 for resource monitoring; continuous recording 1/8/92 - 31/8/95. Station abandoned due to floods of Sep 1995. Straight, steep reach with gauge located on a pool. Low flow control provided by kerb stones built into bed (summer 1991). High velocities limit gauging range. All flows contained, but rating uncertainty for higher flows.
Catchment: Mountainous catchment in NE Cairngorms with steep slopes. Major snow storage in winter, some not thawing until May/June. Geology: mixture of schist, quartzite and ORS. Heather moorland supports grazing; some forestry on lower ground.
- 8017 Burn of Carron at Dailuaine** **SEPA North**
Station: Velocity-area station established to support pollution monitoring. Daily read post gauge records available Apr 1984 - Apr 1990. Station closed Apr 1994. Some problems with shifting control and occasional backing up from Spey 60m d/s. All gaugings by wading, but none above 0.5m due to high velocities and lack of suitable bridge. Distilleries abstract from catchment, although cooling water is returned.
Catchment: Steep, mountain catchment on N side of Cairngorm massif. Granite geology, with land use of rough grazing and forestry.
- 8018 Avon at Tomintoul** **SEPA North**
Station: Velocity-Area station.
Catchment: Upland catchment. Predominantly impermeable bedrock. Land use is >90% heath.
- 8021 Nethy at Forest Lodge** **SEPA North**
Station: Secondary, VA station. No cableway. Natural control. All flows measured by wading. High flows extrapolated. Gaps in record due to instrument failure.
Catchment: Very steep upland catchment (Nethy flowing from Cairngorm Massif). Moinian metamorphics with granite intrusions > 600 m; superficial deposits (glacial) over lower half. Land use primarily mountains; some forestry.
- 9001 Deveron at Avochie** **SEPA North**
Station: Velocity-area station; about 35m wide section. Cableway rated. Stable rubble weir, rather insensitive. Inlet pipes periodically silted in early 1980s, extended in March 1985. Ratings extrapolated beyond 2.1m. No artificial influences on flow.
Catchment: Upland catchment with mountainous headwaters, often snowy in winter. Complex granites and basic intrusives with Dalradian metamorphics, >2/3 overlain by superficial deposits. Moorland, pastoral and arable in valley; forestry. Huntly is the only substantial settlement.
- 9002 Deveron at Muirek** **SEPA North**
Station: Velocity-area station; about 38m wide section. Cableway rated, natural control. Water abstraction point immediately d/s; no visible effect on level records. Ratings extrapolated beyond 3.5m. Bypassing occurs on LHB above about 3.2m. Floodplain flows have been measured at this site.
Catchment: Mountainous headwaters, often snowy in winter. Complex granite and older basic intrusives with Dalradian metamorphics. Some ORS. Mostly impermeable bedrock, >80% overlain by superficial deposits. Some high moorland, mainly pastoral and arable; forestry.
- 9003 Isla at Grange** **SEPA North**
Station: Velocity-area station with cableway; about 17m wide section. Problems with weed growth prior to 1969. Ratings extrapolated beyond 2.5m. Bypassing occurs on the floodplain on LHB at levels above 2m. Sensibly natural regime.
Catchment: Compact, upland catchment. Bedrock mainly Moinian metamorphic with, small amounts of intrusive basic. Extensive superficial deposits. Mostly forestry, pasture and arable.

9004 Bogie at Redcraig**SEPA North**

Station: Velocity-area station; about 17m wide section; broken rubble weir control; stable. Cableway rated. Good low flow calibration. Gaugeboard lowered May 1996 and again November 2003. Ratings extrapolated beyond 1.65m on 2003 board; bypassing can occur above 1.8m. Gaugeboard read record for d/s site, 1973-81. Natural regime, no abstractions.

Catchment: Upland catchment. Geology: Dalradian metamorphics and large areas of ORS. Significant superficial deposits. Some high moorland, forestry, pastoral and arable in valleys.

9005 Allt Deveron at Cabrach**SEPA North**

Station: Compound broad-crested weir (no divide piers). C/m rating from 1984, earlier record is of inconsistent quality - faulty recorder operation. Overspill onto rb floodplain during high flows. Natural regime.

Catchment: Upland catchment with rugged topography. Mostly moorland developed on complex basement geology - principally metamorphics. Some grassland and forestry.

9006 Deskford Burn at Cullen**SEPA North**

Station: Representative site for Banff coastal streams. 8m wide section above old mill weir with minor summer weed growth. All flows contained. High flows gauged by A-frame from bridge 30m d/s. Rating very stable. Some spray irrigation abstraction for frost protection in Apr-May. Secondary station: gaps in record due to instrument failure.

Catchment: Area of gentle topography with complex geology of metamorphics, altered l'st and granite. Land use mostly arable and pasture with some forestry.

9007 Fergie Burn at Inverkeithny**SEPA North**

Station: Originally a daily-read post-gauge (records from 1974) converted to continuous recording Apr 1990. Station abandoned due to damage caused by floods of Sep 1995. 10m wide pool with gravel control, gaining stability after ceasing to be used as an agricultural ford. High velocities achieved over lb flood plain. No cableway, but u/s bridge (on bend) is of some use for gauging.

Catchment: Undulating natural catchment with mainly metamorphic (slates, phyllites) geology and some igneous intrusions. Mixed farming with a little forestry.

9008 Burn of Boyne at Scotsmill**SEPA North**

Station: Velocity-area station with natural control. Opened 21/12/1999 to obtain data on a fairly small coastal catchment. Channel is silty, with some larger stones. Gauged by wading only, so high flows are extrapolated. Good for comparison with 9003 and 9006.

Catchment: Complicated geology, mostly quartzite, psammite and pelite. Overlain with till and a little glacial material. Mixture of arable and pasture.

9009 Idoch Water at Turriff**SEPA North**

Station: Velocity-Area station.

Catchment: Lowland catchment. Mixed permeability. Predominantly arable with some grassland, and forest.

10001 Ythan at Ardlethen**SEPA North**

Station: Velocity-area station, closed Dec 1982. Chart records from 1939 held by SEPA.

10002 Ugie at Invergie**SEPA North**

Station: Velocity-area station; section about 30m wide. Cableway rated. Previously controlled by long and broken weir, unstable and insensitive, severe weed growth also, hence complicated history of rating changes, but weir rebuilt in Sept 1996. Since then rating has proved to be very stable. Ratings extrapolated beyond 2.1m.

Catchment: Granites and older basic intrusives surrounded by Dalradian metamorphics. Almost full superficial deposits cover. A little moorland, but mostly lowland in character with arable agriculture and relatively high population density; some forestry.

10003 Ythan at Eillon**SEPA North**

Station: Velocity-area station with natural control; about 18m wide section. Replacement for 10001 (2.5km u/s, 1965-1983, chart records back to 1939). Ratings extrapolated beyond 3.0m. Some bypassing on lb during extreme flows. Cableway rated, fairly stable S-D relationship.

Catchment: Gently undulating, relatively low lying, on impermeable metamorphic Lower Dalradian formations overlain with Boulder Clay and morainic drift. Intrusion of ORS in NW. Superficial deposits dampen the responsiveness of the catchment (very high BFI - an atypical Scottish catchment). 95% of catchment given over to agriculture (pastoral and arable).

11001 Don at Parkhill**SEPA North**

Station: Velocity-area station; about 37m wide section. Lowest gauging station on the Don. Cableway rated with natural control. Complex rating history. Ratings extrapolated beyond 3.7m. Weed growth a problem during summer half-year. Flow records for 1969-86 reprocessed in 1987; significant revisions in high and low flow range. Natural regime.

Catchment: Mountainous headwaters, mainly snowy in winter. Geology: mainly Dalradian metamorphics with large amounts of basic intrusives and a small pocket of ORS. Mostly impermeable bedrock; responsiveness dampened by superficial deposits. High moorland, forestry, pastoral and arable in lower valleys.

11002 Don at Haughton**SEPA North**

Station: Velocity-area station; about 40m wide. Cableway rated, natural control. Ratings extrapolated beyond 4.8m. Flow records from 1/07/69. Continuous recording since 1971. Transferred from Grampian Regional Council in 1984. Levels can be affected by ice. High flows 1969-83 reprocessed in 1986. Natural regime.

Catchment: Mountainous headwaters, often snowy in winter. Mainly Dalradian metamorphics with large amounts of basic intrusives and a small pocket of ORS. Responsiveness dampened by superficial deposits. High moorland, forestry, pastoral and arable in lower valleys.

11003 Don at Bridge of Alford**SEPA North**

Station: Most u/s primary station on the Don. Cableway rated. Stable natural control with few changes in rating since flow records began in 1973. Ratings extrapolated beyond 2.7m. Natural regime.

Catchment: Upland catchment. Mainly Dalradian metamorphics, some older basic intrusives and a small pocket of ORS. Responsiveness dampened by superficial deposits. High moorland, forestry, hill grazing and some arable in the valley bottom.

11004 Urie at Pitcaple**SEPA North**

Station: Velocity-area station; natural control and cableway (section about 16m wide). Replaced 11801. All flows contained. Good low flow performance. Ratings extrapolated beyond 2m. Natural regime, no abstractions.

Catchment: Bedrock predominantly metamorphic. Responsiveness dampened by superficial deposits. Moorland headwaters, substantial areas of mixed and arable farming below; forestry.

11005 Don at Mill of Newe**SEPA North**

Station: Velocity-area station with complex weir of unorthodox design; traps in central fish pass frequently adjusted, often resulting in need to recalibrate. Small flow towards disused HEP plant bypasses weir. Structure retains control in all conditions. No cableway and no suitable locations for high flow gaugings. Principally a low flow station. Closed on 9/6/94.

Catchment: Complex metamorphic geology; dissected plateau with peaks to 600-700m and steep slopes. Granite in S. Some forestry on lower ground; remainder rough grazing.

11006 Don at Culfork**SEPA North**

Station: VA station. No cableway. High flows gauged from bridge on river bend immediately u/s. Natural flows.

Catchment: Upland catchment (mostly 600-800 m) dissected by fast-flowing tributaries. Little or no floodplain in main river valley. Complex metamorphic geology (impermeable bedrock with some superficial deposits). Land use is mostly heath with some forestry.

12001 Dee at Woodend**SEPA North**

Station: Velocity-area station; about 60m wide section. Cableway rated, fairly stable natural control. Present station (built in 1972) replaced earlier station (Cairnton - some daily staff readings from 1911, continuous flow records from 1929, chart records from 1934) on same reach. C/m measurements at Woodend initiated by Capt. McClean. Major floods in 1937 and 1951. Ratings extrapolated beyond 2.75m. No regulation, little natural storage (but significant snow in headwaters), minor abstractions.

Catchment: Mountainous headwaters, often snowy in winter. Dalradian and Moinian metamorphics along most of valley, flanked by igneous intrusives. Responsiveness slightly dampened by superficial deposits. Mountain, moorland; forestry, with pastoral and some arable in valley bottom.

12002 Dee at Park**SEPA North**

Station: Velocity-area station; section about 50m wide. Cableway rated, unstable natural control causing frequent changes in low and medium flow ratings (extrapolated beyond 4m). Abstraction for PWS of approximately 0.7 m³s⁻¹ between Woodend (12001) and Park (accounts for almost 10% of Q95 flow).

Catchment: Mountainous headwaters, often snowy in winter. Dalradian and Moinian metamorphics along most of valley, flanked by igneous intrusives. Responsiveness slightly dampened by superficial deposits. Mountain, moorland, forestry landuse with, pastoral and some arable in valley bottom.

12003 Dee at Polhollick**SEPA North**

Station: Velocity-area station; about 52m wide section. Cableway rated with natural control. Ratings extrapolated beyond 2.4m. Natural flow regime.

Catchment: Upland catchment with mountainous headwaters, snowy in winter. Bedrock Dalradian and Moinian metamorphics with basic intrusives. Mountain, moorland, pasture, and forestry landuse.

12004 Girnock Burn at Littlemill**SEPA North**

Station: Velocity-area station rated by wading. Transferred to NERPB in July 1994. No records of earlier ratings or gaugings. Magnitude of Sept 1995 flood under review. Important catchment for fishery research. Natural flow regime.

Catchment: Upland catchment. Bedrock Dalradian and older basic intrusive rocks with >2/3 overlain by superficial deposits. Landuse moorland and pastoral with some forestry.

- 12005 Muick at Invermuick** **SEPA North**
Station: Velocity-area station; about 20m wide section. Cableway rated, natural control. Ratings extrapolated beyond 1.7m. Problems with silting in well (until 1980) and ice in cold winters (flows may be estimated). Natural regime - no abstractions.
Catchment: Upland catchment with mountainous headwaters, often snowy in winter. Bedrock Dalradian intrusive basics within by superficial deposits. Landuse pastoral and mountain moorland; some forestry and lochs.
- 12006 Gairn at Invergairn** **SEPA North**
Station: Velocity-area station with cableway; about 15m wide section. Natural control includes rubble from early gabion construction (broken up by spate of Nov 1978). Ratings extrapolated beyond 1.4m. Sensibly natural regime. Catchment rainfall may be underestimated. Frozen catchment can produce notable low flows (e.g. 22/1/85).
Catchment: Upland catchment with mountainous headwaters often snowy in winter. Some Dalradian metamorphics, mainly granite intrusive. Half of catchment overlain by superficial deposits. Landuse pastoral and mountain moorland; some forestry.
- 12007 Dee at Mar Lodge** **SEPA North**
Station: Highest gauging station on the Dee. Cableway rated, unstable natural control. Ratings extrapolated above 2.3m. Catchment rainfall may be significantly underestimated.
Catchment: Upland catchment with mountainous headwaters, often snowy in winter. Dalradian and Moinian metamorphic and granite mountains. Approx. 45% overlain by superficial deposits. Mountainous with moorland and some forestry.
- 12008 Feugh at Heugh Head** **SEPA North**
Station: Velocity-area station with cableway; about 20m wide section. Natural control. Ratings extrapolated beyond 3.4m. Abstraction (at Charr, PWS for Stonehaven) accounts for <5% of Q95 flow.
Catchment: Rugged topography. Mountainous headwaters, often snowy in winter. Developed largely on granites and metamorphics with almost complete superficial deposit cover. Mostly moorland and upland pasture; afforestation in Glen Dye.
- 12009 Water of Dye at Charr** **SEPA North**
Station: Compound critical-depth flume (constructed by Grampian Regional Council, repaired in 1983). Large capacity; flows >30 m³s⁻¹ estimated. Mixed flow series comprising lengthy runs of naturalised and gauged flows. Very responsive regime - natural apart from PWS abstraction (for Stonehaven), an export of approx. 0.05 m³s⁻¹ (around 5% of mean runoff), significant at low flows. Peak flows from Aug 1990 only. Incomplete chart records from 1963.
Catchment: Rugged upland catchment with moorland (exclusively), developed principally on granite; >95% overlain by superficial deposits.
- 13001 Bervie at Inverbervie** **SEPA North**
Station: Velocity-area station; about 10m wide section. Cableway rated. De-stabilised artificial control replaced by gabions in 1989. Ratings extrapolated beyond 1.8m. Extreme floods bypass the station (via the rb floodplain). Natural flow regime.
Catchment: Low-lying catchment. Bedrock of mixed permeability; almost 100% covered with superficial deposits. Arable landuse in valley, pastoral on hills and forestry.
- 90003 Nevis at Claggan** **SEPA North**
Station: Velocity-area station; about 20m wide river section with boulder control. All flows contained. Difficulty in gauging low flows results in a scattered low flow rating. Ratings extrapolated beyond 2.5m. Computed flows largely natural (runoff from 6.7 sq.km of the headwaters diverted to Loch Trieg and, further d/s, around 5% of Q95 is abstracted for PWS).
Catchment: Wet, steep-sided, high altitude catchment draining southern slopes of Ben Nevis; no storage. Largely impermeable bedrock with approx. 1/3 overlain by superficial deposits. Prolonged winter snow cover. Moorland, rough pasture, and some forestry. Very responsive.
- 91002 Lochy at Camisky** **SEPA North**
Station: 60m wide, fully contained river section with stable gravel bed calibrated to 644 m³s⁻¹. Abstractions for power generation and flows in Caledonian Canal regularly bypass station. Complex catchment with three large reservoirs controlled for power generation and transfers from the R. Nevis, Mashie and Spey increasing the natural catchment by 17%. Significant snow cover during winter. Staff gauge observations from Feb 1977 to Jul 1979.
Catchment: Catchment is mainly rough grazing and moorland with some afforestation. Predominantly impermeable bedrock with approx. half overlain by superficial deposits.
- 92001 Shiel at Shielfoot** **SEPA North**
Station: Velocity-area station with cableway, d/s of Loch Sheil. Gravel bed but relatively stable rating and sensibly a full range station. Natural flow regime.
Catchment: Wet, mountainous catchment with grassland and some afforestation in the glens. Impermeable bedrock with some superficial deposits (about 25%).
- 93001 Carron at New Kelso** **SEPA North**
Station: Velocity-area station; 40m wide river section with floodbank on right. Any bypassing in extreme floods will be over 30m wide floodplain on left bank. Unstable gravel control requires regular calibration of low flow range. Adequately gauged to bankfull. Ratings extrapolated beyond 1.7m. Computed flows are 100% natural. 70% of catchment drains through Loch Dughail with little additional surface storage.
Catchment: Mountainous headwaters, often snowy in winter. Impermeable bedrock catchment with little superficial deposits. Typical mix of rough grazing and moorland; some forestry and lochs. One of the wetter Highland catchments currently gauged.
- 94001 Ewe at Poolewe** **SEPA North**
Station: Velocity-area station; about 50m wide river section with stable (rock armoured) control which has been modified infrequently resulting in recalibration of low flows. All flows contained. Rating well defined - following installation of cableway in 1970. Ratings extrapolated beyond 2.5m. In excess of 95% of the catchment drains through Loch Maree with a surface area of 30km which dominates the flow regime. Low to medium flows from 3% of the upper catchment diverted to Conon hydro scheme.
Catchment: Very wet, mountainous catchment developed largely on ancient metamorphic formations (Lewisian Gneiss and Torridonian Sandstone). Impermeable bedrock catchment with about a third overlain by superficial deposits. Rough pasture and moorland; some forestry.
- 95001 Inver at Little Assynt** **SEPA North**
Station: Velocity-area station; 30m wide completely contained river section with adequately gauged stable calibration in excess of MAF; ratings extrapolated beyond 1.8m. Flow regime completely natural except for occasional operation of gates for fisheries purposes. The gates are immediately u/s at outlet to Loch Assynt (surface area: 7.9 sq.km) and can result in very low flows (see, for example, May/June 1998).
Catchment: Mountainous headwaters, often snowy in winter. Approx. 85% impermeable bedrock; some superficial deposits. Catchment is rough grazing and moorland with many lochans (>5% of catchment area).
- 95002 Broom at Inverbroom** **SEPA North**
Station: 25m wide river section on gentle bend d/s of bridge. Floodbank on lb protects a wide cultivated floodplain; heavy tree cover on steep rb. Unstable gravel/cobble control, significant low flow gaugings scatter. Slightly skew velocity in high flows. Adequately calibrated to bankfull (150 m³s⁻¹). 20% of natural catchment diverted (except overflows) via Loch Droma to Conon HEP scheme. 25% of upper catchment drains through Loch a' Bhraoin.
Catchment: Catchment typically Scottish upland except for a very narrow cultivated band on the lower valley floor. Impermeable bedrock with >60% overlain by superficial deposits.
- 96001 Halladale at Halladale** **SEPA North**
Station: Velocity-area station; 20m wide river section adequately gauged to bankfull, ratings extrapolated above 1.6m. Computed flows 100% natural.
Catchment: Lowland impermeable bedrock catchment; 95% overlain by superficial deposits. Largely moorland with a peat based cover. A few small lochs within the headwaters. Extensive afforestation from late 1970s.
- 96002 Naver at Apigill** **SEPA North**
Station: Velocity-area station; 40m wide river section with narrow 6m floodplain on rb but otherwise completely contained. Gravel control - regular need to reassess low flow rating. Calibrated to bankfull; ratings extrapolated above 2.5m. Computed flows 98% natural with small interbasin transfer to the Shin hydro-electric scheme. Several small high level lochs in addition to the total surface area of Lochs Coire, Meadie and Naver of 13 sq.km. 50% of the catchment drains through the latter.
Catchment: Mountainous headwaters, often snowy in winter. Impermeable bedrock with >80% overlain by superficial deposits. Typical Highland mix of rough grazing and moorland; some forestry. Relatively little loch storage.
- 96003 Strathy at Strathy Bridge** **SEPA North**
Station: Velocity-area station; 15m wide river section with bypassing on the rb during extreme flood events in excess of 50 m³s⁻¹. Stable pitched river bed control with gabion mattress constriction to increase sensitivity. Adequately gauged to bankfull (extrapolated beyond 1.5m). Computed flows 100% natural.
Catchment: Mostly impermeable bedrock with >90% overlain by superficial deposits. No significant surface storage but several small hill lochs on a low altitude, gently sloping peat-covered catchment extensively afforested from the late 1970s. Upland headwaters.
- 96004 Strathmore at Allnabad** **SEPA North**
Station: Velocity-area station; about 30m wide section, with degraded gabion control. Extreme low flows measured 2 km d/s (C.A. increase: 7 sq.km). All flows contained to date. Natural and very responsive flow regime; moderate storage in headwater lochans.
Catchment: Very wet, rugged, upland catchment developed principally on metamorphics of the Moinian Series. Less than half overlain by superficial deposits. Moorland and rough grazing dominate land use.

97002 Thurso at Halkirk**SEPA North**

Station: Velocity-area station; 30m wide river section with full containment and a completely stable rock bar control. Adequately rated to bankfull but difficulty in c/m low flows. Ratings extrapolated beyond 1.8m. 50% of catchment drains through Loch More which is used for river regulation. Average net abstraction from Loch Calder of some 5% of long-term average runoff.

Catchment: Catchment characterised by small lochs on predominantly blanket peat cover. Mixed bedrock permeability with about 1/3 impermeable, and approx. 95% overlain by superficial deposits. Upland headwaters. Landuse moorland and rough pasture. Extensive afforestation of upper catchment from late 1970s.

106001 Creed at Creed Bridge**SEPA North**

Station: Asymmetrical compound Crump weir - 8.6m main crest with 0.6m low flow crest on lhs - immediately d/s of sharp rh bend. Theoretical rating. Structure capacity: approx. $15 \text{ m}^3\text{s}^{-1}$, overtopped by flood peaks. Levels monitored by pressure transducer - monthly offsets applied, based on dip-flash readings. Small fish-hatchery abstraction immediately u/s - can influence low flows - otherwise an entirely natural regime. Number of small lochs with sluices.

Catchment: Gently-sloping peat-covered (>75%) catchment near Stornaway. Heather moorland developed on ancient metamorphics, mostly Lewisian gneiss. Many lochans in South of the catchment. Some afforestation; current land-use mostly sheep-grazing.

107001 Durkadale at Durkadale**SEPA North**

Station: Velocity-Area station installed on Orkney mainland. Record from August 1999. Regarded as a secondary site by SEPA (but first station on Orkney).

108001 Weisdale Burn at Weisdale Mill**SEPA North**

Station: Velocity-area station, opened in 2002 to obtain continuous flow data for Shetland. Steep banks contain majority of flows. No cableway so high flows extrapolated. Natural control; bed is gravel and small boulders with consistent depth. Weed growth in summer. Fish hatchery nearby abstracts and discharges - amounts unknown.

Catchment: Quartzite and Pelites with some metamorphosed limestone and dolomite. Overlain with peat and till. Mainly moorland and rough pasture.

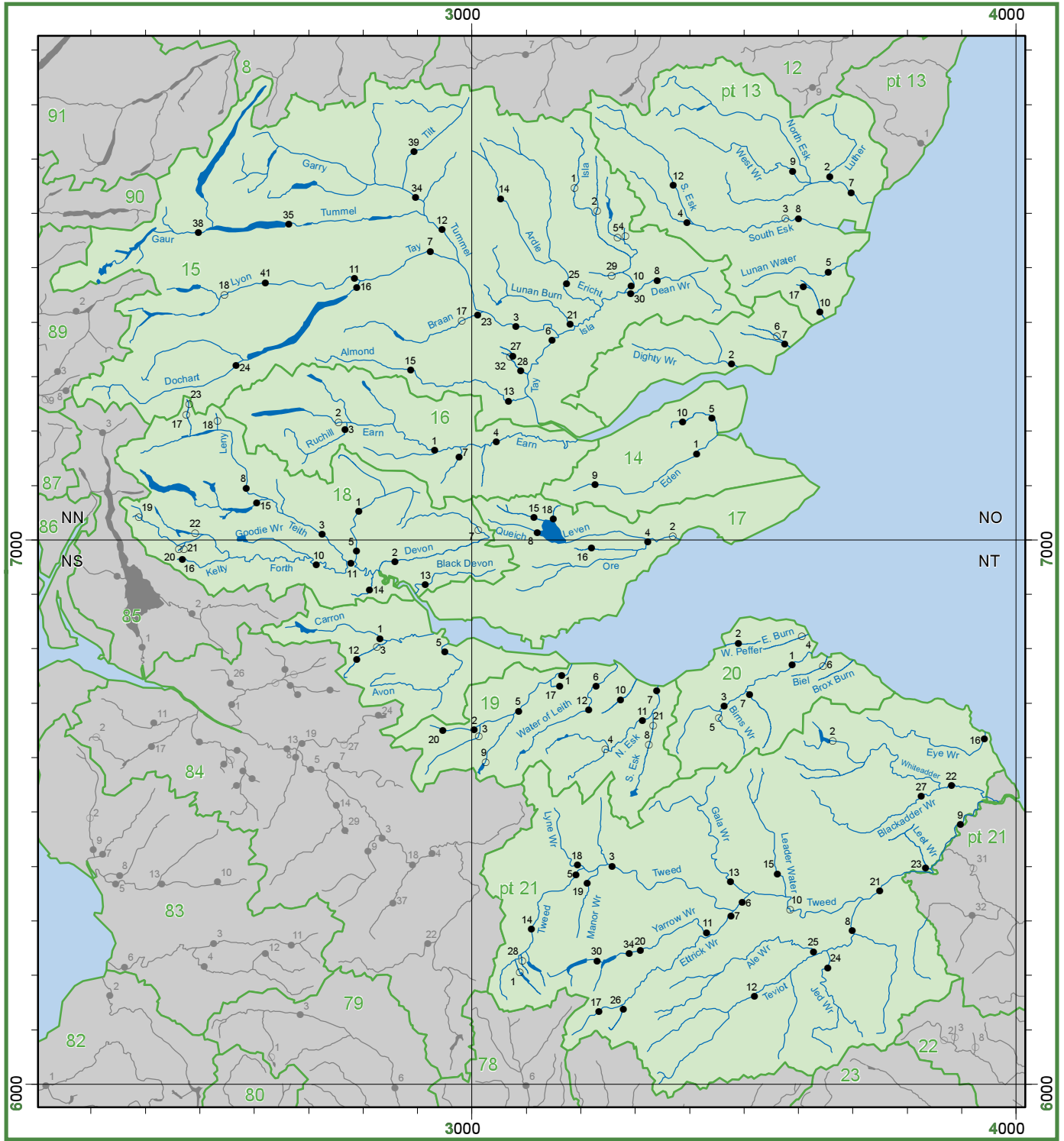
GAUGING STATION REGISTER

Region: SEPA East

Area: 17,810 km²

Average rainfall (1971-2000): 1154 mm

Map 2: EAST



Gauging Station Register I

Station number	River name	Station name	Grid reference	Catchment area	Station type	SLA	Period of record	Percent complete	Base Flow Index	Mean ann. rain (mm)	Mean ann. runoff (mm)	Mean ann. loss (mm)	Mean flow (m ³ /s)	Q95 (m ³ /s)	Q70 (m ³ /s)	Q50 (m ³ /s)	Q10 (m ³ /s)	Median ann. flood (m ³ /s)	Peak flow (m ³ /s)	Date of peak	7-day min. (m ³ /s)	Date of min.		
13002	Luther Water	Luther Bridge	NO658674	138.0 VA			1982-05	100	.58	934	510	424	2.23	0.40	0.92	1.46	4.5	33.2	72.4	01/12/85	0.28	18/08/95		
13003	* South Esk	Stannochy Bridge	NO583593	487.0 VA			1979-82	100	.53	1153	862	291	13.31	2.25	5.89	9.87	26.7							
13004	Prosen Water	Prosen Bridge	NO396586	104.0 VA	*		1985-05	100	.57	1265	957	308	3.15	0.66	1.43	2.19	6.4	57.9	103.0	02/11/02	0.44	20/08/95		
13005	Lunan Water	Kirkton Mill	NO655494	124.0 VA	*		1981-05	100	.51	798	418	380	1.63	0.19	0.50	0.89	3.6	23.8	35.7	08/12/00	0.09	20/08/95		
13007	North Esk	Logie Mill	NO699640	732.0 CC	*		1976-05	100	.51	1123	824	299	19.10	3.17	7.55	12.09	39.3	304.4	635.7	02/11/02	2.13	04/09/76		
13008	South Esk	Brechin	NO600596	488.0 VA	*		1983-05	100	.54	1143	794	349	12.27	2.17	5.39	8.52	25.6	120.0	235.3	21/11/02	1.25	25/08/84		
13009	West Water	Dalhouse Bridge	NO592680	127.2 VA			1985-05	100	.53	1160	957	203	3.86	0.78	1.65	2.51	8.0	89.7	222.1	02/11/02	0.53	18/08/95		
13010	Brothock Water	Arbroath	NO639418	50.0 VA			1989-05	100	.47	712	341	371	0.54	0.08	0.17	0.27	1.1	11.0	14.4	07/10/93	0.05	26/08/95		
13012	South Esk	Gella Bridge	NO372653	130.0 VA			1991-05	100	.47	1383	1300	83	5.35	0.94	2.32	3.51	11.5	60.8	117.4	21/11/02	0.58	20/08/95		
13017	Colliston Burn	Colliston	NO609466	8.4 VA			1994-05	92	.33	758	506	252	0.13	0.01	0.02	0.05	0.3			8.9	29/10/04	>0.00	04/09/94	
14001	Eden	Kemback	NO415158	307.4 VA	*		1967-05	100	.63	812	405	407	3.94	0.97	1.74	2.65	8.1	41.5	69.0	11/02/77	0.63	05/08/89		
14002	Dightly Water	Balmossie Mill	NO477324	126.9 VA	*		1969-05	100	.60	799	389	410	1.55	0.24	0.55	0.96	3.4	17.2	35.0	31/03/92	0.15	22/08/84		
14005	Motray Water	St Michaels	NO441224	60.0 VA	*		1984-05	100	.57	749	289	460	0.55	0.09	0.19	0.32	1.2	6.1	14.9	01/04/92	0.05	19/08/96		
14006	* Monkie Burn	Panbride	NO574361	16.0 VA			1987-91	100	.44	815	366	449	0.19	0.01	0.05	0.10	0.4							
14007	Craigmill Burn	Craigmill	NO575360	29.0 VA			1987-05	100	.39	805	348	457	0.32	0.02	0.08	0.15	0.8	5.7	12.2	31/03/92				
14009	Eden	Strathmiglo	NO226102	26.0 VA			1991-05	100	.55	957	595	362	0.49	0.09	0.20	0.31	1.0	11.7	25.5	16/01/93	0.07	27/08/95		
14010	Motray Water	Kilmany	NO387217	33.0 VA			1991-05	100	.55	747	292	455	0.30	0.02	0.08	0.16	0.7	3.1	11.8	31/03/92	0.01	25/08/95		
15001	* Isla	Forter	NO187647	70.7 FL			1953-68	60	.57	1440	1212	228	2.71	0.74	1.30	1.87	5.2		99.1	30/09/62				
15002	* Newton Burn	Newton	NO230605	15.4 TP			1959-68	99	.58	1273	1010	263	0.49	0.14	0.23	0.32	1.0	10.2					0.10	15/07/62
15003	Tay	Caputh	NO082395	3210.0 VA			1947-05	100	.64	1633	1375	258	139.67	35.62	71.63	107.60	275.8	821.9	1877.9	17/01/93	8.24	10/08/55		
15004	* Inzion	Loch of Lintrathen	NO280559	24.7 TP			1927-68	51	.64	1108	724	384	0.56	0.13	0.27	0.40	1.1	6.1						
15005	* Melgan	Loch of Lintrathen	NO275558	40.9 TP			1927-68	55	.58	1159	788	371	1.00	0.22	0.46	0.68	2.0	15.5					0.13	14/09/33
15006	Tay	Ballathrie	NO147367	4587.1 VA	*		1952-05	100	.65	1461	1160	301	168.17	42.81	84.89	131.20	333.4	981.4	2267.9	17/01/93	12.14	07/08/55		
15007	Tay	Pitnacree	NN924534	1149.4 VA	*		1957-05	100	.63	1937	1582	355	57.58	12.54	29.43	44.15	116.6	353.6	733.6	17/01/93	3.70	21/08/84		
15008	Dean Water	Cookston	NO340479	177.1 VA	*		1958-05	99	.59	844	477	367	2.66	0.60	1.08	1.68	5.7	27.2	45.5	11/12/57	0.40	15/08/95		
15010	Isla	Wester Cardean	NO295466	366.5 VA	*		1972-05	97	.53	1132	667	465	7.74	1.54	3.20	5.03	16.4	85.7	158.8	17/01/93	0.89	15/08/95		
15011	Lyon	Corrie Bridge	NN786486	391.1 VA	*		1985-05	100	.45	1995	982	1013	12.17	3.00	5.03	7.20	27.1	208.2	377.9	04/02/90	1.76	20/08/84		
15012	Tummel	Pitlochry	NN947574	1670.0 VA	*		1973-05	100	.63	1538	1387	513	73.27	19.36	32.17	54.92	145.9	539.3	1049.0	16/01/93				
15013	Almond	Almondbank	NO068258	174.8 VA	*		1955-05	100	.45	1461	948	513	5.25	0.73	1.96	3.20	11.5	120.1	233.2	16/01/93				
15014	Ardle	Kindrogan	NO056631	103.0 VA	*		1985-05	100	.40	1262	993	269	3.24	0.43	1.15	1.90	7.5	54.4	103.7	30/07/02	0.23	02/08/89		
15015	Almond	Newton Bridge	NN888316	84.0 VA			1986-05	100	.42	1756	1134	622	3.01	0.45	1.07	1.75	6.7	85.3	155.1	20/09/99	0.23	20/08/95		
15016	Tay	Kenmore	NN782467	600.9 VA	*		1974-05	100	.65	2229	2466		46.87	6.97	21.94	36.15	99.4	195.0	336.1	17/01/93	1.81	19/08/84		
15017	* Braan	Ballinloan	NN979406	197.0 VA			1975-80	100	.39	1458	1003	455	6.13	0.39	1.88	3.50	14.9						0.24	12/09/76
15018	* Lyon	Moar	NN534448	16.1 VA			1953-58	100	.23	2631	2041	590	10.15	0.85	2.41	4.62	25.5		291.7	28/12/55	0.20	11/08/55		
15021	Lunan Burn	Mill Bank	NO182400	94.0 VA	*		1984-05	96	.64	950	511	439	1.52	0.15	0.60	1.08	3.3		27.7	10/08/04	0.06	17/08/95		
15023	Braan	Hermitage	NO014422	210.0 VA	*		1983-05	100	.43	1473	1042	431	6.93	0.55	2.16	3.96	16.1	122.0	390.6	10/08/04	0.19	26/08/84		
15024	Dochart	Killin	NN564320	239.0 VA	*		1982-05	100	.26	2712	2101	611	15.90	1.25	3.90	7.85	41.0	202.4	328.7	04/02/90	0.33	25/08/84		
15025	Ericht	Craighall	NO174472	432.0 VA	*		1985-05	100	.48	1238	949	289	12.98	1.90	5.19	8.51	28.4	181.5	381.0	16/01/93	1.05	15/08/95		
15027	Garry Burn	Loakmill	NO075339	20.0 VA	*		1987-05	100	.45	1035	648	387	0.41	0.03	0.12	0.23	1.0	6.9	18.8	16/01/93	0.01	14/08/95		
15028	Ordie Burn	Luncarty	NO090312	54.0 VA			1986-04	100	.45	1032	670	362	1.14	0.08	0.34	0.64	2.6	23.8	54.9	11/08/04	0.04	08/08/95		
15029	* Alyth Burn	Pitcrocknie	NO257485	32.0 VA			1991-94	100	.46	925	418	507	0.43	0.04	0.15	0.27	1.0							
15030	Dean Water	Dean Bridge	NO293458	230.0 VA			1990-05	100	.57	827	493	334	3.59	0.67	1.36	2.01	8.1	32.7	60.2	16/01/93	0.41	14/08/95		
15032	* Ordie Burn	Jackstone	NO070337	20.0 VA			1990-96	100	.38	1021	727	294	0.46	0.02	0.09	0.22	1.1		32.2	16/01/93	0.01	16/09/96		
15034	Garry	Killiecrankie	NN901637	745.0 VA			1991-05	100	.42	1372	709	663	16.72	3.06	6.07	9.38	34.8	382.7	555.4	16/01/93				
15035	Tummel	Kinloch Rannoch	NN663588	647.0 VA			1991-05	89	.56	1871	2042		43.70	8.95	21.29	32.88	84.2		288.9	17/01/93				
15038	Gaur	Bridge of Gaur	NN497570	247.0 VA			1992-05	84	.32	2029	1778	251	14.12	1.13	2.65	7.55	32.0		373.7	16/01/93				
15039	Tilt	Marble Lodge	NN892717	165.0 VA	*		1992-05	100	.42	1316	1340		7.00	1.28	2.74	4.15	15.3	141.9	253.7	16/01/93	0.91	20/08/95		
15041	Lyon	Camusvrachan	NN620477	237.0 VA			1992-05	93	.47	2259	877	1382	6.58	2.15	3.08	4.12	13.0		264.8	16/01/93				
16001	Earn	Kinkell Bridge	NN933167	590.5 VA	*		1948-05	98	.50	1541	1187	354	22.31	3.02	9.04	15.16	49.0	204.1	357.7	16/01/93	0.87	04/08/55		
16002	* Earn	Aberuchill	NN754216	176.9 VA			1955-77	100	.47	1722	1817		10.15	1.26	3.85	8.18	24.2	64.0	133.0	15/01/62				
16003	Ruchill Water	Cultybraggan	NN764204	99.5 VA	*		1970-05	100	.29	2013	1619	394	5.10	0.37	1.27	2.42	12.8	143.5	225.5	13/01/75	0.11	25/08/84		
16004	Earn	Forteviot Bridge	NO044183	782.2 VA	*		1972-05	100	.52	1489	1166	323	28.81	3.72	10.40	18.73	64.9	252.1	410.7	17/01/93	2.22	26/07/84		
16007	Ruthven Water	Aberuthven	NN975154	50.0 VA			1990-05	100	.52	1265	849	416	1.34	0.25	0.51	0.80	2.9	28.7	46.5	14/01/93	0.18	14/08/95		
17001	Carron	Headshwood	NS832820	122.3 FV	*		1969-05	98	.35	1601	889	712	3.45	0.57	0.94	1.54	8.4	93.1						
17002	* Leven	Leven	NO369006	424.0 VA	*		1969-01	100	.68	960	485	475	6.45	1.12	2.66	4.71	13.6	38.9	127.0	10/02/77				
17003	* Bonny Water	Bonnybridge	NS824804	50.5 VA	*		1971-02	100	.45	1221	828	393	1.31	0.27	0.50	0.76	2.8	23.7	51.5	06/10/90				
17004	Ore	Balfour Mains	NT330997	162.0 VA	*		1972-05	100	.56	902	417	485	2.13	0.34	0.89	1.39	4.6	24.9	52.8	10/02/77	0.12	25/08/75		
17005	Avon	Polmonthill	NS952797	195.3 VA	*		1971-05	99	.42	1033	655	378	4.08	0.64	1.24	2.05	9.8							

Gauging Station Register I cont'd

Station number	River name	Station name	Grid reference	Catchment area	Station type	SLA	Period of record	Percent complete	Base Flow Index	Mean ann. rain (mm)	Mean ann. runoff (mm)	Mean ann. loss (mm)	Mean flow (m/s)	Q95 (m/s)	Q70 (m/s)	Q50 (m/s)	Q10 (m/s)	Median ann. flood (m/s)	Peak flow (m/s)	Date of peak	7-day min. (m/s)	Date of min.	
18022*	Avon Dhu	Milton	NN503014	44.5 VA			1990-02	89	.48	2283 2006	277	2.67	0.23	0.81	1.54	6.5			28.4	16/01/93	0.04	13/07/92	
18023*	Monachyle Burn	Upper Monachyle	NN480250	2.2 FV			1987-96	99	.15	2452 2261	191	0.16	0.01	0.02	0.05	0.4						>0.00	27/07/96
19001	Almond	Craigiehall	NT165752	369.0 VA	*		1957-05	100	.40	921 513	408	5.99	0.96	1.87	3.03	13.7	124.8	214.2	06/10/90	0.27	06/10/59		
19002*	Almond	Almond Weir	NT004652	43.8 CB	*		1962-05	95	.33	1082 679	403	0.94	0.14	0.28	0.43	2.3	18.6				0.08	04/09/76	
19003*	Breich Water	Breich Weir	NT014639	51.8 B			1961-80	99	.31	1047 539	508	0.89	0.09	0.25	0.40	2.2	19.5				0.03	04/09/76	
19004*	North Esk	Dalmore Weir	NT252616	81.6 MIS			1960-01	100	.54	976 601	375	1.55	0.35	0.68	1.03	3.3	19.5	54.0	06/10/90	0.17	22/07/84		
19005	Almond	Almondell	NT086686	229.0 FV			1962-05	100	.36	995 571	424	4.17	0.57	1.17	2.04	9.7	89.5	215.7	06/10/90	0.27	25/10/72		
19006	Water of Leith	Murrayfield	NT228732	107.0 VA	*		1963-05	100	.50	896 436	460	1.48	0.36	0.58	0.83	3.1	30.0	89.5	26/04/00				
19007	Esk	Musielburgh	NT339723	330.0 VA			1962-05	100	.53	863 399	464	4.24	0.96	1.72	2.58	8.8	73.8	216.4	06/10/90				
19008*	South Esk	Prestonholm	NT325623	112.0 C			1964-89	100	.55	888 378	510	1.34	0.33	0.57	0.83	2.7	19.1	83.0	03/11/84	0.25	21/06/89		
19009*	Bog Burn	Cobbinshaw	NT026591	8.5 FL			1963-02	92	.61	1006 559	447	0.16	0.01	0.06	0.12	0.3	1.1	2.6	31/10/70				
19010	Braid Burn	Liberton	NT273707	16.2 C+C	*		1969-05	89	.60	798 342	456	0.18	0.03	0.07	0.12	0.3	3.9	15.6	26/04/00	0.02	17/09/96		
19011	North Esk	Dalketh Palace	NT333678	137.0 VA	*		1963-05	100	.54	935 508	427	2.22	0.57	0.98	1.39	4.4	36.6	121.9	26/04/00	0.43	23/08/75		
19012	Water of Leith	Colinton	NT212688	72.0 FV			1986-05	96	.52	953 588	365	1.32	0.32	0.47	0.71	2.7	34.0	126.6	26/04/00				
19017	Gogar Burn	Turnhouse	NT161733	38.8 MIS	*		1986-05	99	.40	839 408	431	0.50	0.04	0.16	0.26	1.1		29.6	26/04/00	0.01	14/09/90		
19020	Almond	Whitburn	NS948655	30.3 MIS			1986-05	100	.30	1143 783	360	0.75	0.08	0.17	0.31	1.8	16.2	37.0	06/10/90	0.02	17/09/96		
19021*	South Esk	Cowbridge	NT338678	156.0			1998-02	100	.56	902 456	446	2.25	0.61	0.99	1.48	4.5		87.4	26/04/00	0.50	07/10/02		
20001	Tyne	East Linton	NT591768	307.0 VA			1961-05	100	.53	731 289	442	2.81	0.57	1.05	1.64	5.6	59.9	160.6	07/11/00	0.39	11/08/95		
20002	West Peffer Burn	Luffness	NT489811	26.2 MIS	*		1966-05	100	.47	627 163	464	0.14	0.01	0.04	0.06	0.3	3.4						
20003	Tyne	Spilmersford	NT456689	161.0 VA	*		1965-05	97	.50	732 276	456	1.39	0.27	0.50	0.79	2.8	32.8	132.5	03/11/84	0.14	04/09/76		
20004*	East Peffer Burn	Lochhouses	NT610824	31.1 MIS			1967-93	98	.36	624 205	419	0.21	0.01	0.04	0.07	0.4	6.0	19.3	04/01/82	>0.00	26/07/90		
20005*	Birns Water	Saltoun Hall	NT457688	93.0 VA	*		1965-01	99	.48	748 324	424	0.96	0.18	0.33	0.54	1.9	18.6	54.4	03/11/84	0.12	25/08/76		
20006*	Biel Water	Belton House	NT645768	51.8 VA			1973-98	100	.62	769 332	437	0.56	0.15	0.27	0.37	1.0	11.5	31.2	01/04/92	0.11	04/10/73		
20007	Gifford Water	Lennoxlove	NT511717	64.0 VA	*		1973-05	100	.58	781 358	423	0.72	0.15	0.29	0.42	1.4	18.9	75.8	28/05/83	0.11	14/09/90		
21001*	Fruid Water	Fruid	NT088205	23.7 TP			1959-68	95	.31	1767 903	864	0.66	0.12	0.16	0.23	1.8	19.1				0.07	09/10/59	
21002*	Whiteadder Water	Hungry Snout	NT663633	45.6 MIS			1959-68	100	.50	912 703	209	1.00	0.14	0.36	0.58	2.1		63.2	04/08/66	0.09	10/10/59		
21003	Tweed	Peebles	NT257400	694.0 VA	*		1959-00n	100	.55	1209 779	430	17.20	3.36	6.45	10.10	34.0	174.9	427.0	07/01/49	2.20	24/08/84		
21005	Tweed	Lyne Ford	NT206397	373.0 VA			1961-00n	95	.55	1332 903	429	10.70	2.05	3.88	6.00	20.0	122.5	226.6	15/01/62	1.24	19/10/72		
21006	Tweed	Boleside	NT498334	1500.0 VA	*		1961-00n	100	.51	1228 815	413	38.76	6.90	14.68	23.64	79.4	395.1	799.6	12/12/94	3.66	05/10/72		
21007	Etrick Water	Lindean	NT486315	499.0 VA			1962-00n	95	.40	1385 977	408	15.46	1.97	4.99	8.81	34.6	237.6	456.5	31/10/77	0.62	05/09/76		
21008	Teviot	Ormiston Mill	NT702280	1110.0 VA	*		1960-04	100	.45	984 562	422	19.97	2.84	7.09	11.92	44.4	345.5	657.7	08/01/05	1.49	28/08/84		
21009	Tweed	Norham	NT898477	4390.0 VA	*		1960-00n	100	.52	995 581	414	80.88	14.10	31.88	52.62	169.5	768.2	1511.5	04/01/82	7.22	18/09/03		
21010*	Tweed	Dryburgh	NT588320	2080.0 VA	*		1960-80	90	.52	1132 643	489	42.63	8.02	18.42	28.88	92.7	453.7	1155.0	31/10/77	4.95	25/08/76		
21011	Yarrow Water	Philphaugh	NT439277	231.0 VA	*		1963-00n	100	.47	1403 976	427	7.14	1.12	2.42	4.00	14.7	77.8	272.9	31/10/77	0.41	04/09/76		
21012	Teviot	Hawick	NT522159	323.0 VA	*		1961-05	100	.43	1212 858	354	8.70	0.99	2.84	4.98	20.0	188.4	296.0	17/02/97	0.46	22/07/89		
21013	Gala Water	Galashiels	NT479374	207.0 VA	*		1964-05	100	.52	955 554	401	3.66	0.51	1.30	2.29	8.1	52.5	195.4	03/11/84	0.25	19/08/95		
21014	Tweed	Kingledores	NT109285	139.0 VA			1961-00n	100	.45	1651 1235	416	5.45	0.91	1.49	2.19	9.2	99.7	226.5	18/10/87	0.47	18/10/72		
21015	Leader Water	Earlston	NT565388	239.0 VA	*		1966-05	100	.50	841 443	398	3.37	0.45	1.05	1.94	7.4	61.3	227.0	03/11/84	0.26	19/08/95		
21016	Eye Water	Eyemouth Mill	NT942635	119.0 VA	*		1967-05	100	.45	728 327	401	1.25	0.13	0.33	0.61	2.7	37.5	114.7	22/10/02	0.05	20/08/95		
21017	Etrick Water	Brockhoperig	NT234132	37.5 VA	*		1965-05	97	.34	1877 1604	273	1.90	0.20	0.59	1.02	4.4	59.1	159.7	30/10/77	0.07	24/08/84		
21018	Lyne Water	Lyne Station	NT209401	175.0 VA	*		1962-00n	100	.58	977 586	391	3.25	0.69	1.25	2.00	6.6	31.1	83.5	11/12/94	0.49	18/10/03		
21019	Manor Water	Cademuir	NT217369	61.6 VA			1968-00n	95	.59	1443 851	592	1.66	0.31	0.68	1.12	3.5	26.1	50.4	22/10/02	0.17	24/08/84		
21020	Yarrow Water	Gordon Arms	NT309247	155.0 VA			1968-00n	95	.47	1555 1137	418	5.58	0.88	1.90	3.10	11.2	54.0	136.7	30/10/77	0.24	04/09/76		
21021	Tweed	Sprouston	NT752354	3330.0 VA			1969-00n	94	.51	1047 636	411	67.21	10.77	24.19	41.83	144.5	760.2	1452.1	04/01/82	6.89	05/09/76		
21022	Whiteadder Water	Hutton Castle	NT881550	503.0 CC	*		1969-00n	100	.52	819 412	407	6.58	1.11	2.19	3.69	13.1	125.6	316.9	22/10/02	0.83	06/10/73		
21023	Leet Water	Coldstream	NT839396	113.0 VA	*		1970-05	100	.34	679 243	436	0.91	0.02	0.12	0.31	2.1	21.5	72.0	08/01/05	>0.00	26/08/76		
21024	Jed Water	Jedburgh	NT655214	139.0 VA	*		1960-05	100	.41	932 526	406	2.33	0.40	0.75	1.21	5.1	65.5	142.9	03/11/84	0.27	04/09/76		
21025	Ale Water	Ancrum	NT634244	174.0 VA			1972-00n	100	.42	963 510	453	2.80	0.22	0.66	1.39	6.5	45.0	90.2	22/10/02	0.10	15/08/95		
21026	Tima Water	Deephope	NT278138	31.0 VA	*		1973-05	100	.26	1680 1392	288	1.35	0.08	0.30	0.59	3.4	47.4	100.0	30/10/77	0.03	23/07/84		
21027	Blackadder Water	Mouth Bridge	NT826530	159.0 VA	*		1973-05	100	.49	771 354	417	1.76	0.26	0.57	0.99	3.5	42.5	136.9	22/10/02	0.14	19/08/95		
21028*	Menzion Burn	Menzion Farm	NT092234	5.7 TP			1948-52	100	.44	1695 1082	613	0.21											

Gauging Station Register II

Station number	River name	Station name	Catchment area	Sensitivity	Bankfull/structurefull	Factors affecting runoff	Descriptors				Elevation				Bedrock			Superficial			Landuse						
							BFIHOST	FARL	PROPWET	DPSBAR	Station level (mOD)	10 percentile (mOD)	50 percentile (mOD)	90 percentile (mOD)	Maximum level (mOD)	High perm. (%)	Moderate perm. (%)	Very low perm. (%)	Gen. high perm. (%)	Mixed perm. (%)	Gen. low perm. (%)	Woodland (%)	Arable/horticultural (%)	Grassland (%)	Mountain/heath/bog (%)	Urban extent (%)	
13002	Luther Water	Luther Bridge	138.0	13	N		.55	0.992	54	96	25	52	107	328	520	0	79	21	6	82	5	16	50	17	16	H	0
13003	* South Esk	Stannochoy Bridge	487.0				.54	0.992	46	165	29	77	309	709	1006	0	32	68	9	53	5	10	21	24	44	H	0
13004	Prosen Water	Prosen Bridge	104.0	13	N		.47	0.998	66	210	109	247	412	643	946	0	<1	99	2	47	<1	15	2	19	64	H	0
13005	Lunan Water	Kirkton Mill	124.0	13	I		.60	0.943	36	44	9	46	96	150	250	0	70	30	17	81	0	9	69	18	2	H	1
13007	North Esk	Logie Mill	732.0	10	SPI		.52	0.986	55	142	11	58	269	649	929	0	38	62	10	62	17	6	25	18	50	H	0
13008	South Esk	Brechin	488.0	9	I		.54	0.992	46	163	18	74	305	707	1006	0	33	67	9	53	5	10	21	24	43	H	0
13009	West Water	Dalhouse Bridge	127.2	12	N		.50	1.000	55	197	49	162	375	656	892	0	12	88	2	65	19	3	5	23	68	H	0
13010	Brothock Water	Arbroath	50.0		I		.57	0.994	36	34	8	31	55	109	182	0	95	5	19	81	0	11	64	18	3	H	2
13012	South Esk	Gella Bridge	130.0	14	N		.51	0.987	68	247	232	250	559	836	1006	0	0	100	0	44	15	8	<1	19	71	M	0
13017	Colliston Burn	Colliston	8.4				.55	0.996	36	36	39	55	90	138	182	0	100	0	9	91	0	3	83	11	3	H	0
14001	Eden	Kemback	307.4	8	47.0	SGEI	.61	0.992	40	73	6	41	100	189	520	55	0	45	20	55	0	12	52	29	2	H	1
14002	Dightly Water	Balmossie Mill	126.9	13	55.0	SI	.57	0.980	40	62	16	65	138	233	454	0	81	19	7	79	0	7	46	28	3	H	7
14005	Motray Water	St Michaels	60.0	19	I		.63	0.997	41	91	19	24	78	139	279	0	26	74	26	41	0	9	59	30	<1	0	0
14006	* Monikie Burn	Panbride	16.0		SI		.56	0.880	36	40	16	56	145	205	253	0	89	11	<1	95	0	20	49	24	3	H	1
14007	Craigmill Burn	Craigmill	29.0	55	SI		.57	0.882	36	38	11	55	147	198	253	0	88	12	5	93	0	24	46	23	3	H	0
14009	Eden	Strathmiglo	26.0		N		.63	1.000	45	79	48	84	147	216	435	60	0	40	0	85	0	7	59	27	4	H	0
14010	Motray Water	Kilmany	33.0		I		.59	0.996	45	97	22	51	100	150	279	0	<1	100	<1	53	0	8	60	30	<1	0	0
15001	* Isla	Forter	70.7	100.0			.43	1.000	68	246	285	403	636	884	1067	0	0	100	0	43	11	5	0	24	70	M	0
15002	* Newton Burn	Newton	15.4		21.0		.46	1.000	68	199	256	311	441	636	792	0	0	100	0	44	18	51	<1	13	35	HM	0
15003	Tay	Caputh	3210.0	3	SH		.44	0.806	69	186	36	208	437	739	1210	0	<1	95	<1	50	6	16	<1	22	56	H	0
15004	* Inzion	Loch of Lintrathen	24.7		10.5		.53	0.997	53	187	199	246	368	487	673	0	6	94	7	37	0	5	2	30	63	H	0
15005	* Melgan	Loch of Lintrathen	40.9		15.8	S	.48	0.812	57	166	212	267	398	528	675	0	6	94	5	42	5	20	1	20	55	H	0
15006	Tay	Ballathie	4587.1	2	620.0	SPIH	.47	0.847	58	167	26	119	395	714	1210	0	13	83	5	51	5	16	7	25	48	H	0
15007	Tay	Pitnacree	1149.4	4	610.0	H	.44	0.836	70	230	61	178	463	748	1210	0	0	96	<1	55	<1	14	<1	31	49	HM	0
15008	Dean Water	Cookston	177.1	12	52.0	EI	.62	0.973	38	59	45	59	128	245	451	0	95	5	28	47	0	10	52	24	10	H	2
15010	Isla	Wester Cardean	366.5	8	57.0	PI	.53	0.940	51	151	42	130	336	647	1067	0	28	71	11	47	5	15	13	34	36	H	0
15011	Lyon	Comrie Bridge	391.1	5	370.0	H	.44	0.907	70	272	92	282	561	802	1192	0	0	99	0	49	<1	7	<1	27	60	M	0
15012	Tummel	Pitlochry	1670.0	3		H	.42	0.758	72	166	74	271	452	755	1131	0	0	93	<1	44	12	13	<1	16	65	H	0
15013	Almond	Almondbank	174.8	11	195.0	PH	.47	0.996	61	197	20	155	398	706	925	0	33	67	11	45	0	22	4	32	41	HM	0
15014	Ardle	Kindrogan	103.0	8		N	.43	0.989	69	183	248	342	502	682	1094	0	0	94	<1	56	<1	11	0	24	64	H	0
15015	Almond	Newton Bridge	84.0	12		I	.40	1.000	65	268	211	329	576	761	925	0	0	100	0	38	0	11	<1	22	67	M	0
15016	Tay	Kenmore	600.9	6	34.0	H	.42	0.760	71	227	100	161	450	727	1210	0	0	94	0	57	0	12	<1	35	47	HM	0
15017	* Braan	Ballinloan	197.0		158.0		.43	0.924	65	148	152	271	406	587	867	0	0	100	0	60	0	31	<1	26	42	H	0
15018	* Lyon	Moar	161.4				.39	0.794	79	274	244	360	599	803	1079	0	0	100	0	49	<1	<1	0	32	59	M	0
15021	Lunan Burn	Mill Bank	94.0	14		IN	.59	0.753	46	100	35	53	140	362	558	0	43	57	21	39	0	24	18	34	19	H	0
15023	Braan	Hermitage	210.0	13		N	.44	0.929	65	147	53	261	396	583	867	0	0	100	<1	60	0	32	<1	26	40	H	0
15024	Dochart	Killin	239.0	10		I	.40	0.932	79	233	130	189	439	701	1170	0	0	92	0	54	0	15	<1	40	43	H	0
15025	Ericht	Craighall	432.0	9		N	.49	0.989	55	173	76	250	423	705	1094	0	3	89	5	58	2	16	1	32	51	H	0
15027	Garry Burn	Loakmill	20.0	35		I	.57	0.999	46	111	55	80	122	314	400	0	78	22	22	48	0	19	28	38	11	H	1
15028	Ordie Burn	Luncarty	54.0	11		I	.59	0.991	46	90	25	59	112	299	450	0	85	15	17	58	0	20	34	33	10	H	1
15029	* Alyth Burn	Pitcrocknie	32.0			I	.59	1.000	46	90	84	131	241	377	462	0	50	50	<1	51	5	15	16	47	19	H	1
15030	Dean Water	Dean Bridge	230.0				.63	0.970	41	61	39	55	113	243	451	0	89	11	29	50	0	10	55	24	8	H	1
15032	* Ordie Burn	Jackstone	20.0			I	.58	0.977	47	98	50	82	156	333	450	0	82	18	6	58	0	21	31	33	14	H	0
15034	Garry	Killiecrankie	745.0	8			.43	0.953	72	180	135	327	537	800	1120	0	0	92	0	26	19	7	<1	13	79	HM	0
15035	Tummel	Kinloch Rannoch	647.0			SRH	.37	0.652	77	140	208	281	395	678	1131	0	0	100	0	64	9	15	<1	19	56	H	0
15038	Gaur	Bridge of Gaur	247.0			S	.33	0.721	80	116	205	289	348	619	1106	0	0	100	0	71	5	12	<1	30	50	H	0
15039	Tilt	Marble Lodge	165.0	11		N	.43	0.988	71	247	238	498	679	848	1120	0	0	87	0	16	20	1	0	9	89	M	0
15041	Lyon	Camusvrachan	237.0			R	.41	0.855	78	267	185	343	576	788	1079	0	0	100	0	53	<1	3	<1	29	62	M	0
16001	Earn	Kinkell Bridge	590.5	8	147.7	PH	.49	0.894	63	177	15	58	303	599	979	0	37	62	4	55	2	15	11	38	33	H	0
16002	* Earn	Aberuchill	176.9	12		H	.45	0.782	66	236	62	106	401	601	975	0	0	97	0	50	2	17	<1	36	40	H	0
16003	Ruchill Water	Cultybraggan	99.5	15	159.4	NH	.43	1.																			

Gauging Station Register II cont'd

Station number	River name	Station name	Catchment area	Sensitivity	Bankfull/structurefull	Factors affecting runoff	Descriptors				Elevation				Bedrock			Superficial			Landuse						
							BFIHOST	FARL	PROPWET	DPSBAR	Station level (mOD)	10 percentile (mOD)	50 percentile (mOD)	90 percentile (mOD)	Maximum level (mOD)	High perm. (%)	Moderate perm. (%)	Very low perm. (%)	Gen. high perm. (%)	Mixed perm. (%)	Gen. low perm. (%)	Woodland (%)	Arable/horticultural (%)	Grassland (%)	Mountain/heat/bog (%)	Urban extent (%)	
18022	* Avon Dhu	Milton	44.5				.45	0.653	74	226	21	44	199	472	680	0	0	100	0	29	2	41	0	23	26	H	0
18023	* Monachyle Burn	Upper Monachyle	2.2		N		.37	1.000	79	137	434	443	479	547	655	0	0	100	0	0	0	0	0	35	65	H	0
19001	Almond	Craigiehall	369.0		215.0	PEI	.40	0.966	50	46	23	61	177	279	514	77	13	10	1	79	12	17	23	33	11	H	6
19002	Almond	Almond Weir	43.8		24.0	E	.36	0.995	57	37	128	160	195	255	294	26	70	4	0	71	24	13	12	43	14	HB	5
19003	* Breich Water	Breich Weir	51.8	26	25.0	E	.31	0.995	57	47	136	198	245	300	355	66	31	3	0	56	16	31	9	36	15	B	2
19004	* North Esk	Dalmore Weir	81.6	37	110.0	SEI	.56	0.975	49	112	132	217	279	424	562	70	9	21	12	52	11	11	8	50	26	H	2
19005	Almond	Almondell	229.0		700.0	PEI	.36	0.953	51	47	74	142	222	293	514	72	21	7	<1	71	20	21	11	37	17	H	5
19006	Water of Leith	Murrayfield	107.0	12	86.0	SR	.43	0.909	49	72	38	73	246	373	564	96	0	4	2	80	5	10	14	26	30	H	11
19007	Esk	Musselburgh	330.0	7	200.0	SPEI	.57	0.944	49	95	3	82	248	395	652	60	17	23	21	57	6	12	23	43	14	H	3
19008	* South Esk	Prestonholm	112.0	16	500.0	SG	.59	0.888	49	94	77	176	271	440	652	66	<1	33	32	43	7	10	19	56	13	H	0
19009	* Bog Burn	Cobbinshaw	8.5	15		S	.35	0.614	49	30	256	261	275	289	302	100	0	0	0	32	54	22	<1	21	39	HB	0
19010	Braid Burn	Liberton	16.2		20.0	N	.51	0.947	49	114	50	103	164	342	492	42	0	58	0	53	0	0	7	32	12	H	16
19011	North Esk	Dalkeith Palace	137.0	9	150.0	GN	.55	0.965	49	121	29	153	268	413	578	63	9	28	13	56	7	13	11	47	23	H	3
19012	Water of Leith	Colinton	72.0	20		SR	.38	0.877	49	81	92	189	272	393	564	95	0	5	1	75	8	10	12	31	42	H	2
19017	Gogar Burn	Turnhouse	38.8		100.0	P	.51	0.990	49	43	32	47	101	201	347	94	0	6	3	94	0	11	38	26	2	H	11
19020	Almond	Whitburn	30.3		27.7	EN	.34	0.994	58	38	156	168	209	256	294	9	87	4	0	65	28	13	12	44	17	BH	4
19021	* South Esk	Cowbridge	156.0				.56	0.916	49	84	28	107	250	384	652	59	17	24	26	54	5	11	27	45	9	H	3
20001	Tyne	East Linton	307.0	8	300.0	EI	.49	0.986	43	70	17	71	157	320	526	73	1	26	11	74	<1	13	51	28	7	H	1
20002	West Peffer Burn	Luffness	26.2	19	78.0	I	.47	0.996	33	30	4	12	26	58	135	0	0	100	27	69	0	4	74	21	<1	0	0
20003	Tyne	Splimersford	161.0	26	130.0	I	.52	0.987	43	66	69	99	185	322	494	84	2	14	15	72	<1	13	49	31	6	H	0
20004	* East Peffer Burn	Lochhouses	31.1	19	11.0	I	.38	0.978	36	40	4	15	30	81	181	23	0	77	37	50	0	11	74	13	<1	0	0
20005	* Birns Water	Saltoun Hall	93.0	8	58.0	N	.54	0.989	43	76	71	136	219	349	494	72	4	24	16	67	2	14	39	38	9	H	0
20006	* Biel Water	Belton House	51.8	31	70.0	N	.53	0.981	43	105	14	78	161	320	441	44	0	56	14	71	0	14	39	35	12	H	0
20007	Gifford Water	Lennoxlove	64.0	20		N	.53	0.977	43	113	51	101	198	395	526	55	0	45	13	57	<1	15	33	31	20	H	0
21001	* Fruid Water	Fruid	23.7		15.8	SP	.39	0.780	72	221	277	334	453	644	804	0	0	100	0	41	5	2	0	68	25	H	0
21002	* Whiteadder Water	Hungry Snout	45.6			SP	.42	0.871	43	127	215	283	363	438	535	0	0	100	0	2	1	3	0	23	72	H	0
21003	Tweed	Peebles	694.0	7	220.0	SP	.52	0.974	56	181	155	220	323	538	838	4	9	87	9	37	7	15	7	53	25	H	0
21005	Tweed	Lyne Ford	373.0	9	227.0	SP	.51	0.965	66	203	167	222	359	579	838	0	3	97	6	32	5	17	5	50	26	H	0
21006	Tweed	Boleside	1500.0	7	808.0	SP	.50	0.963	58	192	95	212	341	528	838	2	4	94	5	35	8	20	5	47	27	H	0
21007	Ettrick Water	Lindean	499.0	12	300.0	S	.44	0.928	67	190	99	221	368	524	837	0	0	100	<1	40	12	22	4	44	28	H	0
21008	Teviot	Ormiston Mill	1110.0	8	411.0	N	.46	0.987	57	118	43	123	236	354	611	36	<1	64	2	69	2	20	26	45	6	H	0
21009	Tweed	Norham	4390.0	4	1300.0	SP	.50	0.981	49	136	4	82	255	450	838	19	6	70	5	53	4	15	23	45	15	H	0
21010	* Tweed	Dryburgh	2080.0	6	1300.0	SP	.51	0.972	51	172	67	195	323	503	838	3	6	90	4	38	7	17	8	49	25	H	0
21011	Yarrow Water	Philpfaugh	231.0	11	296.0	S	.44	0.875	70	215	128	250	411	558	837	0	0	100	2	28	19	12	<1	44	41	H	0
21012	Teviot	Hawick	323.0	11	134.0	N	.43	0.993	59	151	90	188	275	390	611	4	0	96	0	68	5	27	13	52	5	H	1
21013	Gala Water	Galashiels	207.0	19	180.0	N	.53	0.999	44	149	120	229	331	466	652	0	<1	100	0	34	5	9	4	63	24	H	0
21014	Tweed	Kingledores	139.0	8	210.0	SP	.41	0.917	72	224	214	311	427	646	838	0	0	100	4	25	11	27	<1	45	26	H	0
21015	Leader Water	Earlston	239.0	28	120.0	N	.56	0.999	43	106	103	187	287	409	522	6	28	67	0	46	<1	8	15	51	26	H	0
21016	Eye Water	Eyemouth Mill	119.0	24	92.0	N	.60	0.997	29	69	3	67	151	225	410	3	20	76	3	68	0	13	46	38	2	H	0
21017	Ettrick Water	Brockhoperig	37.5	18	200.0	N	.42	1.000	72	242	259	342	475	582	691	0	0	100	0	40	7	27	0	43	30	H	0
21018	Lyne Water	Lyne Station	175.0	8	36.0	SP	.54	0.976	49	131	168	221	286	416	564	15	30	54	15	44	7	12	12	56	18	H	0
21019	Manor Water	Cademuir	61.6	15	58.0	P	.48	0.997	72	273	197	262	462	644	815	0	0	100	0	23	21	10	<1	30	58	H	0
21020	Yarrow Water	Gordon Arms	155.0	9	90.0	SP	.40	0.820	72	220	226	295	454	590	837	0	0	100	0	21	29	10	<1	36	50	H	0
21021	Tweed	Sprouton	3330.0	7	1600.0	SP	.50	0.978	53	149	25	141	282	464	838	17	4	79	3	51	5	18	16	47	18	H	0
21022	Whiteadder Water	Hutton Castle	503.0	7	175.0	SP	.52	0.981	35	90	29	86	230	381	535	36	19	45	3	47	1	11	21	42	24	H	0
21023	Leet Water	Coldstream	113.0	12	3.0	N	.39	0.999	30	35	12	56	74	147	221	91	0	9	<1	97	0	5	76	18	<1	0	0
21024	Jed Water	Jedburgh	139.0	10	112.0	N	.44	0.997	57	112	66	160	241	361	578	79	<1	21	0	64	2	32	22	34	9	H	1
21025	Ale Water	Ancrum	174.0	17	52.0	SP	.39	0.948	58	87	61	132	252	341	447	21	0	79	<1	85	<1	18	25	45	11	H	0
21026	Tima Water	Deephope	31.0	30	80.0	N	.37	1.000	72	173	232	301	388	486	542	0	0	100	0	47	13	82	<1	9	8	H	0
21027	Blackadder Water	Mouth Bridge	159.0	16	21.0	N	.52	0.997	41	57	57	99	206	273	445	66	16	19	3	82	3	11	28	50	10	H	0
21028	* Menzion Burn	Menzion Farm	5.7			N	.39	1.000	72	258	267	314	411	562	685	0	0	100	3	24	0	75	0	13	12	H	0
21030	Megget Water	Henderland	56.2	14	76.0	S	.39	0.815	72	227	254	354	504	670	837	0	0	100	0	34	39	2	0	37	57	H	0
21034	Yarrow Water	Craig Douglas	116.0		145.0	S	.39	0.767	72	223	239	297	465	601	837	0	0	100	0	22	36	7	<1	35	54	H	0

Gauging Station Register III

SEPA East

13002 Luther Water at Luther Bridge

SEPA East

Station: Velocity-area station with cableway; 10m wide. Situation not ideal due to bend u/s and island d/s, but stage-discharge relation is regularly reviewed using routine gaugings. Stable bedrock control at low flows.

Catchment: Upper third of catchment is fairly steep (Grampian Mountains), the rest has moderate slopes. Lower 80% is on ORS, the remainder is metamorphic. Almost the entire catchment is covered by superficial deposits. Land use is forest (approx. half) and rough grazing at higher levels with arable and cattle elsewhere.

13004 Prosen Water at Prosen Bridge

SEPA East

Station: Velocity-area station with cableway; 16m wide. Fairly stable rock and boulder control. Usually has significant spring snowmelt.

Catchment: Metamorphic bedrock; approx. half overlain by superficial deposits. Mountainous with rough grazing and forest cover.

13005 Lunan Water at Kirkton Mill

SEPA East

Station: Velocity-area station with cableway; 6m wide. Control at low and medium flows is unstable gravel bed.

Catchment: A moderately sloping catchment typically rising to 250m. Bedrock is divided in almost equal proportions between ORS and igneous rocks almost all of which is overlain by superficial deposits. Land use is pasture and arable with some forest cover.

13007 North Esk at Logie Mill

SEPA East

Station: Compound Crump profile fibreglass weir, width 41m. Cableway - current meter calibration. Daily flows of limited precision (based on single stage readings) from 1/76 to 4/83 derived from two nearby sites; high flows overestimated. Usually has significant spring snowmelt. Minor abstractions for PWS and irrigation. Naturalised monthly flows available 1976-87.

Catchment: Drains south-east flank of Grampians. Steeply sloping apart from lower 30%. Bedrock is mostly ORS, the remainder being igneous and metamorphic; almost 90% of which is overlain by superficial deposits. Rough grazing on open moorland; cattle and arable at lower levels.

13008 South Esk at Brechin

SEPA East

Station: Velocity-area station with cableway; 20m wide. High flows can cut off access to the cableway. Summer flows can be affected by agricultural abstractions. Supersedes 13003, Stannochy Bridge (1979-82), 3km u/s. Usually has significant spring snowmelt.

Catchment: A long narrow catchment draining the SE flank of the Grampians. The upper 2/3 are steeply sloping. Land use is a mix of rough grazing on open moorland, forestry and, at lower levels, arable. The lower half lies on ORS, the remainder is metamorphic; two thirds of which is overlain by superficial deposits.

13009 West Water at Dalhousie Bridge

SEPA East

Station: Velocity-area station with cableway. 20m wide. Unstable gravel control which until 1990 was affected by abstraction of gravel by farmers. Flows are natural. Significant spring snowmelt is common.

Catchment: Predominantly mountainous catchment. Largely impermeable bedrock with significant superficial deposits. Limited forestry. Rough grazing. Uplands are peaty and flat. Valley sides are steep.

13010 Brothock Water at Arbroath

SEPA East

Station: Station opened as part of Arbroath flood warning scheme, launched winter 1993/94. Station is located on straight reach, immediately u/s of road bridge. Bed is a vegetated mix of sand and gravel, with high flows controlled by bridge. Debris thrown from bridge causes rating problems.

Catchment: A gently-sloping, low-lying catchment, with fertile soils supporting a variety of crops and some forestry. Minor agricultural abstractions. Bedrock mostly ORS with some lavas and tuffs, almost entirely overlain by superficial deposits.

13012 South Esk at Gella Bridge

SEPA East

Station: Velocity-area station located on straight reach between bridges. Bed and control are mixture of large boulders, sand and bedrock. Natural flows. Opened in 12/90 as part of South Esk Flood Warning Scheme. Usually experiences significant spring snowmelt. Mean loss appears anomalous.

Catchment: Upland catchment. Bedrock predominantly Dalradian metamorphics over 50% of which is overlain by superficial deposits. Predominantly mountainous with grassland (long and narrow valley supporting rough grazing), and some forest.

13017 Colliston Burn at Colliston

SEPA East

Station: Velocity area station installed in Oct 1993 as part of flood warning scheme for Arbroath. Tipping bucket raingauge installed at site in Oct 1994.

Catchment: Bedrock ORS, a locally important aquifer, with Boulder Clay cover. Low lying catchment of subdued relief supporting agriculture. Entirely rural.

14001 Eden at Kemback

SEPA East

Station: Velocity-area station with cableway; 15m wide. High flow control is downstream bridge. Low flow control is natural bar 30m d/s from hut. Bypassing occurs on the left hand bank in the very highest floods above 2.1m (ratings extrapolated beyond that). Summer weed growth necessitates frequent revisions to the stage-discharge relation. Abstractions for irrigation; gw abstractions and effluent returns and small reservoirs in the headwaters.

Catchment: A gently sloping and low-lying catchment between the Tay and Forth estuaries. Mixed bedrock geology; ORS along the central valley, igneous to the north, some igneous plus Carboniferous Limestone and sandstone to the south. Land use is mainly arable, grassland, and woodland.

14002 Dighty Water at Balmossie Mill

SEPA East

Station: Velocity-area station with cableway; 8m wide. Summer weed growth necessitates frequent revisions to the stage-discharge relation. Very flashy.

Catchment: Gently sloping and low-lying catchment except for the far N and W edges which drain S flank of Sidlaw Hills (up to 450m). Bedrock predominantly Devonian S'st, approx. 80% overlain by superficial deposits. Lower part of catchment urban (Dundee), the rest mainly arable, with grassland and some forest.

14005 Motray Water at St Michaels

SEPA East

Station: Velocity-area station; 4m wide. No cableway; gauged from bridge. Control is kerbstones at low flow, channel at medium flow and bridge at high flow. Kerb weir rebuilt in Nov 1995, station recalibrated. Abstractions for irrigation. Abstractions and discharges from sand and gravel workings though little net effect on daily means.

Catchment: Low-lying catchment. Bedrock ORS and igneous; two thirds of which is overlain by superficial deposits. Arable and rough grazing; some woodland.

14006 Monikie Burn at Panbride

SEPA East

Station: Velocity-area station; 2.5m wide. Gauged by wading to bankfull (about 1m). Railway sleepers form the low flow control. There are problems with weed growth. Small recreational reservoirs (formerly for PWS) affect flow when being cleaned out. Agricultural abstractions can reduce flow to zero. Opened for spray irrigation monitoring. Closed 12/1992 due to scour below railway sleeper control. Data may be of limited value.

Catchment: Low undulating catchment on ORS. Mainly used for arable farming.

14007 Craigmill Burn at Craigmill

SEPA East

Station: Velocity-area station. 5m wide. No cableway. Calibrated to 0.7m (medium flow). Kerb weir control constructed Oct 1996 in attempt to make more sensitive at low flows; previously unstable silt and gravel control. Fairly slow flows. Weed growth is a problem. Abstractions for irrigation. Recreational reservoirs (formerly PWS) affect flows when being cleaned out.

Catchment: Lowland catchment. Bedrock predominantly ORS; almost entirely overlain by superficial deposits. Land use mainly arable, grassland and forest.

14009 Eden at Strathmiglo

SEPA East

Station: Velocity-area station. All but highest flows contained; by-passing is very minor. Sand/cobble bed with grassy island providing control; growth of vegetation necessitates seasonal recalibration. Strathmiglo STW effluent (minor) bypasses station.

Catchment: Lowland catchment with gentle hills rising to the N and the steeper Lomonds to the S. Mixed bedrock of ORS and various igneous types, over 85% of which is overlain by superficial deposits. Land use is predominantly arable agriculture at lower levels, and grazing (some improved land) with some forest.

14010 Motray Water at Kilmany

SEPA East

Station: Station established to monitor spray irrigation abstractions in fertile area of NE Fife. Banks to 1.5m will contain all flows; cobble bed is rather uneven but stable. A wooden footbridge u/s allows measurement of high flows $>2.1 \text{ m}^3\text{s}^{-1}$. Abstractions for irrigation are mainly at a single point and produce marked steps in the hydrograph.

Catchment: Lowland catchment. Bedrock intermediate/basic extrusives of Devonian/ORS age; approx. 50% overlain by superficial deposits. Fertile soils support a variety of crops at lower levels with grassland elsewhere..

15001 Isla at Forter

TRWS

Station: Compound standing-wave flume, 4km NNW of Kirkton of Glenisla. Substantial and variable gravel accumulation - could impact on station calibration; may explain notably high mean runoff.

15002 Newton Burn at Newton

TRWS

Station: A compound sharp-edged weir with three crests; about 16m wide overall. 2km above the confluence with the River Isla. Responsive regime. Hydrometric performance uncertain and import of water from a neighbouring catchment influences the water balance.

15003 Tay at Caputh**SEPA East**

Station: Velocity-area station with cableway; 95m wide. 62% of catchment controlled for HEP; developed from 1930s to 1957. Substantial surface storage. Net water import. Twice daily stage readings from 7/37, continuous from 10/51. Monthly naturalised data available 1973-87. Estimated flood flow for 17/2/50 (1503 m³s⁻¹) is to be revised. Recalibration underway, signif. changes to peak flows expected.

Catchment: Most of catchment is steep, rising up to >1200m. Bedrock mostly metamorphics and granites with approx. ~60% overlain by superficial deposits. Landuse mountains and moorland, rough grazing and forestry. Numerous lochs; the largest are Ericht, Rannoch, Tummel and Tay.

15004 Inzian at Loch of Lintrathen

Station: Compound sharp-edged weir about 9m wide situated 265m above the Loch of Lintrathen. Incomplete series but daily flows for 1927-38.

15005 Melgan at Loch of Lintrathen

Station: Compound sharp-crested weir, 11.8m wide about 700m above Loch Lintrathen. Incomplete record; early flows from 1927. All flows bar the summer of 1968 pre-date the construction of u/s impounding reservoir. Hydrometric performance uncertain.

15006 Tay at Ballathie**SEPA East**

Station: Velocity-area station with cableway; 90m wide. The most d/s station on the Tay, records highest mean flow in UK. All flows contained to date. C/m rated to above Qmed (approx. 4.7m). Some hydraulic analysis to est. highest floods. Since end of 1957, 1980 sq.km (43%) controlled for HEP (providing potentially increased flood storage from mid-1990s); some control prior to this. 73 sq.km controlled for water supply. Significant winter snow cover.

Catchment: Catchment is mostly steep, comprising mountains and moorland; exceptions are lower valleys. Bedrock mainly metamorphics and granite, but lower 20% (Isla Valley) is Old Red Sandstone. Approx. 60% is overlain by superficial deposits (mostly Boulder clay). Landuse mainly rough grazing and forestry. Several large lochs in catchment.

15007 Tay at Pitnacree**SEPA East**

Station: Velocity-area station with cableway; approx. 80m wide. Unstable gravel bed. All flows contained to date. 293 sq.km (25% of catchment) controlled for HEP but no further development post-1960. Naturalised monthly flows available from 1973 to 1987.

Catchment: Most of the catchment is steep. Mountainous headwaters, often snowy in winter. Bedrock almost entirely metamorphic; 55% overlain by superficial deposits. Land use mainly moorland, rough grazing and forestry. Contains Loch Tay.

15008 Dean Water at Cookston**SEPA East**

Station: Velocity-area station with cableway; 10m wide. Summer weed growth is a problem. All flows contained to date. The town of Forfar discharges treated effluent into Forfar Loch in the upper catchment; this is an import from the Isla River. Naturalised monthly flows available 1973-87.

Catchment: Low-lying and gently sloping catchment except for the South which drains the northern flank of the Sidlaw Hills (350m). Bedrock almost entirely ORS; 75% overlain by superficial deposits. Land use mainly arable. Predominantly rural, but urbanised (Forfar) around head of main channel.

15010 Isla at Wester Cardean**SEPA East**

Station: Velocity-area station with cableway; 25m wide. Backing-up can effect the rating. Ratings extrapolated above 2.7m. Bypassing occurs above 3.3m from about 2km u/s. Significantly influenced by Loch of Lintrathen and Blackwater Reservoirs (supply for Dundee). Appreciable net export. Naturalised monthly flows available from 1973 to 87.

Catchment: Mountainous headwaters, often snowy in winter. Catchment lies on southern edge of Grampians rising above 1000m and has mainly steep slopes. Southern 35% of catchment is s'st, the remainder is metamorphic and igneous. Approx. 60% of the catchment is overlain by superficial deposits. Landuse predominantly rough grazing and forestry in uplands, cattle and arable in lowlands.

15011 Lyon at Comrie Bridge**SEPA East**

Station: Velocity-area station with cableway; 40m wide. Upgraded from pressure recorder (installed 1972, start of peak flows) to full network status in 1983. Banks 3.2m high contain all flows. Trees on banks hinder flood gauging. 170 sq.km controlled for HEP (major development 1951-59) storage in Lochs Lyon, An Daimh and Stronuch. Hydro-power diversions greatly reduce catchment runoff. Twice-daily ramp readings: 6/37 to 9/72. Limited resolution of rating prior to early 1960s. 'Weekly' nature of time-series prior to 1973. Naturalised monthly flows available from 1973-87.

Catchment: Steeply sloping catchment (Grampian mountains). Bedrock metamorphic (schist, quartzite and marble) with approx. 50% overlain by superficial deposits. Land use rough grazing and forestry.

15012 Tummel at Pitlochry**SEPA East**

Station: Original site 15804 Balinluig (1720 sq.km) moved 8km u/s to 15012 Port-na-craig (1649 sq.km) in 1978. Control scoured by Jan 1993 flood, low flow levels thence below inlet pipe. Data 9/9/93-11/4/95 est. from 15045. Superseded by Pitlochry (1670 sq.km) 700m d/s on 11/4/95. VA station, with cableway, below Faskally Dam. Used for flood warning. Entire catchment controlled for HEP; major storage in Lochs Ericht, Rannoch, Tummel and Faskally. Flows maintained above approx. 19 m³s⁻¹. Naturalised monthly flows from 1973-87.

Catchment: Most of catchment is steeply sloping (Grampians >1000m). Bedrock predominantly impermeable, metamorphic, with >50% overlain by superficial deposits. Landuse mainly rough grazing and forestry.

15013 Almond at Almondbank**SEPA East**

Station: Velocity-area station with cableway; 15m wide. Daily read gaugeboard from 1/55 to 1/73. Ratings extrapolated above 2.3m. Very flashy. Lowest Tay tributary above tidal limit. 30 sq.km controlled for HEP. Minor abstraction from Fendoch Burn for water supply. Naturalised monthly flows available from 1973.

Catchment: Long narrow catchment draining Glen Almond in SE of Grampians (rising up to >900m). Two thirds of bedrock is metamorphic the remainder is s'st. Over half of the catchment is overlain by superficial deposits. Rough grazing in upper parts, some cattle in the lower; approx. 20% forest.

15014 Ardle at Kindrogan**SEPA East**

Station: Velocity-area station; 14m wide. Gauged from bridge; cableway planned. Boulder and gravel control. Natural flows.

Catchment: Mountainous steep catchment on metamorphic rock with some l'st outcrops, approx 55% is overlain by superficial deposits. Landuse mainly rough grazing with some forestry (~10%).

15015 Almond at Newton Bridge**SEPA East**

Station: Velocity-area station with cableway; 15m wide. Stable control of gravel and small stones. 30 sq.km controlled for HEP otherwise natural regime - very flashy. Control may be affected by ice.

Catchment: Steep mountainous catchment on metamorphic rock, approx. 1/3 overlain by superficial deposits. Land use mostly rough grazing; some forestry.

15016 Tay at Kenmore**SEPA East**

Station: Velocity-area station with cableway; 60m wide. All flows contained to date. Ratings extrapolated above 2.5m. 120 sq.km controlled for HEP. Water imported from Lyon catchment - evident in water balance. Strong winds over Loch Tay (2km u/s) can affect flows. Daily gaugeboard readings 1959-74. Naturalised monthly flows available 1974-87.

Catchment: The catchment is in the Grampians (rising up to >1200m) and is steeply sloping except for the valley bottom. Bedrock almost all metamorphic; ~55% overlain by superficial deposits. Land use rough grazing, forest. Contains Loch Tay.

15017 Braan at Ballinloan**SEPA East**

Station: Velocity-Area station. Responsive regime. Superseded by d/s 15023 (area difference 13 km²).

Catchment: Mostly upland catchment with impermeable bedrock, and some superficial deposits of mixed permeability. Land use: heath, forest, grasslands.

15018 Lyon at Moar

Station: River section 2km u/s of Meggernie Castle. Very responsive regime; all but the 1958 flows predate Breadalbane HEP project.

Catchment: Very wet Highland catchment.

15021 Lunan Burn at Mill Bank**SEPA East**

Station: Velocity-area station; 7.5m wide. No cableway. Stable cobbled bed control (old ford) under a bridge; bridge is high flow control. Not gauged at very high flows, HIF record patchy. Minor abstractions for irrigation.

Catchment: Undulating hilly catchment to about 400m. Mixed permeability bedrock with 2/3 overlain by superficial deposits. Mixed arable farming and rough grazing with natural woodlands. Five small natural lochs in the catchment.

15023 Braan at Hermitage**SEPA East**

Station: Velocity-area station with cableway; 30m wide. The low flow control, a derelict stone weir, is sometimes altered by children. Supersedes Ballinloan (15017) 5km u/s (197 sq.km). Flows are natural.

Catchment: Catchment is in the Grampians (rising up to > 800m) and has steep or moderate slopes. Metamorphic bedrock geology with approx. 60% overlain by superficial deposits. Mainly open moorland with rough grazing; >30% forestry.

15024 Dochart at Killin**SEPA East**

Station: Velocity-area station with cableway; 35m wide. Stable bedrock control; sharp fall in bed level d/s of station, culminating in the Dochart Falls. Some exports to the Loch Lyon system for HEP.

Catchment: A mountainous, steeply sloping catchment. Bedrock predominantly metamorphic over 50% of which is overlain by superficial deposits. Land use mainly rough grazing on open moorland with some forestry at the head of the catchment and along the valley bottom. Adjacent to the IH experimental Balquhider catchments.

- 15025 Ericht at Craighall** **SEPA East**
Station: Velocity-area station with cableway; 46m wide. Stable bedrock control. Flows are natural.
Catchment: Mountainous steeply sloping catchment. Mostly impermeable bedrock, metamorphic, 2/3 overlain by superficial deposits. Land use mainly rough grazing with some forestry.
- 15027 Garry Burn at Loakmill** **SEPA East**
Station: Velocity-area station; 4m wide. No cableway; high flows gauged from bridge. Low flow control formed from sleepers in a Flat V configuration; bridge is high flow control. Fully gauged. Significant abstractions for irrigation.
Catchment: Moderately sloping catchment rising to 400m. Bedrock metamorphic and ORS; approx. 70% overlain by superficial deposits. Land use mixed farming, forest.
- 15028 Ordie Burn at Luncarty** **SEPA East**
Station: Velocity-area station with cableway; 7m wide. Fully rated. Old mill weir 1.5m high provides a stable control at all flows; the weir offtake has been closed off.
Catchment: Moderately sloping catchment rising to 450m. Bedrock metamorphic and ORS; approx. 75% overlain by superficial deposits. Land use mixed farming, some forest cover.
- 15029 Alyth Burn at Pitcrocknie** **SEPA East**
Station: Continuous recorder replaced a post gauge in 1991. Ceased recording 31/12/94. Data used for spray irrigation monitoring and pollution control purposes. Low flow control (ford) removed 1993, making stability and accuracy of data less reliable. High flow control 50m d/s thought to be quite stable. PWS for Alyth derives from outside the catchment and enters burn via STW immediately d/s of station. Agricultural abstractions are relatively minor.
Catchment: Catchment drains a narrow valley between the Ericht and Isla in the E Grampians. Bedrock ORS, some extrusives, and Dalradian metamorphics. Land use arable, grazing and forestry.
- 15030 Dean Water at Dean Bridge** **SEPA East**
Station: Velocity-area station; 12m wide with cableway. The town of Forfar discharges treated effluent into Forfar Loch in the upper catchment; this is an import from the Isla catchment.
Catchment: Gently sloping catchment except for the S which drains N flank of Sidlaw Hills (350m). Bedrock ORS. Land use is mainly arable. Predominantly rural, but urbanised (Forfar) around the head of the main channel.
- 15032 Ordie Burn at Jackstone** **SEPA East**
Station: Lowland Perthshire station built after 15028 and 15027 to address spray irrigation abstractions specifically within this subcatchment. Control provided by unstable gravel island under road bridge immediately d/s. Low flows frequently gauged, providing good accuracy; this deteriorates at higher flows. High flows exceed channel capacity but are contained within the bridge. From 1997 station virtually abandoned due to instable control and staff cutbacks.
Catchment: Gentle topography underlain by ORS and some dykes. Land use mostly arable - cereals, potatoes, berries, with rough grazing at higher levels.
- 15034 Garry at Killiecrankie** **SEPA East**
Station: Velocity-area station; 48m wide with cableway. Built as part of the Tay Flood Warning Scheme. 66% of the area is severely affected by HEP, with water exported from the catchment.
Catchment: Bedrock Moinian and Dalradian Metamorphics. Most of the catchment is steeply sloping, supporting rough grazing and forestry.
- 15035 Tummel at Kinloch Rannoch** **SEPA East**
Station: Flood warning station with cableway, installed after Feb 1990 flood. Deep channel with smooth flow and natural control. Flow from Loch Rannoch u/s is regulated for supply to Tummel Power Station, hydrograph therefore highly artificial. Most of catchment drains through regulated Lochs Ericht and Eigheach. Also receives diverted flow from Garry and right-bank Spey tributaries. Small diversion out of catchment to Loch Errochty.
Catchment: A mountainous catchment with rough grazing and some forestry. Bedrock mostly metamorphic, granite in SW.
- 15038 Gaur at Bridge of Gaur** **SEPA East**
Station: Flood warning station with cableway in Tummel headwaters. Stable section on gentle right-hand bend, with large boulders protruding from gravel bed. Large floods contained. Flow is dominated by discharge from Gaur Power Station immediately u/s, however, no imports or exports so runoff volumes unaffected by HEP.
Catchment: Catchment covers Rannoch Moor (~300m) and surrounding mountains (>1000m). Impermeable bedrock geology (mostly granitic); approx. 75% overlain by superficial deposits. Approx. 10% of catchment afforested.
- 15039 Tilt at Marble Lodge** **SEPA East**
Station: Velocity area station in a straight reach 17m wide, with cableway. Separate low and high flow controls are shoals and rock steps, respectively. Steep rb extends up a hillside; lb contains gauge hut and access road. All flows contained. Natural catchment. Rainfall may be underestimated.
Catchment: Upland catchment. Bedrock Moinian and Dalradian Metamorphics partially overlain by peat and Boulder Clay. Land use: predominantly rough grazing.
- 15041 Lyon at Camusvrachan** **SEPA East**
Station: Velocity-area station on straight, deep reach with very smooth flow; minor bypassing in very high floods. Stable natural control, though d/s bridge may take effect in extreme floods. Gauged by wading u/s and with cableway. Imports from Orchy, Lochay and Dochart catchments, and exports to Cashlie and Lochay Power Stations. Station therefore measures compensation flows and runoff from part of natural catchment below Loch an Daimh and Stronuich Reservoir.
Catchment: Steep, wet mountain catchment with only sparse settlement, mostly rough grazing with a little forestry. Mixed metamorphic geology.
- 16001 Earn at Kinkell Bridge** **SEPA East**
Station: Velocity-area station with cableway; 35m wide. An allowance is made for any high flows which bypass gauged section on LHB above about 2.2m. Weed growth can be a problem. Ratings extrapolated above 3.2m. 189 sq.km controlled for HEP. Loch Turret used for PWS. Monthly naturalised flows available 1963-87.
Catchment: Drains S Grampians. Steep slopes plus extensive flatter areas in lower parts. Metamorphic bedrock in west, s'st elsewhere with superficial deposits in valley. Mixed agricultural use in east; forestry and rough grazing in west.
- 16003 Ruchill Water at Cultybraggan** **SEPA East**
Station: Velocity-area station; 20m wide with cableway. All flows contained to date. Flashiness and remoteness hinder flood gauging. Ratings extrapolated above 2.5m. Flows are natural.
Catchment: A mountainous catchment with steep slopes, often snowy in winter. Thick peat on the flatter hill tops. Main channel follows a major geological fault; sandstone (40%) to its south, metamorphic (60%) to its north. Approx 60% is overlain by Boulder Clay. Land is used mainly for rough grazing and army ranges; some woodland.
- 16004 Earn at Forteviot Bridge** **SEPA East**
Station: Velocity-area station; 50m wide. Rebuilt with cableway in 1991. Bridge forms control. Cableway too close to bridge causing operational problems. Big floods (>70 year RP, >2.8m) bypass station on RHB. Ratings extrapolated above 2.8m. 189 sq.km controlled for HEP. Loch Turret used for PWS. Naturalised monthly flows available from 1975 to 1987.
Catchment: Catchment draining southern Grampians, rising to >950m. Steep slopes plus extensive flatter areas in lower catchment. Metamorphic bedrock dominant in the west, sandstones in the east.; Substantial superficial deposits, mainly Boulder Clay, along the valley. Mixed agricultural use in lowland east; forestry and rough grazing in west.
- 16007 Ruthven Water at Aberuthven** **SEPA East**
Station: Velocity-area station; 9m wide with cableway. Water imported through STW at Gleneagles and Auchterarder. Large floods bypass the station.
Catchment: Mostly low-lying catchment draining N side of the Ochil Hills. Bedrock Lower ORS, over 55% of which is overlain by superficial deposits. Land use mixed grazing and arable, some forest.
- 17001 Carron at Headwood** **SEPA East**
Station: Flat V weir installed in Oct 1988 in an artificial meander cutoff. Previously velocity-area station: instability in rating caused by d/s deposition. Straight, uniform channel (concrete walls) lined with gabions; banks are steep to 2.5m. Ratings extrapolated above 1.6m, but not taking bridge into account. Catchment contains Carron Valley Reservoir. Export of water and operation of reservoir can significantly influence flow patterns.
Catchment: The upper part of the catchment drains part of the Campsie Fells. Bedrock composed of igneous rocks in headwaters and Carboniferous rocks in the valley; approx. 70% of which is overlain by superficial deposits. Land use predominantly moorland and plantation forestry in headwaters, pasture in lower reaches.
- 17002 Leven at Leven** **SEPA East**
Station: Velocity-area station on a straight reach with artificially heightened and steeped banks. The control was formerly a gravel bar, now stabilised with gabions to form an irregular broad-crested weir. Possible movement in control, evident at low flows. Ratings extrapolated above 1.6m. POR max. under review. There are a number of small storage reservoirs in the catchment plus Loch Leven whose outflow is controlled by sluice gates (these can produce seemingly anomalous flow hydrographs).
Catchment: Mostly low-lying catchment. Bedrock predominantly Carboniferous rocks; approx. 80% overlain by superficial deposits. Land use lowland arable farming, and forest with significant urbanisation.
- 17003 Bonny Water at Bonnybridge** **SEPA East**
Station: Open river section with rock bar low flow control. Possible shift in control. Floodplains at 2.1m on lb. Severe congestion by aquatic weeds in summer necessitates large correction to recorded stage. Low flows affected by effluent discharge.
Catchment: Lowland catchment. Bedrock Carboniferous rocks with igneous intrusions; almost entirely covered by superficial deposits, mainly Boulder Clay. Land use: predominantly grassland, forest, and arable with urban development at Cumbernauld in the headwaters.

17004 Ore at Balfour Mains**SEPA East**

Station: Open river section with stable rock bar low flow control, has shown instability at rb. A railway embankment forms the rb, whilst the lb is steep to the floodplain at 1.6m. Low flows moderately affected by pumping from collieries. May 1994 flows affected by work at the Loch Fitty outlet.

Catchment: Lowland catchment in the coal mining area of W Fife. Bedrock Carboniferous rocks, >90% overlain by superficial deposits, mainly Boulder Clay. Land use predominantly grassland, forest, and arable with urban development.

17005 Avon at Polmonthill**SEPA East**

Station: Velocity-area station; the river takes a sharp left turn u/s at a site of river capture. Unstable gravel control replaced by gabion weir in 1990. There is a small island in mid-channel immediately below the station which forms the high flow control. The banks have contained all recorded flows. Ratings extrapolated beyond 1.8m. Low flows are moderately affected by effluent discharges. Extensive moorland drainage schemes in headwaters.

Catchment: Lowland catchment. Bedrock Carboniferous sedimentaries; approx. 90% of which is overlain by superficial deposits, mainly Boulder Clay. The catchment is predominantly rural; grassland, arable and forest landuse dominate, with a few small former coal-mining towns.

17008 South Queich at Kinross**SEPA East**

Station: Velocity-area station with stable control. U/s of road bridge. All recorded flows contained. Not rated at high flow (typical high flows probably accurate to within 20%). Natural flows (apart from effect of agricultural drainage). Previously contained sand and gravel workings though these had a minor influence.

Catchment: Mostly low-lying catchment. Bedrock 85% impermeable bedrock with approx. 60% overlain by superficial deposits. Rural catchment; grassland, arable (>30%) and forest landuse.

17012 Red Burn at Castlegary**SEPA East**

Station: Velocity-area station. Low flow control is a gravel bar 20m d/s. Large boulders probably form high flow control. The section will probably contain all flows. At Q95 flow STW discharges account for half of the flow.

Catchment: A gently sloping catchment rising to ~185m. Bedrock entirely Carboniferous with extensive Boulder Clay cover. Land use mixed agriculture, grassland and forest except for ~15% covered by Cumbernauld New Town. There are two small lochs in the southern headwaters.

17015 North Queich at Lathro**SEPA East**

Station: Velocity-area station. Fairly stable control dominated by sharp bend d/s of station. Not gauged accurately at high flows. Installed to assess inflows to Loch Leven. Flows are natural.

Catchment: Relatively low-lying catchment. Mostly impermeable bedrock with ~45% overlain by superficial deposits. Mainly arable catchment with some sheep farming on the higher ground; ~20% forest.

17016 Lochty Burn at Whinnihall**SEPA East**

Station: Concrete Flat V weir situated under a bridge which will contain all flows. Until 1991 the control was a gabion weir 5m d/s of the bridge. The site is immediately d/s of the large Westfield opencast coal mine; this has a significant influence on flows, particularly as a result of gw issuing from breached faults.

Catchment: Lowland catchment dominated by opencast coal mine u/s of the station. Mostly permeable bedrock with ~85% covered by superficial deposits. Land use grassland, arable, some forest.

17018 Greens Burn at Damleys Cottage**SEPA East**

Station: Flat V weir. Upstream of large capacity culvert - allows weir to operate as control to high level. Responsive regime. Research site - station monitors runoff into Loch Leven (objective is to assess phosphorus and other nutrient loadings).

Catchment: Relatively flat lowland catchment intensively farmed below headwaters in the Lomond Hills. Mostly permeable bedrock with ~85% overlain by superficial deposits. Land use arable, grassland, some forest.

18001 Allan Water at Kinbuck**SEPA East**

Station: Velocity-area station; stage recorder sited 40m u/s of twin-arch bridge which acts as control at all stages. Gabions installed in 1980 beneath one arch to stabilise control. Steep section contains all floods. Stable rating, well defined throughout full range. Flows are broadly natural. River level protected by SOAEFD.

Catchment: River flows through broad flat valley. Lateral tributaries drain steep hillsides. Bedrock predominantly ORS; 85% overlain by superficial deposits. Land use predominantly grassland with some arable and forest.

18002 Devon at Glenochil**SEPA East**

Station: Natural section with steep banks and good stable flood rating. Low flow control is gravel bar under road bridge 100m d/s. Severe weed growth in summer and very low velocities make low flow measurement difficult. RAFT rising air-bubble technique used unsuccessfully. Low flows moderated by Castlehill Res. in headwaters, commissioned in 1977 (prescribed minimum river level).

Catchment: Headwaters are steep; lower valley is broad and very flat. Bedrock extrusive igneous rocks, 50% overlain by superficial deposits. Land use arable in the valley; grassland in headwaters, some forest.

18003 Teith at Bridge of Teith**SEPA East**

Station: Well sited station on straight, natural river section 70m wide. On 6/6/56 recorder was moved d/s to its current position. No rating available for earlier period from 7/4/40. Steep banks of 3m have contained all recorded floods. Six large lochs in catchment - some supplying water to Glasgow. Abstractions for industry in Doone. Regulation for HEP affects hourly, but not daily flows. Occasional ice build-up.

Catchment: Catchment rising from near sea level up to ~1150m. Complex bedrock, predominantly impermeable (metamorphic) with approx. 60% superficial deposit cover. Land use mainly grassland and forest. The Teith drains from the Trossachs.

18005 Allan Water at Bridge of Allan**SEPA East**

Station: Velocity-area station; recorder sited in natural reach with vertical stone wall on rb. Lb steep to 2.6m. Flood rating stable but large boulders make c/m a problem at low flows. As site is within a caravan park the low flow control is susceptible to rearrangement by children. Station useful for obtaining flood data, as flooding frequently occurs in the town of Bridge of Allan.

Catchment: The Allan Water occupies a broad flat valley with steep lateral tributaries. Bedrock predominantly Old Red Sandstone; ~85% overlain by superficial deposits. Land use grassland with some arable and forest cover.

18007 Devon at Fossoy Bridge**SEPA East**

Station: Velocity-area station d/s of Castlehill reservoir. A poor site with an insensitive and unstable broad gravel control and banks which did not contain all flows. It was closed in 1990 and replaced by a new station immediately below the reservoir. There are several other reservoirs in the catchment.

Catchment: A rural catchment with rolling hills used for sheep grazing.

18008 Leny at Anie**SEPA East**

Station: Well sited station on a natural section of an upland gravel bed river draining steep slopes. As the site is adjacent to a picnic area the gravel bar low flow control is susceptible to rearrangement by children. Catchment response is damped by two large natural storage lochs.

Catchment: Catchment rising up to ~1150m; rugged topography. Catchment is underlain by metamorphic rocks with igneous intrusions; approx. 50% is overlain by superficial deposits. Land use mostly open heather moorland; some forest.

18010 Forth at Gargunnoch**SEPA East**

Station: Velocity-area station with control at road bridge. Difficult to measure slow velocities by c/m at low stages. Rising air-bubble technique (RAFT) was used at low stages, but station has now been successfully rated by c/m 5km u/s. Three lochs influence the flow regime.

Catchment: Relatively flat catchment with its upper reaches rising steeply. BGeodrock mixed permeability with ~60% superficial deposits. Upper catchment heavily forested; lower reaches, where river meanders extensively, supports agriculture.

18011 Forth at Craighorh**SEPA East**

Station: Originally opened in 1972 - known as Drip Bridge. Rebuilt on same site in 1982. 70m wide section - part of a large meander just above the tidal limit. Left bank floods at high stages. Low flows measured d/s in tidal section. Large tides can influence levels for short periods; data corrected. Flow velocities low, but stable control. A good rating exists over the whole range.

Catchment: Bedrock Devonian and Carboniferous sedimentaries in lower catchment; metamorphic rocks with igneous intrusions above. Mostly heather moorland; rugged.

18013 Black Devon at Fauld Mill**SEPA East**

Station: Concrete weir control which is stable, good full-range rating (but control subject to interference by children damming with bricks in summer). Station commissioned to replace unsatisfactory flume station further u/s at Little Saline. Lade takeoff to Gartmore Dam for potable water supplies for Alloa. Upstream minewater pumping sustains higher than normal baseflows. Flows W from Cleish Hills to join Forth Estuary below Clachmannan.

Catchment: Low-lying catchment. Bedrock ~70% permeable with ~90% superficial deposit cover. Land use grassland, arable and forest.

18014 Bannock Burn at Bannockburn**SEPA East**

Station: Gabion river control initially showed signs of instability, but is now stable. Small reservoirs in catchment have a slight effect on otherwise natural flows.

Catchment: Mostly low-lying catchment. Bedrock mixed permeability; ~85% overlain by superficial deposits. Catchment is mostly moorland; some forest and arable landuse.

18015 Eas Gobhain at Loch Venachar**SEPA East**

Station: Sharp crested measuring weir control of good stability, but control hydrologically insensitive. No high flow gauging facility; theoretical rating used - unreliable at high flows. Station approx. 700m d/s of Loch Venachar, built to monitor compensation water.

Catchment: Geology: impermeable PreCambrian strata faulted against ORS in lower catchment; widespread Boulder Clay cover. High moorland; forest at lower levels (Achray Forest and The Trossachs). Lochs Katrine, Venachar, Achray, Drunkie and Glen Finglas Res. dominate catchment.

18016 Kelty Water at Clashmore**SEPA East**

Station: Two trapezoidal flumes in parallel. Occasionally overtopped by up to 100mm (flume rating is extrapolated), but does not drown. Flows are flashy. Inordinate mean annual loss (>900 mm).

Catchment: A small and steep catchment with thin soils. Impermeable catchment; no superficial deposits. One of the most afforested UK catchment with about 70% mature forest.

18017 Monachyle Burn at Balquhiddier**CEHW**

Station: Crump profile weir (capacity 50-year flood, 26 m³s⁻¹) plus in-series trapezoidal flume for greater sensitivity at low flows. Calibration is theoretical confirmed by gaugings. Responsive, natural regime. IH experimental catchment. Ppt based on ground level gauges sig. exceeds areal assessments using sparse standard raingauge network.

Catchment: Very wet, steep-sided glaciated valley with shallow peats, peaty gleys and upland brown earths overlying mica schist; deeper peat found on the more gently sloping upper catchment. Predominantly grass/bracken/heather - some exposed rock. Afforestation began 1987.

18018 Kirkton Burn at Balquhiddier**CEHW**

Station: Crump profile weir (50-year flood, 30 m³s⁻¹), steep channel, approach conditions not ideal, calibration based on multi-meter gaugings. Responsive, natural flow regime; a few lochans provide local storage. An IH experimental catchment. Ppt based on ground level gauges sig. exceeds areal assessments using sparse standard raingauge network.

Catchment: Wet, steep-sided glaciated valley. Shallow peat, gleys and brown earths overlay mica schist. 35% coniferous forest (1982), heather and grass. Clear felling of forest began 1986; 20% cover by 1990.

18019 Comer Burn at Comer**SEPA East**

Station: The station was run in conjunction with the DAFFS Pitlochry fisheries laboratory for the duration of a project which terminated in 1988.

Catchment: The catchment consists entirely of the side of a mountain. It is mostly steep, with some areas of peat bog and some bare rock.

18020 Loch Ard Burn at Duchray**SEPA East**

Station: Flume affected by gravel sediment.

Catchment: Small catchment with max. altitude of approx. 210m, within Loch Ard Forest. Bedrock impermeable, Pre-Cambrian strata; no superficial deposits. One of the most afforested UK catchments (~65%).

18021 Loch Ard Burn at Elrig**SEPA East**

Station: Flume requires constant maintenance to clear d/s gravels.

Catchment: Small catchment with max. altitude of approx. 230m, within Loch Ard Forest. Bedrock impermeable Pre-Cambrian strata; no superficial deposits. One of the most afforested UK catchments (~75%).

18022 Avon Dhu at Milton**SEPA East**

Station: Velocity-area station, situated immediately d/s of Loch Ard.

Catchment: Bedrock PreCambrian impermeable strata, relatively drift free; some Boulder Clay. Heavily forested upland catchment with steep mountain tributaries, dominated by Lochs Ard and Chon.

18023 Monachyle Burn at Upper Monachyle**CEHW**

Station: Aluminium alloy Flat V (1:10) weir, 3.2m wide with vertical sidewalls, keyed into a natural rockbar. Containable head 1.2m has max. flow of 9.0 m³s⁻¹. Natural catchment. Instrumentation problems throughout 1996, data infilled from Lower Monachyle and Kirkton.

Catchment: Very wet interfluvial area to the break in slope to a steep-sided glacial valley. Shallow and deep peat, peaty gleys and upland brown earths over mica schist. Some bare rock on W boundary. Heather moorland. Experimental catchment run by IH, nested within 18017 and neighbouring 18018.

19001 Almond at Craigiehall**SEPA East**

Station: Velocity-area station with cableway. Recorder is well sited on straight even reach with steep banks containing all recorded floods. Stable rating. Weed growth in summer - some adjustment to stage required. Ratings extrapolated above 3.3m. Low flows substantially affected by sewage effluent esp. from Mid Calder and Newbridge STW and six smaller STWs. Abstraction at Almondell to feed a canal. A number of storage reservoirs are situated in the catchment.

Catchment: Mostly lowland catchment. Bedrock predominantly Carboniferous rocks; 90% overlain by superficial deposits. Land use rural (grassland, arable, forest), with extensive urban development around Livingston, esp. industrial estates, and several small mining towns.

19002 Almond at Almond Weir**SEPA East**

Station: The control is a broad-crested masonry weir of a former pumping station intake works; section about 6m wide. The sluice is permanently closed. The structure has been rated by c/m to 0.6m, there is no cableway. Structure full 1.4m exceeded several times during the period of record. Land use changes may have affected the flow regime.

Catchment: Mainly low-lying plateau moorland (much artificially drained). Mixed permeability bedrock with 95% superficial deposit cover. Land use predominantly rough pasture with small mining communities in the valley; substantial afforestation in the headwaters.

19004 North Esk at Dalmore Weir**SEPA East**

Station: The control is a dog-legged 25m wide ogee section masonry weir rated entirely by c/m. There is no cableway and the gauging is correlated to a stage of 0.34m. Ratings extrapolated beyond 0.5m. All flows to date contained. Several small storage reservoirs in the headwaters.

Catchment: Upland catchment draining the SE slopes of the Pentland hills. Bedrock Carboniferous and Devonian sedimentaries with igneous intrusions; overlain by 75% superficial deposits. Rural catchment - mostly rough grazing with some forest and arable landuse.

19005 Almond at Almondell**SEPA East**

Station: Informal Flat V weir - installed at the site in June 1970. Structure widened and a sluice incorporated - June 1971. Previous control - natural bar with large boulders. Calibration is entirely by c/m. Ratings gauged up to 2m. Immediately above the station a measured quantity of water is abstracted to supply a canal. Low flows - significantly increased by discharge from East Calder sewage works.

Catchment: Catchment with mix of lowlands-uplands. Bedrock mainly Carboniferous rocks; 90% overlain by superficial deposits. Predominantly grassland, some forest (in headwaters), and arable landuse. Livingston new town and several small coal mining towns.

19006 Water of Leith at Murrayfield**SEPA East**

Station: Velocity-area station in a straight even reach 50m u/s of a road bridge; section about 14m wide. The rb is a vertical wall and the lb is steep to 2.6m. The high flow control is possibly the piers of a railway bridge 0.5km d/s. Stable rock bar under Roseburn road bridge as low flow control. Bypassing occurs on right bank at floods above about 2.5m. Ratings extrapolated beyond 1.8m. The catchment contains several storage reservoirs.

Catchment: Catchment with mix of lowlands-uplands; headwaters in the Pentland Hills. Bedrock permeable with ~85% superficial deposits. Lower part of the catchment has undergone urban development; the upper part contains grassland arable and forest landuse.

19007 Esk at Musselburgh**SEPA East**

Station: Velocity-area station in a section with steep banks. Low flow control is a rock bar, high flow control formed by bridge buttresses. In extreme flows, control of bridge diminishes and control becomes d/s channel & Roman footbridge. All flows to date contained. High rating appears to oscillate with periodic dredging and accretion of a bar on the rb. Ratings extrapolated above 2.5m. Floods of 1891 and 1948 reached about 1m above bankfull at Inveresk Mill. Flows abstracted u/s of the main station along a mill lade were monitored (until late 1980s) - summation needed to give total basin runoff. Gladhouse and Roseberry Reservoirs used for water supply. Low flows can be affected by sewage effluent and mining water. Stream controlled by a sluice.

Catchment: Catchment with mix of lowlands-uplands. Bedrock Carboniferous sediments with ~85% overlain by superficial deposits. Land use predominantly exposed moorland of the Moor foothills with arable lands, forest, and several small former mining towns in the valley.

19008 South Esk at Prestonholm**SEPA East**

Station: Closed 1990; replaced by Cow Bridge. Was on a straight artificial cut which diverted the flow from a coal mining waste site. Crump weir control. Accretion u/s deflects the flow which is skewed at the weir crest. Theoretical calibration superseded by c/m gaugings. Low flows were moderately augmented by pumping from collieries. There are several small storage reservoirs in the headwaters.

Catchment: The catchment is predominantly exposed moorland (developed on Carboniferous sediments). Some mining (until late 1980s).

19009 Bog Burn at Cobbinshaw**SEPA East**

Station: Measures outflow from Cobbinshaw Reservoir (British Waterways). (Water is abstracted d/s from the Almond at Almondell for the Union Canal.) A trapezoidal flume which has never been overtopped. Flow regime is dominated by reservoir operation.

Catchment: A gently sloping moorland catchment with increasing forestry.

19010 Braid Burn at Liberton**SEPA East**

Station: Flows were originally measured by a Crump profile weir and trapezoidal flume in parallel. The flume suffered from choking by domestic refuse and childrens dams and so was replaced in Oct 1985 by a second Crump profile weir at a lower level than the first.

Catchment: Mostly low-lying catchment with the headwater tributaries steeply rising in the Pentland Hills. Complex bedrock geology - Silurian/Devonian sedimentaries and igneous intrusions; >50% overlain by superficial deposits. The lower part of the catchment is extensively urbanised. There are several small reservoirs in the headwaters with forest and some arable landuse.

19011 North Esk at Dalkeith Palace**SEPA East**

Station: Velocity-area station. The recorder is sited on a bend in a natural river reach immediately u/s of a footbridge. Flow velocities are faster near the right bank, especially in floods. The water is stained red from effluent pumped from mine workings. The rb is a vertical stone wall, whilst the lb slopes gently to the hut at 2.5m.

Catchment: Mostly upland catchment with the headwaters draining the steep slopes of the Pentland Hills. Bedrock Carboniferous and Devonian sedimentaries with igneous intrusions. Over 75% is overlain by superficial deposits. Land use mostly rough grazing with some forest and arable. Significant urban development.

19012 Water of Leith at Colinton**SEPA East**

Station: Flat V weir. Flows fully contained in vertical channel walls. Built to measure compensation flows from reservoirs in the Lothian region; these dominate the summer hydrographs. Uses theoretical rating (confirmed by gauging).

Catchment: Catchment is almost entirely rural. The SW edge of the catchment is steep (Pentland Hills) rising to over 500m; the rest has moderate slopes. Bedrock predominantly permeable with ~85% superficial deposit cover. Land use grassland and arable with some forestry and two major reservoirs.

19017 Gogar Burn at Turnhouse**SEPA East**

Station: Rated section with small low flow control and large masonry broad crested weir controlling higher flows. The river tends to flood u/s of the station with consequent damping of its hydrographs. Small net impact on runoff due to airport discharges.

Catchment: Lowland catchment. Bedrock permeable with >95% superficial deposit cover. Catchment includes part of Edinburgh, and the urban fraction is increasing. 1.5km of the river has been culverted because of new development. The remainder of the catchment is mainly arable, grassland, and forest.

19020 Almond at Whitburn**SEPA East**

Station: Small concrete weir in fairly steeply banked channel which was realigned for an agricultural drainage scheme. All flows are contained. U/s of Whitburn STW and is the only natural station on the Almond.

Catchment: Low-lying catchment. Bedrock mixed permeability, ~90% overlain by superficial deposits. Land use mainly agricultural with increasing amounts of forestry and land drainage. Several opencast coal sites, but these have all been filled in.

20001 Tyne at East Linton**SEPA East**

Station: Velocity-area station. The low flow control is a gravel bar some 100m d/s. In 1970 a pipe crossing was constructed but did not unduly influence the rating. During 1982 recorded stage was adjusted during rebuilding of the road bridge 200m d/s. This provides a stable high-flow control. Allowance is made for weed growth during the summer when abstraction for irrigation also takes place. Ratings extrapolated above 3.2m.

Catchment: The catchment is characterised by steep headwaters in the Lammermuir Hills and broad flat valleys. Bedrock Silurian and Ordovician sedimentary rocks; 85% superficial deposit cover. Land use mainly arable in the valleys with grassland in the headwaters.

20002 West Peffer Burn at Luffness**SEPA East**

Station: Flows are measured by a trapezoidal flume and Crump profile weir in parallel. The section is within steep banks on a straight reach of a small ditch with low gradient. Low flows are severely reduced by abstraction for spray irrigation during dry summers.

Catchment: Lowland catchment draining flat arable land. An impervious catchment with an extensive Boulder Clay cover.

20003 Tyne at Spilmersford**SEPA East**

Station: Velocity-area station. The channel reach is within steep, high floodbanks which contain all floods. In Sep 1975 an irregular broad-crested weir was installed. Before that date the low flow control was a gravel bar. The gauge board was lowered by 0.125m on 1/9/69. Ratings extrapolated beyond 1.5m. All flows contained to date. Flows from this station are used as part of the Haddington flood warning system. Low flows are affected by industrial and agricultural abstractions.

Catchment: The headwaters drain exposed moorland. Bedrock mostly impermeable with ~90% overlain by superficial deposits. Land use predominantly arable with some forest.

20004 East Peffer Burn at Lochhouses**SEPA East**

Station: Crump weir and trapezoidal flume in parallel. Low flows are measured accurately but the low gradient and dense vegetation result in drowning during high flows. Second recorder d/s for non-modular computation is no longer used. Abstraction for spray irrigation seriously affects low flows during dry summers. Since 1990 a farmer's weir d/s has led to problems of drowning.

Catchment: The catchment is composed of flat arable land developed upon Boulder Clay; impervious strata below.

20005 Birns Water at Saltoun Hall**SEPA East**

Station: Velocity-area station, in a natural section on a straight, well defined reach. The low flow control is a compound irregular broad-crested weir. Rating is entirely by c/m. Before installation of the cableway the high flow rating was calculated by correlation with Spilmersford (20003) and c/m measurements from a bridge 100m u/s. Ratings extrapolated above 1.5m. All flows contained to date. There are a few small storage reservoirs in the catchment, otherwise flows are natural.

Catchment: The catchment drains the upland moorland of the Lammermuir Hills. Bedrock Silurian/Devonian sedimentaries; 85% overlain by superficial deposits. Land use arable, grassland and forest.

20006 Biel Water at Belton House**SEPA East**

Station: Velocity-area station. The section is a well defined straight channel whose banks have contained all recorded floods. An irregular broad-crested weir of gabions was installed in 1969. The rating has changed slightly as the control has settled. Flow regime is flashy and broadly natural. Closed in Dec 1998.

Catchment: The catchment drains part of the NE Lammermuir Hills. Predominantly moorland. Geology: Silurian and Ordovician sedimentary rocks.

20007 Gifford Water at Lennoxlove**SEPA East**

Station: Velocity-area station. The recorder is sited immediately d/s of a footbridge on a slight bend in a natural channel. The low flow control is a stable rock bar. The flow regime is flashy.

Catchment: Mostly low-lying catchment with headwaters rising quite steeply. Bedrock predominantly Silurian and Ordovician; 70% overlain by superficial deposits. The catchment drains the steep moorland slopes of the Lammermuir Hills. Arable land use dominates the lowlands with some forest.

21001 Fruid Water at Fruid

Station: Compound sharp-edged weir about 3km above the junction with the Tweed. Aqueduct diverts water to Talla Reservoir and impounding reservoir u/s from the late 1960s. Captures 1959 minimum that predates reservoir.

21002 Whiteadder Water at Hungry Snout

Station: Broad-crested weir with central concrete flume about 16km NW of Duns. Water abstraction point just u/s of the station. Responsive regime but impounding reservoir constructed u/s in the late 1960s.

21003 Tweed at Peebles**SEPA East**

Station: Velocity-area station. Natural section (~45m wide) with stable gravel bed. Cableway. Bypassing occurs on LHB at floods above about 2.8m. Ratings extrapolated above 2.3m. From 1939 to 1958 flows measured at Priorsford Bridge about 360m u/s; records correlated from 1950. Storage in Talla, Fruid, Baddingsgill and Watch Water Reservoirs - overall runoff is diminished; monthly naturalised flows available.

Catchment: Upland catchment. Bedrock mostly impervious Palaeozoic and igneous formations with substantial superficial deposits in the valleys. Hill grazing predominates; some improved grassland to N; elsewhere some forest and arable.

21005 Tweed at Lyne Ford**SEPA East**

Station: Velocity-area station; about 20m wide natural section on straight gravel bedded reach. Cableway. Left bank overtopped during large floods (>2m). Slight seasonal weed growth effect on rating. Ratings extrapolated above 2.6m. Runoff diminished by abstractions from Fruid and Talla Reservoirs - compensation releases also influence flow regime. Monthly naturalised flows available.

Catchment: Upland catchment. Bedrock mainly Silurian shale with alluvial gravel in valley bottoms. Land use principally hill grazing; some forest.

21006 Tweed at Boleside**SEPA East**

Station: Velocity-area station with cableway on straight section (~55m wide) with stable gravel bed. Current metering up to c1.1 Qmed (2.4m), above which extrapolated. Cableway 25m d/s. Calibration affected by seasonal weed growth. Reservoir storage modifies natural flow regime but overall impact is minor; monthly naturalised flows available.

Catchment: Gauging site is central in Tweed basin and marks divide between hilly uplands and lowland areas. Bedrock mainly impervious Silurian formations with ~50% superficial deposit cover. Land use hill grazing with forestry and a little arable land.

21007 Ettrick Water at Lindean**SEPA East**

Station: Velocity-area station; approx. 40m wide section. Natural section with cableway about 1km before confluence with Tweed. Low flow control by d/s gravel riffle that is slowly accreting. Bypassing on left bank occurs at levels above 2m (e.g. Oct 2002). Ratings extrapolated above 2.7m. St Mary's Loch and Megget Res. have a minor impact on the flow regime. Monthly naturalised flows available.

Catchment: Relatively narrow impervious (mostly Silurian formations) catchment (50% overlain by superficial deposits). Land use is mostly hill grazing, with significant forested areas.

21008 Teviot at Ormiston Mill**SEPA East**

Station: Velocity-area station; about 45m wide section. Natural channel control. Rock and gravel section at gauge with d/s gravel riffle giving low flow control. Rating subject to appreciable weed growth; extrapolated above 3.4m. Catchment contains two small storages but runoff is sensibly natural.

Catchment: Mostly lowland catchment with upland headwaters. Mainly Silurian shale and ORS; 70% overlain by superficial deposits. Land use chiefly moorland and hill grazing with some arable farming towards the confluence with the Tweed; significant forested areas in the uplands.

- 21009 Tweed at Norham** **SEPA East**
Station: Lowest station on R. Tweed. Velocity-area station at very wide natural section (~120m). Complex control. Moderate seasonal weed growth effects on rating. Cableway washed away in 10/2002 flood; new cableway can gauge up to 4.2m. Bypassing during extreme floods on RB >6m behind station hut. Reservoirs in headwaters have only a small impact on the flow regime - monthly naturalised flows available.
Catchment: Catchment is ~30% lowland and ~70% upland. Bedrock mixed but principally impervious Palaeozoic formations; 60% overlain by superficial deposits. Moorland and hill pasture predominates; improved grasslands and arable farming below Melrose; some forest.
- 21010 Tweed at Dryburgh** **SEPA East**
Station: One of Capt. McClean's original stations. Natural section located at footbridge on wide meandering reach of river. Flow asymmetrical at gauge and shifting bed. Several reservoirs modify the natural regime but overall impact is limited - monthly naturalised flows available. Station closed at end of 1982; stage data only available from 1986.
Catchment: Geology: mainly impervious (Silurian) formations with significant Drift cover. Hill grazing is the predominant land use - some forestry and a little arable farming also.
- 21011 Yarrow Water at Philiphaugh** **SEPA East**
Station: Velocity-area station; about 25m wide natural coarse gravel bedded straight section. Control unstable. Sensibly natural regime before Megget Res. began impounding in 1982 (small overall impact on water balance), and flood peaks are also attenuated by St Mary's Loch; monthly naturalised flows available. To date all flows contained. Ratings extrapolated above 1.4m.
Catchment: Upland catchment developed mainly on Silurian shale; approx. 50% superficial deposit cover. Hill grazing is the principal land use; some forest.
- 21012 Teviot at Hawick** **SEPA East**
Station: Velocity-area station; about 30m wide natural section. Low flow control by gravel shoal below gauge. Frequent re-rating required due to weed growth. Bypassing occurs on LHB at levels above about 2m. Ratings extrapolated above 2.3m.
Catchment: Natural upland catchment. Bedrock mostly Silurian shale; 70% overlain by superficial deposits. Hill grazing is the dominant land use but forestry is important in the headwaters. Hawick is the only significant settlement.
- 21013 Gala Water at Galashiels** **SEPA East**
Station: Velocity-area station; about 15m wide section. Concrete-lined reach in industrial part of Galashiels. Gravel bed with control formed by concrete haunching over sewage pipe. All flows contained to date. Rating extrapolated above 1.4m.
Catchment: Natural upland catchment draining from the Moorfoot Hills. Bedrock mainly impervious (Silurian); approx. 40% overlain by superficial deposits. Land use hill grazing with some forest and arable areas.
- 21014 Tweed at Kingledores** **SEPA East**
Station: Natural section on upper Tweed. Coarse gravel bed. Variable backwater effects from Kingledores Burn 10m below station. Exports from Fruit and Talla Reservoirs cause a significant reduction in runoff - monthly naturalised flows available.
Catchment: Impervious (mostly Silurian formations) upland catchment given over mainly to hill grazing and forestry.
- 21015 Leader Water at Earlston** **SEPA East**
Station: Velocity-area section; about 30m wide section; cableway. Gravel bed with bar giving low flow control. Fairly insensitive at low flows. Ratings extrapolated above 1.8m. Natural flow regime.
Catchment: Upland catchment draining from the Lammermuir Hills. Bedrock Silurian shale and ORS; 45% superficial deposit cover. Land use hill grazing with arable farming at lower levels; some forest.
- 21016 Eye Water at Eyemouth Mill** **SEPA East**
Station: Velocity-area station; about 22m wide section. Former mill weir converted to serve as informal control. Steep high banks on both sides. 600m u/s from Eyemouth harbour; high spring tides can reach site.
Catchment: Lowland catchment. Bedrock Silurian shale and ORS with 70% superficial deposit cover. Agriculture is the primary land use; hill grazing in the headwaters, arable below; some forest.
- 21017 Etrick Water at Brockhoperig** **SEPA East**
Station: Velocity-area station (~12m wide river section) on straight reach with rocky bed. Control by series of rocky bars and falls. Turbulent flow at higher stages. Heavy gravel load in floods. All flows contained to date. Ratings extrapolated above 1.8m. Icing in winter.
Catchment: Natural steep upland catchment containing moorland and significant forestry. Very responsive, bedrock principally impervious Silurian formations.
- 21018 Lyne Water at Lyne Station** **SEPA East**
Station: Velocity-area station. Flow fully concentrated by arches of bridge below station. Storage in - and abstraction from - Baddingsgill and Watch Water Reservoirs influence the flow regime; overall impact on annual runoff is limited - monthly naturalised flows available.
Catchment: Upland catchment. Mainly Silurian shale with Old Red Sandstone and considerable superficial deposits of sand and gravel in centre of catchment. Mostly hill grazing and grassland; forest.
- 21019 Manor Water at Cademuir** **SEPA East**
Station: Velocity-area station (section about 10m wide) with artificial control - flat concrete bar with stone pitched banks. Site situated at end of straight reach with bend just below bar. Water surface can freeze in winter necessitating ice corrections. Bypassing occurs at flows above 1.8m on the LHB. Ratings extrapolated above 1.1m. Runoff is slightly diminished by an u/s abstraction (Langhaugh Intake); monthly naturalised flows available.
Catchment: Steep upland catchment developed on Silurian shale, approx. 40% of which is overlain by superficial deposits. Land use mostly hill grazing; some forest.
- 21020 Yarrow Water at Gordon Arms** **SEPA East**
Station: Velocity-area station d/s of road bridge on approx. 20m wide section with rough gravel bed. All flows contained to date. Ratings extrapolated above 1.5m. Freezing of water surface in winter necessitates ice correction. Sensibly natural runoff until impounding for Megget Res. began in 1982 but St Mary's Loch (few km u/s) attenuates floods significantly. Especially low flow in 08/1976 due to damming of gravel bar prior to gravel extraction. Monthly naturalised flows available.
Catchment: Upland catchment. Impervious bedrock (Silurian formations) with 50% superficial deposits. Land use hill grazing with some forestry.
- 21021 Tweed at Sprouston** **SEPA East**
Station: Velocity-area station. Wide section (about 100m) on gentle bend in river. Natural channel controls. Cableway. Significant seasonal weed growth effects on rating. Ratings extrapolated above 2.8m; seasonal ratings used for low flows. Reservoirs in the headwaters have a very minor impact on the flow regime; monthly naturalised flows available.
Catchment: The bedrock geology is dominated by impervious Silurian formations (with some deposits). Hill grazing predominates with improved grassland and arable farming in the lower catchment; some forest in headwaters.
- 21022 Whiteadder Water at Hutton Castle** **SEPA East**
Station: Compound Crump profile weir with theoretical rating. Catchment contains Whiteadder and Watchwater Reservoirs which can have substantial effects - particularly during low flows. Overtopping of wing walls and bypassing of station has occurred during floods above 2.3m. Extremely low winter flows in 1973 (e.g. 26/11) due to river icing over during freezing conditions. Monthly naturalised flows available.
Catchment: Mostly low-lying catchment. Mixed permeability bedrock geology with 50% superficial deposits. Hill grazing at high levels with arable farming below about 150m; forest.
- 21023 Leet Water at Coldstream** **SEPA East**
Station: Velocity-area station with artificial control containing trapezoidal flume for low flow measurement. Backwater effects from bridge below station and R. Tweed. Natural flow regime.
Catchment: A relatively flat (for this region) lowland catchment developed on Boulder Clay overlying calciferous s'st. Mainly arable farming.
- 21024 Jed Water at Jedburgh** **SEPA East**
Station: Velocity-area station on straight reach, about 16m wide. A rock ledge is the control for very low flows; under higher flow conditions control passes to d/s channel bar. Ratings extrapolated above 2.6m. Flows are largely natural and uncontrolled.
Catchment: An upland, mainly Old Red Sandstone catchment (approx. 2/3 overlain by superficial deposits). Land use mainly hill grazing with approx. 1/3 forestry.
- 21025 Ale Water at Ancrum** **SEPA East**
Station: Velocity-area station at natural river section, approx. 15m wide. Low flow control by solid rock bar very close to gauge. Ratings gauged up to 2.4m. Runoff is marginally diminished by a small reservoir in the headwaters; monthly naturalised flows available.
Catchment: An upland catchment - mostly Silurian shale; mix of high (approx. 20%) and low (approx. 80%) permeability with > 85% of catchment covered by superficial deposits. Hill pasture predominates; significant forest cover.
- 21026 Tima Water at Deephope** **SEPA East**
Station: Velocity-area station at natural river section. Control is gravel bed; unstable - sensitive to rearrangement of bed material (even in modest flows), frequent low flow gauging necessary to define rating. Natural flow regime.
Catchment: High rainfall, steep, upland catchment developed on Silurian shale; approx. 2/3s overlain by superficial deposits. One of the most forested UK catchments (>80%).
- 21027 Blackadder Water at Mouth Bridge** **SEPA East**
Station: Velocity-area station. Natural river section, about 13m wide, with rock control. Ratings extrapolated above 2.4m. Moderate seasonal weed growth effects rating. Natural flow regime.
Catchment: Natural catchment. Mostly Old Red S'st and calciferous s'st overlain by Boulder Clay. Grazing on hills, arable on lower land; some forest.
- 21028 Menzion Burn at Menzion Farm**
Station: Thin-plate weir. Natural record encompassing very under-represented period (1948-1952).
Catchment: Upland catchment with impermeable bedrock. One of the UK most forested catchment (~75%).

21030 Megget Water at Henderland**SEPA East**

Station: Velocity-area station, about 23m wide, with rock and gravel bar acting as control. D/s of Megget Reservoir; station was installed to provide data for reservoir design - flows are highly artificial since impoundment began in 1982; monthly naturalised flows available. Ratings gauged up to 1.9m before 1991, then 0.8m.

Catchment: A steep upland catchment developed on impervious Silurian formations approx. 3/4 overlain by superficial deposits. Land use mostly hill grazing.

21034 Yarrow Water at Craig Douglas**SEPA East**

Station: Large trapezoidal flume. All flows contained. Rating gauged at low flows (0.5m). Sensibly natural runoff until impounding for Megget Res. began in 1982. St Mary's Loch 2km u/s attenuates floods significantly. Monthly naturalised flows available.

Catchment: Silurian formations give impervious catchment supporting hill grazing and some forestry. Over half covered with superficial deposits.

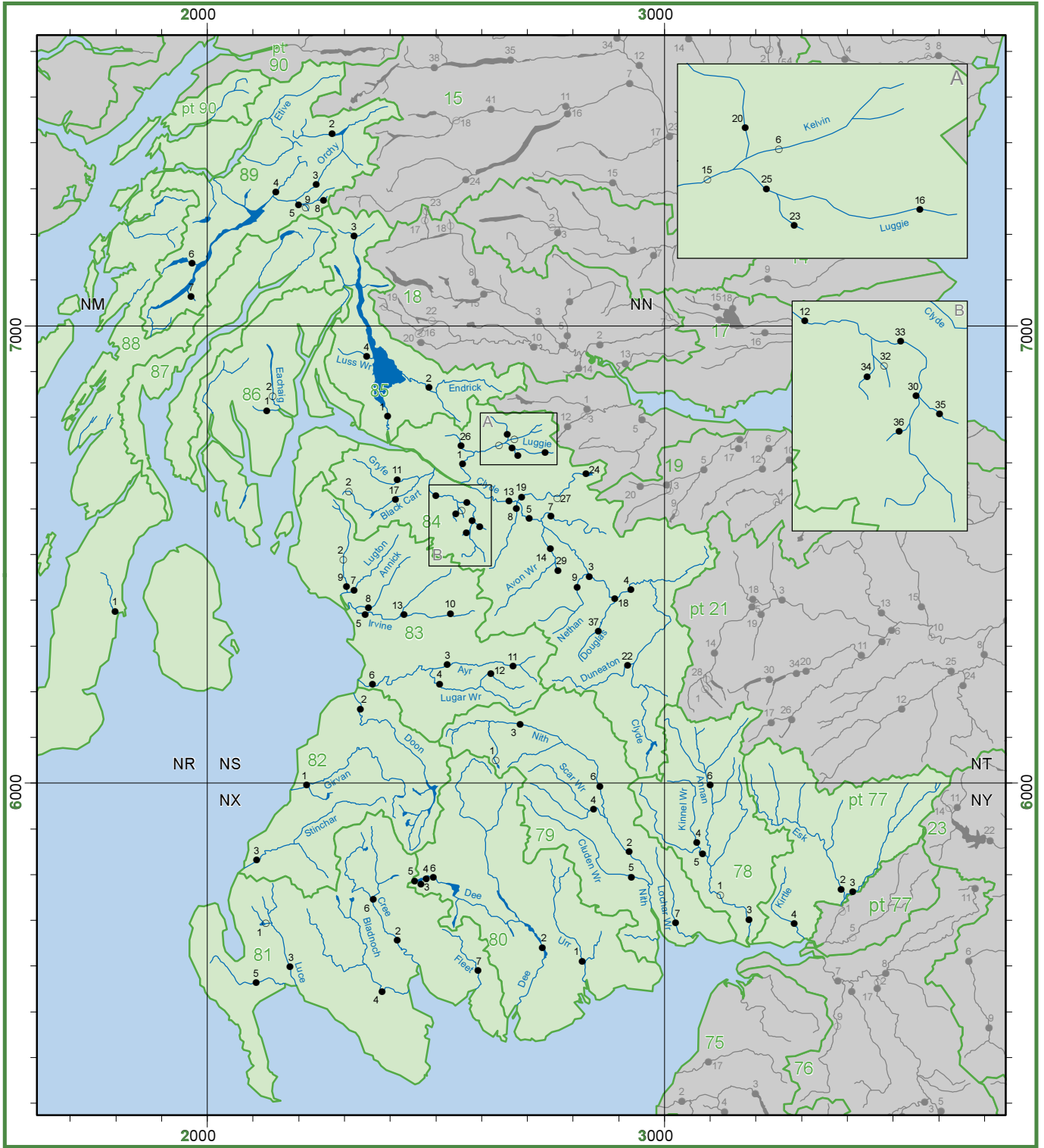
GAUGING STATION REGISTER

Region: SEPA West

Area: 20,525 km²

Average rainfall (1971-2000): 1704 mm

Map 3: WEST



Gauging Station Register I

Station number	River name	Station name	Grid reference	Catchment area	Station type	SLA	Period of record	Percent complete	Base Flow Index	Mean ann. rain (mm)	Mean ann. runoff (mm)	Mean ann. loss (mm)	Mean flow (m ³ /s)	Q95 (m ³ /s)	Q70 (m ³ /s)	Q50 (m ³ /s)	Q10 (m ³ /s)	Median ann. flood (m ³ /s)	Peak flow (m ³ /s)	Date of peak	7-day min. (m ³ /s)	Date of min.
77002	Esk	Canonbie	NY397751	495.0 VA			* 1962-05	100	.39	1500	1105	395	17.32	2.16	5.59	9.62	40.6	346.0	570.8	09/10/67	1.07	23/07/84
77003	Liddel Water	Rowanburnfoot	NY415759	319.0 VA			* 1973-05	100	.31	1406	1018	388	10.25	1.08	2.69	4.88	25.3	296.2	418.2	17/02/97	0.63	21/09/96
77004	Kirtle Water	Mossknowe	NY285693	72.0 VA			* 1979-05	100	.30	1247	767	480	1.76	0.13	0.37	0.78	4.5	59.5			0.05	24/08/84
78001	* Annan	St Mungos Manse	NY125755	730.3 VA			1958-61	100	.41	1448	966	482	21.36	2.78	8.01	13.03	51.3					
78003	Annan	Brydekirk	NY191704	925.0 VA			* 1967-05	100	.44	1377	1010	367	29.69	3.59	9.50	17.58	70.1	312.3	486.8	31/10/77	1.38	23/07/84
78004	Kinnel Water	Redhall	NY077868	76.1 VA			* 1963-05	98	.27	1490	1135	355	2.74	0.13	0.60	1.21	7.0	75.7	116.9	30/10/77	0.03	23/08/84
78005	Kinnel Water	Bridgemuir	NY091845	229.0 VA			1979-05	100	.37	1506	1084	422	7.86	0.72	2.14	4.13	18.9	121.4	152.0	21/09/85	0.30	24/08/84
78006	Annan	Woodfoot	NT099010	217.0 VA			* 1983-05	100	.41	1682	1283	399	8.83	1.03	2.82	5.00	20.8	143.2	176.7	07/01/05	0.45	24/08/84
79001	* Afton Water	Afton Reservoir	NS631050	8.5 TP			1965-81	88	.11	2265	813	1452	0.20	0.01	0.02	0.02	0.6					
79002	Nith	Friars Carse	NX923851	799.0 VA			* 1957-05	100	.39	1542	1079	463	27.29	2.82	8.16	14.87	67.0	439.7	908.4	16/01/62	1.23	24/08/84
79003	Nith	Hall Bridge	NS684129	155.0 VA			* 1959-05	100	.27	1631	1160	471	5.72	0.36	1.19	2.45	15.7	71.1	219.8	15/01/62	0.14	21/08/95
79004	Scar Water	Capenoch	NX845940	142.0 VA			* 1963-05	100	.31	1717	1237	480	5.58	0.33	1.38	2.73	14.1	132.9			0.09	26/08/76
79005	Cluden Water	Fiddlers Ford	NX928795	238.0 VA			1963-05	100	.37	1455	1054	401	7.97	0.52	2.16	4.18	19.6	105.8	194.4	31/10/77	0.19	04/09/76
79006	Nith	Drumlanrig	NX858994	471.0 VA			* 1967-05	97	.34	1585	1133	452	16.88	1.42	4.24	8.28	43.4	338.6	530.4	30/10/77	0.62	24/08/84
79007	Lochar Water	Kirkblain Bridge	NY026695	125.0 VA			1992-05	89	.51	1083	596	487	2.33	0.39	0.89	1.39	5.7	13.5	20.2	02/12/92	0.10	22/06/96
80001	Urr	Dalbeattie	NX822610	199.0 VA			* 1963-05	100	.36	1354	932	422	5.89	0.27	1.41	2.97	15.0	81.4	148.8	21/10/98	0.05	20/08/95
80002	Dee	Glenchoch	NX733641	809.0 VA			* 1977-05	97	.41	1893	1589	304	40.85	3.93	12.85	27.63	100.7	237.9	352.8	12/12/94		
80003	White Laggan Burn	Loch Dee	NX468781	5.7 VA			* 1980-04	100	.18	2650	2256	394	0.41	0.02	0.08	0.18	1.1	6.5	8.0	10/02/96	>0.00	20/08/95
80004	Green Burn	Loch Dee	NX481791	2.6 VA			* 1983-05	91	.16	2598	2408	190	0.20	0.01	0.03	0.07	0.6	4.0			>0.00	21/07/89
80005	Dargall Lane	Loch Dee	NX451787	2.1 VA			* 1983-05	87	.28	2551	2499	52	0.17	0.01	0.05	0.09	0.4	4.0			>0.00	24/08/84
80006	Blackwater	Loch Dee	NX478797	15.6 VA			* 1983-05	90	.47	2565	2339	226	1.18	0.10	0.46	0.88	2.6	6.4	8.6	11/12/94	0.02	27/06/92
81001	* Penwhim Burn	Penwhim Reservoir	NX128694	18.2 TP			1965-68	97	.23	1546	979	567	0.51	0.07	0.11	0.13	1.5					
81002	Cree	Newton Stewart	NX412653	368.0 VA			* 1963-05	100	.28	1814	1334	480	15.61	0.99	3.95	8.04	39.0	227.9	375.1	25/10/00	0.15	01/09/76
81003	Luce	Airyhemming	NX180599	171.0 VA			* 1967-05	100	.23	1500	1121	379	6.07	0.30	1.08	2.44	16.4	163.3	295.5	12/08/87	0.10	24/07/84
81004	Bladnoch	Low Malzie	NX382545	334.0 VA			* 1977-05	100	.33	1401	945	456	10.00	0.42	2.39	5.33	25.7	104.0	160.5	25/10/00	0.05	23/08/95
81005	Piltanton Burn	Barsolus	NX107564	34.2 VA			* 1985-05	95	.38	1161	657	504	0.72	0.06	0.19	0.36	1.8	14.8	22.3	24/10/98	0.03	27/07/00
81006	Water of Minnoch	Minnoch Bridge	NX363746	141.0 VA			* 1986-05	100	.27	2196	1670	526	7.60	0.54	2.03	4.01	19.1	145.5	332.1	30/03/93	0.08	27/06/92
81007	Water of Fleet	Rusko	NX592590	77.0 VA			1988-05	100	.28	1894	1399	495	3.42	0.24	0.82	1.59	8.7	73.7	99.3	21/12/91	0.07	20/08/95
82001	Girvan	Robstone	NX217997	245.5 VA			* 1963-05	100	.34	1404	839	565	6.62	0.46	1.58	3.28	16.3	89.3	152.8	19/12/82	0.05	17/07/89
82002	Doon	Auchendrane	NS338160	323.8 VA			1974-05	100	.58	1671	737	934	7.51	2.75	3.83	5.01	15.5	60.5	121.5	31/10/77		
82003	Stinchar	Balnowlart	NX108832	341.0 VA			* 1973-05	99	.32	1615	995	620	10.64	0.54	2.70	5.84	25.9	200.7	279.0	19/12/82	0.04	07/07/75
83002	* Garnock	Dalry	NS293488	88.8 VA			1963-77	100	.21	1775	975	800	2.77	0.15	0.51	1.12	7.4	48.7	69.7	02/11/69	0.01	06/07/75
83003	Ayr	Catrine	NS525259	166.3 VA			* 1970-05	99	.30	1342	966	376	5.13	0.56	1.23	2.30	13.2	103.4	213.5	10/12/94	0.34	20/08/76
83004	Lugar Water	Langholm	NS508217	181.0 VA			* 1972-05	100	.26	1313	997	316	5.59	0.33	1.03	2.33	14.8	139.3	260.8	02/01/81	0.10	01/09/81
83005	Irvine	Shewalton	NS345369	380.7 VA			* 1972-05	100	.27	1266	783	483	9.50	0.52	1.86	4.04	25.0	212.7	398.9	11/12/91	0.09	25/05/01
83006	Ayr	Mainholm	NS361216	574.0 VA			* 1976-05	96	.31	1291	880	411	15.96	1.53	3.88	7.46	41.0	248.6	459.4	02/01/81	0.09	22/06/89
83007	Lugton Water	Eglinton Castle	NS315420	54.6 B VA			* 1977-05	96	.27	1422	994	428	1.75	0.10	0.34	0.74	4.6	27.3	44.7	05/11/86	0.04	20/07/00
83008	Annick Water	Dreghorn	NS352384	90.6 VA			1980-05	94	.29	1415	1257	158	3.58	0.26	0.70	1.63	9.0	56.9	96.3	06/10/90	0.07	11/08/84
83009	Garnock	Kilwinning	NS307424	183.8 VA			* 1978-05	100	.23	1643	1106	537	6.36	0.30	1.31	2.59	16.2	177.7	380.6	11/12/94	0.10	24/08/84
83010	Irvine	Newmilns	NS532372	72.8 FV			* 1980-05	100	.29	1450	1028	422	2.37	0.23	0.57	1.07	6.2	59.0	163.5	10/09/78	0.09	24/08/84
83011	Ayr	Wellwood	NS660261	60.0 VNT			1999-05	86	.44	1454	1136	318	2.24	0.39	0.78	1.27	5.5				0.31	04/08/04
83012	Gas Water	Welltrees	NS628242	13.9 VA			1999-05	86	.26	1421	1222	199	0.56	0.03	0.12	0.22	1.6				0.02	01/09/03
83013	Irvine	Glenfield	NS430369	218.0 B			* 1982-05	99	.26	1254	894	360	6.31	0.30	1.17	2.53	17.1	144.6	436.8	11/12/94	>0.00	20/07/84
84001	Kelvin	Killermont	NS558705	335.1 VA			* 1948-05	99	.43	1272	805	467	8.43	1.63	3.26	5.05	19.2	79.2	253.0	12/12/94	0.87	15/07/62
84002	* Calder	Muirshield	NS309638	12.4 TP			1952-01	42	.16	2333	1632	701	0.65	0.03	0.11	0.25	1.8					
84003	Clyde	Hazelbank	NS835452	1092.9 VA			1956-05	100	.51	1210	812	398	28.01	5.36	11.16	17.39	62.3	275.6	567.7	12/12/94	2.35	11/10/59
84004	Clyde	Sills of Clyde	NS927424	741.8 VA			* 1957-05	100	.51	1272	803	469	19.11	3.64	7.54	11.84	42.5	195.3	411.0	16/01/62	1.65	25/08/84
84005	Clyde	Blairston	NS704579	1704.2 VA			* 1958-05	99	.45	1182	790	392	42.45	7.61	14.95	24.24	100.2	376.2	830.1	12/12/94	3.48	24/08/84
84006	* Kelvin	Bridgend	NS672749	63.0 VA			1963-83	98	.44	1400	979	421	1.98	0.29	0.68	1.22	4.6	15.8	23.4	08/12/79	0.14	21/08/72
84007	Southern Calder Wtr	Forgewood	NS751585	93.0 CC			1965-05	99	.56	966	725	241	2.12	0.68	1.06	1.37	4.0	21.0	52.0	24/01/93	0.13	20/08/95
84008	Rotten Calder Wtr	Redlees	NS679604	51.3 CC			* 1966-05	99	.34	1231	964	267	1.57	0.17	0.38	0.70	4.0	30.4	52.4	13/01/84	0.08	21/04/00
84009	Nethan	Kirkmuirhill	NS809429	66.0 CC																		

Gauging Station Register I cont'd

Station number	River name	Station name	Grid reference	Catchment area	Station type	SLA	Period of record	Percent complete	Base Flow Index	Mean ann. rain (mm)	Mean ann. runoff (mm)	Mean ann. loss (mm)	Mean flow (m ³ s ⁻¹)	Q85 (m ³ s ⁻¹)	Q70 (m ³ s ⁻¹)	Q50 (m ³ s ⁻¹)	Q10 (m ³ s ⁻¹)	Median ann. flood (m ³ s ⁻¹)	Peak flow (m ³ s ⁻¹)	Date of peak	7-day min. (m ³ s ⁻¹)	Date of min.
85004	Luss Water	Luss	NS356929	35.3 B VA	*	1976-05	94	.28	2468	2381	87	2.65	0.21	0.70	1.34	6.8	55.2	111.8	20/08/87	0.05	20/09/96	
86001	Little Eachaig	Dalninlongart	NS143821	30.8 VA	*	1968-05	99	.22	2407	1837	570	1.78	0.09	0.37	0.76	4.8	43.5	89.8	03/11/79	0.01	12/07/77	
86002	* Eachaig	Eckford	NS140843	139.9 VA		1968-98	97	.39	2533	2557		11.74	0.92	4.16	7.58	27.9	81.0	125.8	11/12/94	0.27	01/07/77	
88001	Carradale	Dippen	NR798377	58.5 US	*	2004-05	100	.24	1762	1242	520	2.31	0.18	0.65	1.12	5.6						
89002	Linne nam Beathach	Victoria Bridge	NN272422	50.5 VA	*	1981-05	98	.15	2940	2945		4.68	0.20	0.74	1.79	12.1	102.1	167.7	20/09/89	0.05	19/08/95	
89003	Orchy	Glen Orchy	NN239310	251.2 VA	*	1977-05	98	.22	2754	2792		22.42	1.43	5.01	8.77	59.2	403.7	607.9	02/03/79	0.41	24/08/84	
89004	Strae	Glen Strae	NN146294	36.2 B		1978-05	95	.21	2880	2529	351	2.93	0.20	0.60	1.42	7.7	57.6	75.0	19/09/04	0.10	29/07/05	
89005	Lochy	Inverlochy	NN197274	47.7 B	*	1978-05	99	.24	3019	2708	311	4.09	0.36	0.97	1.81	10.8	48.1				0.20	30/06/95
89006	River Avich	Barnaline Lodge	NM971139	32.1 CB		1980-05	98	.52	2443	1864	579	1.91	0.25	0.79	1.44	4.2	9.0	20.1	12/02/98	0.11	02/07/97	
89007	Abhainn a' Bhealaich	Braevallich	NM957076	24.1 CB	*	1981-05	98	.22	2745	2253	492	1.69	0.11	0.36	0.85	4.2	40.2	91.5	07/04/91	0.05	18/04/03	
89008	Eas Daimh	Eas Daimh	NN239276	4.5 C		1981-05	52	.28	3206	3011	195	0.44	0.04	0.13	0.24	1.1	7.7	8.7	20/09/89	>0.00	24/08/84	
89009	* Eas a' Ghail	Succoth	NN209265	9.7 C		1981-93	95	.22	2993	2439	554	0.74	0.04	0.15	0.34	2.0	18.6	22.0	22/12/91	0.01	28/04/91	

Gauging Station Register II

Station number	River name	Station name	Catchment area	Sensitivity	Bankfull/structurefull	Factors affecting runoff	Descriptors				Elevation				Bedrock			Superficial			Landuse						
							BFIHOST	FARL	PROPWET	DPSBAR	Station level (mOD)	10 percentile (mOD)	50 percentile (mOD)	90 percentile (mOD)	Maximum level (mOD)	High perm. (%)	Moderate perm. (%)	Very low perm. (%)	Gen. high perm. (%)	Mixed perm. (%)	Gen. low perm. (%)	Woodland (%)	Arable/horticultural (%)	Grassland (%)	Mountain/heath/bog (%)	Urban extent (%)	
77002	Esk	Canonbie	495.0	8	400.0	SP	.41	0.994	61	166	22	143	277	409	692	18	1	81	2	49	15	36	1	52	10	H	0
77003	Liddel Water	Rowanburnfoot	319.0	9	250.0	N	.31	1.000	62	129	27	129	252	421	615	66	10	22	0	48	25	26	4	56	13	H	0
77004	Kirtle Water	Mossknowe	72.0	18	50.0	N	.32	0.988	60	71	21	67	124	245	423	45	27	28	6	88	2	14	7	74	3	H	1
78001	* Annan	St Mungos Manse	730.3				.49	0.988	63	138	34	64	223	449	820	19	<1	81	9	55	2	28	6	54	10	H	0
78003	Annan	Brydekirk	925.0	7	420.0	N	.49	0.989	62	126	10	61	204	422	820	19	<1	80	8	62	2	25	7	59	8	H	0
78004	Kinnel Water	Redhall	76.1	31	170.0	N	.43	0.999	62	99	54	96	235	374	654	11	0	89	6	55	2	30	4	62	3	H	0
78005	Kinnel Water	Bridgemuir	229.0	12	120.0	N	.43	0.996	62	111	45	74	241	396	694	20	<1	80	5	58	2	32	5	56	7	H	0
78006	Annan	Woodfoot	217.0	10	120.0	N	.44	0.995	72	206	82	158	345	561	820	8	0	92	5	36	3	36	4	38	20	H	0
79001	* Afton Water	Afton Reservoir	8.5				.37	0.782	71	178	386	424	503	586	673	0	0	100	0	18	66	14	<1	22	59	BH	0
79002	Nith	Friars Carse	799.0	8	590.0	SPN	.43	0.991	67	158	20	125	288	470	719	5	22	73	8	42	11	14	4	68	12	H	0
79003	Nith	Hall Bridge	155.0	33	100.0	SP	.36	0.973	63	122	173	206	309	492	697	16	31	54	2	56	21	19	<1	56	23	H	0
79004	Scar Water	Capenoch	142.0	17	187.0	N	.45	0.999	66	196	49	162	319	461	597	0	0	100	1	33	12	16	1	75	7	H	0
79005	Cluden Water	Fiddlers Ford	238.0	14	82.0	SP	.50	0.985	64	130	23	90	211	342	594	3	0	97	15	44	<1	21	3	68	7	H	0
79006	Nith	Drumlanrig	471.0	6	300.0	SPN	.39	0.990	68	154	52	187	320	487	719	5	26	69	3	45	15	12	3	68	15	H	0
79007	Lochar Water	Kirkblain Bridge	125.0		20.0	N	.51	0.986	60	50	8	12	41	159	262	40	0	60	31	41	19	14	16	62	4	B	1
80001	Urr	Dalbeattie	199.0	10	95.0	N	.38	0.963	64	80	10	61	156	244	421	0	0	100	4	55	3	21	5	69	4	H	0
80002	Dee	Glenloch	809.0	11	400.0	H	.37	0.813	65	124	43	90	236	457	813	0	0	100	<1	35	9	37	<1	52	8	H	0
80003	White Laggan Burn	Loch Dee	5.7	44	5.0	N	.39	0.996	69	246	226	296	458	563	658	0	0	100	0	15	<1	9	0	67	24	H	0
80004	Green Burn	Loch Dee	2.6	19	3.0	N	.37	0.998	69	190	228	261	372	503	551	0	0	100	0	0	14	33	0	53	13	H	0
80005	Dargall Lane	Loch Dee	2.1	31	4.0	N	.36	1.000	69	308	259	356	468	628	715	0	0	100	0	19	0	0	0	54	46	H	0
80006	Blackwater	Loch Dee	15.6			N	.36	0.871	69	220	229	230	378	548	715	0	0	100	0	11	12	16	0	54	24	H	0
81001	* Penwhirn Burn	Penwhirn Reservoir	18.2		113.0	S	.24	0.978	57	56	151	172	205	245	393	0	0	100	0	0	98	39	<1	6	51	B	0
81002	Cree	Newton Stewart	368.0	8	330.0	N	.34	0.932	69	119	5	66	212	451	838	0	0	100	2	38	14	49	<1	40	9	H	0
81003	Luce	Airyhemming	171.0	15	64.0	SPN	.30	0.977	58	72	19	101	180	258	438	0	0	100	<1	14	73	16	<1	34	49	B	0
81004	Bladnoch	Low Malzie	334.0	22	70.0	N	.29	0.946	62	45	11	50	94	173	318	0	0	100	1	10	50	37	1	44	16	B	0
81005	Piltanton Burn	Barsolus	34.2	28	19.0	N	.37	0.970	51	64	6	20	84	137	181	0	0	68	20	59	3	2	20	74	1	H	0
81006	Water of Minnoch	Minnoch Bridge	141.0	24	150.0	N	.35	0.935	69	167	27	108	308	543	838	0	0	100	0	48	7	41	<1	46	10	H	0
81007	Water of Fleet	Rusko	77.0	6	70.0	N	.39	0.991	68	132	8	86	170	341	706	0	0	100	3	18	44	<1	42	12	H	0	
82001	Girvan	Robstone	245.5	11	90.0	S	.40	0.942	60	106	9	58	188	322	659	46	34	20	1	73	2	20	4	65	8	H	0
82002	Doon	Auchendrane	323.8	6		P	.33	0.818	61	113	22	89	261	424	843	19	28	53	<1	54	7	19	2	63	11	H	0
82003	Stinchar	Balnoliart	341.0	13			.39	0.987	63	110	9	99	184	327	624	<1	8	92	0	56	28	32	1	51	15	B	0
83002	* Garnock	Dairy	88.8	35	90.0		.37	0.944	61	95	19	45	184	391	516	41	0	59	0	52	17	8	<1	65	21	H	2
83003	Ayr	Catrine	166.3	17	500.0	H	.33	0.991	67	90	90	178	271	398	592	40	25	35	7	42	31	7	2	57	32	H	0
83004	Lugar Water	Langholm	181.0	10	153.3	N	.31	0.990	62	70	81	143	249	381	560	34	52	14	2	60	35	19	4	53	19	BH	1
83005	Irvine	Shewalton	380.7	8	431.3	E	.34	0.980	60	56	5	40	142	265	383	27	30	43	6	74	17	13	12	60	8	B	3
83006	Ayr	Mainholm	574.0	8	574.5	N	.33	0.992	62	74	3	86	212	367	592	34	42	24	3	63	24	12	9	59	17	H	1
83007	Lugton Water	Eglinton Castle	54.6	55	54.4		.35	0.981	61	47	7	31	93	168	256	51	22	26	5	64	10	9	5	81	4	H	0
83008	Annick Water	Dreghorn	90.6	18	36.3	N	.35	0.984	61	51	14	42	139	223	281	33	12	56	<1	69	13	6	4	78	7	B	2
83009	Garnock	Kilwinning	183.8	9	379.4		.37	0.945	61	80	4	39	111	351	516	53	<1	47	2	54	9	8	<1	72	13	H	2
83010	Irvine	Newmilns	72.8	19	126.1	N	.40	0.996	60	78	61	141	240	308	383	7	19	74	20	43	35	23	8	48	18	B	1
83011	Ayr	Wellwood	60.0	21.9			.35	0.978	71	106	212	231	304	425	592	70	15	15	8	36	22	4	<1	50	41	H	1
83012	Gass Water	Welltrees	13.9	10.8			.27	1.000	71	72	203	255	341	414	493	81	19	0	5	34	59	8	0	58	33	H	0
83013	Irvine	Glenfield	218.0		85.0	N	.35	0.986	59	64	21	55	159	274	383	34	28	39	7	75	16	13	16	59	8	B	2
84001	Kelvin	Killermont	335.1	7	31.4	E	.41	0.951	58	78	27	48	89	316	569	69	7	25	7	71	6	12	3	60	8	H	7
84002	* Calder	Muirshiel	12.4		26.3	P	.27	0.988	61	95	229	273	356	449	491	0	0	100	0	5	76	<1	0	31	68	BH	0
84003	Clyde	Hazelbank	1092.9	6	181.9	H	.45	0.970	60	116	52	210	296	460	745	26	20	53	8	52	7	10	8	60	19	H	0
84004	Clyde	Sills of Clyde	741.8	6	411.3		.46	0.964	60	135	183	218	328	490	745	18	12	70	8	43	6	9	7	58	25	H	0
84005	Clyde	Blairston	1704.2	7	830.0	H	.42	0.959	59	97	18	157	264	427	745	25	28	46	7	59	10	13	10	56	16	H	2
84006	* Kelvin	Bridgend	63.7	7	16.0	E	.43	0.949	57	94	35	44	98	358	522	70	0	30	10	76	4	8	1	69	9	H	4
84007	South Calder Wtr	Forgewood	93.0	7	87.9	EI	.33	0.985	58	48	44	109	193	253	312	25	75	0	4	73	9	20	13	39	9	BH	7
84008	Rotten Calder Wtr	Redlees	51.3	12	72.0	E	.31	0.997	58	53	17	104	203	256	372	57	11	32	2	79	12	8	2	61	12	H	7
84009	Nethan	Kirkmuirhill	66.0	14	92.4	PN	.41	0.976	66	88	122	205	284	398	521	20	37	44	0	73	23	8	3	61	14	B	1
84011	Gryfe	Craigend	71.0	30		S	.45	0.930	61	72	11	68	164	299	439	<1	0	99	<1	35	16	12	<1	69	14	H	1
84012	White Cart Water	Hawkhead	234.9	4	155.0	S	.41	0.927	60	64	5	30	155	249	373	39	2	59	10	58	4	9	3	57	4	H	13
84013	Clyde	Daldode	1903.1	5	370.0	E	.41	0.958	59	92	8	131	252	417	745	24	33	43	7	61	10	12	9	55	15	H	3
84014	Avon Water	Fairholm	265.5	15	397.0		.38	0.986	59	62	54	162	238	338	474	15	17	68	9	59	25	18	11	53	15	B	1
84015	* Kelvin	Dryfield	235.4	7	189.5	E																					

Gauging Station Register II cont'd

Station number	River name	Station name	Catchment area	Sensitivity	Bankfull/structurefull	Factors affecting runoff	Descriptors				Elevation				Bedrock			Superficial			Landuse							
							BFIHOST	FARL	PROPWET	DPSBAR	Station level (mOD)	10 percentile (mOD)	50 percentile (mOD)	90 percentile (mOD)	Maximum level (mOD)	High perm. (%)	Moderate perm. (%)	Very low perm. (%)	Gen. high perm. (%)	Mixed perm. (%)	Gen. low perm. (%)	Woodland (%)	Arable/horticultural (%)	Grassland (%)	Mountain/heath/bog (%)	Urban extent (%)		
85004	Luss Water	Luss	35.3		57.2	N	.41	1.000	74	353	16	153	336	569	726	0	0	100	0	56	<1	3	0	68	29	H	0	
86001	Little Eachaig	Dalninlongart	30.8	23	83.1	I	.39	1.000	71	278	10	96	265	476	611	0	0	100	0	<1	24	0	49	0	19	31	H	0
86002	* Eachaig	Eckford	139.9	14	101.3	SP	.38	0.836	75	303	6	58	306	522	766	0	0	100	0	1	36	0	37	0	38	21	H	0
88001	Carradale	Dippen	58.5				.29	0.989	62	154	9	57	193	298	420	0	0	99	0	45	0	69	0	10	22	H	0	
89002	Linne nam Beathach	Victoria Bridge	50.5			N	.38	0.920	79	275	168	220	395	738	1072	0	0	100	0	54	0	7	<1	49	40	HM	0	
89003	Orchy	Glen Orchy	251.2			N	.36	0.893	79	253	69	187	362	699	1072	0	0	100	<1	63	<1	11	<1	40	46	H	0	
89004	Strae	Glen Strae	36.2			N	.36	0.995	79	324	45	110	326	604	986	0	0	100	0	50	0	7	1	61	30	H	0	
89005	Lochy	Inverlochy	47.7	42		N	.37	0.981	79	299	57	214	405	680	1109	0	0	100	0	43	0	35	<1	26	36	HM	0	
89006	River Avich	Barnaline Lodge	32.1			S	.30	0.678	75	180	51	92	191	310	432	0	0	100	0	11	0	55	0	19	14	H	0	
89007	Abhainn a' Bhealaich	Braevallich	24.1	10		N	.30	0.923	75	129	46	230	337	427	510	0	0	100	0	44	0	61	0	17	20	H	0	
89008	Eas Daimh	Eas Daimh	4.5			N	.38	1.000	79	401	185	332	527	826	1109	0	0	100	0	2	0	24	0	7	60	M	0	
89009	* Eas a' Ghail	Succoth	9.7			N	.38	1.000	79	262	130	268	470	690	916	0	0	100	0	34	0	32	0	35	32	MH	0	

Gauging Station Register III

SEPA West

- 77002 Esk at Canonbie** **SEPA West**
Station: Velocity-area station located on straight reach with natural channel control. Cableway. Steep bed, not high banks but all bar highest floods contained. Gravel bed; erosion possibly due to gravel extraction d/s. Black Esk Res. impounds about 1% of flows for export.
Catchment: Natural upland catchment area around Eskdalemuir. Mostly impermeable bedrock with approx. 2/3 superficial deposits. Landuse predominantly rough grazing with more than a third forestry.
- 77003 Liddel Water at Rowanburnfoot** **SEPA West**
Station: Velocity-area station with cableway on straight gravel bedded reach. Gravel shoal gives low flow control. Highest floods overtop right hand floodbank. Ratings extrapolated above 2.8m (<210 m³s⁻¹). Bypassing between 3 and 3.5m. Natural flow regime.
Catchment: Silurian shales, often with peat cover, form the hills; Lower Carboniferous series overlain by Boulder Clay in the valleys. Landuse mainly dairy and hill farming with approx. 25% forestry.
- 77004 Kirtle Water at Mossknowe** **SEPA West**
Station: Velocity-area station with cableway. Sited on straight reach above fall over rock bar acting as control. Natural flow regime.
Catchment: Silurian shales of the upper catchment give way briefly to the Carboniferous series, then to Triassic s'ts in the lower catchment. Generally overlain by Boulder Clay. Landuse: mixed dairy and hill farming, with some forest.
- 78001 Annan at St Mungos Manse** **SEPA West**
Station: River section 45m u/s of St Mungo's Manse near Lockerbie. Affected by weedgrowth primarily in the summer month. Discontinued as a flow station in 1961.
- 78003 Annan at Brydekirk** **SEPA West**
Station: Velocity-area station with cableway located on straight section below bend and with slightly curving channel below. Gauged up to 3.7m (approx. 450 m³s⁻¹); good performance at high flows. Natural flow regime.
Catchment: Silurian shales in the north; Carboniferous series in the south. Centre of catchment is dominated by Triassic sandstone aquifer of the Lochmaben basin, with a smaller ribbon aquifer extending up the valley to Moffat. Rural catchment, some arable land use, mostly pasture and forestry.
- 78004 Kinnel Water at Redhall** **SEPA West**
Station: Velocity-area station located in straight gravel-bedded reach. Informal concrete low-flow control installed in 1966 - good hydraulic performance. D/s gravel had a short-term impact on modularity. Ratings extrapolated above 1.8m (approx. 55 m³s⁻¹).
Catchment: Silurian shales in upper catchment; Triassic sandstone aquifer in lower catchment. Land use: predominantly hill pasture with a third forestry.
- 78005 Kinnel Water at Bridgemuir** **SEPA West**
Station: Velocity-area station on small channel at well confined section. Large bend u/s but straight at gauge. Natural channel control. Cableway. Ratings extrapolated above 3.6m (approx. 130 m³s⁻¹).
Catchment: Silurian shales in upper catchment; Triassic sandstone aquifer in lower catchment. Catchment supports hill pasture and forestry (drains Forest of Ae).
- 78006 Annan at Woodfoot** **SEPA West**
Station: Velocity area station; cableway span 52m. Good approach, steep lb. Cableway spans immediate rb and subsidiary flood bank. Responsive, natural catchment.
Catchment: High relief upland catchment draining Silurian slates, shales and mudstones. Boulder Clay and alluvium overlay bedrock in the valleys with sands and gravels near the station.
- 79001 Afton Water at Afton Reservoir**
Station: Compound sharp-edged weir below Afton Reservoir (major water supply abstraction) - measures compensation flows and spillage.
- 79002 Nith at Friars Carse** **SEPA West**
Station: Velocity-area station with cableway. Straight approach with sharp bend (with gravel bar) 150m below station which probably controls higher flows. Shallow section with gravel bed. Narrow floodplain on left bank, more extensive on right. Ratings extrapolated above 4.2m. Afton Res. has a minor influence on the flow regime.
Catchment: Silurian shales and mudstones. Land use: hill pasture with mixed farming in the valley bottom.
- 79003 Nith at Hall Bridge** **SEPA West**
Station: Velocity-area station. All flows contained by bridge opening below station which is likely high flow control. Low flows controlled by riffles near bridge. Straight and uniform approach. Largely natural with controlled storage of Afton Res. having occasional significant effect. Ratings extrapolated above 2.0m (approx. 65 m³s⁻¹).
Catchment: Silurian shales and Coal Measures overlain by, predominantly, Boulder Clay with Peat in the headwaters. Upland catchment supporting pasture and rough grazing; some forest cover.
- 79004 Scar Water at Capenoch** **SEPA West**
Station: Velocity-area station with cableway. Control of pre-cast concrete sections installed during winter of 1986/7 replacing earlier 1981 gabion control. Fairly straight gravel bedded reach. Well confined for all but extreme flows. Gauged up to 2.6m. Natural regime.
Catchment: Silurian shales and mudstones with approx. 40% overlain by superficial deposits, mainly Boulder Clay. Land use: predominantly pasture with some wood cover.
- 79005 Cluden Water at Fiddlers Ford** **SEPA West**
Station: Velocity-area station with cableway under natural channel control. Straight reach with gravel bed. Ratings gauged up to 2.4m (121 m³s⁻¹). No problems at high flows. High stability. Contains Glenkin Res. 1-2% of flows abstracted.
Catchment: Silurian shales and mudstones in upper catchment; Permian basal breccias, s'ts and mudstones in lower catchment. More than 50% of catchment overlain by superficial deposits; predominantly Boulder Clay with some sands and gravels. Landuse mainly pasture giving way to rough grazing on higher ground with some forestry.
- 79006 Nith at Drumlanrig** **SEPA West**
Station: Velocity-area station on long straight reach at a particularly well confined site. Cableway. Gravel and rock bed. Natural channel control. Highest known gauging 3.3m (353 m³s⁻¹; about QMED). Sensibly natural flow regime. Afton Reservoir has small influence.
Catchment: Mostly upland catchment. Silurian shales and mudstones; approx. 2/3 overlain by superficial deposits, predominately Boulder Clay with peat in the headwaters. Mixed farming and pasture in valley bottom; rough grazing, moorland and forestry in upland areas.
- 79007 Lochar Water at Kirkblain Bridge** **SEPA West**
Station: Velocity-area station; natural channel control. Short, straight reach below sharp bend and road bridge. Flood flows contained by bridge used for gauging. Muddy bed. Summer flows badly affected by weed growth. River management scheme and tides affect flow regime (river dredged to beyond tidal limit, treat 1997 flows with extreme caution). HIF record dubious, frequent gaugings undertaken to enable recalibration.
Catchment: Natural low lying catchment draining Lochar Moss, overlying Permian s't aquifer. Headwaters drain Silurian shales. More than 90% of catchment overlain by mixed superficial deposits. Land use mixed farming and pasture with some forestry.
- 80001 Urr at Dalbeattie** **SEPA West**
Station: Velocity-area station with cableway located between two sharp bends. Gravel and rock bar forms low flow control. Highest gauging at 3.1m (120 m³s⁻¹; ~1.3QMED). Occasional tidal peaks recorded.
Catchment: Low-lying catchment. Silurian shales and greywackes with granite intrusion in Dalbeattie area. Extensively covered by Boulder Clay. Land use: pasture, hill grazing and forestry.
- 80002 Dee at Glenlochiar** **SEPA West**
Station: Velocity-area station with cableway on gentle bend about 500m d/s of Glenlochiar Barrage. All flows contained at section. Gravel bed with some large boulders. Lowest station on highly regulated river: distribution of flows controlled by Glenlochiar Barrage feeding Glenlec HEP station.
Catchment: Ordovician and Silurian shales and greywackes, with two major granitic intrusions. Glacial drift deposits on lower ground. Scenic catchment with rugged peaks and extensive afforestation giving way to rolling lowland pastures.
- 80003 White Laggan Burn at Loch Dee** **SEPA West**
Station: Velocity-area station. Informal wooden assymetrical Flat V weir controls most flows. Occasional backwater effects from Loch Dee after prolonged wet periods. Gauge on long straight section with gravel bed and low grassy banks. Bypassing may occur above 1.2m through forest drainage channels. Highest known gauging 1.3m (6.7 m³s⁻¹).
Catchment: Very wet rugged upland catchment. Lower catchment Loch Doon Granite; mid catchment metamorphosed country rocks giving way to unaltered Ordovician and Silurian shales and greywackes to the S. Land use is mainly grassland and forestry.
- 80004 Green Burn at Loch Dee** **SEPA West**
Station: Velocity-area station with an informal timber control. Natural flow regime.
Catchment: Very wet, moderate relief, moorland catchment. Impermeable bedrock (large granitic component) with some peat on lower slopes. Extensive young coniferous plantations.

- 80005 Dargall Lane at Loch Dee** **SEPA West**
Station: Velocity-area station; natural river section with boulder control. Reasonable approach, gauged by wading. Natural flow regime (note: true rainfall may be underestimated).
Catchment: Very wet catchment. High relief moorland catchment. Impermeable bedrock (large granitic component) with some Boulder Clay cover on lower slopes.
- 80006 Blackwater at Loch Dee** **SEPA West**
Station: Velocity-area station on outflow from Loch Dee. Gravel bed, natural channel control. Flood flows overbank.
Catchment: Rugged moorland upland catchment on granite and Silurian shales. Boulder Clay and shallow peat on lower slopes. Some forestry.
- 81001 Penwhirn Burn at Penwhirn Reservoir**
Station: Compound V notch and rectangular weir below Penwhirn Reservoir, measures compensation flows and spillage.
- 81002 Cree at Newton Stewart** **SEPA West**
Station: Velocity-area station located on long, reasonably straight, gravel bedded reach. Cableway. Channel control but gravel riffle 50m below site controls lower flows.
Catchment: Natural catchment with a few small lochs, moorland and approx. 40% forestry. Impermeable bedrock with approx. 50% overlain by superficial deposits.
- 81003 Luce at Airyhemming** **SEPA West**
Station: Velocity-area station on long straight and uniform reach with wooded banks. Natural channel control. Cableway. Ratings extrapolated above 2.8m (188 m³s⁻¹). Penwhirn Reservoir abstractions constitute approx. 2% of flows.
Catchment: Predominantly lowland catchment. Bedrock Silurian shales and greywackes with extensive peat cover. Natural moorland catchment draining westerly end of Southern Uplands. Landuse mainly hill grazing and forest cover (approx. 15%).
- 81004 Bladnoch at Low Malzie** **SEPA West**
Station: Velocity-area station on straight reach in a meandering section of river situated in pastures. Long cableway ensures flows over berms gauged. Weedy islands below gauge. Natural control.
Catchment: Lowland catchment. Impermeable bedrock (Silurian shales and greywackes) overlain by Boulder Clay and substantial areas of peat. Land use; grassland and forestry; significant number of lochs.
- 81005 Piltanton Burn at Barsolus** **SEPA West**
Station: Artificial channel maintained by statutory drainage scheme. Station utilises check weir as control to low flows. Flood flows generally contained. Cableway. Major weed growth problems requiring complicated rating (not yet applied to 1997 dmfs, treat with caution). Very poor high flow rating. Some abstraction may take place.
Catchment: Lowland catchment. Ordovician shales and greywackes; approx. 80% overlain by superficial deposits. Land use: grassland & arable; a little forestry in upper catchment.
- 81006 Water of Minnoch at Minnoch Bridge** **SEPA West**
Station: Velocity-area station on straight reach with gravel bed below steep rocky section. Cableway spans across low rh floodbank - which is occasionally breached.
Catchment: Natural catchment including rugged uplands. Impermeable bedrock (Ordovician shales and greywackes) overlain with superficial deposits. Extensive forestry (Glentool Forest); several lochs.
- 81007 Water of Fleet at Rusko** **SEPA West**
Station: Velocity-area station on short straight reach with gravel bed and gravel shoal control. Flows well contained with help from rh floodbank.
Catchment: Predominantly low-lying catchment. Impermeable bedrock (Silurian shales with granitic intrusion which forms highest point in catchment at Cairnsmore of Fleet); overlain with superficial deposits. Rugged moorland catchment with extensive forestry.
- 82001 Girvan at Robstone** **SEPA West**
Station: Velocity-area station with gravel bar control (built in 1982; subject to regrading in substantial floods). Section is 15m wide. Flood banks contain all flows (pre-1982, rb inundated beyond 2.2m). Ratings extrapolated beyond 1.9m (2.2m pre-1982). Runoff diminished by abstractions from Loch Bradan. Additional storage in a few high level lochs.
Catchment: Catchment draining from Carrick Forest. Complex geology: Ordovician/Carboniferous metamorphics and igneous formations; approx. 75% overlain by superficial deposits. Mostly hill pasture with some mixed farming in the valley and afforestation in the headwaters; several lochs.
- 82002 Doon at Auchendrane** **SEPA West**
Station: Velocity-area station in straight section; riffle control at low flows, rock boulder control at high discharges. Wide floodplain u/s but all flows contained. Flow regime heavily influenced by regulation releases from Loch Doon (129.5 sq.km) - large export of water reduces runoff substantially.
Catchment: Mostly upland catchment developed on basement rocks - metamorphosed sediments (Ordovician and Carboniferous) and igneous formations; >60% covered by superficial deposits. Hill pasture is the principal land use, some afforestation - mostly in headwaters. Significant extent of lochs.
- 82003 Stinchar at Balnowlart** **SEPA West**
Station: Velocity-area station in long straight reach. Approx. 20m wide section. Riffle control. All but exceptional floods contained (<3.1m). Ratings extrapolated beyond 3m. Hydrometric performance has been modestly affected by a leaking stilling well. PWS abstractions cause small reduction in runoff. Very limited storage within the catchment.
Catchment: Catchment topography approx. 2/3 lowland and 1/3 upland. Predominantly impermeable bedrock dominated by metamorphosed s't and shales (Ordovician) with igneous outcrops in the headwaters, overlain with Peat and Boulder Clay. Rural catchment with extensive forested upland areas in W (Carrick Forest); hill pasture elsewhere.
- 83002 Garnock at Dalry** **SEPA West**
Station: River section 0.8km d/s of Dalry. Runoff substantially reduced by PWS exports from u/s reservoirs.
- 83003 Ayr at Catrine** **SEPA West**
Station: Velocity-area station in a long straight reach with a large pipe forming an informal broad-crested control (somewhat insensitive). Ratings extrapolated above 1.5m. All flows contained. A responsive, natural catchment but the flow pattern is modestly affected (esp. at low flows) by the operation of a small HEP scheme 1km u/s.
Catchment: A catchment of rugged topography draining W from Southern Uplands. Complex bedrock - Carboniferous sediments and igneous outcrops dominate; extensive superficial deposits (mostly Boulder Clay and peat). Hill grazing is the main land use; some forestry.
- 83004 Lugar Water at Langholm** **SEPA West**
Station: Velocity-area station; approx. 15m wide section with rock/boulder control (may be subject to erosion/accretion) plus a thin-plate weir in the mill lade (Langholm B, local no. 140, station level 84.17mOD; closed 1990). Combined flows are archived. Ratings extrapolated beyond approx. 1.9m. Very responsive, natural catchment (minor effluent discharge close to the station).
Catchment: A mostly upland catchment developed, mainly, on Carboniferous sediments (chiefly Coal Measures) and igneous formations; extensively overlain by superficial deposits. Hill grazing is the major landuse with some forestry.
- 83005 Irvine at Shewalton** **SEPA West**
Station: Velocity-area station; approx. 30m wide section with rock bar/bridge debris control - channel control at high flows. Ratings extrapolated above 3.8m. All flows contained. A responsive, sensibly natural flow regime (but affected by effluent from STW).
Catchment: Catchment topography approx. 2/3 lowland and 1/3 upland. Bedrock predominantly Carboniferous sediments with basalt tracts towards headwaters. Extensively overlain by superficial deposits, mainly Boulder Clay with peat in the headwaters. Land use: mixed farming and hill grazing; some forestry in the upper catchment. Kilmarnock (12km u/s) is the only large urban area.
- 83006 Ayr at Mainholm** **SEPA West**
Station: Velocity-area station; approx. 30m wide section in long straight section; channel control. Ratings extrapolated beyond 3.6m. Very steep banks (approx. 6m); most flows contained - overspilling occurs on lb. Responsive, natural catchment.
Catchment: Catchment topography approx. 2/3 lowland and 1/3 upland. Complex bedrock geology; Carboniferous sediments (chiefly Coal Measures) dominate, but some igneous formations and Permian s'ts in upper reaches. Extensively overlain by superficial deposits (mostly Boulder Clay and peat). No major urban centres. Hill grazing and forestry in upland headwaters, mixed farming in lowlands.
- 83007 Lugton Water at Eglinton Castle** **SEPA West**
Station: Velocity-area station with a broad-crested masonry weir as control. Insensitive at low flows; algae can accumulate on crest. Cableway (in a straight reach) used for rating. Wide floodplain. Very responsive flow pattern.
Catchment: A linear, mostly lowland, catchment. Impervious basalts dominate the headwaters, Carboniferous sediments below; with significant cover by superficial deposits. Land use: predominantly grassland, some forestry and agriculture. Loch Libo, in the upper reaches, has little affect on flows.
- 83008 Annick Water at Dreghorn** **SEPA West**
Station: Velocity-area station with open channel section; some control from a bridge 30m d/s. Various temporary controls have been sited in the river following the removal of an earlier weir (Jul 1982). Calibration checked regularly. Long Loch and Corsehouse Res. can affect the flow regime.
Catchment: Lowland catchment. Bedrock mainly Coal Measures overlain by Boulder Clay, with river terraces and raised beach deposits along river channel. Land use predominantly grazing with isolated forested areas. Urbanisation limited to Stewarton and Irvine.
- 83009 Garnock at Kilwinning** **SEPA West**
Station: River section with long round-crested masonry weir (with central rectangular notch) acting as the control. All flows contained. Exceptionally high tides may influence water levels. Very responsive catchment notwithstanding several reservoirs (including Muirhead and Camphill) in the headwaters - small net diminution in runoff.
Catchment: Rugged upland headwaters (peat and Boulder Clay overlying igneous formations), mostly Carboniferous sediments covered by superficial deposits in lower catchment. Mainly rural with urbanisation along main valley at Kilbirnie, Dalry and Kilwinning; some forestry.

- 83010 Irvine at Newmilns** **SEPA West**
Station: Flat V weir within broad-crested flanks in a long straight reach, superseded (Sep 1976) an unstable gravel bar control. Stage data collected for this site dates back to 1959. Sensibly natural flow regime.
Catchment: Mostly upland catchment developed on basalts and metamorphosed sedimentary formations (mostly Carboniferous and ORS); extensively overlain by superficial deposits. Moorland and rough pasture predominate, significant afforestation in the north, mixed farming in the valley - Greenholm and Darvel are the largest settlements.
- 83011 Ayr at Wellwood** **SEPA West**
Station: Station set-up for a coal project. Rather responsive catchment.
Catchment: Mid-altitude catchment (>200 m). Land use is mostly grasslands and heath.
- 83012 Gass Water at Welltrees** **SEPA West**
Station: Station set-up for a coal project. Rather responsive catchment.
Catchment: Mid-altitude catchment (>200 m). Predominantly permeable bedrock with extensive impermeable superficial deposits. Land use is mostly grasslands and heath.
- 83013 Irvine at Glenfield** **SEPA West**
Station: River section with broad crested masonry weir acting as control. All but very high flows contained. Natural flow regime.
Catchment: Mostly lowland catchment. Predominantly Carboniferous and igneous bedrock, with localised ORS; extensively overlain by superficial deposits (mainly Boulder Clay). Rural catchment with forested areas in NE and urbanisation along main valley (Darvel, Newmilns, Galston and Kilmarnock).
- 84001 Kelvin at Killermont** **SEPA West**
Station: Velocity-area station; approx. 20m wide section with channel control. Vigorous seasonal weed growth. Ratings extrapolated above 2.2m. All flows contained within steep banks. Station moved 300m u/s (from Killermont) in 1962. Forth and Clyde canal drains through the catchment. Some monthly naturalised flows available (1970-74).
Catchment: Predominantly lowland catchment. The main channel runs along the northern edge of the Central Lowlands taking tributaries from the faulted igneous block to the north - remainder of catchment is chiefly Carboniferous sediments overlain by, predominantly, Boulder Clay. Mixed land use - moorland, forestry and urban concentrations. A number of small lochs.
- 84002 Calder at Muirshiel** **SRCW**
Station: Compound sharp-edged weir 7km above the river outfall to Castle Semple Loch. Limit of measurement 16 m³s⁻¹; no information on hydrometric performance. Runoff reduced by major u/s abstraction. Very patchy record but includes most of the 1950s-60s.
- 84003 Clyde at Hazelbank** **SEPA West**
Station: Velocity-area station; approx. 60m wide in a straight section with natural bedrock control. Well calibrated. Ratings extrapolated above 3.6m. All flows contained. Weed growth apparent in May to September affecting low flows. Very minor net impact of artificial influences (some naturalised data) but flow pattern is affected by operation of u/s HEP station (Stonebyres Falls).
Catchment: Predominantly upland catchment. Catchment drains from the Southern Uplands. Complex bedrock geology with Metamorphics and igneous rocks extensively overlain, in the lower half of the catchment, by superficial deposits, mainly Boulder Clay. Hill grazing is principal land use with some forestry and arable lands. Sparsely populated except for Lanark 5km u/s.
- 84004 Clyde at Sills of Clyde** **SEPA West**
Station: Velocity-area station; about 15m wide section with natural control. Sited on a 200m straight natural reach between two sharp opposing bends. Low flow control is a riffle 30m d/s. Weed growth in summer affects low flows. To date all flows contained. Section rated by c/m to 2.9m. Flows are straight at cableway but there is some turbulence. Station transferred from SDD to Clyde RPB in Jul 1969.
Catchment: Upland catchment draining part of Southern Uplands, with several small storage reservoirs in headwaters. Silurian and Ordovician sedimentary rocks, approx. 50% of which overlain by superficial deposits, mainly Boulder Clay and sands and gravels. Land use: rough grazing, improved pasture, moorland, and afforestation.
- 84005 Clyde at Blairston** **SEPA West**
Station: Velocity-area station; approx. 60m wide section. Velocity profile slightly uneven due to u/s bend. Control: piers of redundant rail bridge 300m d/s. Steep grass and tree covered banks. Rated by c/m to 3.4m, just below max. recorded stage. Rating change 1/7/76 evident in flow pattern. Several upland tribs. impounded for PWS. River hydropower schemes u/s of New Lanark. Some monthly naturalised flows available (1958-75). Station burnt down Feb 1997, temporary logger installed (became permanent). No cableway.
Catchment: Predominantly upland catchment. Bedrock mainly Ordovician s'sts and shales. Lowther Hills in S are Silurian L'st, other upland areas Carboniferous basaltic lavas. The lower reaches of the catchment are overlain by superficial deposits, mainly Boulder Clay. Land use is mainly hill grazing and moorland on high ground, some afforestation; fruit farming in valley. Rapid urbanisation in lower catchment.
- 84006 Kelvin at Bridgend** **SEPA West**
Station: River section 340m u/s of Inchbelly Bridge, Kirkintilloch. Responsive regime.
- 84007 South Calder Wtr at Forgewood** **SEPA West**
Station: Compound Crump profile weir (centre: 3.7m, flanks: 13.4m). Gradient sufficient to avoid drowning. All flows contained. Theoretical rating confirmed by gaugings up to 0.495m. Flow pattern influenced by industrial abstractions and discharges - net import of water from the Clyde.
Catchment: Relatively subdued topography developed on sedimentary formations of Carboniferous age (chiefly Coal Measures); approx. 85% overlain by superficial deposits. Land use arable and pasture plus significant woodland and urbanised areas - the gauging station is located in Motherwell.
- 84008 Rotten Calder Wtr at Redlees** **SEPA West**
Station: Compound Crump profile weir (central crest: 1.8m, flanks: 4.9m). Theoretical rating confirmed by gaugings up to 0.2m. River gradient obviates drowning. All flows contained. Runoff augmented by sewage and industrial effluent.
Catchment: A mainly impervious catchment (Carboniferous deposits predominate; Drift cover). Moorland and hill pasture in the headwaters, some significant urban growth in the lower catchment (East Kilbride).
- 84009 Nethan at Kirkmuirhill** **SEPA West**
Station: Compound Crump profile weir (centre crest: 2.4m, flanks: 4.3m); significant accretion u/s of rh crest. Theoretical rating - confirmed by gaugings up to 0.2m. Flows remain modular and are fully contained; the channel is deeply incised into rock. Runoff is diminished by PWS abstractions.
Catchment: The Nethan drains from Nutberry Hill. Complex geology - mostly ORS and Carboniferous L'st overlain by peat in the headwaters and Boulder Clay in the lower reaches. Afforestation in the headwaters, hill pasture below.
- 84011 Gryfe at Craigend** **SEPA West**
Station: VA with cableway, curving broad-crested masonry weir control (on gentle bend). Lhb overtopped at 1.1m. Sig. affect of L. Thorn and Gryfe Res. in W. Runoff augmented by compensation flows and spillages from neighbouring catchment (10 sq.km). 11/96-3/97 weir collapsed; from 1/4/97 weir stabilised (datum changed). Some monthly naturalised flows (1964-74).
Catchment: Wet, responsive catchment draining from Duchal Moor. Geology: Carboniferous basaltic lavas; isolated pockets of Boulder Clay in valleys. Extensive cover of raised beach deposits W of gauging site. Land use: predominantly grazing, some forestry. Urban development along valley.
- 84012 White Cart Water at Hawkhead** **SEPA West**
Station: Velocity-area station; approx. 20m wide section in a straight reach of uniform cross-section. Rock bar control but weed growth causes low flow rating variations. Bypassing on right bank at extreme floods above 3.3m. Complex water utilisation; some monthly naturalised flows available (1963-74).
Catchment: Predominantly lowland catchment. Carboniferous rocks (basalt in the headwaters) dominate; over 50% overlain by Boulder Clay. Much of the catchment is open pasture (with several small lochs) but the northern part is heavily urbanised (Glasgow); some forestry.
- 84013 Clyde at Daldowie** **SEPA West**
Station: Velocity-area station; approx. 50m wide section. Lowest on the Clyde. Well calibrated. Cableway. Some monthly naturalised flows available (1967-74).
Catchment: Large catchment with upland headwaters. Mixed bedrock geology - Ordovician (in the south) to Carboniferous with superficial deposits, mainly Boulder Clay, below the headwaters. Hill pasture is the major land use in the moorland headwaters with some forestry. Mixed farming and urbanisation in the lower valley.
- 84014 Avon Water at Fairholm** **SEPA West**
Station: Velocity-area station; approx. 25m wide section in a very straight uniform reach. Rock platform below a bridge forms the control. Ratings extrapolated above 2.2m. All flows contained. Some monthly naturalised flows (1964-74). Two small reservoirs in the catchment but flow pattern remains responsive.
Catchment: Predominantly upland catchment. Mostly ORS and Carboniferous formations extensively overlain by superficial deposits; mainly Boulder Clay with peat in the headwaters. Land use hill grazing, moorland, rough and improved pasture, and forest cover (>15%).
- 84015 Kelvin at Dryfield** **SEPA West**
Station: Velocity-area station; approx. 30m wide river section. Recorder sited in straight even reach where erosion has made banks very steep. The river was canalised during last war and floodbanks made on both banks from dredged material. The section is affected by weed growth and requires constant attention. Rated by c/m measurements up to 3.5m. Bypassing occurs in largest events (e.g. Sep 1985, Dec 1994), overtopping at both banks. Cableway installed in 1960 so no high measurements prior to this date. From July 1998 maintained as level only station for flood warning purposes.
Catchment: Catchment in the low lying central valley of Scotland. Millstone Grit and coal bearing rocks of Carboniferous age overlain by extensive Boulder Clay and sand and gravels deposits. Mixed land use including farming, forestry, urban development and open cast mining.

84016 Luggie Water at Condorrat**SEPA West**

Station: Velocity-area station; approx. 8m wide section with compound broad-crested weir, central low flow notch. Calibrated by current metering. Ratings extrapolated above 1.5m. Data prior to March 1968 is of poor quality. No controlled storages but significant local depressions and boggy areas.

Catchment: Lowland catchment. Predominantly Coal Measures with intrusive basalt overlain extensively by Boulder Clay, some peat in the headwaters. Much of the catchment is agricultural in character with significant urban development in the north (Cumbernauld), and some forestry.

84017 Black Cart Water at Milliken Park**SEPA West**

Station: Velocity-area station with informal (dished) concrete control of length 26.52m. Stable rating; extrapolated above 1.1m. Overtopping of rb can occur when stage exceeds 1m. Several lochs and reservoirs (e.g. Rowbanks) provide storage, flows sig. affected by operation of Castle Semple Loch and Barr Loch (fed by Calder Water), evident on the hydrograph trace. Monthly naturalised flows available (1967-74).

Catchment: Predominantly lowland, wet, catchment. Principally impervious - Carboniferous basalt and igneous intrusions, overlain by Boulder Clay. Peat in some upland areas, river gravel on floodplains. Rural land use, urbanisation in valley; some forestry.

84018 Clyde at Tulliford Mill**SEPA West**

Station: Velocity-area station; approx. 60m wide section with a natural control. Ratings extrapolated beyond 1.9m. Weed growth at low flows affects the Clyde from May to September. Banks overtopped at flows in excess of MAF. Catchment includes a number of PWS gathering grounds from which the yield is exported. Monthly naturalised flows available (1969-74).

Catchment: The catchment ranges in height from 180-800m. Mixed geology - ancient sedimentaries (ORS/Ordovician) dominate the headwaters; mostly igneous formations below. Substantial superficial deposits. About one third is cultivated, the remainder is hill grazing and moorland, with some forestry.

84019 North Calder Wtr at Calderpark**SEPA West**

Station: Velocity-area station; about 12m wide section. Recorder sited on U-shaped bend so velocity profile is not symmetrical. Outer bank is a steep cliff being undercut by river. The inner bank is quite steep. Rated by c/m to 1.1m. Monkland Canal drains through catchment.

Catchment: Lies in central lowlands east of Glasgow. Contains several small storage lochs. Sedimentary rocks of Carboniferous age; approx. 95% of which is overlain by superficial deposits. Land use: grassland, forestry, arable lands u/s; extensive urban area d/s.

84020 Glazert Water at Milton of Campsie**SEPA West**

Station: Velocity-area station; broad-crested weir with rectangular low flow notch acts as the control (gaugings confirm the theoretical rating but significant structure erosion evident - especially following the 1990 spates; reconstruction scheduled). Breakpoint of low flow notch is at 0.36m and the structure is drowned out at 1.5m (ratings extrapolated beyond that). To date all flows contained. No significant lochs or storages. Some monthly naturalised flows available (1970-74).

Catchment: Catchment topography is >1/3 lowland the Campsie Fells. Carboniferous series (principally the Scottish Carboniferous L'st) dominate the bedrock - overlain by mixed superficial deposits. Sparsely populated. Landuse mainly rough pasture and improved pasture in lower parts; some forestry.

84022 Duneaton at Maidencots**SEPA West**

Station: Velocity-area station with a ragged rock bar control - considered to be stable and sensitive. Bypassing is unlikely. No significant storages or (current) abstractions. Some early flow data available from 1966.

Catchment: An upland catchment developed mainly on ORS (and older) formations; approx. 50% overlain by Boulder Clay. Mostly grasslands with some forestry.

84023 Bothlin Burn at Auchengeich**SEPA West**

Station: Crump profile weir. Theoretically rated; confirmed by low flow gaugings to 0.18m. Flow contained over the full range. Sensibly natural regime but motorway (M73) runoff and STW effluent may influence flow pattern.

Catchment: A small undulating catchment, containing three old mining villages, developed on Scottish Carboniferous L'st overlain with superficial deposits (approx. 80% Boulder Clay). Significantly urbanised with grassland and some forestry landuse.

84024 North Calder Wtr at Hillend**SEPA West**

Station: Flat V fibre-glass Crump weir. Susceptible to minor weed growth in summer. Channel flooded out at extreme high flows (very rare). Flow is totally artificial, being controlled by releases from Hillend Res. (but flood releases via second spillway bypass).

Catchment: Bedrock geology mainly Upper and Lower Coal Measures, with some quartz-dolerite intrusions. Significant cover; mainly Boulder Clay and peat. Mixed land use with significant proportion of lochs (>9%).

84025 Luggie Water at Oxgang**SEPA West**

Station: Velocity-area station; about 10m wide section with informal Flat V control. Some sign of weir undercutting in 1992, not thought to affect flows. Most flows contained but some spillage in flood conditions. Until 2003, sewage discharge to Bothlin Burn joining u/s of station.

Catchment: Predominantly Coal Measures with some dolerite and basalt intrusions extensively overlain by superficial deposits, mainly Boulder Clay. Mixed land use, farming/urban development.

84026 Allander Water at Milngavie**SEPA West**

Station: Velocity-area station; 8m wide section with Flat V for low flow control (installed 1973). Ratings gauged up to 1.1m. The catchment contains a number of natural and artificial storages but the flow regime remains responsive.

Catchment: Hilly catchment developed mostly on Carboniferous formations (basaltic lava and Scottish Carboniferous L'st predominate); overlain by Boulder Clay in the lower catchment. Upland grazing is the main land use; some afforestation and also urban development (Milngavie) near the outfall.

84027 North Calder Wtr at Calderbank**SEPA West**

Station: Fibre-glass flume for low flows, broad-crested control for higher flows. Flume is susceptible to blockage by vandals (but checked daily). High flow calibration is poorly defined - further gauging planned. Canal offtake just u/s.

Catchment: Urbanised catchment with rough grazing remaining on uplands. Reservoir headwaters. Bedrock principally Upper and Lower Coal Measures overlain by Boulder Clay and localised riverine deposits.

84029 Cander Water at Candermill**SEPA West**

Station: Non-standard Flat V and broad-crested control, no wing walls; current meter calibration. Flood flows spill onto banks. High flow rating under review following road works involving the rb. Responsive flow regime. New rating from 30/07/2002 following July 2002 storm event that redefined channel.

Catchment: Small, northward draining, rural catchment developed on productive Coal Measures, with ORS (Greywacke Conglomerate) occurring on some hills. Boulder Clay and terrace gravels along the Cander Water. Quarrying activity in S. of catchment.

84030 White Cart Water at Overlee**SEPA West**

Station: Rectangular thin-plate low flow notch in a broad-crested (V cross-section) weir. Confirmatory gaugings not yet available for the full flow range. Good fall below weir, flows remain modular. Thin-plate damaged and removed in 1999. Frequent flooding d/s of the gauge reflects flashy nature of the river. There are several reservoirs and lochs within the catchment.

Catchment: Geology: mostly basaltic lava and Carboniferous L'st overlain with Boulder Clay and river gravels along main river channel. Land use: predominantly grazing but rapid urbanisation of lower catchment and upper catchment is becoming forested.

84031 Watstone Burn at Watstone**SEPA West**

Station: Crump weir. Station opened to study the Burn because of proposed new town at Stonehouse. Station closed in 1981, re-opened 1986-93. No significant abstractions or discharges, however, proportion of runoff diverted out of catchment (due to urban drainage).

Catchment: Geology: predominantly Carboniferous deposits overlain with Boulder Clay; ORS (Greywacke conglomerate) occurs on some hills. Rural catchment.

84032 Bagabout Burn at Giffnock**SEPA West**

Station: Rectangular thin-plate weir, overtops at 0.17m. Located in Giffnock STW. No significant abstractions or discharges. Station closed.

Catchment: Small, urban catchment. Bedrock: extrusive igneous rocks overlain with Boulder Clay, and some isolated Upper Limestone outcrops.

84033 White Cart Water at MacQuisten Bridge**SEPA West**

Station: Velocity-area station with well confined open channel. Very responsive, natural regime. Catchment prone to frequent flooding. Flood warning station. A number of small PWS reservoirs in upper reaches but have insignificant effect at station.

Catchment: Outcrops of Carboniferous Coal Measures and basalts overlain by significant superficial deposits, mainly Boulder Clay. Rural catchment undergoing land use changes: afforestation in upper reaches and rapid urban expansion of East Kilbride and Castlemilk.

84034 Auldhouse Burn at Spiers Bridge**SEPA West**

Station: Velocity-area station with artificial control: broad crested weir. No significant abstractions or discharges, however, proportion of runoff diverted out of catchment due to urban drainage.

Catchment: Carboniferous Coal Measures and outcrops of Basalt, approx 45% overlain by Boulder Clay. Landuse mostly grasslands with significant urbanisation.

84035 Kitchoch Water at Waterside**SEPA West**

Station: Velocity-area station with open channel section. Flood warning station. Very minor impact from sewage works u/s of catchment. The urban drainage system produces misleading water balance.

Catchment: Carboniferous Coal Measures and outcrops of Basalt extensively overlain by Boulder Clay. Small, rural catchment having undergone rapid land use change since the expansion of East Kilbride in the 1960s.

84036 Earn Water at Letham**SEPA West**

Station: Velocity-area station with open channel section. Very responsive flow regime. A number of small PWS reservoirs including Lochraig Res. and Bennen lochan are located in catchment.

Catchment: Extrusive igneous rocks overlain with Boulder Clay, also local outcrops of Carboniferous rocks of Upper L'st Group. Small, rural catchment. Mostly grasslands; some forest and arable cover.

- 84037 Douglas Water at Happendon** **SEPA West**
Station: Crump weir. All flows contained. Two small lochs in catchment but flow pattern remains responsive.
Catchment: Carboniferous rocks with local occurrences of Lower ORS, intruded by basaltic and doleritic dykes. Significant superficial deposit cover (mainly Boulder Clay). Rural catchment having undergone some afforestation.
- 85001 Leven at Linnbrane** **SEPA West**
Station: Velocity-area station; 35m wide river section with channel control at outflow from Loch Lomond. Stable rating but erosion caused by major floods in 1990 necessitated recalibration. Natural regime until loch outfall control weir built in 1971, now highly regulated. Naturalised monthly flows Oct 1963 - Sept 1974.
Catchment: Large, wet, upland catchment. Bedrock geology dominated by ancient metamorphic formations - overlain by superficial deposits in the west.
- 85002 Endrick Water at Gaidrew** **SEPA West**
Station: Velocity-area station; approx. 28m wide section with natural channel control. Low and medium flows considered reliable but flood discharges are of a lesser accuracy (due to overspill on to the lb floodplain and a curved approach to the measuring reach). Ratings gauged up to 0.7QMED (pre-1981) and 1.0QMED (post-1981). Runoff is diminished by the export of water from Carron Res. into the Forth system. Some monthly naturalised flows available (1967-74).
Catchment: An upland rural catchment, draining from the Campsie Fells, developed on ORS overlain with Boulder Clay; large tracts of sand and gravel also. Land use: mostly moorland, rough grazing, pasture; forestry.
- 85003 Falloch at Glen Falloch** **SEPA West**
Station: Velocity-area station, approx. 35m wide, with long broad-crested weir (with rectangular notch) as low flow control - installed Feb 1975. Damage to part of main crest results in a small discharge bypassing the central notch. All but very high flows contained. Ratings extrapolated above 2.4m. No significant abstractions or discharges. Very responsive regime.
Catchment: Very wet, mountainous, catchment draining southern slopes of Benn Oss and northern slopes of Beinn a Chroin and Beinn Chabair. Developed on ancient metamorphic formations with isolated outcrops of igneous intrusions (impermeable). Small lochans in some headwaters, but have little affect on flows. Land use mainly moorland and rough grazing with small amounts of forestry.
- 85004 Luss Water at Luss** **SEPA West**
Station: Velocity-area station with artificial low flow control: broad-crested weir with low flow notch, slight damage to centre section repaired in autumn 1992. Very responsive, natural regime.
Catchment: A very wet, mountainous catchment developed mainly on Dalradian schists, overlain by Boulder Clay. Land use is mostly grassland.
- 86001 Little Eachaig at Dalinlongart** **SEPA West**
Station: Velocity-area station; approx. 17m wide section with compound artificial control (low flow notch, broad-crested flanks). Cableway on site until 1988. All flows contained to date. Ratings gauged up to 0.8m (about 0.3 Qmed). Natural flow regime but catchwaters divert a small runoff volume to Loch Tarsan. Very responsive flow pattern.
Catchment: A compact, steep, mountainous catchment - very wet - developed on ancient metamorphic formations; overlain by limited superficial deposits. Landuse mainly forest (approx. 50%) and moorland.
- 86002 Eachaig at Eckford** **SEPA West**
Station: Velocity-area station with riffle control. The rating is stable and well defined. All but major floods are contained within the channel. 1990s flows under review. The catchment contains Loch Eck, a major PWS reservoir. Some monthly naturalised flows available (1970-74). Station closed 31/05/98.
Catchment: A very wet (mean rainfall may be underestimated), steep-sided, mountainous catchment developed on ancient metamorphic formations - some overlying superficial deposits.
- 88001 Carradale at Dippen** **SEPA West**
Station: Velocity-area station with natural control. Responsive catchment.
Catchment: Low-lying catchment predominantly forested (~70%) with impermeable bedrock.
- 89002 Linne nam Beathach at Victoria Bridge** **SEPA West**
Station: Velocity-area station with a spillway crested weir. Calibration good at low flows. Initially installed as part of HEP programme. No artificial influences on the flow regime.
Catchment: Very wet, rural, upland catchment draining to Loch Tulla. Dalradian metamorphics with igneous extrusions; over half overlain by Boulder Clay. Moderate forest cover. A couple of small lochs in the catchment.
- 89003 Orchy at Glen Orchy** **SEPA West**
Station: Velocity-area station with low flow control (broad-crested weir). All but very high flows contained. Initially installed as part of HEP programme. Very responsive natural flow regime. Calibration does not extend to highest flows - may result in overestimation of runoff.
Catchment: Very wet, upland, steep, and rural catchment with some forest. Predominantly metamorphic rocks with local occurrences of Dalradian L'st; over 60% overlain by Boulder Clay.
- 89004 Strae at Glen Strae** **SEPA West**
Station: Spillway crested weir. Initially installed as part of HEP programme. No significant artificial effects on the flow regime during the early record. High flow rating unconfirmed.
Catchment: A very wet, linear catchment draining to Loch Awe. Bedrock geology: predominantly Dalradian metamorphics with local occurrences of Dalradian L'st. Almost half the catchment overlain by Boulder Clay. Landuse predominantly rough grazing; some woodland cover.
- 89005 Lochy at Inverlochy** **SEPA West**
Station: Velocity-area station with low flow control (broad-crested weir). All but the very high flows contained. Initially installed as part of HEP programme.
Catchment: Linear catchment draining westward from Lochan na Bi. Predominantly Dalradian metamorphics with local outcrops of Middle ORS. Upland rural catchment with forested slopes.
- 89006 River Avich at Barnaline Lodge** **SEPA West**
Station: Compound weir: broad crest low flow notch set in level rounded crest weir with wing walls. Low flows are well rated, accuracy lost progressively with floods above main crest. Initially installed as part of HEP programme.
Catchment: Predominantly Dalradian metamorphics with intrusive and extrusive igneous outcrops. Forested catchment (>50%) draining into Loch Awe. Catchment dominated by presence of Loch Avich approx. 2km u/s.
- 89007 Abhainn a' Bhealaich at Braevallich** **SEPA West**
Station: Compound weir. Low flows measured over a broad crest notch; high flows over a long rounded crest with decreasing accuracy. All but highest flows contained. Initially installed as part of HEP programme. No artificial effects on flow regime.
Catchment: Predominantly Dalradian metamorphics with igneous intrusions; approx. 40% overlain by Boulder Clay. A steep catchment draining into Loch Awe. One of the most afforested UK catchments (>60%).
- 89008 Eas Daimh at Eas Daimh** **SEPA West**
Station: Crump weir (originally installed for research purposes, now operated by SEPA). Good low flow calibration. Access problems create difficulties in establishing medium and high flow rating; accuracy at high flows considered poor. A very responsive, natural regime - no abstractions or loch storage (but snow pack storage can be considerable).
Catchment: A wet, mountainous, catchment developed largely on Dalradian metamorphics (mainly schists, some slate and phyllite). Peat in upland areas. Small upland catchment, partially forested.
- 89009 Eas a' Ghail at Succoth** **SEPA West**
Station: Crump weir (installed for research project, now operated by SEPA) in a narrow ravine, all flows contained. Calibration good at low flows but poor at high. Very responsive, natural regime - no abstractions or storage (excepting seasonal snow cover).
Catchment: A wet, mountainous catchment developed on metamorphic formations - mainly Dalradian schists with some phyllite and slate. Peat in upland areas. Small, partially forested upland catchment.

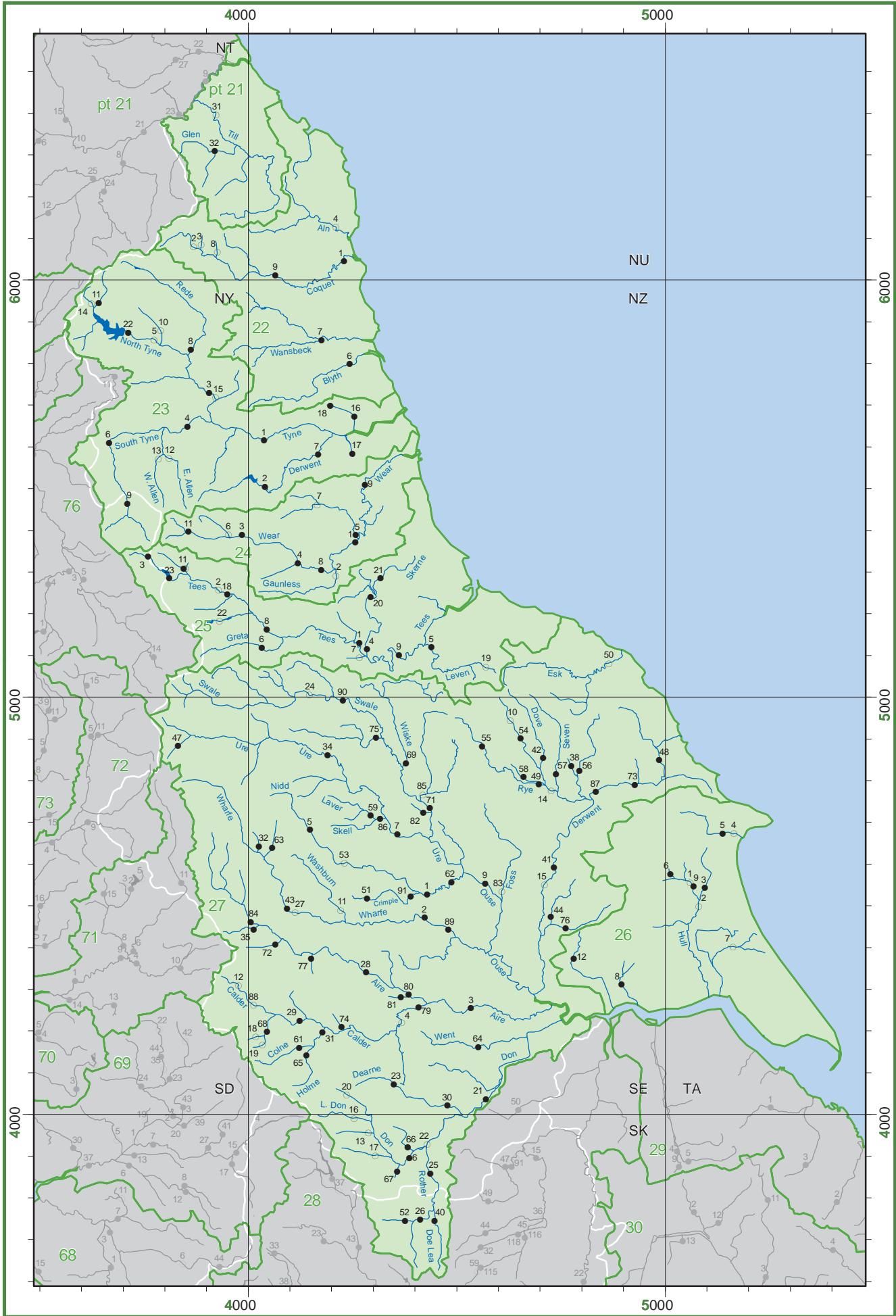
GAUGING STATION REGISTER

Region: EA North East

Area: 22,777 km²

Average rainfall (1971-2000): 831 mm

Map 4: NORTH EAST



Gauging Station Register I

Station number	River name	Station name	Grid reference	Catchment area	Station type	SLA	Period of record	Percent complete	Base Flow Index	Mean ann. rain (mm)	Mean ann. runoff (mm)	Mean ann. loss (mm)	Mean flow (m ³ /s)	Q95 (m ³ /s)	Q70 (m ³ /s)	Q50 (m ³ /s)	Q10 (m ³ /s)	Median ann. flood (m ³ /s)	Peak flow (m ³ /s)	Date of peak	7-day min. (m ³ /s)	Date of min.
21031*	Till	Etal	NT927396	648.0 VA			1956-80	99	.57	836	412	424	8.48	1.49	3.48	5.75	17.3	82.9	299.6	28/08/56	0.77	03/07/73
21032	Glen	Kirknewton	NT919310	198.9 FVVA *			1966-05	85	.49	902	464	438	2.91	0.29	0.85	1.66	6.4	42.8	117.5	01/04/92	0.13	21/08/03
22001	Coquet	Morwick	NU234044	569.8 VA	*		1963-05	100	.44	875	472	403	8.58	1.20	2.66	4.77	18.9	137.4	365.7	01/04/92	0.73	21/08/95
22002*	Coquet	Bygate	NT870083	99.5 MIS			1957-80	99	.47	1031	634	397	1.21	0.21	0.46	0.74	2.5	24.7	34.0	12/09/68	0.11	13/10/59
22003*	Usway Burn	Shillmoor	NT886077	21.4 TP			1957-80	100	.40	1076	820	256	0.55	0.09	0.18	0.29	1.3	16.2	29.0	22/11/74	0.04	07/09/59
22004*	Ain	Hawkhill	NU211129	205.0 VA			1966-80	98	.45	761	362	399	2.42	0.46	0.80	1.22	4.7	61.9	150.0	13/08/66	0.34	09/07/76
22006	Blyth	Hartford Bridge	NZ243800	269.4 FVVA *			1966-05	99	.35	711	247	464	2.12	0.13	0.35	0.82	5.0	52.4	153.1	07/11/00	0.05	23/08/76
22007	Wansbeck	Mitford	NZ175858	287.3 MIS	*		1968-05	100	.37	809	359	450	3.22	0.22	0.59	1.35	7.1	100.4	300.0	07/03/63	0.11	20/08/76
22008*	Alwin	Cennell	NT925063	27.7 FV			1969-83	100	.49	1017	632	385	0.57	0.08	0.19	0.32	1.3	15.7	48.6	02/03/79	0.05	23/08/76
22009	Coquet	Rothbury	NU067016	346.0 VA	*		1972-05	100	.48	923	535	388	5.69	0.81	1.82	3.34	11.9	130.0	265.7	01/04/92	0.45	14/09/90
23001	Tyne	Bywell	NZ038617	2175.6 VA	*		1956-05	99	.38	1044	661	383	45.42	6.17	15.04	25.62	102.3	875.7	1370.0	07/01/05	2.64	06/09/76
23002	Derwent	Eddys Bridge	NZ041508	118.0 FLB			1954-05	100	.54	956	273	683	1.02	0.29	0.42	0.47	2.0	48.4	93.4	06/11/00		
23003	North Tyne	Reaverhill	NY906732	1007.5 VA			1959-05	99	.37	1069	661	408	21.07	2.69	6.70	12.38	48.1	368.3	750.9	23/03/68	0.98	24/08/76
23004	South Tyne	Haydon Bridge	NY856647	751.1 VA	*		1962-05	99	.34	1175	771	404	18.36	2.07	5.43	9.58	42.7	469.2	930.0	07/01/05	1.10	23/09/96
23005*	North Tyne	Tarset	NY776861	284.9 VA			1963-87	100	.33	1277	877	400	8.02	0.91	2.26	3.92	19.0	217.2	335.6	30/08/75	0.52	24/08/76
23006	South Tyne	Featherstone	NY672611	321.9 CC	*		1966-05	99	.33	1358	1027	331	10.54	1.32	3.20	5.38	25.5	236.7	448.0	07/01/05	0.66	15/09/03
23007	Derwent	Rowlands Gill	NZ168581	242.1 CC	*		1962-05	99	.58	856	331	525	2.52	0.81	1.10	1.52	4.9	41.6	136.3	06/11/00	0.50	05/09/76
23008	Rede	Rede Bridge	NY868832	343.8 FVVA *			1968-05	99	.33	962	554	408	5.91	0.61	1.32	2.55	14.1	131.2	266.6	04/01/82	0.39	23/08/76
23009	South Tyne	Alston	NY716465	118.5 VA			1969-05	65	.27	1506	1145	361	4.24	0.34	1.01	2.01	10.6	129.6	310.8	30/07/02	0.07	20/08/95
23010*	Tarset Burn	Greenhaugh	NY789879	96.0 VA			1970-80	100	.27	1003	580	423	1.75	0.14	0.37	0.71	4.2	64.0	105.6	30/08/75	0.10	24/08/76
23011	Kielder Burn	Kielder	NY644946	58.8 FVVA *			1970-05	96	.33	1270	1043	227	1.93	0.29	0.59	0.95	4.5	63.5	106.8	01/02/02	0.19	24/08/84
23012*	East Allen	Wide Eals	NY802583	88.0 VA			1971-80	100	.34	1068	784	284	2.13	0.23	0.58	1.01	4.9	84.6	128.5	25/11/79	0.13	23/08/76
23013*	West Allen	Hindley Wrae	NY791583	75.1 VA			1971-80	100	.27	1146	696	450	1.64	0.06	0.32	0.71	4.1	53.2	127.2	25/11/79	0.02	24/05/80
23014*	North Tyne	Kielder temporary	NY631931	27.0 VA			1960-74	100	.35	1280	968	312	0.82	0.10	0.25	0.40	1.9				0.04	04/10/73
23015*	North Tyne	Barrasford	NY924721	1043.8 FL			1942-59	88	.30	1022	565	457	17.23	2.10	4.47	7.73	40.5	440.6			1.48	10/07/49
23016	Ouse Burn	Crag Hall	NZ254674	55.0 TP B	*		1989-05	97	.29	677	183	494	0.30	0.02	0.06	0.11	0.6	9.5	18.1	15/04/05	0.01	24/08/03
23017	Team	Team Valley	NZ249585	61.9			1991-05	100	.65	711	435	276	0.84	0.41	0.58	0.68	1.2	12.2	21.6	03/06/00		
23018	Ouse Burn	Woolington	NZ196700	9.0 VA			1991-05	100	.32	669	229	440	0.07	>0.00	0.01	0.03	0.1	1.9	6.2	04/06/00	0.00	20/07/94
23022	North Tyne	Uglydub	NY713875	241.5 FV			1982-05	99	.47	1298	1023	275	7.69	1.47	2.79	5.15	16.0	41.4	151.0	07/01/05		
24001	Wear	Sunderland Bridge	NZ264376	657.8 CB	*		1957-05	99	.43	950	536	414	11.14	1.90	3.39	5.83	25.3	185.1	375.7	04/06/00	1.01	06/10/59
24002*	Gaunless	Bishop Auckland	NZ215306	93.0 C			1958-83	100	.51	737	310	427	0.91	0.14	0.36	0.55	1.9				0.06	23/08/76
24003	Wear	Stanhope	NY983391	171.9 CC	*		1958-05	99	.35	1295	671	624	3.69	0.49	1.01	1.71	8.7	116.5	327.0	07/01/05	0.25	06/10/59
24004	Bedburn Beck	Bedburn	NZ118322	74.9 CC	*		1959-05	100	.47	893	514	379	1.22	0.15	0.37	0.68	2.8	23.9	76.3	19/08/04	0.08	20/08/95
24005	Browney	Burn Hall	NZ259387	178.5 CB	*		1954-05	98	.50	754	300	454	1.70	0.28	0.60	0.96	3.6	37.6	81.0	26/08/86	0.12	15/09/03
24006*	Rookhopy Burn	Eastgate	NY952390	36.5 CC			1957-80	100	.35	1161	674	487	0.78	0.07	0.22	0.40	1.8	24.6	38.6	11/09/76	0.06	24/08/76
24007*	Browney	Lanchester	NZ165462	44.6 CC			1968-83	100	.45	770	380	390	0.55	0.07	0.14	0.27	1.3	10.7	21.9	27/12/78	0.05	05/09/76
24008	Wear	Witton Park	NZ174309	455.0 VA			1972-05	99	.44	1047	543	504	7.73	1.19	2.33	4.07	17.5	200.3	353.1	31/01/95	0.74	05/09/76
24009	Wear	Chester le Street	NZ283512	1008.3 FV			1977-05	100	.46	883	455	428	14.56	3.06	5.04	7.82	32.3	234.9	368.1	08/11/00	2.58	21/07/90
24011	Wear	Burnhope Reservoir	NY856395	20.5 TP B			1992-05	100	.24	1546	840	706	0.54	0.09	0.12	0.14	1.5	26.4	60.3	07/01/05		
25001	Tees	Broken Scar	NZ259137	818.4 CC	*		1956-05	100	.33	1151	642	509	16.76	1.86	4.68	8.09	40.1	374.9	663.0	04/06/00	0.07	14/10/59
25002*	Tees	Deer House	NY932260	217.3 CC			1956-74	36	.27	1609	1424	185	8.82	0.64	2.20	3.74	21.7				0.11	23/06/57
25003	Trout Beck	Moor Bank	NY759336	11.4 CC	*		1957-05	76	.14	1856	1548	308	0.55	0.02	0.09	0.19	1.5	15.2	44.6	30/07/02	0.01	15/03/03
25004	Skeme	South Park	NZ284129	250.1 CB			1956-05	98	.50	664	204	460	1.59	0.36	0.67	0.91	3.2	21.7	59.2	29/03/79	0.21	02/08/90
25005	Leven	Leven Bridge	NZ445122	196.3 CB	*		1959-05	100	.42	744	302	442	1.88	0.25	0.51	0.86	4.2	40.3	124.5	03/11/00	0.10	05/09/76
25006	Greta	Rutherford Bridge	NZ034122	86.1 CC	*		1960-05	100	.21	1129	820	309	2.26	0.11	0.36	0.78	5.9	73.4	210.3	26/08/86	0.04	21/08/95
25007*	Cow Beck	Croft	NZ282101	78.2 TP			1961-80	100	.54	735	302	433	0.75	0.09	0.21	0.39	1.7	14.1	39.4	06/03/63	0.04	24/08/76
25008	Tees	Barnard Castle	NZ047166	509.2 CC			1966-05	85	.43	1334	857	477	13.75	3.79	5.39	7.65	30.2	228.9	506.2	25/03/68	1.12	17/06/67
25009	Tees	Low Moor	NZ364105	1264.0 VA			1969-05	98	.38	986	483	503	19.04	2.93	5.68	9.77	44.3	375.8	581.6	04/06/00	1.93	25/08/76
25011*	Langdon Beck	Langdon	NY852309	13.0 FV			1969-83	100	.20	1484	1013	473	0.42	0.02	0.07	0.15	1.1	15.4	35.0	17/07/83	0.01	23/08/76
25012	Harwood Beck	Harwood	NY849309	25.1 FVVA *			1969-05	100	.24	1593	1245	348	0.99	0.07	0.21	0.41	2.6	31.2	63.8	31/01/95	0.03	20/08/95
25018	Tees	Middleton in Teesdale	NY950250	242.1 VA			1971-05	99	.42	1532	1148	384	8.82	2.41	3.70	4.91	18.9	186.6	388.8	31/01/95	1.00	17/06/88
25019*	Leven	Easby	NZ585087	14.8 FV			1971-96	100	.59	832	407	425	0.19	0.05	0.08	0.12	0.4	5.0	25.2	11/09/76	0.03	13/09/90
25020	Skeme	Preston le Skerne	NZ292238	147.0 VA	*		1972-05	99	.39	663	184	479	0.87	0.10	0.25	0.39	1.9	15.3	26.5	28/03/79	0.04	01/08/92
25021	Skeme	Bradbury	NZ318285	70.1 VA	*		1973-05	99	.44	677	179	498	0.39	0.06	0.13	0.19	0.8	5.7	21.0	29/03/79	0.02	10/09/90
25022*	Balder	Balderhead Reservoir	NY931182	20.4 CC			1974-80	89	.23	1234	916	318	0.63	0.00	0.00	0.17	1.7					
25023	Tees	Cow Green Reservoir	NY813288	58.2 FV			1971-04	80	.57	1762	1602	160	2.85	0.48	1.54	2.53	5.5	26.5	40.1	01/12/92		
26001*	West Beck	Wansford Bridge	TA064560	192.0 MIS			1953-74	99	.96	734	419	315	2.51	0.51	1.16	1.90	5.2	5.7	11.6	10/12/65	0.33	07/03/65
26002*	Hull	Hempholme Lock	TA080498	378.1 MIS			1961-96	95	.85	708	271											

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Station number	River name	Station name	Grid reference	Catchment area	Station type	SLA	Period of record	Percent complete	Base Flow Index	Mean ann. rain (mm)	Mean ann. runoff (mm)	Mean ann. loss (mm)	Mean flow (m ³ /s)	Q95 (m ³ /s)	Q70 (m ³ /s)	Q50 (m ³ /s)	Q10 (m ³ /s)	Median ann. flood (m ³ /s)	Peak flow (m ³ /s)	Date of peak	7-day min. (m ³ /s)	Date of min.	
27016 *	Little Don	Underbank Reservoir	SK253992	38.6 MIS			1956-80	97	.40	1187	498	689	0.64	0.14	0.23	0.23	1.7		35.4	09/12/65			
27017 *	Loxley	Damflask Reservoir	SK286906	43.5 MIS			1956-80	99	.39	1158	400	758	0.56	0.12	0.36	0.42	0.9		29.7	09/12/65			
27018 *	Ryburn	Ryburn Reservoir	SE025187	10.7 TP			1956-74	100	.33	1373	461	912	0.16	0.00	0.05	0.07	0.4	3.1	9.9	07/02/66			
27019 *	Booth Dean Clough	Booth Wood Mill	SE033166	15.9 CC			1956-74	96	.32	1388	447	941	0.23	0.05	0.12	0.14	0.4	4.1	13.0	12/04/70			
27020 *	Scout Dike Stream	Scout Dike Reservoir	SE236047	15.2 VN			1956-80	98	.12	1051	215	836	0.11	0.00	0.05	0.05	0.2		7.2	09/12/65			
27021	Don	Doncaster	SE570040	1256.2 US		*	1959-05	96	.56	806	411	395	16.06	4.82	7.38	9.90	33.6	167.6	268.0	07/11/00	3.26	07/10/59	
27022 *	Don	Rotherham Weir	SK427928	826.0 C VA			1960-71	99	.52	859	450	409	12.16	3.46	5.44	7.40	25.2	121.2	286.3	09/12/65	2.62	29/09/64	
27023	Deerne	Bamsley Weir	SE350073	118.9 B VA		*	1960-05	100	.47	779	362	417	1.39	0.25	0.48	0.74	3.0	29.0	65.9	13/04/70	0.10	03/08/90	
27024 *	Swale	Richmond	NZ146006	381.0 VA			1961-80	99	.35	1241	867	374	10.44	1.17	3.43	5.52	24.2	231.3	434.1	23/03/68	0.33	26/07/79	
27025	Rother	Woodhouse Mill	SK432857	352.2 VA		*	1961-05	94	.53	765	372	393	4.12	0.99	1.69	2.41	8.5	52.5	135.2	07/11/00	0.52	19/10/70	
27026	Rother	Whittington	SK394744	165.0 FV VA *			1963-05	99	.45	815	366	449	1.94	0.31	0.63	1.02	4.4	35.7	81.9	16/07/73	0.14	28/09/70	
27027	Wharfe	Ilkley	SE112481	443.0 VA			1961-75	99	.38	1379	979	400	13.79	2.05	4.79	7.45	32.9	267.2	424.0	09/12/65	1.20	06/10/72	
27028 *	Aire	Armsley	SE281340	691.5 B VA			1961-05	100	.49	1062	685	377	14.95	3.32	6.04	8.99	33.8	138.8	252.8	31/10/00	1.77	06/09/76	
27029	Calder	Elland	SE124219	341.9 C VA *			1961-05	94	.49	1285	778	507	8.43	2.07	3.27	4.79	18.4	121.2	520.0	16/10/67	1.17	23/08/84	
27030	Deerne	Adwick	SE477020	310.8 CCVA *			1963-05	99	.57	712	346	366	3.34	0.96	1.52	2.07	6.7	44.1	106.3	07/11/00	0.59	24/08/76	
27031	Colne	Colne Bridge	SE174199	245.0 C VA			1964-05	99	.40	1162	568	594	4.34	0.58	1.27	2.15	9.6	91.4	174.7	17/10/67	0.16	19/09/96	
27032	Hebden Beck	Hebden	SE025643	22.2 MIS		*	1966-05	98	.43	1452	250	1202	0.18	0.03	0.06	0.10	0.4	3.7	10.2	27/10/98	0.01	22/08/83	
27034	Ure	Kilgram Bridge	SE190860	510.2 VA		*	1967-05	100	.32	1362	973	389	15.78	1.16	4.05	7.74	39.2	233.3	380.3	01/02/95	0.29	26/07/79	
27035	Aire	Kildwick Bridge	SE013457	282.3 VA		*	1968-05	100	.37	1158	706	452	6.34	0.60	1.59	3.03	16.0	66.4	163.4	31/10/00	0.20	24/08/76	
27038	Costa Beck	Gatehouses	SE774836	7.8 C		*	1970-05	98	.96	717	2394		0.59	0.37	0.48	0.56	0.8	1.3	6.0	30/10/00	0.29	11/09/90	
27040	Doe Lea	Staveley	SK443746	67.9 FL			1970-05	100	.53	714	267	447	0.57	0.14	0.23	0.34	1.2	7.4	12.0	06/11/00	0.04	26/08/76	
27041	Derwent	Buttercrambe	SE731587	1586.0 C US *			1961-05	100	.69	773	331	442	16.69	4.13	7.92	11.99	34.0	85.1	172.1	09/11/00	2.76	25/08/76	
27042	Dove	Kirkby Mills	SE705855	59.2 FV		*	1972-05	100	.58	925	588	337	1.10	0.22	0.45	0.75	2.1	32.9	65.9	30/10/00	0.13	21/08/95	
27043	Wharfe	Addingham	SE092494	427.0 C VA *			1973-05	100	.33	1408	1029	379	13.94	1.69	3.78	6.59	35.3	262.3	412.9	03/01/82	0.84	24/08/76	
27044	Blackfoss Beck	Sandhills Bridge	SE725475	47.0 FV			1974-05	100	.44	663	271	392	0.40	0.04	0.09	0.17	0.8	10.4	18.3	06/11/00	0.01	19/08/76	
27047	Snaizholme Beck	Low Houses	SD833883	10.2 FV		*	1972-05	98	.18	1771	1682	89	0.55	0.02	0.09	0.19	1.6	13.8	16.4	31/01/95	0.01	20/08/95	
27048	Derwent	West Ayton	SE990853	127.0 TP			1972-05	98	.71	875	124	751	0.46	0.02	0.19	0.31	1.1	1.8	6.5	02/08/02	0.00	14/10/96	
27049	Rye	Ness	SE694792	238.7 FV		*	1974-05	100	.67	875	471	404	3.54	0.76	1.60	2.58	6.9	52.4	106.0	19/06/05	0.51	14/09/90	
27050 *	Esk	Sleights	NZ865081	308.0 B VA			1970-97	96	.39	911	502	409	4.80	0.60	1.28	2.20	9.8	120.6	358.7	25/03/79	0.40	11/09/91	
27051	Crimple	Bum Bridge	SE284519	8.1 FV		*	1972-05	99	.31	845	425	420	0.11	0.01	0.02	0.04	0.3	4.5	7.6	01/11/00	>0.00	02/09/95	
27052	Whitting	Sheepbridge	SK376747	50.2 C			1976-05	100	.50	847	506	341	0.80	0.17	0.28	0.43	1.8	15.3	49.2	22/06/82	0.11	06/09/76	
27053	Nidd	Birstwith	SE230603	217.6 VA			1975-05	100	.45	1259	720	539	4.84	0.80	1.36	2.26	12.0	90.0	154.1	31/10/00	0.47	22/08/95	
27054	Hodge Beck	Cherry Farm	SE652902	37.1 FV			1974-05	99	.53	970	556	414	0.65	0.13	0.25	0.41	1.3	12.8	30.5	30/10/00	0.09	25/08/76	
27055	Rye	Broadway Foot	SE560883	131.7 C US			1974-04	98	.58	916	521	395	2.22	0.51	0.95	1.44	4.0	54.6	141.1	03/11/00	0.37	30/09/89	
27056	Pickering Beck	Ings Bridge	SE791819	68.6 C			1974-05	99	.67	865	389	476	0.86	0.22	0.40	0.58	1.5	13.9	40.8	02/08/02	0.15	22/08/76	
27057	Seven	Normanby	SE737821	121.6 C			1974-05	98	.36	911	476	435	1.90	0.18	0.44	0.83	3.4	100.0	150.0	02/08/02	0.06	26/08/76	
27058	Riccal	Crook House Farm	SE661810	57.6 FV			1974-05	99	.65	861	236	625	0.44	0.18	0.23	0.27	0.8	11.3	23.0	19/06/05	0.15	25/09/96	
27059	Laver	Ripon	SE301710	87.5 C			1977-05	99	.43	932	376	556	1.06	0.11	0.28	0.51	2.5	22.0	62.7	02/11/00	0.05	14/09/90	
27061	Colne	Longroyd Bridge	SE136161	72.3 FV			1978-05	100	.42	1341	618	723	1.42	0.30	0.50	0.73	3.1	33.1	55.0	30/07/02	0.18	23/08/84	
27062	Nidd	Skip Bridge	SE482561	516.0 US		*	1979-05	93	.49	967	503	464	8.29	1.55	2.78	4.30	19.0				1.02	22/08/95	
27063	Dibb	Grimwith Reservoir	SE058639	25.5 FV			1980-05	98	.35	1411	1002	409	0.79	0.01	0.11	0.64	1.5	14.2	26.7	27/10/98			
27064	Went	Walden Stubbs	SE551163	83.7 FV		*	1979-05	100	.61	625	204	421	0.54	0.16	0.25	0.33	1.0	9.1	36.6	07/11/00	0.11	26/06/92	
27065	Holme	Queens Mill	SE142157	97.4 FV		*	1979-05	100	.49	1271	685	586	2.15	0.46	0.81	1.19	4.7	35.2	97.8	30/07/02	0.30	21/09/96	
27066	Blackburn Brook	Ashlows	SK393914	42.8 FV			1981-05	100	.35	769	216	553	0.29	0.02	0.07	0.13	0.7	8.4	41.1	22/06/82	0.01	12/08/83	
27067	Sheaf	Highfield Road	SK357863	49.1 FVUS			1981-05	96	.44	907	386	521	0.60	0.08	0.18	0.32	1.3				0.06	18/10/03	
27068	Ryburn	Ripponden	SE035189	33.0 FV			1981-05	100	.52	1376	569	807	0.59	0.19	0.26	0.32	1.2	14.4	19.5	11/02/01			
27069	Wiske	Kirby Wiske	SE375844	215.5 FV			1980-05	100	.15	657	599	58	3.99	0.19	0.36	0.62	10.5				0.14	22/09/96	
27071	Swale	Crakehill	SE425734	1363.0 C VA *			1955-05	99	.47	857	471	386	20.28	3.46	7.43	11.84	46.4	193.2	257.6	07/03/63	1.44	26/08/76	
27072	Worth	Keighley	SE063408	71.7 FV			1980-05	100	.51	1242	581	661	1.33	0.28	0.50	0.76	3.0	17.2			0.17	06/11/95	
27073	Brompton Beck	Snainton Ings	SE936794	12.9 C		*	1981-05	99	.92	757	631	126	0.26	0.03	0.12	0.21	0.5	0.7	1.3	11/03/99	0.00	10/10/90	
27074	Spen Beck	Northorpe	SE225210	46.3 C			1982-05	100	.56	803	453	350	0.68										

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Station number	River name	Station name	Descriptors				Elevation					Bedrock			Superficial			Landuse									
			Catchment area	Sensitivity	Bankfull/structurefull	Factors affecting runoff	BFHOST	FARL	PROPWET	DPSBAR	Station level (mOD)	10 percentile (mOD)	50 percentile (mOD)	90 percentile (mOD)	Maximum level (mOD)	High perm. (%)	Moderate perm. (%)	Very low perm. (%)	Gen. high perm. (%)	Mixed perm. (%)	Gen. low perm. (%)	Woodland (%)	Arable/horticultural (%)	Grassland (%)	Mountain/heath/bog (%)	Urban extent (%)	
21031	* Till	Etal	648.0	11	76.0	N	.50	0.992	46	127	25	55	163	425	814	0	20	56	14	39	4	9	28	51	11	H	0
21032	Glen	Kirknewton	198.9	32	145.0	N	.46	0.986	46	194	54	106	243	468	814	0	0	98	2	29	4	7	25	55	12	H	0
22001	Coquet	Morwick	569.8	10	175.0	N	.39	0.993	44	110	5	79	192	418	775	0	52	26	4	48	7	16	18	53	12	H	0
22002	* Coquet	Bygate	59.5	6	47.0	N	.41	1.000	46	205	213	320	410	488	616	0	0	100	0	5	20	4	<1	72	24	H	0
22003	* Usway Burn	Shillmoor	21.4	22	100.0	N	.30	1.000	45	205	207	322	450	548	775	0	0	100	0	0	52	32	<1	27	40	H	0
22004	* Aln	Hawkhill	205.0	19	85.0	N	.43	0.997	45	80	14	65	124	223	342	0	56	3	7	60	2	17	20	55	8	H	1
22006	Blyth	Hartford Bridge	269.4	36	190.0	PE	.33	0.990	42	32	25	58	110	184	265	0	72	0	6	82	1	7	47	42	<1	1	
22007	Wansbeck	Mitford	287.3	7	35.0	S	.35	0.973	45	51	31	94	175	281	440	0	98	0	4	78	3	19	22	53	6	H	0
22008	* Alwin	Clennell	27.7	23		N	.38	1.000	45	244	156	267	393	517	615	0	0	99	0	7	23	57	<1	30	12	H	0
22009	Coquet	Rothbury	346.0	11	223.0	N	.40	0.994	45	141	71	132	276	450	775	0	25	44	<1	31	12	17	10	56	16	H	0
23001	Tyne	Bywell	2175.6	6	1471.0	S	.32	0.961	51	94	14	140	264	469	893	<1	95	<1	2	49	19	21	6	54	18	H	0
23002	Derwent	Eddys Bridge	118.0	7	126.0	S	.32	0.835	59	97	181	241	360	495	563	0	90	0	0	11	20	10	1	43	42	H	0
23003	North Tyne	Reaverhill	1007.5	7	560.0	S	.31	0.936	50	92	65	165	269	412	603	1	89	1	<1	56	19	33	3	43	18	H	0
23004	South Tyne	Haydon Bridge	751.1	11	500.0	N	.30	0.989	60	107	59	184	333	550	893	0	100	0	2	33	30	8	2	67	21	BH	0
23005	* North Tyne	Tarset	284.9	15		N	.27	0.815	62	109	117	195	320	460	603	3	83	0	<1	42	37	52	2	14	27	H	0
23006	South Tyne	Featherstone	321.9	12	500.0	N	.27	0.995	64	124	132	233	439	597	893	0	100	0	1	21	45	5	<1	63	30	HB	0
23007	Derwent	Rowlands Gill	242.1	11		P	.34	0.908	59	92	26	130	265	452	563	0	56	0	0	34	11	15	10	42	26	H	2
23008	Rede	Rede Bridge	343.8	12	65.0	S	.32	0.978	47	94	107	179	274	415	577	<1	82	4	<1	50	14	20	1	59	19	H	0
23009	South Tyne	Alston	118.5	15	0.6	N	.27	0.999	64	119	264	370	519	648	893	0	100	0	0	5	55	3	<1	64	33	B	0
23010	* Tarset Burn	Greenhaugh	96.0	16	74.0	N	.31	1.000	56	85	136	208	297	397	503	0	100	0	0	59	16	32	2	40	26	H	0
23011	Kielder Burn	Kielder	58.8	18	46.0	N	.27	1.000	59	137	214	280	419	517	601	5	64	0	0	15	52	31	<1	9	60	H	0
23012	* East Allen	Wide Eals	88.0	13		N	.30	0.997	59	106	149	257	379	526	673	0	100	0	0	30	17	5	1	74	18	H	0
23013	* West Allen	Hindley Wrae	75.1	22		N	.28	0.998	63	119	155	258	410	522	671	0	100	0	0	31	38	6	<1	67	26	B	0
23014	* North Tyne	Kielder temporary	27.0	25											187												
23015	* North Tyne	Barrasford	1043.8		830.0	SP	.31	0.934	50	91	60	159	265	409	603	1	90	1	<1	57	18	33	4	44	18	H	0
23016	Ouse Burn	Crag Hall	55.0	35	4.0	E	.31	0.961	33	22	36	51	68	102	144	0	0	0	13	86	0	6	34	16	1	H	29
23017	Team	Team Valley	61.9	10	31.0		.37	0.995	33	64	9	32	124	219	310	0	0	0	0	72	0	9	27	32	3	H	14
23018	Ouse Burn	Woolington	9.0	10	2.0	N	.31	0.978	45	30	63	72	87	116	144	0	0	0	0	93	0	1	68	18	<1	10	
23022	North Tyne	Uglydub	241.5	8	80.0		.27	0.788	62	111	135	213	337	469	603	4	81	0	<1	35	42	53	1	10	30	H	0
24001	Wear	Sunderland Bridge	657.8	10	613.0	SRGE	.34	0.978	47	98	40	116	286	514	745	<1	58	0	<1	41	12	8	14	53	18	H	2
24002	* Gaunless	Bishop Auckland	93.0	39	63.0	I	.37	0.999	42	61	65	107	172	299	454	4	2	0	0	82	<1	5	29	51	4	H	5
24003	Wear	Stanhope	171.9	14	180.0	SE	.30	0.978	59	132	202	326	472	615	745	0	100	0	<1	19	29	4	<1	72	21	H	0
24004	Bedburn Beck	Bedburn	74.9	14	70.0	N	.36	0.999	59	109	109	195	322	432	533	0	82	0	0	16	8	26	3	31	40	H	0
24005	Brownay	Burn Hall	178.5	15	60.0	GI	.33	0.999	41	78	44	104	198	288	378	0	0	0	<1	40	0	12	26	53	2	H	3
24006	* Rookhope Burn	Eastgate	36.5	18	45.0	E	.29	0.994	59	119	241	344	454	552	613	0	100	0	0	10	25	2	0	73	25	H	0
24007	* Brownay	Lanchester	44.6	20	54.0	N	.33	1.000	59	75	110	169	256	325	378	0	0	0	0	27	0	13	11	72	3	H	0
24008	Wear	Witton Park	455.0	9	7.0	SRP	.34	0.970	59	115	77	183	360	550	745	0	84	0	<1	23	17	9	5	58	26	H	0
24009	Wear	Chester le Street	1008.3	8	314.0	RG	.35	0.984	40	88	6	89	213	472	745	6	38	0	3	46	8	9	22	48	12	H	3
24011	Wear	Burnhope Reservoir	20.5	17		S	.24	0.847	59	134	338	421	547	680	745	0	100	0	0	24	49	4	0	52	42	H	0
25001	Tees	Broken Scar	818.4	5	420.0	SRP	.35	0.945	54	82	37	110	370	604	885	8	90	0	2	51	31	4	13	46	34	B	0
25002	* Tees	Dent Bank	217.3		440.0	R	.28	0.933	60	105	227	385	555	679	885	0	100	0	1	22	56	<1	<1	46	51	B	0
25003	Trout Beck	Moor House	11.4	40	41.3	N	.23	1.000	64	92	533	574	650	755	842	0	100	0	0	0	98	<1	0	8	91	B	0
25004	Skerne	South Park	250.1	10	51.0	GEI	.40	0.977	32	34	34	58	96	142	219	85	<1	9	7	83	4	5	47	29	<1	9	
25005	Leven	Leven Bridge	196.3	23	70.0	EN	.38	0.994	34	76	5	63	92	256	453	4	8	87	16	64	<1	13	43	33	6	H	1
25006	Greta	Rutherford Bridge	86.1	20	98.0	N	.24	0.999	62	68	223	293	410	492	590	0	100	0	0	34	58	1	<1	34	62	B	0
25007	* Clow Beck	Croft	78.2	18	26.4	I	.50	0.983	42	37	29	72	129	191	464	18	81	1	1	97	0	4	58	30	3	H	1
25008	Tees	Barnard Castle	509.2	4	625.0	SRI	.32	0.912	60	99	133	252	449	641	885	0	100	0	2	36	41	3	<1	49	44	B	0
25009	Tees	Low Moor	1264.0	10	2.0	SRPGEI	.37	0.958	40	66	12	56	212	567	885	28	66	4	4	63	22	5	26	40	23	B	2
25011	* Langdon Beck	Langdon	13.0	40	60.0	N	.24	1.000	59	123	373	437	545	638	701	0	100	0	0	32	68	<1	0	52	47	B	0
25012	Harwood Beck	Harwood	25.1	25	17.5	N	.26	1.000	59	121	374	424	539	640	713	0	100	0	0								

Gauging Station Register II cont'd

Station number	River name	Station name	Catchment area	Sensitivity	Bankfull/structurefull Factors affecting runoff	Descriptors				Elevation					Bedrock			Superficial			Landuse						
						BF/HOST	FARL	PROP/WET	DPSBAR	Station level (mOD)	10 percentile (mOD)	50 percentile (mOD)	90 percentile (mOD)	Maximum level (mOD)	High perm. (%)	Moderate perm. (%)	Very low perm. (%)	Gen. high perm. (%)	Mixed perm. (%)	Gen. low perm. (%)	Woodland (%)	Arable/horticultural (%)	Grassland (%)	Mountain/heath/bog (%)	Urban extent (%)		
27016	* Little Don	Underbank Reservoir	38.6		SRP	.37	0.774	37	119	166	232	328	479	540	0	74	0	0	0	29	14	3	28	48	H	0	
27017	* Loxley	Damflask Reservoir	43.5		SRP	.38	0.787	38	129	124	210	330	448	531	0	77	0	0	0	23	14	2	48	31	H	0	
27018	* Ryburn	Ryburn Reservoir	10.7		SRP	.30	0.830	57	115	163	251	341	415	473	0	100	0	0	0	54	4	<1	41	49	B	0	
27019	* Booth Dean Clough	Booth Wood Mill	15.9		SRP	.27	0.838	57	121	207	299	368	429	482	0	100	0	0	0	70	2	<1	35	56	B	0	
27020	* Scout Dike Stream	Scout Dike Reservoir	15.2		SRP	.65	0.714	34	63	207	240	297	342	385	0	0	0	0	0	0	10	16	61	0	1		
27021	Don	Doncaster	1256.2	4	347.0	SPEI	.49	0.922	34	77	4	48	124	314	543	2	13	0	<1	6	4	15	23	29	6	H	14
27022	* Don	Rotherham Weir	826.0		SPEI	.46	0.915	38	85	23	68	153	350	543	<1	20	0	<1	4	6	14	18	31	9	H	14	
27023	Dearne	Barnsley Weir	118.9	14	27.0	GI	.54	0.938	32	74	43	79	140	224	376	0	0	0	0	4	0	18	28	37	<1	7	
27024	* Swale	Richmond	381.0		N	.34	0.999	62	134	108	246	416	563	714	0	100	0	0	30	31	3	<1	55	39	H	0	
27025	Rother	Woodhouse Mill	352.2	8	250.0	SRPGEI	.49	0.937	38	69	29	68	123	212	391	2	1	0	<1	5	<1	11	30	30	<1	13	
27026	Rother	Whittington	165.0	13	180.0	SPGI	.49	0.973	38	73	58	96	143	276	391	0	3	0	0	2	<1	11	22	37	<1	15	
27027	* Wharfe	Ilkley	443.0	0	410.0	SP	.37	0.976	62	137	71	187	357	530	704	0	100	0	2	25	14	6	1	68	22	H	0
27028	Aire	Armley	691.5	9	232.0	SPEI	.41	0.968	49	95	26	103	202	360	582	0	82	<1	<1	58	4	9	3	61	8	H	11
27029	Calder	Elland	341.9	5		SPI	.46	0.931	57	139	58	151	302	410	503	0	91	0	<1	1	28	13	2	46	27	B	5
27030	Dearne	Adwick	310.8	8	45.0	PGEI	.53	0.952	32	62	13	38	94	187	376	<1	0	0	<1	9	0	16	33	28	<1	11	
27031	Colne	Colne Bridge	245.0	8	42.0	SPGI	.61	0.947	52	122	48	116	227	407	580	0	61	0	0	2	13	18	5	47	13	HB	9
27032	Hebden Beck	Hebden	22.2	4	6.0	P	.25	0.997	62	99	228	338	457	563	691	0	100	0	0	9	25	<1	<1	44	51	H	0
27034	Ure	Kilgram Bridge	510.2	13	375.0	P	.39	0.990	63	130	88	171	368	544	710	0	100	0	2	41	15	5	2	71	19	H	0
27035	Aire	Kildwick Bridge	282.3	13	77.0	S	.39	0.977	62	100	87	123	200	388	582	0	99	1	<1	63	<1	6	3	81	5	H	2
27038	Costa Beck	Gatehouses	7.8	13		G	.77	0.990	40	36	22	29	85	143	164	0	73	27	0	0	20	2	56	34	0	2	
27040	Doe Lea	Staveley	67.9	16	9.8	GEI	.43	0.968	38	62	48	71	110	163	203	12	0	0	0	5	0	5	44	28	0	6	
27041	Derwent	Buttercrambe	1586.0	6	74.8	RPI	.61	0.994	34	77	10	25	102	271	452	3	51	46	<1	8	25	15	42	27	12	H	1
27042	Dove	Kirkby Mills	59.2	14		N	.50	1.000	40	136	36	106	201	370	432	0	57	43	0	0	13	10	13	39	32	H	1
27043	Wharfe	Addingham	427.0	10	500.0	SP	.37	0.975	62	138	80	191	362	533	704	0	100	0	3	24	14	5	1	68	23	H	0
27044	Blackfoss Beck	Sandhills Bridge	47.0	29		EI	.45	0.997	32	31	6	13	28	115	243	6	0	94	6	22	40	7	56	31	0	1	
27047	Snaizholme Beck	Low Houses	10.2	36	7.0	N	.30	0.977	62	204	260	308	432	579	667	0	100	0	0	29	4	13	0	86	1	BH	0
27048	Derwent	West Ayton	127.0	75	7.2	PG	.47	0.999	40	121	34	90	173	238	296	0	74	26	1	3	<1	39	19	24	18	H	0
27049	Rye	Ness	238.7	8	32.1	GN	.59	0.999	34	118	26	90	227	345	452	0	70	30	0	<1	11	18	21	31	25	H	0
27050	* Esk	Sleights	308.0	8	16.0	N	.35	1.000	40	110	5	128	223	332	433	0	72	28	8	19	14	10	8	32	47	H	0
27051	Crimple	Burn Bridge	8.1	54	5.0	N	.31	1.000	34	63	112	134	171	218	243	0	100	0	0	52	0	9	7	82	0	1	
27052	Whitting	Sheepbridge	50.2	27		SE	.54	0.995	38	92	70	112	176	272	391	0	<1	0	0	<1	2	13	22	40	3	H	11
27053	Nidd	Birstwith	217.0	10		SRP	.36	0.913	53	114	67	153	320	488	703	0	100	0	0	11	16	7	2	56	31	H	0
27054	Hodge Beck	Cherry Farm	37.1	17	3.6	N	.36	1.000	40	131	38	173	268	401	451	0	76	24	0	0	16	13	3	33	48	H	0
27055	Rye	Broadway Foot	131.7	22	8.0	N	.42	0.998	34	144	38	162	273	367	452	0	63	37	0	<1	9	14	4	36	43	H	0
27056	Pickering Beck	Ings Bridge	68.6	21	4.0	N	.69	1.000	40	114	28	81	167	244	295	0	70	30	1	0	6	25	26	30	16	H	1
27057	Seven	Normanby	121.6	22	6.1	N	.43	0.997	40	100	29	65	193	340	433	0	69	31	0	2	10	18	15	29	34	H	0
27058	Riccal	Crook House Farm	57.6	15	3.5	N	.51	1.000	38	94	30	57	206	315	416	0	79	21	0	4	17	18	22	23	34	H	0
27059	Laver	Ripon	87.5	49	39.1	SP	.42	0.982	36	65	30	91	178	333	413	11	89	<1	<1	49	<1	12	12	49	24	H	1
27061	Colne	Longroyd Bridge	72.3	13	22.1	SPGI	.52	0.907	57	135	73	160	298	436	516	0	95	0	0	0	33	10	2	48	25	B	8
27062	Nidd	Skip Bridge	516.0	6		SRPEI	.42	0.950	36	72	8	29	144	413	703	20	75	5	3	37	9	8	21	49	13	H	3
27063	Dibb	Grimwith Reservoir	25.5	54	77.3	SR	.26	0.759	62	80	239	305	403	505	553	0	100	0	0	7	72	1	<1	15	77	BH	0
27064	Went	Walden Stubbs	83.7	16	11.3	EI	.62	0.975	32	34	6	26	49	69	95	18	0	2	0	<1	1	7	67	13	<1	5	
27065	Holme	Queens Mill	97.4	10	6.5	SRI	.61	0.941	57	134	68	150	262	422	580	0	82	0	0	<1	8	20	4	50	13	H	5
27066	Blackburn Brook	Ashlowes	42.8	40			.49	0.972	38	83	33	71	121	211	313	0	0	0	0	0	0	25	14	25	<1	17	
27067	Sheaf	Highfield Road	49.1	23			.40	0.982	38	97	54	108	189	345	435	0	19	0	0	1	1	18	6	25	10	H	26
27068	Ryburn	Ripponden	33.0	21			.33	0.844	57	129	97	241	344	416	482	0	100	0	0	0	52	6	<1	41	45	B	1
27069	Wiske	Kirby Wiske	215.5	15	2.0	E	.40	0.996	34	27	20	31	52	79	310	48	<1	52	17	82	1	4	57	34	<1	2	
27071	Swale	Crakehill	1363.0	8		N	.44	0.994	38	67	12	31	104	463	714	32	49	19	15	57	11	6	35	41	12	H	1
27072	Worth	Keighley	71.7	13	7.2	SR	.36	0.946	57	117	97	190	295	408	457	0	100	0	<1	37	33	7	2	47	32	B	6
27073	Brompton Beck	Snainton Ings	12.9	90	3.0	GN	.89	1.000	39	48	9	23	61	186	222	0	63	37	0	0	33	5	71	18	<1	1	
27074	Spenn Beck	Northorpe	46.3	39		E	.43	0.973	39	66	41	75	132	203	294	0	0</										

Gauging Station Register III

EA North East

21031 Till at Etal

EA North East

Station: Velocity-area station. Discontinued 1980.

21032 Glen at Kirknewton

EA North East

Station: Velocity-area station with informal Flat V profile control (about 1:100 cross-slope, insensitive) rated by current meter gauging up to bank full. Logger installed in 1991 (very limited data 1983-90 but charts available) A flood bank on the right bank protects the floodplain, but at high flows there is significant bypassing of the cableway (starting at 1.6m). Flows from 1989 reprocessed in 2002: low flows increased, some peak flows decreased. Caution needed in interpreting suspect 1994 minima. Natural flow regime, no abstractions.

Catchment: Upland catchment, draining from The Cheviot, developed mostly on impermeable igneous formations with 35% superficial deposits. Catchment is 55% grassland with mountain/heath in upper reaches and arable in lower lying areas.

22001 Coquet at Morwick

EA North East

Station: VA station, with 34m wide concrete informal Flat V weir (approx. 1:20 cross-slope) installed in 1973; non-modular at even moderate levels. Cableway. Fairly straight section with high banks which eliminate risk of bypassing. Replaced earlier station at Guyzance. Responsive natural regime except for annual flush and drain of dam u/s of gauge on Duke of Northumberland estate.

Catchment: Predominantly upland catchment draining from Cheviots. Largely Carboniferous Limestone and low permeability Devonian Igneous series, with 60% superficial deposits. 50% grassland, some upland afforestation and arable in low-lying areas.

22002 Coquet at Bygate

EA North East

Station: Standing-wave flume and broad-crested weir. Excessive gravel accumulation caused breaks in the early record but installation of a gravel trap in 1952 contributed to increased reliability; almost a continuous record 1957-80 (when station decommissioned). Responsive regime.

22003 Usway Burn at Shillmoor

EA North East

Station: Thin-plate weir. Discontinued in 1980 and weir plates removed. Recommissioned as a level-only station in 1995 using concrete broadcrested weir. In September 1999 the weir plates were re-instated but continuity of the original rating has not been confirmed yet. Calibrations for the period 1995-99 and 1999 to date were under development in 2007 and should allow processing of flows for this period once completed. No cableway, gaugings only possible at low flows.

Catchment: Upland catchment draining from The Cheviot. Substantial recent afforestation.

22004 Aln at Hawkhill

EA North East

Station: Velocity-area station with cableway, then informal gabion basket weir (low flow control) after 1972; high flow control was possibly at d/s bridge. Closed in 1980. Unstable gravel section, and weeds problematic in summer. No bypassing at high flows. Chart limit sometimes caused peak truncation. Some abstractions. Station discontinued 1980.

Catchment: Predominantly lowland catchment, mixed permeability geology. Underlain with Devonian igneous rocks on the western margin, Cementstone and Fell sandstone in the middle of the catchment and Middle Limestone series in lower reaches. Extensive cover of Boulder Clay. Rural pasture with some arable and woodland.

22006 Blyth at Hartford Bridge

EA North East

Station: Velocity-area station, with Flat V weir for low flow control installed in 1968. Originally 24.4m wide, reduced in width in 1978 and recalibrated. No bypassing except in occasional flood events, although over-topped at high flows Small net export - during low flows, runoff from about 20 sq.km of river Pont headwaters diverted to Whittle Dene reservoir.

Catchment: Mostly low-lying, moderate-permeability (Millstone Grit and Coal Measures) catchment with 80% Boulder Clay cover. Mixed arable and grassland.

22007 Wansbeck at Mitford

EA North East

Station: Velocity-area station. Flat V weir and central flume for low flow measurement (3 m wide, overall width 18 m) installed 1974, replacing older broad-crested weir also with central flume. Cableway. Recalibration of high flow rating produced substantial reduction in flood flows. Period-of-Record maximum flow occurred in March 1963, before the start of the NRFA daily flow record and estimated at 300 - 340 m³s⁻¹. Headwater reservoir affects flood flows, some exports, but modest net effect of artificial influences; Mitford abstraction closed by mid-1990s.

Catchment: A mainly lowland catchment located on moderately permeable Millstone Grit and limestones with extensive Boulder Clay cover. 50% grassland, mixed arable and woodland.

22008 Alwin at Clennell

EA North East

Station: Flat V weir, dubious high flow calibration. Station discontinued in 1982. Natural regime.

Catchment: Small upland catchment in S Cheviots. Significant afforestation - mixture of mature and young plantations.

22009 Coquet at Rothbury

EA North East

Station: Velocity-area station with cableway; informal mill weir below station provides good control. Well confined section with straight approach. Significant areas of overbank storage on floodplain that attenuate hydrographs. Some small groundwater abstractions but sensibly natural.

Catchment: Natural, upland catchment draining the Cheviot hills and the Northumbrian fells. Low permeability (Igneous, cementstone and sandstone) geology with nearly 50% superficial deposits, including peat in uplands. 50% upland pasture, with some upland heath and woodland, arable in lowlands.

23001 Tyne at Bywell

EA North East

Station: Principal gauging station on the Tyne. Velocity-area station. Blockage/damage to stilling pipe caused problems in early 1990s. Station considered good for high flow measurement though ratings have changed over the record owing to alterations in control and bed levels resulting from gravel extraction. As a result of this, the Oct 1967 flood is now thought to have been lower than the Jan 2005 peak (1370 m³s⁻¹). In drought years, Kielder releases maintain low flows (4.2 m³s⁻¹ min.) and support transfers to the Derwent, Wear and Tees. Riding Mill abstraction point is 500m u/s. Some export of water, and regime influenced by pulsed hydropower releases from Kielder, but limited impact on annual runoff.

Catchment: A large, impervious catchment (largely Carboniferous Limestone) with extensive superficial deposits (peat, Boulder Clay, alluvium) draining from north Pennines. 50% grassland cover, with extensive moorland, significant afforestation; arable farming confined to the lower valley.

23002 Derwent at Eddys Bridge

EA North East

Station: Broad-crested weir with central low flow flume, no dividing walls. Model calibration. From 1965 flows controlled by Derwent Reservoir 2km u/s, stark contrast with previous natural regime. Substantial net export of water.

Catchment: Geology: mixture of Carboniferous Limestone and Millstone Grit partially overlain by Boulder Clay in lower valley and peat in headwaters. Upland, moorland catchment used for rough grazing.

23003 North Tyne at Reaverhill

EA North East

Station: Velocity-area station with natural channel control on a straight, stable reach. Replaced earlier station at Barrasford. Predominantly natural regime but affected by Kielder releases (see 23022) - including pulsed hydropower releases; overall impact most evident at low flows. Catcleugh and Colt Crag Reservoirs in catchment (also intermittent abstraction at Barrasford) - net export of water.

Catchment: Upland catchment, mainly on formations of the Carboniferous L'st Series. Overlain by 50% Boulder Clay cover and peat in headwaters. Rugged moorland and upland pasture, with 30% forest cover (in W of catchment).

23004 South Tyne at Haydon Bridge

EA North East

Station: Velocity-area station, with informal Flat V weir as low flow control installed in 1972 - earlier low flows of limited accuracy; 1968 and 1969 minima estimated at 2 m³s⁻¹. Cableway. Some overspill onto lb during floods but no bypassing. Current meter gaugings to Qmed. Responsive natural regime.

Catchment: Upland catchment draining Northern Pennines. Geology: predominantly Carboniferous (limestones and Millstone Grit) with 65% superficial deposits (upland peat and Boulder Clay). Predominantly grassland and some upland heath.

23005 North Tyne at Tarsat

EA North East

Station: Velocity-area station on straight reach, with Flat V weir for low flow control installed in 1973. Superseded by 23022. Natural flow regime until the construction of Kielder Res.(1975-81)which controls 80% of the catchment; very artificial regime from 1981. Closed 1987.

Catchment: Upland catchment developed mainly on Carboniferous L'st (thick Boulder Clay in the valleys). Moorland headwaters, significant afforestation below.

23006 South Tyne at Featherstone

EA North East

Station: Compound Crump profile weir. Lower crest 15.2m, upper crest 29.5m. Theoretical rating. Structure contains all flows and is modular throughout range. Some peak truncation is suspected and may be due to stilling well problems, but never confirmed. Natural flow regime.

Catchment: Linear, north trending catchment in northern Pennines. Geology: mainly Carboniferous Limestone with 65% superficial deposits of peat and Boulder Clay. Land use is predominantly grassland and upland heath.

23007 Derwent at Rowlands Gill

EA North East

Station: Two Crump profile weirs with slightly different crest levels beneath the two arches of a bridge. Bypassing is prevented by the bridge and its embankments. Persistent gravel accretion problem. Lack of cableway means rating not checked above moderate flows. Flow regime substantially influenced by Derwent Reservoir (started impounding in 1965); significant net export.

Catchment: Predominantly upland catchment on moderately permeable carboniferous formations, with 45% superficial deposits of peat and Boulder Clay. Mixed land use - 40% grassland, with heath uplands; arable and urban development in lower reaches

23008 Rede at Rede Bridge**EA North East**

Station: Flat V weir constructed with pre-fabricated crest units. Width 24.3m. Catcleugh Res. (commands 40 sq.km, 11% of area) has an appreciable influence on flows; modest net export.

Catchment: Upland catchment on moderately permeable Carboniferous formations, mostly covered by Boulder Clay and upland peat. 60% grassland, with upland heath. Progressive afforestation through period-of-record.

23009 South Tyne at Alston**EA North East**

Station: Velocity-area station with informal Flat V control - subject to boulder damage; weir has undergone several reconstructions. Ultrasonics installed in 1999 to extend high flow rating. Maintained as a 'chart only' site for part of record. All flows contained. Very responsive, natural regime.

Catchment: Steep Pennine moorland catchment developed on Middle and Upper Carboniferous Limestone and Millstone Grit. Rough grazing.

23010 Taret Burn at Greenhaugh**EA North East**

Station: Velocity-area station. Discontinued 1980.

23011 Kielder Burn at Kielder**EA North East**

Station: Flat V weir 12m broad (1:2 u/s and d/s slopes; 1:20 cross-slope) with low wing walls (0.61m). Cableway u/s (straight reach) - rating based on gaugings. Possible overestimation of high flows; overspill of banks in very high flows (accounted for in rating).

Catchment: Upland catchment on mainly Carboniferous formations, cut by numerous faults and dykes; 50% cover of upland peat, Boulder Clay and alluvium in valley. Land use: 60% upland heath, 30% woodland, incorporating Kielderhead Moor and Kielder forest.

23012 East Allen at Wide Eals**EA North East**

Station: Velocity-area station. Discontinued 1981. No artificial influences on the flow regime.

Catchment: Uplands covered with peat, thick Boulder Clay in valleys. Mostly forested.

23013 West Allen at Hindley Wrae**EA North East**

Station: Velocity-area station with cableway. Initially there was a boulder bed control with reasonable stability, but gradual removal of boulders exposed a friable shale bed which then suffered rapid degradation so that the inlet pipe became exposed above the water surface. Closed in 1983.

Catchment: Upland catchment, comprising a series of shales, sandstones and limestones of Carboniferous age with some Millstone Grit. Boulder Clay cover in valley and extensive peat cover in headwaters. Land use is predominantly rough grazing.

23014 North Tyne at Kielder temporary**EA North East**

Station: Velocity-area station upstream of Kielder reservoir.

23015 North Tyne at Barrasford**NEW**

Station: Velocity-area station for flows above 6.8 m³s⁻¹. Flows between 3.2 and 6.8 m³s⁻¹ were measured by a flume 820m u/s at Barrasford Pumping Station. Flows below 3.2 m³s were read daily from the gauge board. No bypassing. In many winters flow was affected by freezing in the catchment, resulting in very low flows and considerable lag between precipitation and runoff. Officially closed in 1959 however POT data extracted until 1971 on Hiflows-UK. Reservoirs in catchment, but station closed before Kielder was impounded.

Catchment: A very responsive upland catchment of 1043 km² developed mainly on formations of Carboniferous series, of moderate permeability. Land use is rugged moorland and upland pasture, with a very high proportion of forestry (>30%) for a catchment of this size.

23016 Ouse Burn at Crag Hall**EA North East**

Station: Rectangular thin-plate weir with broad-crested flanks. Theoretical rating. Peak flow of 18.6 recorded on 28/2/79.

Catchment: Small low-lying catchment on carboniferous formations, almost entirely overlain with Boulder Clay. Mixed (predominantly arable) agriculture, with 40% urban area.

23017 Team at Team Valley**EA North East**

Station: Velocity-area station in culverted section below road bridge, low flow control exercised by pre-existing weir. Ultrasonic installation providing full calibration. Flows for period of record reprocessed in 2002. Sewage effluent and pumped minewaters affect the very responsive regime.

Catchment: A primarily rural catchment on the SW edge of Gateshead, on moderate permeability bedrock overlain with extensive Boulder Clay and some alluvium. Land use is mixed agriculture with extensive urbanised areas in lower catchment.

23018 Ouse Burn at Woosington**EA North East**

Station: Informal Flat V weir (3m broad). Structure drowns at moderate flows and wing walls overtopped 2 - 5 times per year. Ultrasonic installed in 2001 to calibrate high flows. Responsive natural regime.

Catchment: Relatively low-lying catchment on moderate permeability bedrock, but with > 90% Boulder Clay cover. Predominantly arable with some grassland and around 10% built-up area.

23022 North Tyne at Uglydub**EA North East**

Station: Flat V weir. Owned by Northumbrian Water, operated by EA. Measures compensation flow, prescribed flows, abstractions and overspill from Kielder Res.; also releases to support hydropower - max. release of 15.4 m³s⁻¹ gives pulsed hydrograph but sub-daily pulses to 1992 concealed in dmfs.

Catchment: Upland catchment. Geology: predominantly shales and sandstones of the Lower Carboniferous series, with nearly 80% superficial deposits of peat and Boulder Clay. Extensively afforested with moorland headwaters.

24001 Wear at Sunderland Bridge**EA North East**

Station: Compound broad-crested weir within the arches of road bridge. High flows are above vertical walls of bridge openings and tapping point within drawdown effect. Weed growth in summer causes overestimation of flows. Flows reprocessed - using a single rating - in 2001. Significant artificial influences: reservoirs in catchment (direct catchment area of 45 km²); STW effluent forms significant portion of low flows; minewater discharges (regime altered by pit closure) and, in drought years, minimum flows supported by Kielder transfer.

Catchment: Predominantly upland catchment on mainly Carboniferous formations (limestone, Millstone Grit and Coal Measures). 50% superficial deposits (peat in headwaters, Boulder Clay in lower reaches). Land use is 50% grass pasture, with moorland headwaters, arable and some urban development in lower reaches.

24002 Gaunless at Bishop Auckland**EA North East**

Station: Crump weir, 9m broad. Backs up from the river Wear and drowns so high flows are highly suspect. Artificial influences evident, particularly early in record and most notably at low flows. Weekly variations apparent during low flow periods in early flow series. Station decommissioned 1983, re-opened Jan 1998, and decommissioned again in 2004.

24003 Wear at Stanhope**EA North East**

Station: Compound Crump profile weir overall width 19.1m, central low crest width 7.6m. Steep rocky section. Wing walls raised in 1967, bypassing only at extreme levels. Left bank wing wall raised 2007. Instruments moved several times between lb and rb, now (2003) all on right bank. Weir suffers periodic upstream gravel accumulation, formerly limited by a gravel trap, now ineffective. Stilling pipe extended 2007. Period-of-record max flow in Jan 2005 may be an underestimate, levels may have been under-recorded due to problems with stilling well. Very flashy response. Burnhope Res. (catchment area 19 sq.km) has noticeable effect; net export.

Catchment: Steep Pennine catchment. Mainly Lower Carboniferous L'st, overlain by peat in headwaters and Boulder Clay and alluvium in valley. Some forestry but mostly grass pasture (75%) and moorland.

24004 Bedburn Beck at Bedburn**EA North East**

Station: Compound Crump profile weir, 2.4m low flow crest, 10.3m overall. Set in a deep valley, no bypassing (fairly well contained above the wing walls at 2.1 m). Natural regime.

Catchment: Predominantly upland catchment, on Millstone Grit in north and Coal Measures to south, with 25% drift cover of Boulder Clay and peat. Land use is upland moorland, grass pasture and coniferous forest; significant afforestation since gauge established.

24005 Browney at Burn Hall**EA North East**

Station: Compound broad-crested weir (17.6m broad, low crest 5.5m) within a deep valley and having a steep fall d/s. Divide piers inserted and wing walls raised in 1968. Theoretical rating with check gaugings. Artificial influences (imports, minewater discharges) evident at low flows, although impact on annual runoff is limited. Minewater discharges stopped in 1997, and upstream STW discharges no longer operating. These changes have affected homogeneity of low flow record; record 2003 low flow sequence, whilst in a notably dry period, eclipses previous minima. Engineering works 28/10 - 21/11/88: dmfs removed from NRFA.

Catchment: Geology: Coal Measures with 40% superficial deposits (mainly Boulder Clay). 50% grass pasture, some woodland, with arable in lower-lying areas.

Rookhope Burn at Eastgate**EA North East**

Station: Compound Crump weir, 8.8m broad, low crest 1.5m broad. Discontinued 1980; re-opened Feb 2000 as a level-only site.

24007 Browney at Lanchester**EA North East**

Station: Compound Crump weir (10m broad, low crest 2m broad) with crest tapping. Discontinued 1983; re-opened May 2002 as a level-only site.

24008 Wear at Witton Park**EA North East**

Station: Velocity-area station with informal Flat V low flow control of rectangular section which is prone to non-modularity. Cableway. Catchment contains three reservoirs (including Burnhope), commanding 45 km²; net export of water. Transfers from Kielder (Tyne catchment) in drought years.

Catchment: Predominantly upland Pennine catchment on mainly Carboniferous L'st and Millstone Grit, with 40% superficial deposits (Boulder Clay and peat) cover. Nearly 60% grass pasture, with with extensive moorland in headwaters, mixed land use in the lower valley.

- 24009 Wear at Chester le Street** **EA North East**
Station: Flat V weir (1:2, 1:2 profile). Structure drowns but calibrated by c/m at high flows. Reservoirs in catchment include Burnhope. In drought years low flows supported by Kielder transfer (flows maintained $>2 \text{ m}^3\text{s}^{-1}$). Also affected by minewater discharges (regime has changed since pit closures) and abstraction, but overall impact of artificial influences is modest.
Catchment: Geology: Carboniferous Limestone and Millstone Grit, with over 60% superficial deposits (mainly Boulder Clay). Land use: 50% grass pasture, moorland in Pennine headwaters, arable and built-up areas in lower valley.
- 24011 Wear at Burnhope Reservoir** **EA North East**
Station: Thin-plate weir with broad-crested flanks monitoring compensation flows and spillage from Burnhope Res. (plus small natural catchment).
Catchment: Geology: Carboniferous Limestone and Millstone Grit.
- 25001 Tees at Broken Scar** **EA North East**
Station: Compound Crump profile weir with total crest length of 63.9m. Two low-flow crests total 9.1m. Also gauged ultrasonically since 2002, and d/s level measurement installed 2003. Hydraulic modelling suggests up to 20% bypassing flow at > 100 year return period. Rating review completed by HR Wallingford in 1998. Revised rating serves to reduce high flows and has been used to reprocess flows back to 1982. There is some doubt over the HR Rating following modelling work in 2002, and this is still under review (Jan 2008). Three peak events (1986, 1995 and Jun 2000) have stage values within 1mm as a result of overtopping; evidence suggests 2000 was the highest and may have been 25 - 30% higher. 1959 minimum may have been influenced by abstraction immediately u/s. Significant export of water from direct supply reservoirs (six reservoirs totalling 22.1% of catchment) and u/s abstraction. Some regulation from Cow Green Res. Import of water from Kielder in exceptional drought years.
Catchment: Predominantly upland catchment, headwaters draining the Pennines. Mainly Millstone Grit and Carboniferous Limestone, with 85% superficial deposits of peat and Boulder Clay. Moorland and rough pasture give way to more intensive agriculture in the lower reaches.
- 25002 Tees at Dent Bank** **EA North East**
Station: Compound Crump weir 39.3m broad. Notable low flows in the 1950s predate construction of Cow Green Reservoir. Station replaced by Middleton-in-Teesdale (025018) in 1971.
Catchment: Upland catchment draining from the Pennines. Geology: mostly Carb. L'st (some Millstone Grit).
- 25003 Trout Beck at Moor House** **EA North East**
Station: Compound Crump weir 12.8m broad (low crest 1.5m). Large capacity structure (originally $>70 \text{ m}^3\text{s}^{-1}$). U/s shoaling and low winter temperatures affected precision of flows. Discontinued in 1980 but recommissioned in 1991 as part of a global environmental research initiative. Responsive natural regime. Flows from 1991 subject to reprocessing based on a revised rating.
Catchment: Small, relatively remote, upland catchment located in a nature reserve in upper Teesdale. Catchment is almost entirely covered by peaty moorland, developed mainly on Carboniferous L'st
- 25004 Skerne at South Park** **EA North East**
Station: Compound broad-crested weir, unlikely to drown. Often out of bank, but the overbank flow passes over the two side weirs. Fish pass constructed winter 1995/6. Channel rehabilitation u/s to improve aquatic habitat and maintain low flows. Channel rehabilitation u/s to improve aquatic habitat and maintain low flows. Reservoir in headwaters. Significant sewage effluent component in low flows. Pumped minewaters can also augment flow (a declining contribution). Excess flow from the Cocker Beck diverted (u/s of Darlington) directly to the Tees.
Catchment: Catchment underlain by highly permeable Magnesian L'st, but with $> 90\%$ superficial deposits, mainly Boulder Clay. Dominated by mixed agriculture, considerable urban development d/s.
- 25005 Leven at Leven Bridge** **EA North East**
Station: Compound broad-crested weir, width 17.4m, with a bypass Crump profile weir width 4.6m. Theoretical rating (but also gauged to almost Qmed). Sharp bend and road bridge just u/s of weirs and large drop below, therefore believed to be modular throughout range. Suffers from siltation upstream of the weir which may affect calculated flows. Bypassed only during Nov. 2000 flood (peak flow may be unreliable). Oct 2005 data removed due to construction of fish pass. Flows from 04/08/2005 to 06/01/2006 may also be affected, and were due for investigation in spring 2007. Sensibly natural regime. Due for replacement with new station at Foxton Bridge, 6km upstream, commissioned in 2005.
Catchment: Headwaters drain from the Cleveland Hills. Mixed geology of mostly Permian/Jurassic age, generally low permeability; 80% superficial deposits, mainly Boulder Clay. Mixed agriculture, with some moorland and forestry in headwaters, minor urban development in the lower valley.
- 25006 Greta at Rutherford Bridge** **EA North East**
Station: Compound Crump profile weir, total width 19.2m, low flow crest 3m broad. Constructed at the head of a natural rock fall and therefore remains modular throughout range. Some bypassing over wing walls, before they were extended. Theoretical rating with check gaugings. Flows reprocessed from 1982 onwards in 2002. Responsive, natural regime.
Catchment: A steep, eastward draining catchment in the Pennines developed largely on Millstone Grit, with $> 90\%$ superficial deposits of peat and Boulder Clay. Mainly moorland and grass pasture.
- 25007 Clow Beck at Croft** **EA North East**
Station: Compound rectangular thin-plate weir, 6.6m broad (low crest: 2m). Site drowns due to backing up from the Tees so high flows unreliable. Discontinued 1980.
- 25008 Tees at Barnard Castle** **EA North East**
Station: Compound Crump weir 52.4m broad with central low flow crest (7m). Theoretical calibration (check gaugings up to medium flows). Full range and modular. Responsive regime. Six reservoirs command 35.5% of catchment including Cow Green (59 sq.km) which regulates flow for PWS abstractions and maintains min. d/s flows. Net export of water. Augmentation by Kielder transfer in exceptional drought years.
Catchment: Upland Pennine catchment developed mostly on Carboniferous L'st and Millstone Grit, with nearly 80% superficial deposits of peat in headwaters and Boulder Clay in valley. Land use almost entirely moorland and grass pasture.
- 25009 Tees at Low Moor** **EA North East**
Station: Velocity-area station with Flat V low flow control constructed in 1974. Theoretical calibration at low flows; calibration at medium to high flows based on c/m gauging to high stages from permanent cableway, with supplementary info from hydraulic modelling. Lowest station on R. Tees. Substantial artificial influences on the flow regime, including seven reservoirs - significant net export of water, but subject to Kielder imports in exceptional droughts.
Catchment: Geology: mostly Carboniferous (Millstone Grit and Carb. L'st), some Magnesian L'st; superficial deposits of Boulder Clay, with peat in headwaters. Moorland and rough pasture in upper catchment, mixed agriculture in lower reaches, with some urban development.
- 25011 Langdon Beck at Langdon** **EA North East**
Station: Flat V weir with 1:2, 1:2 crest slopes; cross-slope: 1:10. Discontinued but analogue recorder maintained in operation. Re-opened as flow measurement site in 2001.
- 25012 Harwood Beck at Harwood** **EA North East**
Station: Station: Flat V weir (1:2 crest slopes, 1:10 cross-slope) for low flow control. Only gauged at low flows, rating extended using weir equation. Goes out of bank at 1m stage. Shallow gravel bedded reach. Natural, responsive regime. Low flows in 1995 due to repair work on weir resulting from boulder damage during high flow periods. River ice may affect rating in winter. Site suffers from gravel accumulation on weir but investigations have indicated this is unlikely to affect the discharge characteristics of the weir. Blocking of the tapping pipe has been a problem in the past. The pipe was extended in 2007 to overcome this.
Catchment: Small catchment high in the Pennines, underlain mostly by Carboniferous L'st with extensive peat and Boulder Clay cover. Moorland and grass pasture land use.
- 25018 Tees at Middleton in Teesdale** **EA North East**
Station: Velocity-area station, with informal Flat V weir (limited modular range) for low-flow control constructed in 1972. Cableway. Replaced earlier station at Dent Bank. Straight reach, gravel and rock bed on steep gradient. Some bypassing but a reasonable station for high flows. Flows affected by Cow Green Res (24.4% of catchment). Maintenance on weir winter 1995/6 - some artificially low flows.
Catchment: Upland catchment draining from the Pennines. Geology: largely Carboniferous L'st, some Millstone Grit, with extensive peat cover in headwaters, and Boulder Clay in valley. Land use: moorland and rough grazing.
- 25019 Leven at Easby** **EA North East**
Station: Station: Flat V Crump profile weir, width 5m, in rectangular concrete river section. Station closed 31/12/96 but re-opened in Feb 2003. Theoretical rating by Hydraulics Research, checked at low flows by current meter.
Catchment: Natural catchment. Grazing and arable land. Upper Lias rock overlain by Lower Oolite series (sandstone). Sand, gravel and Boulder Clay in valleys.
- 25020 Skerne at Preston le Skerne** **EA North East**
Station: Velocity-area station, with informal low-flow control constructed in 1978. Cableway. Straight approach. All flows contained in channel. Small export of water from two headwater reservoirs (servicing Hartlepool), minewater additions affect parts of the early record. Sewage effluent influences dry-weather flows.
Catchment: Relatively dry catchment mainly on high permeability Magnesian Limestone; 90% superficial deposits, mainly Boulder Clay, Mixed agriculture, with 12% built-up areas.
- 25021 Skerne at Bradbury** **EA North East**
Station: Velocity-area station with informal Flat V low-flow weir (becomes non-modular). High flow control by bridge invert 10m below weir. Cableway. Embankments prevent any by-passing. Approach is affected by heavy growth of weed in summer, and growth on crest causes up to 10% low flow over-estimation. Small net export of water from headwater reservoirs.
Catchment: Relatively dry catchment, mostly on highly permeable Magnesian L'st, but with extensive superficial deposits (mostly Boulder Clay). Mixed agriculture, with 12% built-up areas,
- 25022 Balder at Balderhead Reservoir** **EA North East**
Station: Compound Crump weir (low crest: 6.2m) below Balderhead Res. Highly regulated flow regime.

25023 Tees at Cow Green Reservoir**EA North East**

Station: Flat V weir (18.32m broad) below Cow Green Res. Highly regulated flow regime.

26001 West Beck at Wansford Bridge**YW**

Station: Compound rectangular critical depth flume. Affected by heavy d/s weedgrowth during summer months. Discontinued 1974.

26002 Hull at Hempholme Lock**EA North East**

Station: Two tilting-gate weirs, each 7.2m wide, each with a low flow notch on the upper edge. Very flat gradient, occasionally drowns. Very low flows possibly underestimated. Appreciable PWS abstractions; residual flow of approx. $0.5 \text{ m}^3\text{s}^{-1}$ normally maintained by limiting u/s abstraction. Estimated naturalised flows (from 1980) available from the EA. Contributing area partly defined by drainage network.

Catchment: A predominantly rural catchment draining the Chalk outcrop of the Yorkshire Wolds.

26003 Foston Beck at Foston Mill**EA North East**

Station: Flows measured by a sharp-edged weir sluice gate. Theoretical rating. No known bypassing. Drowning very unlikely but weedgrowth can affect u/s levels. Pre-1976, the sluice position was not accurately recorded and the computed flows are less accurate. Small amount of groundwater abstraction (naturalised flows available from EA from 1980). Anomalously high flows in July 2003 under investigation; thought to be due to temporary damming by landowner.

Catchment: A predominantly rural catchment draining the southern Chalk outcrop of the Yorkshire Wolds (but lower catchment is overlain with Boulder Clay).

26004 Gypsey Race at Bridlington**EA North East**

Station: Crump profile weir 2.7m wide. Theoretical rating. Stream often dries up in summer. Station closed 1985. Replaced by a gauge u/s at Boynton (26005). Some gw abstractions in the catchment. Topographical and gw divides not coincident.

Catchment: Predominantly rural pervious (Chalk) catchment draining N part of Yorkshire Wolds.

26005 Gypsey Race at Boynton**EA North East**

Station: Flat V weir. Replaced the gauge d/s at Bridlington (26004). Some groundwater abstractions. Baseflow dominated regime; the Gypsey Race ceases to flow during prolonged droughts. Topographical and groundwater divides not coincident.

Catchment: Permeable (Chalk) catchment draining northern side of Yorkshire Wolds. Predominantly (80%) arable and some pasture.

26006 Elmswell Beck at Little Driffield**EA North East**

Station: Thin-plate weir. Subject to occasional drowning due to weedgrowth - d/s level measurement will enable non-modular flows to be revised if necessary. Largely natural, baseflow dominated regime but, possibly, a minor net export may occur (resulting from gw abstraction). The Beck is dry during prolonged drought conditions.

Catchment: A rural catchment in the Yorkshire Wolds (Chalk).

26007 Catchwater at Witherwick**EA North East**

Station: Trapezoidal flume (wooden). Operated as part of an experimental basin by University of Hull. Decommissioned in Mar 1990 (flume removed); data processed to 1979, chart data to 1990. Natural flow regime.

Catchment: Low-lying agricultural catchment.

26008 Mires Beck at North Cave**EA North East**

Station: Crump weir. D/s level measurement maintained to monitor non-modular conditions. Baseflow dominated; abstractions can influence the pattern of low flows - net diminution in runoff.

Catchment: On SW edge of Yorkshire Wolds. Spring source on scarp slope. Jurassic strata 50% in W, Upper Cretaceous Chalk in E, with no superficial deposits. Rural catchment, mixed agriculture and isolated patches of woodland.

26009 West Beck at Snakeholme Lock**EA North East**

Station: Electromagnetic station - buried coil in the West Beck. Calibration incomplete; flows up to around $8 \text{ m}^3\text{s}^{-1}$ appear reasonable. Some spray irrigation but otherwise the net impact of artificial influences is trivial. Station adjacent to site measuring Driffield Canal. Estimated naturalised flows available from EA. 2002 and 2003 flows need further validation to remove anomalous 'spikes', and should be used for indicative purposes only.

Catchment: Permeable (Chalk) catchment draining from the Yorkshire Wolds; some superficial deposits in lower catchment. Rural, mixed agriculture. Catchment includes a SSSI.

26012 Foulness at Holme House Farm**EA North East**

Station: Flat-V weir. Unsuitable for high flows. Generally reasonable for low flows, but badly affected by weed growth in the summer.

Catchment: The headwaters of the Foulness are fed by springs on the scarp slope of the Yorkshire Wolds. Land use: arable. Under the jurisdiction of the Market Weighton Internal Drainage Board.

27001 Nidd at Hunsingore Weir**EA North East**

Station: Broad-crested weir, breadth 49.8m. Rated by formulae, subsequently by C/M gaugings. Insensitive. Operation of by-pass sluice in the 1980s caused difficulties; flows subsequently revised. Weir by-passed at highest levels, beginning at 2.41 m, and drowns. Cableway 1km downstream at Cowthorpe, also by-passed in extreme flows. Flows from 1985 to 2005 reprocessed in 2006, substantially reducing high flows, which were previously overestimated - further reprocessing work anticipated (Jan 2008). 2000 peak is believed to be the rank 1 event by the Measuring Authority, exceeding the 1967 peak. Low flows monitored d/s at Skip Bridge since 1979 - $12 \text{ m}^3\text{s}^{-1}$ is a sensible split between the two records. No data for Jun 1984 - March 1985 due to site works. Heavily reservoir headwaters (Angram, Scar House and Gouthwaite influence runoff, the latter especially significant during drought conditions; mill operation also evident in early record). Overall net export of water.

Catchment: Mostly moderately permeable; Millstone Grit, Magnesian L'st and some marls, with over 40% superficial deposits. Predominantly rural; 50% grassland with moorland headwaters and arable in lower valley.

27002 Wharfe at Flint Mill Weir**EA North East**

Station: Broad-crested masonry weir 47m wide; c/m cableway originally 1.5km u/s then moved to new ultrasonic station at Tadcaster in 1990. Insensitive at low flows. Does not drown at high flows, though small amount of bypassing on the right bank. Level data: 1936-1955. Recalibration (from 1965) completed but flows reprocessed from 1982 only. Pre-1965 data less reliable. Mill race opened in early 1990s (not rated) so flows not reliable. Regulation effect of headwater reservoirs evident at low flows. Small net export of water (inc. Bradford supply).

Catchment: Mixed geology of moderate permeability - mainly Carboniferous Limestone, grits and Coal Measures with over 40% superficial deposits. Predominantly mixed rural catchment, 60% grassland, with moorland headwaters.

27003 Aire at Beal Weir**EA North East**

Station: Broad-crested masonry weir, 33m wide. Gauged calibration - original cableway 4.5km u/s (led to limited low flow accuracy); improved performance using new site (1km u/s) from June 1993 (combined record). At around QMED, flows inundate extensive N bank washlands. This places an upper limit on the recent AMAX series, rendering it unsuitable for high flows. Bypassing via the Aire and Calder navigation. Q95 has decreased significantly in the recent past, which is thought to be due to increasing abstractions for canal. Catchment is heavily reservoir and industrialised. Complex water utilisation; net import from other rivers.

Catchment: Mixed geology of moderate permeability; Carboniferous formations in the upper catchment; Magnesian L'st and Marl and Triassic S'st at the lower end. Some superficial deposits. Mixed land use, with extensive (up to 20%) urbanised areas.

27004 Calder at Newlands**EA North East**

Station: Original station at Kirkthorpe Weir, a broad (80m) masonry and timber structure. Records from 1960 with some earlier data back to 1927. Replaced in Oct 1968 by a velocity-area station; an adjacent thin-plate weir measured diversions to canal. Discontinued 1975. Heavily influenced by reservoirs and abstractions.

Catchment: Upland headwaters. Mixed permeability geology with some superficial deposits. Rural land use predominates with moorland in headwater and urban areas in lower valley.

27005 Nidd at Gouthwaite Reservoir**EA North East**

Station: Rectangular notch 12.2m wide set in broad-crested weir (total width 29m). Measures overflow and compensation/regulation releases from Gouthwaite Res.

27006 Don at Hadfields Weir**EA North East**

Station: Broad-crested masonry weir, 45m wide, rated by a c/m from a cableway (100m d/s - destroyed in 1989, then new one u/s from 1997). Bypassed in June 2007 event; seldom drowns. Flows from 1982 reprocessed in 2002, but further reprocessing anticipated (Jan 2008); the period-of-record maximum flow according to Hiflows-UK is $204 \text{ m}^3\text{s}^{-1}$ in Dec 1965, but this is based on a different rating which will eventually be used by the EA for the full high flow record. The upper catchment is considerably reservoir and the impact on the flow regime is substantial - significant net loss of water from the catchment.

Catchment: Mixed geology. Moorland headwaters contrast with the heavily urbanised (up to 20% of catchment) lower catchment (now less industrial); mixed rural in mid-catchment.

27007 Ure at Westwick Lock**EA North East**

Station: Broad-crested masonry weir, 59m wide, c/m rated - cableway 0.26km d/s (replaced earlier rated section a short distance d/s - Boroughbridge weir was thought to act as partial control). Some out-of-bank flooding at very high flows - peaks may be underestimated. Flows from 1982 reprocessed in 2002, but further reviews are anticipated (Jan 2008) as rating adopted by Hiflows-UK has yet to be implemented. Period-of-record maximum flow according to Hiflows-UK was $517 \text{ m}^3\text{s}^{-1}$ in Feb 1995. Reservoirs have significant effect on the Burn and Laver but moderate overall impact; some net export of water. 'Grip' drainage also influential.

Catchment: Mixed geology of limestone and grits, with significant Boulder Clay cover. Large, predominantly mixed agriculture catchment draining from moorland headwaters in the Pennines.

27009 Ouse at Skelton**EA North East**

Station: Multi-path (cross-configuration) US from 1992. Previously: VA station, control exercised mainly by Naburn weir, 13 km d/s - but for 1982-92 a rating independent of sluice-gate settings has been employed. Pre-1982 records are less reliable, esp. at low flows. PWS abstraction u/s - increasing impact on very low flows; some artificial groundwater augmentation now a counterbalancing influence.

Catchment: Mixed geology, mostly of moderate permeability but highly permeable in lower reaches; extensive superficial deposits masks solid geology in much of catchment, particularly Vale of York. Predominantly rural catchment draining north parts of Vale of York and Yorkshire Dales, with some moorland headwaters.

27010 Hodge Beck at Bransdale Weir**EA North East**

Station: Three-stage thin-plate rectangular weir (6.1 m wide overall) plus short broad-crested flanks. Discontinued 1979. Responsive catchment, no known artificial influences.

Catchment: Small, upland catchment in Yorkshire moors, with steep slopes. Moorland and upland grass, some woodland.

27011 Washburn at Lindley Wood Reservoir

Station: Orifice for measuring compensation flows plus a broad-crested weir for the measurement of overflows from Lindley Wood Res. Records ceased 1975. Level recorder installed on the spillway weir in 2004 to measure overflows, but in 2007 was still awaiting calibration.

27012 Hebden Water at High Greenwood

Station: Compound rectangular thin-plate weir 13.7 m broad - a statutory compensation gauge. Records ceased 1975. Still operated by Yorkshire Water. Naturalised flow data available for 1920 to 1996, but unclear exactly how this was calculated.

27013 Ewden Beck at More Hall Reservoir**EA North East**

Station: Compound structure consisting of sharp-edge weir between broad-crested flanks. Primarily designed to measure compensation flows from More Hall Reservoir.

27014 Rye at Little Habton**EA North East**

Station: Velocity-area station. No bypassing due to high flood banks. Discontinued 1970. Natural regime.

Catchment: Mixed geology, mostly moderate permeability with low permeability outcrops, some superficial deposits. Rural, with moorland headwaters in north, arable in lower areas to south.

27015 Derwent at Stamford Bridge**EA North East**

Station: Broad-crested weir 31 m broad replaced by velocity-area station in 1967. Superseded (in 1973) by 027041 Buttercrambe, d/s. Flood flows from 33.2 sq.km of the headwaters diverted to Scarborough via the Sea Cut (see station 027033).

Catchment: Large catchment with mixed geology. Predominantly rural, mixed agriculture with moorland in headwaters.

27016 Little Don at Underbank Reservoir**EA North East**

Station: Orifice and weir (11.7 m wide) below Underbank Res. Records ceased 1980.

27017 Loxley at Damflask Reservoir**EA North East**

Station: Orifices (measuring compensation flows) plus a weir, approx. 23 m broad, (measuring overflows) below Damflask Res. Records ceased 1980.

27018 Ryburn at Ryburn Reservoir

Station: Compound rectangular thin-plate weir below Ryburn Res. Discontinued 1974.

27019 Booth Dean Clough at Booth Wood Mill**EA North East**

Station: Compound Crump weir superseded a compound rectangular timber weir with thin-plate crest (3.05 m wide). Reservoir station. Discontinued 1974.

27020 Scout Dike Stream at Scout Dike Reservoir**EA North East**

Station: Thin-plate weir (12 m broad) measuring part of reservoir overflow and a V-notch measuring compensation flows and the balance of overflow. Records ceased 1980.

27021 Don at Doncaster**EA North East**

Station: Full range ultrasonic since 2000, alongside previous system, a velocity-area station, 24 m wide, formerly with cableway. Recalibrated in late 1970s following removal of rubble weir (low flow control). By-passing via the Sheffield and South Yorks navigation, 1 km u/s. Post-1977 flows reprocessed in 1996 (increased flows $>150 \text{ m}^3\text{s}^{-1}$). Significant scatter in gaugings above 1 m stage. Nov 2000 flood peak is believed to be an underestimate which may be revised upwards following rating reviews by the Measuring Authority. Numerous artificial influences e.g. effect of the Don Valley reservoirs, imports of water for the urban areas, and a network of controlled washlands on the Don and its tributaries.

Catchment: Mixed geology: Millstone Grit (headwaters), Coal Measures, Magnesian L'st and Trias s'sts. Moorland headwaters, mixed agriculture in valleys with significant urban areas, including Doncaster which has urbanised over course of record.

27022 Don at Rotherham Weir**EA North East**

Station: A weir 60 m broad calibrated at a velocity-area station 360 m d/s. The weir is at an angle to the upstream channel. Station terminated in 1971. The site was reinstated in 2005 by the installation of a level recorder and an ADVP in a 24 m wide channel ~80 m upstream of the weir. Significantly influenced by reservoirs and other artificial influences.

Catchment: Mixed geology: Millstone Grit (headwaters), Coal Measures, Magnesian L'st and Trias s'sts. Moorland headwaters, mixed agriculture in valleys with significant urban areas, including Sheffield.

27023 Dearne at Barnsley Weir**EA North East**

Station: Compound broad-crested weir, 12 m wide, rated by model tests, with central notch 3.9 m wide and flanking weirs. Slightly curved in plan, weir drop of 2.4 m is considered likely to drown only in extreme events - only known occurrence June 2007. Some bypassing on left bank. Some abstractions and gain of drainage water pumped from coal mines, though minewater discharges have declined in importance.

Catchment: Mixed geology of Upper Carboniferous, very little superficial deposits. Predominantly rural catchment, mixed agriculture and woodland with urban development near gauging station.

27024 Swale at Richmond**EA North East**

Station: Velocity-area station. Unstable control. Very responsive regime. Station decommissioned in 1980, replaced by Catterick Br (27090), 10 km d/s. Abstraction for Catterick Camp is just u/s otherwise natural runoff pattern.

Catchment: Typical Pennine catchment on lower carboniferous formations. Predominantly upland moorland and grass.

27025 Rother at Woodhouse Mill**EA North East**

Station: Velocity-area station, 15 m wide, with c/m cableway. Measuring section is located in a trapezoidal channel that contains all flows. Sequences of identical low flows in the 1960s (but realistic). The gauge is d/s of the washland storage scheme controlled by regulator gate on the channel to pond water at times of high flow; used in the 2000 and 2007 floods with significant effect on flows. Regime affected by abstractions and reservoirs, including some imports.

Catchment: Mixed geology, principally Coal Measures, some valley alluvium. Land use: moorland headwaters, mixed farming and heavily urbanised valleys. Extensive urban development of Chesterfield over period of record.

27026 Rother at Whittington**EA North East**

Station: Station: Flat V weir, which replaced (in Oct 1979) a shallow V weir located a short distance upstream. Flows greater than the capacity of the weir rated using cableway 50 m u/s. Railway embankment and high river wall at STW thought to fully contain high flows, but hydraulic modelling suggests highest flows ($>60 \text{ m}^3\text{s}^{-1}$) may be underestimated. Flows bypassing station via Chesterfield Canal were measured at Wheeldon Mill Lock from Oct 1963 to 1989 - micofched charts are held by the EA. Flows from Nov 1979 reprocessed in 1996. Runoff affected by Rother Valley reservoirs and imports/exports of water.

Catchment: Geology: mainly Coal Measures with underlying Millstone Grit outcropping in SW corner. Mixed agriculture predominates, some moorland in headwaters (Peak District). Substantial urban development - population has grown fourfold since 1945. Chesterfield is immediately u/s of station.

27027 Wharfe at Ilkley**EA North East**

Station: Velocity-area station. Replaced by Addingham (27043) 3.3 km upstream in 1973. Discontinued as flow station in 1975 but level record continues. Cableway still used for calibration of Addingham.

27028 Aire at Armley**EA North East**

Station: Velocity Area station, with channel control provided by two broad-crested weirs, 20 m wide, 1.8 km d/s under Leeds City station. Rated for all flows by cableway at the section. Limited bypassing at very high flows. Pre-1971 data are less reliable. Station prone to heavy weedgrowth in summer.

Catchment: Geology comprises predominantly Carboniferous L'st in the headwaters down to Skipton, and Millstone Grit and Lower Coal Measures. Extensive superficial deposits. Rural headwaters, with considerable urban and industrial development in the lower catchment.

27029 Calder at Elland**EA North East**

Station: Broad-crested masonry weir 53 m wide (Crump profile notch for low flow measurement) - c/m rated, cableway 200 m d/s until 1989, now rated by bridge gaugings 200 m d/s. Water level recorder resited nearer the river in 1980. Weir breached in 1982 necessitating a new rating curve. Flows reprocessed, resulting in a substantial increase in high flows and a decrease in low flows. Period-of-record maximum flow occurred in Oct 1967 but considerable uncertainty surrounds the event magnitude. The Measuring Authority record a figure of $520 \text{ m}^3\text{s}^{-1}$, but this is known to have been extrapolated and may have been affected by hydrometric changes. Numerous reservoirs within the catchment, and some abstractions.

Catchment: Geology comprises Upper Carboniferous Millstone Grit Series. Valley bottoms of lower catchment are heavily urbanised and industrialised. Valleys rise steeply to moorland predominantly covered by peat.

27030 Dearne at Adwick**EA North East**

Station: Crump profile weir 5.5m wide with broad-crested flanking weirs, total width 17.4m. Flows greater than the capacity of the Crump profile weir rated by cableway. Post-1975 flows reprocessed in 1996: low flows reduced, high flows increased. Pre-1975 not thought to be reliable. In major flood events, backwater effects from Don are apparent (e.g. 2000). The flow regime is substantially affected by industrial water use and sewage effluent augmentation (appreciable net import of water).

Catchment: Geology: primarily Coal Measures. Land use: arable farming and significant urban development in valleys, moorland pasture in headwaters.

27031 Colne at Colne Bridge**EA North East**

Station: Curved broad-crested weir 52m wide with central Crump profile notch 3.8m wide for more accurate low flow measurement. Rated by current meter, cableway 0.2km d/s. located within high, regular-profile riverbanks which contains flow at all levels. Substantial artificial influences due to numerous reservoirs and abstractions. Low flows in Feb 1992 due to a landslide event causing ponding u/s of station; flows bypassed through nearby canal.

Catchment: Mixed geology with Millstone Grit in the upper catchment and Coal Measures in the lower part. Catchment comprises moorland headwaters with heavily urbanised valleys.

27032 Hebden Beck at Hebden**EA North East**

Station: Thin-plate V notch (half 90 degree) in parallel with 3.35m wide Crump profile weir. V notch capacity limited by horizontal cut-off wall, at high flows it acts as a submerged orifice. Steep stream with heavy bedload - substantial u/s accretion, some erosion evident on weir surfaces. Suspect flat trace in May-June 2004 due to instrumentation problems. Some abstraction (27032 monitors residual flow), but predominantly natural flow regime. The catchment is partly Karsitic Limestone, and this portion only contributes runoff in exceptional floods. Numerous swallow holes and resurgences; true drainage area uncertain.

Catchment: Upland catchment; mostly moorland developed on Carb. L'st, Millstone Grit and shales.

27034 Ure at Kilgram Bridge**EA North East**

Station: Velocity-area station rated by c/m at a cableway. Low flow control is exercised by the sill of Kilgram Bridge 70m d/s. Flows under 1 m³s⁻¹ underestimated, data has been reprocessed. Good measurement of high flows; some floodplain storage over the left bank, but all flow is gauged through the section. Minor headwater reservoirs influence pattern, and Thorton Steward abstraction (operational from 1977) is just u/s.

Catchment: Geology: mainly Carboniferous L'st and Millstone Grit, with significant Boulder Clay cover. Rural, predominantly grassland catchment draining from moorland Pennine headwaters.

27035 Aire at Kildwick Bridge**EA North East**

Station: Velocity-area station rated by c/m cableway 150m d/s. The bridge sills provide the low flow control; soffits control high flows. Flow begins to surcharge the arches at different levels. The road bridge and steep grassy banks prevent bypassing. Washland storage influences floods, minor reservoirs and the Leeds-Liverpool Canal can influence the flow pattern but small overall impact; minor net export.

Catchment: Geology: mainly Carboniferous Limestone with some Millstone Grit series, with extensive Boulder Clay cover. Rural catchment, predominantly (c.80%) grassland, draining the eastern Pennines.

27038 Costa Beck at Gatehouses**EA North East**

Station: Crump profile weir 5m wide. Theoretical rating, inaccurate at high flows. Weed growth can cause drowning and affect summer levels. Missing data for May-June in 2000 and 2001; removed due to effects of weed growth. Peak flow in Oct 2000 is thought to be valid despite atypical hydrograph shape. Flows in May 2006 are suspect and are currently undergoing investigation. Some bypassing of gauge via West Drain. Data indicates that groundwater catchment greatly exceeds topographical catchment. Flows predominantly natural apart from some pumping at Keldhead Spring and abstractions/returns from some cress beds and a trout farm.

Catchment: Geology: permeable Oolitic Limestone, covered by post-glacial lacustrine clays in south. Small rural catchment on southern edge of North York Moors.

27040 Doe Lea at Staveley**EA North East**

Station: Rectangular flume, throat width: 3m. Theoretical rating used but then structure affected by mining subsidence; the flume tilted but appears to have been stable since 2002. Subsequently, c/m rating developed and applied from July 1970. Artificial influences include a net import of water including mine drainage.

Catchment: Mixed geology comprising Coal Measures, Permian Marls and Magnesian L'st. Predominantly rural catchment and urbanised lower reaches.

27041 Derwent at Buttercrambe**EA North East**

Station: Crump weir, 20m wide; high flow rating derived from limited number of gaugings. Structure drowned and bypassed in March 1999 & Nov 2000 floods. Previously overtopping occurred on the left bank, bypassing along a vehicle track (approx 50-60 m³/s in 2000). Single path ultrasonic gauge now records high flows up to 1.8 m, but still bypassing above this. Non-modular flow at approx 55 m³s⁻¹. Pre-Oct 1973 data (monthly only) of poorer quality; derives from 27015 (C.A.: 1634.3 sq.km). Peak flows from the headwaters (8% catchment) are diverted down the Sea Cut (27033). Minor net impact of artificial influences (spray irrigation is appreciable).

Catchment: Mixed geology of clays, shales and limestone. Rural catchment - moorland and forestry dominate in northern headwaters which drain North York Moors. Arable significant in south.

27042 Dove at Kirkby Mills**EA North East**

Station: Flat V weir, 8m wide. Theoretical rating; becomes non-modular at around 0.6m stage (4 m³s⁻¹ - which is less than QMED), which introduces significant uncertainty in the high flow range. Predominantly natural flows. Subsurface inflow from R. Seven catchment (27057) may represent a significant proportion of summer baseflow. Some bypassing at very high flows.

Catchment: Jurassic limestone, clays and sandstone. Rural catchment with moorland headwaters.

27043 Wharfe at Addingham**EA North East**

Station: Crump profile crest, 12m wide (theoretical rating), in a broad-crested weir, 48m overall width. C/m cableway 3.3km d/s (Ilkley). High flow rating considered reliable up to 300 m³/s. No bypassing, although structure overtopped; may drown. Flashy flow regime substantially influenced by reservoir operation (Grimwith regulation releases from Jun 1984). Significant u/s abstraction at Lobwood (from 1980).

Catchment: Predominantly upland catchment on Carboniferous l'st, shales and s'sts, some Boulder Clay cover and peat in headwaters. Rural catchment, predominantly moorland and pasture.

27044 Blackfoss Beck at Sandhills Bridge**EA North East**

Station: Flat V weir, 4m wide. Theoretical rating. Low flow gauge, subject to drowning. High flows should be treated with caution. In summer 1984 the weir crest was lowered for land drainage requirements and its modular limit was reduced. Significant agricultural abstractions in summer.

Catchment: Low-lying, rural catchment draining from W of Yorkshire Wolds.

27047 Snaizholme Beck at Low Houses**EA North East**

Station: Concrete Flat V weir superseded (in 1985) a limited capacity, wooden trapezoidal flume (installed late-1960s); structureful now 0.95m. Bypassing now less common but still overtops structure several times per year. Also goes non-modular. Flashy, natural regime. Notable Jan 1995 peak caused by 80-100mm storm. Systematic underestimation of rainfall (catch of ground-flush gauge exceeded standard raingauge by >10%) may contribute to unrealistic 'loss'. Also possibility of minor increase in runoff due to spring water deriving from outside the topographical catchment (see geology).

Catchment: Wet, steep catchment in the Pennines developed mainly on Carboniferous Limestone; some Millstone Grit on south-east boundary. Land use is mostly rough grazing.

27048 Derwent at West Ayton**EA North East**

Station: Compound thin-plate weir, 11m wide. Theoretical rating. Catchment contains swallow holes; significant losses between 27048 and a nearby u/s monitoring site (Forge Valley). High flows are diverted into the Sea Cut at diversion structure approx 5km upstream (measured at 27033) resulting in sudden drop in flow.

Catchment: Jurassic s'st, l'st and shales. Predominantly rural catchment with substantial (c.40%) forest cover.

27049 Rye at Ness**EA North East**

Station: Flat V weir, 12m wide. Theoretical rating. Weir drowns below QMED, introducing significant uncertainty in the high flow range. Significant gw abstractions.

Catchment: Geology: Jurassic l'st, clays and s'sts. Predominantly rural catchment with moorland headwaters and arable in lower valleys.

27050 Esk at Sleights**EA North East**

Station: Velocity-area station with broad-crested masonry weir control (25m broad with fish-pass on lb, 0.71m lower). Flow records 1970-76 based on formula only - may be inaccurate. C/m rating developed by 1989 - reprocessing of data from 1977 completed. Superseded (1998) by new Ultrasonic station at Briggsath (27092) d/s. Sensibly natural flow regime.

Catchment: Permeable headwaters (North York Moors - Jurassic) thence mainly Middle Oolite and Middle Lias, extensive Drift cover. A rural catchment with moorland headwaters.

27051 Crimple at Burn Bridge**EA North East**

Station: Flat V weir, 3.5m wide. Theoretical rating. Subcatchment flows have been measured by Leeds University. Maximum recorded level only just exceeds wingwalls and although the weir is likely drowned at this point, the theoretical equation is thought to remain a reasonable approximation for flow estimation. Low flows may be affected by structural leakage (but wooden wingwalls upgraded to concrete in 1999 - construction work affected recorded levels). No artificial influences.

Catchment: Geology: Carboniferous shales and grits. Small rural catchment, mainly used for pasture.

- 27052 Whitting at Sheepbridge** **EA North East**
Station: Crump weir, 5.98m wide. Confined in 3 m high walls for 200 m. No known bypassing. Theoretical rating, checked by low flow gaugings. Regime affected by reservoir and effluent returns. Numerous abandoned mine workings in catchment.
Catchment: Geology: Coal Measures: s'ts and shales. Mixed agriculture with moorland headwaters, significant urban development.
- 27053 Nidd at Birstwith** **EA North East**
Station: Velocity-area station approximately 17m wide, rated by current meter to 83 m³s⁻¹ from the bridge at the section. Riffle control 50m d/s, may be subject to erosion. Rating revised in 1999 to account for a change in channel dimensions caused by the 1991 flood; flows reworked. In 2007 the rating was again under review. Heavily reservoir catchment (Gouthwaite) with substantial effect on flows.
Catchment: Geology: mostly Millstone Grit. Rural catchment, predominantly grassland, moorland headwaters.
- 27054 Hodge Beck at Cherry Farm** **EA North East**
Station: Limited range Flat V weir, 6m wide. Theoretical rating. Known to drown below QMED, introducing significant uncertainty into the high flow range. Superseded the gauge u/s at Bransdale (27010). Flows unaffected by artificial influences.
Catchment: Geology: mainly shales and s'ts. Rural catchment.
- 27055 Rye at Broadway Foot** **EA North East**
Station: Limited range Crump profile weir, 15m wide. Theoretical rating. Low modular limit, higher flows are unreliable - substantial overestimation expected. Wing walls were rebuilt and raised in 2002 but are still over-topped at high flows. Ultrasonic gauge installed in 2003 to improve measurement of non-modular flows. Station damaged by severe flood in June 2005, since repaired and ultrasonic re-installed; data are missing June-October 2005 (following flood damage) and July 2006-July 2007 (during re-construction. Sensibly natural regime. Responsive catchment.
Catchment: Predominantly upland catchment draining the Cleveland Hills. Geology: Jurassic l'st, shales and s'ts. Rural, moorland and upland pasture, with some forestry.
- 27056 Pickering Beck at Ings Bridge** **EA North East**
Station: Limited range Crump profile weir, 7m wide. Theoretical rating. Low modular limit, higher flows are only approximate; check gaugings to QMED. Out of bank flow at high stages, and surcharging bridge u/s. Flow unaffected by artificial influences.
Catchment: Geology: mostly grits and l'sts. Catchment drains parts of the North York Moors. Mixed rural land use; moorland in headwaters, arable in lower catchment; extensive forestry.
- 27057 Seven at Normanby** **EA North East**
Station: Limited range Crump profile weir, 8m wide. Theoretical rating. Low modular limit. Drowns well before QMED so high flows are of limited precision. Magnitude of August 2002 flood under review, but undoubtedly exceptional - triggered by > 100mm storm. Loss of water underground to the adjacent R. Dove (27042) has significant impact on summer baseflow.
Catchment: Geology: Jurassic l'st, shales and s'ts. Rural catchment with moorland headwaters. Contains significant areas of forestry.
- 27058 Riccal at Crook House Farm** **EA North East**
Station: Limited range Flat V weir, 4m wide. Theoretical rating. Low modular limit, drowns well below QMED so higher flows are only approximate. Magnitude of Aug 2002 flood is under review, but was undoubtedly exceptional - triggered by > 100mm storm. Site to be replaced by new ultrasonic station 1.3km d/s at Nunnington, opened 2005. 27058 will close in 2008.
Catchment: Small, linear catchment draining the North York Moors. Geology: shales, s'ts and l'sts. Moorland headwaters, arable in lower catchment, significant forestry.
- 27059 Laver at Ripon** **EA North East**
Station: Crump profile weir, 10m wide. Theoretical rating. Insensitive at low flows, but a notch in the stilling basin toe wall could be used for very low flow measurement. High modular limit, subject to bypassing, but all but highest recorded peaks contained within wingwalls. There are some swallow holes in the lower part of the catchment. Surface and groundwater abstractions significantly reduce runoff.
Catchment: Geology: mostly Millstone Grit and Magnesian l'st, overlain by Boulder Clay cover in lower (eastern) half of catchment. A predominantly rural catchment below moorland (Pennine) headwaters, arable in valley bottoms.
- 27061 Colne at Longroyd Bridge** **EA North East**
Station: Limited range Flat V weir, 12m wide. Theoretical rating, checked by low flow gaugings. Out-of-bank flows occur before QMED, higher flows of limited accuracy. Reservoirs in catchment.
Catchment: Geology: Millstone Grit. Moorland headwaters with urban and industrial development in the lower catchment.
- 27062 Nidd at Skip Bridge** **EA North East**
Station: Full-range multi-path ultrasonic operating since 1999; flat V weir (17 m wide) used previously. The weir originally intended for low flow measurement in conjunction with Hunsingore (27001), which is insensitive at low flows. The weir had limited range and drowned (backing up from River Ouse) at flows > 12 m³/s. Low flows in recent years are thought to be too high, as a result of ongoing siltation problems, currently under investigation (2007). Flows from 1982 reprocessed - high flows have been substantially reduced, with minimal effect on low flows. Heavily reservoir catchment of the Nidd valley have a significant effect on flows; Gouthwaite Reservoir outflows especially significant in drought conditions.
Catchment: Geology: Carboniferous Millstone Grits, Permian Marls and Triassic s'ts. Predominantly rural, rugged in headwaters.
- 27063 Dibb at Grimwith Reservoir** **EA North East**
Station: Flat V. Outflows from Grimwith Reservoir; very artificial regime with large export of water for public supply.
- 27064 Went at Walden Stubbs** **EA North East**
Station: Flat V weir, 7m wide, 1:10 cross-slope. All but highest flows contained. Weir becomes non-modular before QMED, introducing significant uncertainty at high flows. Nov 2000 was undoubtedly an exceptional event, but the magnitude may be suspect. EA hold naturalised flows for 1984-95. Pumped minewater discharge significant prior to 1994 (now ceased).
Catchment: Geology comprises shales, s'ts and l'sts. Low-lying, predominantly arable catchment with isolated built-up areas.
- 27065 Holme at Queens Mill** **EA North East**
Station: Flat V weir, 11m wide, 1:10 cross-slope. Weir drowns below QMED so higher flows should be treated with caution. Reservoirs in headwaters - compensation releases from Holme Bridge group affects flow pattern. Net export of water from the catchment.
Catchment: Predominantly Millstone Grit. Moorland headwaters; urban development and significant forest cover in the lower catchment.
- 27066 Blackburn Brook at Ashlowes** **EA North East**
Station: Flat V weir. All flows contained but flow record suspect - weir subject to drowning as a result of backing-up from the Don (flows assume modularity; overestimation can be considerable). Urban stormwater drainage in lower part of the catchment.
Catchment: Catchment developed largely on Carboniferous formations (Coal Measures). Mixed farming, significant woodland, large urban fraction (N Sheffield).
- 27067 Sheaf at Highfield Road** **EA North East**
Station: Flat V weir, 1:10 cross-slope, for low flow measurement. Structure drowns before QMED as a result of backing-up from the Sheaf Screen at the culvert entrance 100m downstream. Ultrasonic installed in 2000 for high flow measurement, but performance up to 2007 had been poor. No reservoirs in catchment.
Catchment: Steep catchment developed on Carboniferous formations: Millstone Grit and Coal Measures. Very substantial urban development (Sheffield) below Pennine headwaters.
- 27068 Ryburn at Ripponden** **EA North East**
Station: Flat V weir, 1:20 cross-slope. Sited close to the confluence of two reservoir catchments - of limited hydrological value. Flow is compensation releases from the reservoir. High flows are theoretical and cannot be checked.
- 27069 Wiske at Kirby Wiske** **EA North East**
Station: Flat V weir (theoretical rating - modularity assumed). Subject to severe drowning; backing-up from Swale (d/s weedgrowth can also affect flows). Reverse flows observed under high flow conditions. Flows above 2 m³s⁻¹ should be treated with considerable caution - many will be greatly overestimated. This inadequacy results in unrealistic runoff volumes and a spurious water balance. New station built 9km upstream at Viewly Bridge, an ultrasonic gauge for full range measurement, opened 2007. 27069 is continuing for low flow measurement. Effluent returns and spray irrigation affect the flow regime.
Catchment: A low-lying, largely rural catchment mostly on Permian/Triassic formations (s'ts and mudstones), with extensive Drift cover.
- 27071 Swale at Crakehill** **EA North East**
Station: Crump profile weir (20m width) - often drowns - high flow calibration based on u/s cableway (at Leckby Grange). Gauged almost to maximum flow - but significant high flow scatter. Flood banks can be breached u/s; bypassing may be cause of poor agreement with check gaugings at high stages. Flows prior to Jun 1980 derived exclusively from Leckby Grange (27008, C.A.: 1345.6 sq.km - variable low flow control, weedgrowth especially severe in 1976 - Jul/Aug flows estimated). Sensibly natural regime, flashy response.
Catchment: Catchment drains N Yorkshire Dales, lower catchment in the flat Vale of York. Mixed geology - mainly l'sts, s'ts (especially below Richmond) and shales; substantial (c.80%) superficial deposits, predominantly Boulder Clay. Moorland and grassland in headwaters, Vale of York has substantial arable cover.

27072 Worth at Keighley**EA North East**

Station: Limited range Flat V weir, 1:10 cross-slope. At higher flows the structure is substantially bypassed. A largely natural regime but reservoir storage (and compensation flows of 14 Mld) and mill operation can be influential.

Catchment: Steep Millstone Grit catchment draining peat moorland, Boulder Clay cover in lower catchment. Insignificant urban development just u/s of station.

27073 Brompton Beck at Snainton Ings**EA North East**

Station: Crump Weir. Full range and modular. Stable and sensibly natural regime. Artificial drop in flow in July 2003; cause unknown but upstream damming or abstraction likely - investigation has failed to identify the cause. Topographical and gw divides may differ considerably.

Catchment: A mainly permeable (Corallian) catchment. Rural, predominantly arable

27074 Spen Beck at Northorpe**EA North East**

Station: Crump Weir. D/s recorder, but processed flows assume modularity; backing-up from the Calder causes occasional drowning. Sewage effluent component evident on hydrograph but since beginning of 1999 artificial influences have been greatly reduced - closure of STWs and reduction of mine water discharges upstream; major impact on low flows and significant reduction in runoff.

Catchment: A largely urban catchment developed mostly on Coal Measures.

27075 Bedale Beck at Leeming**EA North East**

Station: Flat V weir, 1:10 cross-slope. High flow record is suspect - the structure drowns as a result of backing-up from the Swale (a chart recorder monitors d/s levels but processed flows assume modularity). Considerable spray irrigation in the lower reaches otherwise minimal artificial impact on flow regime. 25/02-08/03/99 & 12-15/03/99 no records as instruments removed while work on site in progress.

Catchment: Rural, W-E trending catchment draining from Bellerby Moor.

27076 Bielby Beck at Thornton Lock**EA North East**

Station: Flat V weir, 1:10 cross-slope. Drowns at high flows (backing-up from the Derwent). Complementary to Pocklington Canal feeder (27861) - summation of flows plus u/s canal abstraction required for total catchment response. Significant spray irrigation in spring/summer. Anomalous flows can be caused by British Waterway interventions at the sluice near the weir.

Catchment: Headwaters below the scarp of the Yorkshire Wolds but catchment is low-lying. Predominantly rural.

27077 Bradford Beck at Shipley**EA North East**

Station: Flat V weir, 1:10 cross-slope in a relatively steep channel. There is a downstream level recorder, but processed flows assume modularity. Weir drowns below QMED, so high flows are unreliable. Some import of water (storm overflows which make for an even flashier regime) otherwise net effect of abstractions and discharges is small.

Catchment: A heavily urbanised catchment.

27079 Calder at Methley**EA North East**

Station: Multi-path ultrasonic gauging station positioned on a long straight reach around 45 m wide, between flood banks. Signal attenuation problems at high flows/high suspended solids. No known bypassing. Continuing problems with subsidence. Heavy influence of reservoirs, also affected by water transfers and effluent returns.

Catchment: Impermeable - mainly Millstone Grit catchment draining moorland headwaters with extensive peat cover.

27080 Aire at Lemonroyd**EA North East**

Station: Crump weir approx. 27m wide with fish pass which superseded - in 1993 - Fleet Weir (30m Crump with fish pass) 320m u/s - data from 1985 (flows incorporated in Lemonroyd series on NRFA). Complex pattern of water utilisation in lower catchment - significant disturbance to runoff regime: Leeds STW u/s; imports from Wharfe and Nidd; Aire and Calder Navigation canal bypasses the station.

Catchment: Largely impervious catchment developed mainly on Carboniferous L'st (headwaters), Millstone Grit and Lower Coal Measures. Extensive superficial deposits, predominantly Boulder Clay. Rough grazing in Pennine headwaters contrasts with very considerable urban and industrial development (Leeds and Bradford conurbation) below Skipton.

27081 Oulton Beck at Farrer Lane**EA North East**

Station: Flat V weir - 1:10 cross-slope with fish pass in steep-sided, straight channel. High concrete wing-walls prevent bypassing. Substantial modular range. Stormwater drainage in part of the catchment but very few abstractions or discharges.

Catchment: A small, relatively low-lying impervious (Coal Measures) catchment with significant urban/suburban development. Catchment is traversed by both the M1 and M62.

27082 Cundall Beck at Bat Bridge**EA North East**

Station: Flat V weir, 1:10 cross-slope (superseded an original sharp-edged weir). Weir drowns at ~0.7 m3s⁻¹ (below QMED), introducing significant uncertainty into higher flows. Flow regime is largely natural. Flow augmentation scheme from boreholes tested late 1980s / early 1990s but never fully implemented. Impact on flows thought to be very limited. Similar low flows to the 1997 7-day minimum recorded in 1990 and 1995.

Catchment: A low-lying, relatively flat catchment - developed on Permo-Triassic sandstones - draining to the Swale. Land use: dominantly agricultural.

27083 Foss at Huntington**EA North East**

Station: Electromagnetic gauging station. Buried coil (small relative to channel width under high flow conditions); no cableway. Backing-up from Foss Barrier (in York). All flows contained.

Catchment: Relatively low lying - headwaters on Yearsley Moor but catchment is mostly located in Vale of York. Mixed geology overlain with Boulder Clay and lacustrine clays. Predominantly arable, with some urban development above station.

27084 Eastburn Beck at Crosshills**EA North East**

Station: Flat V weir, 1:10 cross-slope. All flows contained. Heavy sediment/gravel loads, but regularly maintained. Backing-up from the Aire causes drowning at high flows; d/s levels monitored but processed flows assume modularity. Natural regime.

Catchment: Steep Pennine catchment draining to the Aire, developed on Millstone Grit, with extensive Boulder Clay cover. Largely moorland with rough grazing the principal land use.

27085 Cod Beck at Dalton Bridge**EA North East**

Station: Flat V weir, 1:10 cross-slope. Backing-up from the Swale. No cableway. A sensibly natural regime but spray irrigation can affect summer flows, particularly in drought years.

Catchment: A linear, N-S trending, catchment draining largely Lower Lias formations in the Vale of York (but baseflow from the Corallian of the Hambleton Hills also important). Apart from Thirsk, a very rural catchment.

27086 Skell at Alma Weir**EA North East**

Station: Flat V weir. Considerable accretion on u/s apron. Substantial modular range. Thought to be reasonably accurate until (occasionally) overtopped during large events, however no cableway for check gauging. Offtake to Ripon Canal feeder is u/s. Swallow holes u/s of Laver/Skell confluence greatly reduce summer flows.

Catchment: Geology: Millstone Grit and Magnesian L'st with Boulder Clay in lower catchment. A predominantly rural catchment below moorland (Pennine) headwaters, although Ripon is just u/s of station.

27087 Derwent at Low Marishes**EA North East**

Station: Electromagnetic (overhead coil) gauging station in formalised reach. Cableway. Station installed between old bridge abutments; railway embankments ensure all flows pass through measuring section. Subject to backwater influence from the Rye confluence (downstream); flow reversal is observed occasionally; early problems encountered with tapping pipe siltation, resolved by installation of new pipe at higher level. Flow regime is sensibly natural apart from the flood diversion to the Sea Cut (027033) and the effect of spray irrigation.

Catchment: The catchment drains the eastern part of the North York Moors. Geology: mostly permeable Oolite and Corallian formations, superficial deposits (lacustrine clays) in low-lying areas in south. Largely rural with moorland and wooded headwaters, predominantly arable in lower reaches.

27088 Calder at Mytholmroyd**EA North East**

Station: Multi-path ultrasonic gauging station (cross configuration). Full range but suspended solids cause signal attenuation in some floods. Further validation of data is needed (2007). Net export of water; Hebden Water Reservoirs provide supply to Halifax. Effluent discharge can affect flow pattern. Rochdale Canal (offtake is u/s) bypasses the station. Station was previously known as Caldene Bridge, name changed on NRFA in 2008.

Catchment: Steep, Pennine catchment with extensive moorland. Mostly Millstone Grit, with peat cover in headwaters. Predominantly moorland and pasture, but heavily urbanised and forested along the lower-lying river valleys.

27089 Wharfe at Tadcaster**EA North East**

Station: Multi-path US (cross configuration). Rating has been reworked (1997). Signal attenuation can be a problem in summer (low velocities and thermal stratification). Bed scouring during 1991 flood necessitated recalibration. Potential replacement for II 27002 (closure delayed due to initially variable performance of Tadcaster). Effect of headwater reservoirs evident at low flows; small net export of water.

Catchment: Mainly Carboniferous L'st, grits and Coal Measures, some Magnesian L'st. Significant outcrops of Boulder Clay and some alluvium in valleys. Largely rural - moorland headwaters, arable farming and some urban development in the lower catchment.

27090 Swale at Catterick Bridge**EA North East**

Station: VA station with cableway plus two-path ultrasonic for low flows. Full range, all flows contained. Old road bridge d/s acts as control at high flows. Supersedes 27024 (decommissioned 1980). Flows from 1991 reprocessed in 2002 - all flows reduced. Abstraction for Catterick Camp u/s, otherwise responsive, natural regime.

Catchment: Geology: mostly moderate permeability - overlain by peat in headwaters and Boulder Clay in lower catchment. Mostly upland pasture with some afforestation (and considerable gripping).

27091 Crimple at Blackstones**EA North East**

Station: Flat Vee weir, close to confluence with Nidd. Drowns and bypasses in high flows. Flow regime affected by urban drainage from Harrogate and sewage treatment discharges.

Catchment: Largely rural, apart from the south-eastern half of Harrogate.

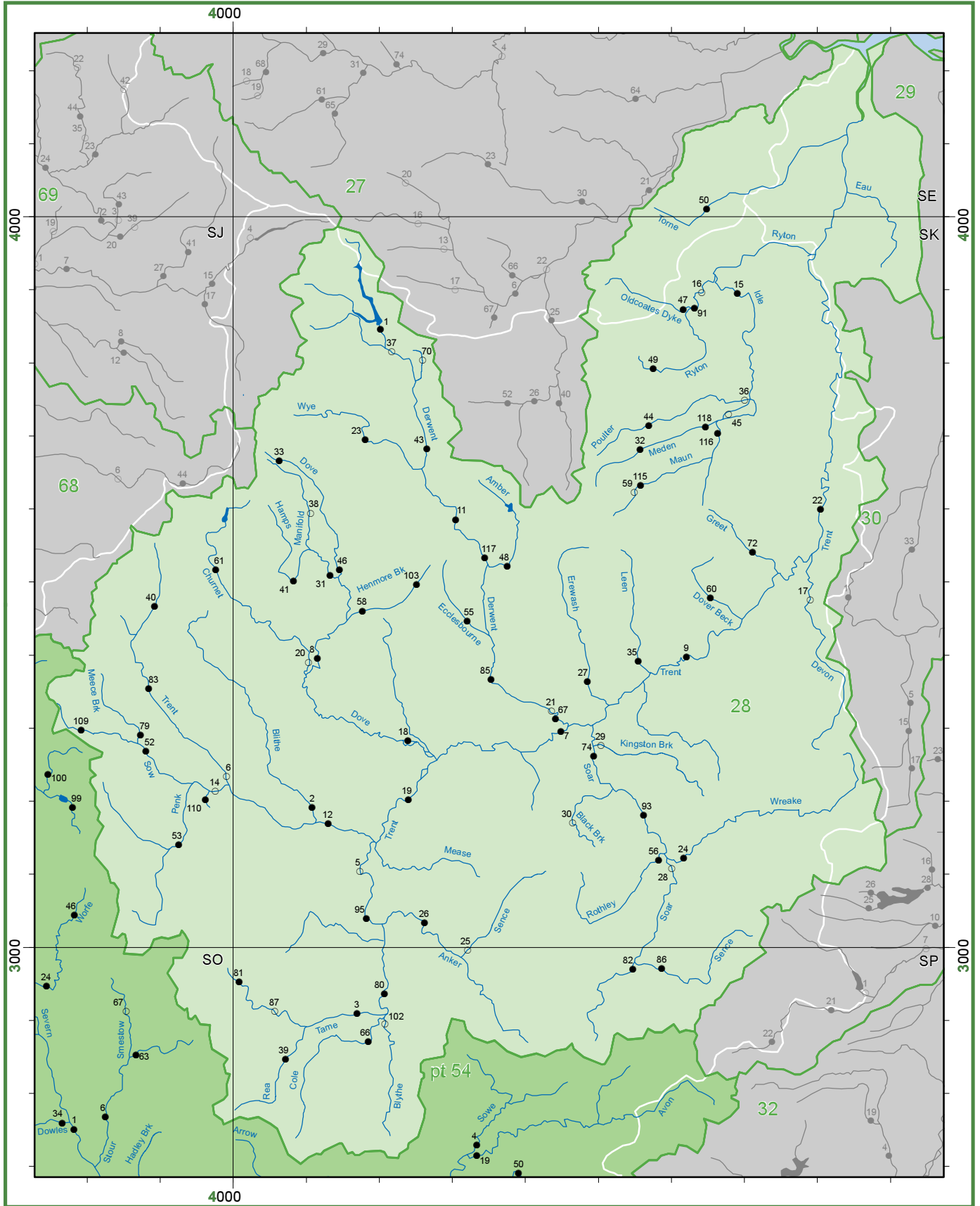
GAUGING STATION REGISTER

Region: EA Midlands

Area: 21,538 km²

Average rainfall (1971-2000): 765 mm

Map 5a: MIDLANDS – TRENT



Gauging Station Register I

Station number	River name	Station name	Grid reference	Catchment area	Station type	SLA	Period of record	Percent complete	Base Flow Index	Mean ann. rain (mm)	Mean ann. runoff (mm)	Mean ann. loss (mm)	Mean flow (m ³ /s)	Q95 (m ³ /s)	Q70 (m ³ /s)	Q50 (m ³ /s)	Q10 (m ³ /s)	Median ann. flood (m ³ /s)	Peak flow (m ³ /s)	Date of peak	7-day min. (m ³ /s)	Date of min.
28001	Derwent	Yorkshire Bridge	SK198851	126.0 FL	*	1933-05	100	.47	1382	533	849	2.10	0.49	0.87	0.94	4.9	47.0	150.6	09/12/65			
28002	Bliithe	Hamstall Ridware	SK109192	163.0 FL		1937-05	67	.50	792	239	553	1.22	0.32	0.46	0.58	2.7	17.5	38.7	17/03/47	0.19	05/09/76	
28003	Tame	Water Orton	SP169915	408.0 C	*	1955-05	79	.62	743	427	316	5.49	2.34	3.32	4.05	9.6	76.7	111.7	20/08/70	1.80	20/10/03	
28005*	Tame	Elford	SK173105	1475.0 VA		1955-84	100	.65	698	412	286	19.18	8.18	11.48	14.35	35.4	107.7			6.40	07/08/59	
28006*	Trent	Great Haywood	SJ994231	325.0 VA		1957-64	100	.71	826	453	373	4.45	2.14	2.89	3.40	7.3	29.7			1.74	11/09/64	
28007	Trent	Shardlow	SK448299	4400.0 US		1957-05	49	.65	770	376	394	52.52	17.34	28.42	36.74	108.5	293.3	479.9	05/12/60	9.56	07/10/59	
28008	Dove	Roccester Weir	SK112397	399.0 VA	*	1953-05	100	.62	1041	596	445	7.50	1.73	3.38	5.28	15.7	88.2	132.3	21/12/91	0.62	25/09/59	
28009	Trent	Colwick	SK620399	7486.0 VA	*	1958-05	100	.64	778	356	422	84.54	27.37	42.84	58.74	174.1	450.4	1018.4	08/11/00	15.49	24/08/76	
28011	Derwent	Matlock Bath	SK296586	690.0 VA		1958-04	99	.64	1119	603	516	12.99	3.28	5.73	8.71	27.4	115.7	407.9	09/12/65	1.37	28/09/59	
28012	Trent	Yoxall	SK131177	1229.0 EM	*	1959-05	94	.70	771	334	437	13.04	4.83	7.87	9.84	24.1	46.1			2.02	28/08/76	
28014*	Sow	Millford	SJ975215	591.0 VA		1960-01	60	.67	734	327	407	6.18	1.50	3.09	4.53	12.0	27.1	77.1	06/11/00	0.67	27/04/76	
28015	Idle	Mattersey	SK690895	529.0 EM	*	1982-05	99	.79	658	155	503	2.42	0.84	1.56	2.02	4.2	12.1	18.5	02/06/83	0.22	23/07/96	
28016*	Ryton	Serlby Park	SK641897	231.0 VA		1955-78	100	.70	646	234	412	1.75	0.45	0.98	1.27	3.2	14.1					
28017*	Devon	Cotham	SK787476	284.0 VA		1966-78	99	.53	591	189	402	1.57	0.13	0.36	0.67	3.7	26.8	38.6	02/11/68			
28018	Dove	Marston on Dove	SK235288	883.2 FVVA	*	1957-05	100	.60	953	502	451	14.02	3.55	6.72	9.81	28.2	121.7	186.9	06/11/00	1.73	25/08/76	
28019	Trent	Drakelow Park	SK239204	3072.0 VA		1966-05	100	.66	726	377	349	36.58	14.90	21.78	27.61	66.6	181.1	385.0	07/11/00	7.74	24/08/76	
28020	Churnet	Roccester	SK103389	236.0 VA		1954-82	97	.55	980	463	517	3.68	0.96	1.60	2.36	7.7				0.49	06/10/59	
28021*	Derwent	Draycott	SK443327	1175.0 VA		1965-77	98	.66	995	563	432	20.08	5.89	10.86	13.71	36.0	120.9	162.4	11/12/65	3.53	06/09/76	
28022	Trent	North Muskham	SK801601	8231.0 US	*	1968-05	100	.65	761	344	417	89.70	28.22	45.06	63.46	181.2	451.6	1000.2	27/02/77	16.26	24/08/76	
28023	Wye	Ashford	SK182696	154.0 FV	*	1965-05	58	.75	1192	627	535	3.20	0.97	1.78	2.60	6.1	16.4	44.3	27/10/98	0.77	07/11/95	
28024	Wreake	Syston Mill	SK615124	413.8 EM	*	1967-05	97	.41	646	221	425	2.90	0.33	0.65	1.18	7.0	39.4	98.1	11/04/98	0.10	25/08/76	
28025*	Sence	Ratcliffe Culey	SP321996	169.4 C		1966-84	100	.42	680	272	408	1.53	0.26	0.43	0.73	3.1	31.7			0.08	25/07/96	
28026	Anker	Polesworth	SK263034	368.0 C VA	*	1966-05	99	.51	672	263	409	3.05	0.69	1.19	1.74	6.2	52.1	100.6	06/11/00	0.26	24/08/76	
28027	Erewash	Sandiacre	SK482364	182.2 US		1965-05	71	.53	720	335	385	1.91	0.46	0.81	1.20	3.9	19.9	53.4	06/11/00	0.22	13/10/90	
28028*	Soar	Wanlip	SK603109	480.0 CC		1972-81	56	.35	652	187	465	2.71	0.30	0.69	1.32	6.2						
28029*	Kingston Brook	Kingston Hall	SK503277	57.0 CC		1966-84	97	.38	605	208	397	0.38	0.03	0.09	0.16	0.8	8.6	20.0	25/02/77	0.01	23/08/76	
28030*	Black Brook	Onebarrow	SK466171	8.4 FL		1967-84	96	.42	761	302	459	0.08	0.01	0.02	0.04	0.2	3.4	7.5	24/02/77	0.01	13/08/76	
28031	Manifold	Ilam	SK140507	148.5 C	*	1968-05	100	.54	1101	749	352	3.51	0.61	1.40	2.38	7.6	47.7	123.0	23/10/98	0.33	26/08/76	
28032	Meden	Church Warsop	SK558680	63.0 VA		1965-05	84	.77	720	298	422	0.59	0.24	0.37	0.47	1.0	5.0	13.0	25/02/77	0.15	06/11/78	
28033	Dove	Hollinscough	SK063668	8.0 CC	*	1965-05	74	.47	1374	1081	293	0.27	0.05	0.11	0.18	0.6	4.7	18.7	23/10/98	0.02	24/08/76	
28035	Leen	Nottingham	SK549392	111.0 US		1967-05	41	.69	688	176	512	0.67	0.20	0.37	0.51	1.3	10.9			0.06	03/08/90	
28036*	Poulter	Twyford Bridge	SK700752	128.2 US		1969-98	40	.86	652	150	502	0.64	0.23	0.44	0.56	1.1				0.08	25/07/96	
28037*	Derwent	Mytham Bridge	SK205825	203.0 C		1978-96	54	.44	1347	800	547	4.99	0.99	1.46	2.05	11.4				0.76	27/07/92	
28038*	Manifold	Hulme End	SK106595	46.0 VA		1969-82	98	.31	1174	817	357	1.14	0.09	0.27	0.52	2.6	49.3	80.5	19/10/71	0.01	26/07/76	
28039	Rea	Calthorpe Park	SP071847	74.0 C B	*	1967-05	100	.46	800	336	464	0.79	0.23	0.35	0.47	1.5	32.0	67.9	26/09/98	0.18	20/09/96	
28040	Trent	Stoke on Trent	SJ892467	53.2 C	*	1968-05	100	.45	880	380	500	0.65	0.13	0.24	0.37	1.4	13.0	55.4	23/08/87	0.09	18/10/03	
28041	Hamps	Waterhouses	SK082502	35.1 FV		1968-05	41	.35	1089	649	440	0.70	0.06	0.18	0.38	1.6	24.0	93.2	10/08/71	0.01	25/08/76	
28043	Derwent	Chatsworth	SK261683	335.0 VA	*	1968-05	100	.56	1186	613	573	6.42	1.48	2.58	3.71	14.0	79.0	204.3	06/11/00	0.67	17/08/84	
28044	Poulter	Cuckney	SK570713	32.2 C	*	1969-05	84	.92	686	306	380	0.32	0.17	0.24	0.28	0.5	0.8	1.9	08/04/79	0.10	25/08/76	
28045*	Meden/Maun	Bothamsall/Haughton	SK681732	262.6 FLVA		1965-84	100	.77	693	204	489	1.69	0.78	1.18	1.41	2.7	8.9	22.5	25/02/77	0.32	22/08/76	
28046	Dove	Izaak Walton	SK146509	83.0 FV	*	1969-05	100	.79	1128	744	384	1.94	0.55	1.09	1.62	3.6	12.6	28.0	21/12/91	0.30	06/09/76	
28047	Oldcoates Dyke	Blyth	SK615876	85.2 FVVA		1970-05	96	.72	641	249	392	0.68	0.25	0.39	0.50	1.2	11.9	36.8	16/07/73	0.10	17/08/76	
28048	Amber	Wingfield Park	SK376520	139.0 FVVA	*	1971-05	100	.51	801	314	487	1.38	0.36	0.56	0.80	2.8	31.3	43.1	26/01/95	0.20	08/08/76	
28049	Ryton	Workop	SK575794	77.0 FV		1970-05	96	.63	655	184	471	0.45	0.09	0.18	0.28	0.9	5.5	11.2	02/05/83	0.04	24/08/76	
28050	Torne	Auckley	SE646012	135.5 FVVA	*	1971-05	100	.67	608	211	397	0.92	0.33	0.51	0.65	1.6	6.8	29.6	17/07/73	0.18	24/08/76	
28052	Sow	Great Bridgford	SJ883270	163.0 FVVA	*	1971-05	100	.65	775	231	544	1.19	0.35	0.58	0.82	2.3	9.6	20.1	11/02/77	0.13	24/08/76	
28053	Penk	Penkridge	SJ923144	272.0 FVVA		1976-05	78	.58	706	267	439	2.27	0.60	1.02	1.45	4.2	26.7	68.1	06/11/00	0.24	25/08/76	
28055	Ecclesbourne	Duffield	SK320447	50.4 FV	*	1971-05	77	.49	874	412	462	0.64	0.10	0.20	0.34	1.5	13.2	30.5	26/01/95	0.04	24/08/76	
28056	Rothley Brook	Rothley	SK580121	94.0 FVVA	*	1973-05	91	.45	695	256	439	0.77	0.12	0.25	0.40	1.7	12.7	17.3	25/02/77	0.05	19/08/95	
28058	Henmore Brook	Ashbourne	SK176463	42.0 FV		1974-05	72	.49	900	339	561	0.45	0.07	0.14	0.25	1.0	12.4	25.4	06/11/00	0.02	24/08/76	
28059*	Maun	Mansfield STW	SK548623	28.8 FLVA		1966-84	100	.71	729	501	228	0.46	0.24	0.32	0.37	0.7	11.0	21.3	13/10/79	0.14	28/06/76	
28060	Dover Beck	Lowdham	SK653479	69.0 FVVA	*	1972-05	91	.76	677	68	609	0.15	0.05	0.08	0.11	0.3	2.0	3.4	16/01/99	0.03	07/11/90	
28061	Churnet	Basford Bridge	SJ983520	139.0 FVVA		1975-05	100	.46	976	427	549	1.88	0.43	0.73	1.07	4.2	27.4	66.7	23/08/87	3.00	02/08/96	
28066	Cole	Coleshill	SP183874	130.0 FVVA	*	1973-05	100	.43	738	230	508	0.95	0.19	0.36	0.56	2.0	16.5	27.6	08/08/99	0.10	23/08/76	
28067	Derwent	Church Wile	SK438316	1177.5 FV	*	1973-05	100	.64	1001	505	496	18.69	5.04	8.63	12.67	38.5	157.1	277.6	07/11/00	3.07	20/09/76	
28070*	Burbage Brook	Burbage	SK259804	9.1 TP		1965-82	94	.44	1023	674	349	0.17	0.03	0.06	0.11	0.4	4.3	24.5	15/07/73	0.01	24/08/76	
28072	Greet	Southwell	SK711541	46.2 FV	*	1975-05	84	.67	647	226	421	0.32	0.10	0.16	0.22	0.5	11.9			0.06	24/08/76	
28074	Soar	Kegworth	SK492263	1292.0 US	*	1978-05	74	.55	656	299	357	12.15	3.55	5.44	7.42	26.1	79.7	133.1	11/04/98	2.91	15/	

Gauging Station Register I cont'd

Station number	River name	Station name	Grid reference	Catchment area	Station type	SLA	Period of record	Percent complete	Base Flow Index	Mean ann. rain (mm)	Mean ann. runoff (mm)	Mean ann. loss (mm)	Mean flow (m ³ /s)	Q95 (m ³ /s)	Q70 (m ³ /s)	Q50 (m ³ /s)	Q10 (m ³ /s)	Median ann. flood (m ³ /s)	Peak flow (m ³ /s)	Date of peak	7-day min. (m ³ /s)	Date of min.
54001	Severn	Bewdley	SO782762	4325.0	US	*	1921-05	100	.53	924	451	473	61.22	10.67	22.12	36.81	146.2	330.7	637.1	21/03/47	6.06	20/09/49
54002	Avon	Evesham	SP040438	2210.0	VA	*	1936-05	100	.52	668	222	446	15.52	2.97	5.69	8.50	34.9	181.4	427.0	10/04/98	1.34	07/10/59
54003	Vyrnwy	Vyrnwy Reservoir	SJ019191	94.3	TP	*	1879-95n	100	.36	1951	1387	564	4.24	0.25	1.14	2.09	10.4	43.3				
54004	Sowe	Stoneleigh	SP332731	262.0	CC	*	1952-05	98	.61	682	365	317	3.02	1.16	1.72	2.13	5.5	27.6	58.6	26/03/55	0.70	15/10/61
54005	Severn	Montford	SJ412144	2025.0	US	*	1953-05	97	.48	1184	677	507	43.30	5.82	13.41	24.51	109.9	282.4	473.4	01/11/00	1.98	20/05/54
54006	Stour	Kidderminster	SO830768	324.0	US	*	1953-05	100	.71	712	272	440	2.77	1.25	1.84	2.27	4.6	19.3	22.8	06/11/00	0.62	24/08/76
54007	Arrow	Broom	SP086536	319.0	C	*	1957-05	92	.53	707	281	426	2.82	0.78	1.25	1.65	5.5	53.3	136.6	09/04/98	0.26	24/08/76
54008	Teme	Tenbury	SO597686	1134.4	VA	*	1956-05	100	.56	865	403	462	14.43	1.53	4.49	8.33	34.7	138.9	240.6	03/12/60	0.66	24/08/76
54010	Stour	Alscot Park	SP208507	319.0	TP+CB	*	1959-05	59	.50	663	208	455	2.11	0.24	0.55	1.01	4.9	42.0	95.3	09/04/98	0.03	24/08/76
54011	Salwarpe	Harford Hill	SO868618	184.0	FV	*	1961-05	81	.63	678	224	454	1.31	0.39	0.67	0.88	2.3	19.5	39.3	24/01/60	0.18	24/08/76
54012	Tern	Walcot	SJ592123	852.0	FV	*	1960-05	100	.69	706	252	454	6.84	2.33	3.66	4.96	13.5	37.6	60.0	29/01/90	1.03	24/08/76
54013	* Clywedog	Cribynau	SN944855	57.0	MIS		1959-79	100	.48	1950	1242	708	2.26	0.29	0.83	1.53	5.2	32.9	111.6	13/12/64		
54014	Severn	Abermule	SO164958	580.0	VA	*	1952-05	100	.44	1291	795	496	14.58	1.80	4.52	7.73	35.8	191.5	419.1	13/12/64		
54015	Bow Brook	Besford Bridge	SO927463	156.0	FV	*	1969-05	88	.36	656	232	424	1.10	0.10	0.23	0.39	2.3	18.8			>0.00	16/08/76
54016	Roden	Rodington	SJ589141	259.0	FLVA	*	1961-05	100	.62	695	235	460	1.92	0.42	0.74	1.22	4.2	14.0	28.2	03/07/68	0.20	26/08/76
54017	Leaden	Wedderburn Bridge	SO777234	293.0	FLVA	*	1962-05	100	.50	708	215	493	2.00	0.31	0.53	0.98	4.5	47.6			0.07	19/08/76
54018	Rea Brook	Hookagate	SJ466092	178.0	FLVA	*	1962-05	97	.51	766	307	459	1.72	0.24	0.49	0.91	4.1	22.7	45.1	06/11/00	0.09	23/08/76
54019	Avon	Stareton	SP333715	347.0	C VA	*	1962-05	100	.49	673	233	440	2.54	0.48	0.81	1.32	5.7	35.0	99.6	11/07/68	0.19	19/08/76
54020	Perry	Yeaton	SJ434192	180.8	C	*	1963-05	100	.65	767	280	487	1.60	0.40	0.69	1.05	3.4	10.7	17.7	08/02/90	0.17	26/08/76
54022	Severn	Plynlimon flume	SN853872	8.7	FL	*	1953-05	81	.34	2502	1984	518	0.53	0.06	0.16	0.27	1.2	13.8			0.03	31/08/76
54023	Badsey Brook	Offenham	SP063449	95.8	FV	*	1968-05	92	.45	659	212	447	0.63	0.07	0.16	0.30	1.5	9.9	100.4	09/04/98	0.02	17/08/76
54024	Worfe	Burcote	SO747953	258.0	C	*	1969-05	100	.70	699	141	558	1.16	0.33	0.64	0.89	2.1	6.3	18.8	06/11/00	0.06	16/08/76
54025	Dulas	Rhos-y-pentref	SN950824	52.7	FL	*	1969-05	100	.41	1313	866	447	1.45	0.05	0.39	0.76	3.6	23.2	46.9	27/10/98	0.01	25/08/76
54026	* Chelt	Slate Mill	SO892264	34.5	FL		1969-83	84	.71	763	534	229	0.59	0.30	0.39	0.45	1.0	8.8	11.0	27/12/79	0.22	24/08/76
54027	Frome	Ebley Mill	SO831047	198.0	CBVA	*	1969-05	100	.87	860	402	458	2.50	0.77	1.41	2.02	4.7	10.9	19.9	30/10/00	0.27	23/08/76
54028	Vyrnwy	Llanymynech	SJ252195	778.0	VA	*	1970-05	100	.44	1358	859	499	21.08	2.29	6.01	11.53	49.4	267.4	486.4	11/02/02	0.56	24/08/76
54029	Teme	Knightsford Bridge	SO735557	1480.0	VA	*	1970-05	100	.55	839	374	465	17.26	1.97	5.05	9.63	40.5	166.3	247.0	28/12/79	0.79	25/08/76
54032	Severn	Saxons Lodge	SO863390	6850.0	US	*	1970-05	100	.57	875	394	481	85.39	15.10	29.51	53.13	216.4	394.4	528.9	14/12/00	7.40	24/08/76
54034	Dowles Brook	Oak Cottage	SO768764	40.8	FVVA	*	1971-05	100	.41	739	290	449	0.37	0.03	0.08	0.15	0.9	9.5	21.6	10/06/93	0.01	24/08/76
54036	Isbourne	Hinton on the Green	SP023408	90.7	C VA	*	1972-05	96	.56	706	225	481	0.63	0.09	0.19	0.34	1.4	13.9	38.0	09/04/98	>0.00	25/08/76
54038	Tanat	Llanyblodwel	SJ252225	229.0	FV	*	1973-05	98	.48	1267	911	356	6.58	0.55	1.89	3.88	15.8	77.1	152.1	06/11/00	0.15	05/09/76
54040	Meese	Tibberton	SJ680205	167.8	C		1973-05	100	.79	707	218	489	1.16	0.46	0.71	0.95	2.1	5.0	9.6	06/11/00	0.20	25/08/76
54041	Tern	Eaton On Tern	SJ649230	192.0	C		1972-05	100	.71	731	277	454	1.68	0.68	0.99	1.29	2.9	11.1	23.1	07/11/00	0.40	21/08/76
54043	* Severn	Eaton On Severn	SO863399	6850.0	VA		1955-70	100	.55	878	459	419	95.09	22.46	38.51	53.80	240.7				13.90	09/10/59
54044	Tern	Temhill	SJ629316	92.6	TPVA	*	1972-05	100	.77	757	292	465	0.86	0.41	0.57	0.71	1.4	4.9	18.4	06/11/00	0.27	24/08/76
54045	* Perry	Perry Farm	SJ347303	49.1	FV		1974-79	100	.72	818	384	434	0.62	0.20	0.31	0.48	1.1				0.11	25/08/76
54046	Worfe	Cosford	SJ781046	54.9	TP		1975-05	93	.59	714	114	600	0.20	0.03	0.08	0.12	0.4	1.8			>0.00	07/06/97
54047	* Perry	Ruyton Bridge	SJ403223	155.0	VA		1975-78	100	.67	790	277	513	1.19	0.21	0.49	0.69	2.6					
54048	Dene	Wellesbourne	SP273556	102.0	FV	*	1976-05	96	.45	637	188	449	0.60	0.06	0.13	0.26	1.4	13.3	47.3	09/04/98	0.03	22/08/76
54049	Leam	Princes Drive Weir	SP307654	362.0	TP	*	1979-05	100	.39	665	183	482	2.11	0.28	0.53	0.84	4.9	28.1	217.1	10/04/98	0.09	08/07/84
54050	Leam	Eathorpe	SP388688	300.0	FLCB		1987-05	100	.37	660	148	512	1.40	0.24	0.33	0.46	3.2	26.7	116.2	09/04/98	0.20	25/10/03
54052	Bailey Brook	Temhill	SJ629316	34.4	TP	*	1970-05	97	.72	708	394	314	0.42	0.11	0.18	0.28	0.9	2.6	7.5	06/11/00	0.06	24/08/76
54053	* Corve	Ludlow	SO510752	164.0	VA		1972-76	100	.57	769	201	568	1.01	0.10	0.30	0.54	2.0					
54054	* Onny	Onibury	SO455789	235.0	VA		1972-76	100	.48	816	296	520	2.19	0.25	0.64	1.27	4.4					
54057	Severn	Haw Bridge	SO844279	9895.0	VA	*	1971-05	100	.57	806	339	467	105.36	19.50	38.58	65.89	252.3	508.6	872.6	14/12/00	8.90	24/08/76
54058	* Stoke Park Brook	Stoke Park	SJ644260	14.3	FV		1972-78	100	.57	690	177	513	0.09	0.02	0.04	0.06	0.2				3.2	06/08/73
54059	* Allford Brook	Allford	SJ654223	10.2	FV		1972-78	98	.70	671	159	512	0.06	0.01	0.03	0.05	0.1				3.6	05/08/73
54060	Potford Brook	Sandyford Bridge	SJ634220	25.0	FV		1972-05	87	.69	685	168	517	0.14	0.05	0.07	0.09	0.2	1.4	8.3	06/11/00	0.02	14/07/76
54061	* Hodnet Brook	Hodnet	SJ628288	5.1	FV		1972-77	97	.75	709	103	606	0.02	0.01	0.01	0.01	>0.0					
54062	* Stoke Brook	Stoke	SJ637280	13.7	FV		1972-83	97	.75	708	209	499	0.09	0.04	0.06	0.07	0.1	0.4	3.6	06/08/73	0.02	04/07/76
54063	Stour	Prestwood Hospital	SO865858	89.9	FV		1972-05	66	.63	730	359	371	1.04	0.35	0.61	0.75	1.8	21.6	50.5	08/08/99	0.24	18/06/03
54065	* Roden	Stanton	SJ565241	210.0	VA		1973-79	98	.65	703	187	516	1.42	0.30	0.56	0.95	3.0					
54066	*																					

Gauging Station Register II

Station number	River name	Station name	Catchment area	Sensitivity	Bankfull/structurefull Factors affecting runoff	Descriptors				Elevation				Bedrock			Superficial			Landuse							
						BFIHOST	FARL	PROPWET	DPSBAR	Station level (mOD)	10 percentile (mOD)	50 percentile (mOD)	90 percentile (mOD)	Maximum level (mOD)	High perm. (%)	Moderate perm. (%)	Very low perm. (%)	Gen. high perm. (%)	Mixed perm. (%)	Gen. low perm. (%)	Woodland (%)	Arable/horticultural (%)	Grassland (%)	Mountain/health/bog (%)	Urban extent (%)		
28001	Derwent	Yorkshire Bridge	126.0	9	SRP	.36	0.786	48	191	159	279	424	528	631	0	100	0	0	6	47	14	<1	33	47	BH	0	
28002	Blithe	Hamstall Ridware	163.0	16	13.0 SRPGEI	.46	0.873	43	41	64	94	145	212	281	15	4	81	9	51	0	6	24	62	<1	3		
28003	Tame	Water Orton	408.0	3	100.0 EI	.50	0.938	31	33	74	108	141	181	291	27	0	21	15	41	0	5	3	13	<1	59		
28005	*Tame	Elford	1475.0	3	66.0 EI	.50	0.939	30	29	50	77	117	160	291	17	0	56	15	34	<1	8	29	24	<1	24		
28006	*Trent	Great Haywood	325.0	7	33.0 SGE	.47	0.962	44	58	70	94	143	201	325	12	58	30	6	49	0	6	15	53	<1	14		
28007	Trent	Shardlow	4400.0	6	150.0 SRPGEI	.52	0.954	32	46	29	72	120	221	546	20	19	51	11	32	<1	7	27	44	<1	12		
28008	Dove	Rocester Weir	399.0	15	50.0 N	.56	0.991	41	113	86	159	274	369	546	8	91	<1	<1	13	<1	6	8	81	1	H	1	
28009	Trent	Colwick	7486.0	3	550.0 SRPGEI	.51	0.944	31	54	16	64	118	273	634	14	23	52	8	34	1	7	27	43	2	H	11	
28011	Derwent	Matlock Bath	690.0	7	170.0 SRPGEI	.57	0.947	41	134	83	170	311	450	634	0	96	0	1	5	13	11	5	65	13	H	8	
28012	Trent	Yoxall	1229.0	4	165.0 SRPGEI	.52	0.951	35	42	56	86	121	185	325	27	17	52	9	36	0	8	25	49	<1	2		
28014	*Sow	Milford	591.0	6	35.0 GE	.52	0.960	33	31	69	88	111	152	234	33	1	56	11	29	0	7	32	44	<1	7		
28015	Idle	Matterssey	529.0		15.0 SGE	.79	0.904	27	33	4	21	70	149	205	77	0	23	7	8	<1	17	47	17	2	H	7	
28016	*Ryton	Serby Park	231.0	10	37.0 E	.76	0.958	30	31	6	22	61	121	156	66	0	12	0	6	<1	12	56	16	<1	7		
28017	*Devon	Cotham	284.0	25	32.0 E					11																	
28018	Dove	Marston on Dove	883.2	6	130.0 SRPGEI	.53	0.976	42	92	47	98	210	341	546	12	66	22	3	26	<1	8	11	74	1	H	1	
28019	Trent	Drakelow Park	3072.0	4	200.0 PGE	.51	0.948	31	34	43	76	115	168	325	22	7	56	13	34	<1	8	30	35	<1	15		
28020	Churnet	Rocester	236.0	7	32.0 SRPGEI	.50	0.936	44	102	81	148	215	317	501	16	82	2	<1	37	<1	13	7	72	2	H	2	
28021	*Derwent	Draycott	1175.0	10	115.0 SRPGEI	.55	0.951	38	109	30	92	238	403	634	1	75	9	2	10	7	9	12	59	8	H	5	
28022	Trent	North Muskham	8231.0	8	250.0 SRPGEI	.50	0.946	30	52	5	51	113	260	634	14	21	56	8	33	1	7	30	42	1	H	10	
28023	Wye	Ashford	154.0	9	32.0 PGE	.68	0.976	52	118	139	281	334	412	551	0	100	0	0	0	4	4	2	82	2	H	2	
28024	Wreake	Syston Mill	413.8	16	4.8 GE	.40	0.953	28	41	48	76	116	156	229	6	0	94	4	68	0	3	52	38	<1	2		
28025	*Sence	Ratcliffe Culey	169.4	20	24.6 GE	.43	0.983	30	26	67	84	109	154	275	6	0	94	16	57	0	6	50	33	<1	0	4	
28026	Anker	Polesworth	368.0	15	47.0 GE	.45	0.982	30	27	60	79	103	144	275	6	0	81	17	44	0	8	47	29	0	8		
28027	Erewash	Sandiacre	182.2	18	730.0 GEI	.41	0.925	35	53	33	57	98	149	194	19	<1	2	<1	11	0	7	24	36	<1	16		
28028	*Soar	Wanlip	480.0		E	.41	0.988	29	30	47	69	100	138	222	0	0	100	14	75	0	5	37	33	<1	13		
28029	*Kingston Brook	Kingston Hall	57.0	50	7.6 EI	.38	0.972	28	31	31	46	79	124	154	3	0	97	5	59	0	4	47	42	0	2		
28030	*Black Brook	Onebarrow	8.4	20	14.0 GE	.35	0.988	30	73	111	136	171	223	251	0	0	100	0	20	0	15	16	62	0	0	0	
28031	Manifold	Ilam	148.5	18	100.0 N	.46	1.000	44	117	131	235	303	393	508	0	100	0	0	7	2	6	6	82	3	H	0	
28032	Meden	Church Warsop	63.0	8	45.0 GEI	.82	0.976	38	42	56	73	133	167	205	95	0	0	0	3	0	6	47	24	0	10		
28033	Dove	Hollinsclough	8.0	23	17.0 N	.40	1.000	52	167	281	347	405	472	546	0	100	0	0	0	0	<1	0	93	5	H	0	
28035	Leen	Nottingham	111.0	18	GEI	.76	0.957	35	43	24	49	88	126	185	74	0	24	3	7	0	10	24	16	2	H	28	
28036	*Poulter	Twyford Bridge	128.2	13	17.0 SRGE	.88	0.859	29	33	17	41	73	150	187	87	0	13	1	<1	0	26	47	14	3	H	3	
28037	*Derwent	Mytham Bridge	203.0		SRPE	.41	0.859	48	185	139	218	387	524	634	0	100	0	2	4	32	10	1	52	32	HB	0	
28038	*Manifold	Hulme End	46.0	37	34.0 PE	.43	1.000	51	99	213	249	321	426	508	0	100	0	0	9	5	4	6	81	8	H	0	
28039	Rea	Calthorpe Park	74.0	12	128.0 E	.51	0.948	30	44	104	133	165	204	291	31	0	39	6	44	0	6	4	18	0	45		
28040	Trent	Stoke on Trent	53.2	18	45.0 SGE	.40	0.969	44	68	113	139	182	239	325	<1	99	0	1	75	0	5	6	59	<1	16		
28041	Hamps	Waterhouses	35.1	23	37.0 EN	.30	1.000	44	86	210	256	324	407	474	0	100	0	0	8	0	2	7	86	2	H	0	
28043	Derwent	Chatsworth	335.0	13	208.0 SRP	.46	0.909	41	159	99	177	326	499	634	0	92	0	2	4	22	11	3	55	25	H	1	
28044	Poulter	Cuckney	32.2	19	228.0 GE	.92	0.920	38	36	47	66	107	166	187	90	0	10	0	0	0	15	62	16	0	4		
28045	*Meden/Maun	Bothamsall/Haughton	262.6		10.0 GE	.83	0.934	28	38	24	54	92	157	205	92	0	7	<1	5	0	17	41	16	3	H	11	
28046	Dove	Izaak Walton	83.0	9	47.0 N	.65	1.000	46	141	131	240	315	394	546	0	100	0	0	2	<1	4	4	88	<1	0	0	
28047	Oldcoates Dyke	Blyth	85.2	13	14.9 E	.71	0.956	35	35	11	23	69	122	152	54	0	21	0	3	0	10	61	12	0	8		
28048	Amber	Wingfield Park	139.0	22	21.0 SRPGEI	.46	0.945	36	68	71	101	139	262	342	1	20	0	0	11	0	5	24	52	0	7		
28049	Ryton	Workop	77.0		30.0 GE	.75	0.942	38	34	32	52	102	130	156	53	0	9	0	3	0	13	56	15	<1	7		
28050	Torne	Auckley	135.5	13	76.0 GE	.78	0.966	29	21	2	7	23	89	145	91	0	9	12	19	9	12	47	17	<1	10		
28052	Sow	Great Bridgford	163.0	12	10.0 GE	.59	0.953	38	45	77	94	119	162	233	33	6	61	5	17	0	8	36	51	<1	1		
28053	Penk	Penkridge	272.0	11	110.0 EI	.46	0.952	32	25	76	94	114	150	234	31	0	49	13	36	0	5	31	40	<1	11		
28055	Ecclesbourne	Duffield	50.4	16	32.0 PE	.46	0.997	35	107	69	102	158	246	354	1	99	0	0	14	0	7	21	66	0	2		
28056	Rothley Brook	Rothley	94.0	18	23.0 SE	.35	0.962	30	38	47	73	109	163	232	0	0	100	2	51	0	7	35	37	0	8		
28058	Henmore Brook	Ashbourne	42.0	13	SP	.45	0.977	36	93	116	150	203	273	362	0	100	0	0	27	0	4	12	71	0	2		
28059	*Maun	Mansfield STW	28.8	8	30.5 GE	.84	0.906	36	42	79	114	142	168	191	100	0	0	1	8	0	4	17	14	0	39		
28060	Dover Beck	Lodhnam	69.0	8	G	.75	0.953	27	54	28	50	87	124	161	60	0	40	1	6	0	13	47	24	2	H	4	
28061	Churnet	Basford Bridge	139.0	35	67.0 SP	.44	0.927	44	92	133	160	217	322	501	12	87	0	<1	43	1	8	5	76	3	H	3	
28066	Cole	Coleshill	130.0	27	EI	.38	0.989	29	25	79	96	124	161	202	0	0	100	20	27	0	8	7	22	0	40		
28067	Derwent	Church Wiene	1177.5	5	SRPEI	.55	0.951	38	109	31	91	237	403	634	1	75	9	2	10	7	9	12	59	8	H	5	
28070	*Burbage Brook	Burbage	9.1	40	21.3 N	.43	1.000	38	85	290	328	401	426	453	0	100	0	0	0	42	13	0	25	57	H	0	
28072	Greet	Southwell	46.2		GI	.65	0.977	27	44	20	37	64	107	153	36	0	64	0	10	0	4	66	20	0	4		
28074	Soar	Kegworth	1292.0		SPEI	.41	0.965	29	36	32	61	102	152	272	3	0	97	8	64	0	5	42	35	<1	8		
28079	Meece Brook	Shallowford	86.3		EI	.58	0.955	40	45	81	98	126	169	233	40	10	51	4	23	0	9	37	48	<1	1		
28080	Tame	Lea Marston Lakes	799.0		80.0 EI	.47	0.945	30	31	66	94	131															

Gauging Station Register II cont'd

Station number	River name	Station name	Catchment area	Sensitivity	Bankfull/structurefull	Factors affecting runoff	Descriptors				Elevation				Bedrock			Superficial			Landuse						
							BFHOST	FARL	PROPWET	DPSBAR	Station level (mOD)	10 percentile (mOD)	50 percentile (mOD)	90 percentile (mOD)	Maximum level (mOD)	High perm. (%)	Moderate perm. (%)	Very low perm. (%)	Gen. high perm. (%)	Mixed perm. (%)	Gen. low perm. (%)	Woodland (%)	Arable/horticultural (%)	Grassland (%)	Mountain/heat/bog (%)	Urban extent (%)	
54001	Severn	Bewdley	4325.0	3	420.0	SRPGEI	.54	0.973	38	89	17	69	127	359	826	25	<1	59	12	39	2	13	23	55	3	H	2
54002	Avon	Evesham	2210.0	15	125.0	SPGEI	.40	0.974	29	38	20	52	96	147	317	3	<1	89	12	20	<1	11	44	34	0	5	
54003	Vymwy	Vymwy Reservoir	94.3			SR	.33	0.747	62	175	226	288	475	557	667	0	0	100	0	0	<1	12	<1	37	45	H	0
54004	Sowe	Stoneleigh	262.0	5	55.0	GEI	.51	0.977	30	28	55	79	100	131	183	9	0	39	8	38	<1	10	34	26	0	17	
54005	Severn	Montford	2025.0	4	220.0	SRPE	.47	0.977	50	134	52	86	231	428	826	7	1	90	5	39	<1	17	6	70	5	H	0
54006	Stour	Kidderminster	324.0	6	40.0	EI	.66	0.978	30	60	30	68	108	169	313	60	0	1	10	12	2	0	14	21	27	<1	23
54007	Arrow	Broom	319.0	10	29.0	SUGEI	.37	0.963	28	45	30	59	100	148	291	4	0	96	2	9	<1	16	34	40	0	4	
54008	Teme	Tenbury	1134.4	6	200.0	EN	.61	0.994	36	116	48	110	214	383	545	0	0	78	2	15	0	11	22	61	2	H	1
54010	* Stour	Aiscot Park	319.0	26	41.0		.39	0.994	30	58	38	70	110	193	308	4	6	90	1	9	0	11	53	32	0	1	
54011	Salwarpe	Harford Hill	184.0	13	34.0	GEI	.52	0.983	28	42	19	41	68	146	294	34	0	63	4	<1	0	12	34	40	<1	6	
54012	Tern	Walcot	852.0	3	26.0	GEI	.62	0.966	34	28	45	62	89	128	392	54	<1	34	25	34	5	7	43	42	<1	3	
54013	* Clywedog	Cribynau	57.0	10	51.0	SR	.45	0.801	66	165	171	287	371	479	621	0	0	100	0	<1	2	21	<1	64	8	H	0
54014	Severn	Abermule	580.0	9	225.0	SRI	.45	0.970	52	146	83	153	284	429	736	0	0	100	<1	29	<1	17	1	76	3	H	0
54015	Bow Brook	Besford Bridge	156.0	22	19.0	GEI	.33	0.993	28	33	13	34	53	110	164	2	0	98	2	2	0	11	39	44	0	2	
54016	Roden	Rodington	259.0	8	18.0	GI	.62	0.981	34	22	48	68	89	109	207	21	0	73	38	41	6	6	39	49	1	B	1
54017	Leadon	Wedderburn Bridge	293.0	11	14.0	GEN	.57	0.990	33	60	9	30	66	135	323	13	0	79	0	0	0	13	37	45	0	1	
54018	Rea Brook	Hookagate	178.0	11	24.5	N	.51	0.991	42	90	65	98	145	325	515	3	0	65	4	56	0	9	21	60	2	H	2
54019	Avon	Stareton	347.0	15	33.5	SEI	.42	0.950	29	30	55	82	118	156	214	2	<1	97	20	61	0	8	41	39	0	5	
54020	Perry	Yeaton	180.8	13	15.0	GEI	.65	0.954	40	30	61	79	94	123	364	56	2	28	29	59	10	5	39	51	<1	1	
54022	Severn	Plynlimon flume	8.7	19	43.0	N	.32	1.000	66	180	331	377	496	621	736	0	0	100	0	0	<1	55	0	28	14	H	0
54023	Badsey Brook	Offenham	95.8	10	12.0	PEI	.33	0.987	29	43	24	38	54	172	317	2	0	98	3	2	0	11	42	37	0	3	
54024	Worfe	Burcote	258.0	14	16.0	PGEI	.64	0.943	34	40	33	69	90	135	205	71	0	8	19	22	0	11	50	26	0	5	
54025	Dulas	Rhos-y-pentref	52.7	23	133.0	N	.44	1.000	59	161	179	268	337	425	571	0	0	100	0	13	2	8	1	86	3	H	0
54026	* Chelt	Slate Mill	34.5	6	25.0	SPEI	.44	0.975	33	80	17	38	104	236	313	11	0	89	45	<1	0	13	12	41	0	21	
54027	Frome	Ebley Mill	198.0	8	18.0	PEI	.74	0.950	32	124	31	100	182	251	296	85	4	12	<1	42	0	19	25	49	0	3	
54028	Vymwy	Llanymynech	778.0	9	160.0	SRPI	.44	0.969	51	161	62	130	271	488	826	0	<1	99	2	34	<1	20	1	67	10	H	0
54029	Teme	Knightsford Bridge	1480.0	20	190.0	N	.60	0.994	35	110	21	95	191	368	545	0	<1	80	2	13	0	12	24	59	2	H	1
54032	Severn	Saxons Lodge	6850.0	10	340.0	SRPGEI	.56	0.978	35	88	8	61	131	345	826	21	<1	62	10	28	1	13	24	53	2	H	3
54034	Dowles Brook	Oak Cottage	40.8	33	10.0	N	.63	0.997	32	92	24	85	129	169	228	0	0	13	0	0	0	4	19	33	0	1	
54036	Isbourne	Hinton on the Green	90.7	33	11.0	PEI	.48	0.990	33	78	26	48	98	253	330	10	0	90	0	0	0	15	39	40	<1	1	
54038	Tanat	Llanyblodwel	229.0	11		EIN	.48	0.996	51	202	77	145	295	536	826	0	2	98	2	31	1	15	<1	73	9	H	0
54040	Meesse	Tibberton	167.8	14		GEI	.59	0.931	34	30	56	72	98	126	164	76	0	14	8	36	<1	7	52	37	<1	1	
54041	Tern	Eaton On Tern	192.0	9	13.0	GEI	.65	0.954	34	36	54	71	101	150	235	52	1	34	25	22	0	8	36	52	<1	2	
54043	* Severn	Upton On Severn	6850.0			SRPGEI	.56	0.978	35	88	8	61	131	345	826	21	<1	62	10	28	1	13	24	53	2	H	3
54044	Tern	Ternhill	92.6	9	2.0	GEI	.70	0.960	34	44	62	87	121	167	235	63	3	16	24	13	0	12	30	53	<1	2	
54045	* Perry	Perry Farm	49.1	21	30.6	GEIN	.56	0.951	51	38	79	88	110	218	364	42	9	0	33	63	4	7	20	66	<1	3	
54046	Worfe	Cosford	54.9	48	3.5	GI	.66	0.905	34	36	60	83	107	140	185	70	0	18	24	6	0	14	51	27	0	1	
54047	* Perry	Ruyston Bridge	155.0	26			.65	0.965	43	30	71	80	96	128	364	59	3	22	58	11	6	37	52	<1	2		
54048	Dene	Wellesbourne	102.0		27.0	EI	.32	0.966	30	39	41	71	96	125	219	0	0	100	8	18	0	13	54	28	0	1	
54049	Leam	Princes Drive Weir	362.0	16		SRPGE	.32	0.977	30	33	46	68	95	136	223	0	0	100	16	7	0	8	47	36	0	3	
54050	Leam	Eathorpe	300.0		6.5	P	.28	0.974	30	33	57	77	100	141	223	0	0	100	12	5	0	7	47	38	0	1	
54052	Bailey Brook	Ternhill	34.4	18		GEN	.57	0.970	34	22	62	79	90	104	131	0	0	100	43	52	0	3	40	53	<1	1	
54053	* Corve	Ludlow	164.0	18			.60	0.996	35	78	81	107	171	257	534	0	0	64	3	13	0	8	39	47	<1	1	
54054	* Onny	Onibury	235.0	21			.59	0.995	37	124	98	153	227	380	527	0	0	78	2	41	0	11	21	61	5	H	1
54057	Severn	Haw Bridge	9895.0	4	460.0	SRPGEI	.51	0.978	32	73	11	49	110	303	826	16	<1	71	10	25	<1	12	30	48	1	H	4
54058	* Stoke Park Brook	Stoke Park	14.3	40			.57	0.982	34	28	59	68	84	111	139	65	0	0	11	11	0	4	37	57	0	1	
54059	* Allford Brook	Allford	10.2	50			.79	1.000	34	17	56	65	77	86	122	94	0	0	0	23	0	3	61	32	0	2	
54060	Potford Brook	Sandyford Bridge	25.0	30		G	.65	0.998	34	25	56	63	73	89	195	100	0	0	16	53	0	5	56	36	<1	0	
54061	* Hodnet Brook	Hodnet	5.1				.64	0.941	34	71	61	73	124	160	207	75	0	25	3	4	0	13	43	41	0	1	
54062	* Stoke Brook	Stoke	13.7		1.1	GEIN	.76	0.939	34	26	59	74	92	116	134	79	0	0	30	<1	0	5	38	52	<1	2	
54063	Stour	Prestwood Hospital	89.9			GEI	.55	0.989	31	64	51	85	134	196	301	21	0	0	<1	7	0	11	8	19	<1	41	

Gauging Station Register III

EA Midlands

28001 Derwent at Yorkshire Bridge

EA Midlands

Station: Two shallow profile trapezoidal flumes with a whaleback divide since 1936; compound sharp-edged weir previously. Below a cascade of 3 reservoirs (built in 1912, 1916, 1946). Within basin diversions (Ashop) and imports (Noe); PWS exports. Long naturalised series available. Monthly naturalised flows 1905-1950 derived from a different source.

Catchment: Steep moorland catchment, with extensive hilltop peat. Shale and sandstone form the lower parts of the valleys, gritstone tops the hills (Middle Carboniferous).

28002 Blithe at Hamstall Ridware

EA Midlands

Station: Originally a side contracted flume with pitot tube tapping. Since 1994 a permanent non standard, broad crested weir. Various methods used to rate the flume: temporary sharp-edged weir, formula, c/m and floats. Good rating post 1994 (although more scatter). Station bypassed above 13.3 m³s⁻¹. Heavily influenced by Blithfield, reservoir built in 1952. Naturalised flow series available.

Catchment: Catchment mainly drains Keuper Marl and subordinate sst, but widely blanketed with Boulder Clay and glacial sand and gravel. Land use: mixed farming.

28003 Tame at Water Orton

EA Midlands

Station: Simple Crump profile weir, 8.5m wide, replaced poor, non-operational VA gauge subject to backwater influence and weed growth in 1993. Just u/s of Minworth STW. Fast responding catchment with effluent baseflow and substantial regime disturbance from imports.

Catchment: Almost fully urbanised catchment of moderate relief in Birmingham. Solid geology: Mercia Mudstone but subordinate to extensive cover of Boulder Clay and glacial sands and gravel.

28005 Tame at Elford

EA Midlands

Station: Velocity-area station closed in 1984. Measurement recommenced at Hopwas Bridge (28095) a short distance upstream in 2001. Cableway spans river channel only; no measurement of bypassing on rb where there is a broad floodplain. Severe summer weed growth requires rating shifts. Substantial flow modification through large imports. Significant storage in river gravel terraces.

Catchment: Substantially urbanised catchment; containing much of Birmingham City. Geology dominated by Keuper Marl and Permian and Triassic Sandstones overlain by Boulder Clay and glacial sand and gravel in equal proportions.

28006 Trent at Great Haywood

EA Midlands

Station: Velocity-area station with broad floodplain. Wide scatter in spot gaugings at all levels.

Catchment: Moderate catchment relief, significant urban fraction in upper catchment (Stoke-on-Trent and Newcastle-under-Lyme).

28007 Trent at Shardlow

EA Midlands

Station: Originally a VA station reliable in the low to medium range but liable to backing up from Derwent confluence 2km d/s. Closed 30/11/66. Multipath, cross-configuration US station installed 1991. Almost all floods contained. Two sets of major flood relief culverts on right bank. Not much bypassing on left bank. Reservoirs in catchment affect runoff with regulation from surface water and/or ground water.

Catchment: Large catchment which contains much of Birmingham City. The Trent headwaters have small outcrops of Coal Measures whilst the Dove catchment is dominated by Millstone Grit and Carboniferous Limestone. Approx 25% of the catchment is overlain by Boulder Clay, 10% valley gravels, terraces and alluvium. Drift free areas are largely Keuper Marl and sst. Diverse land use from moorland to industrial.

28008 Dove at Rocester Weir

EA Midlands

Station: Velocity-area station approx. 19.8m wide; old mill weir as rather insensitive control. Gauging from a footbridge. Station bypassed when out of bank (3-4 times per year). No gaugings above bankfull hence little confidence in rating above this point. Period-of-record maximum flow is listed as 132.3 in Dec 1991. The Dec 1960 peak had a higher stage but the derivation of the flow cannot be verified. The two events were of a broadly similar magnitude. Natural to within 10% at the 95 percentile flow.

Catchment: A predominantly upland catchment in which the headwaters drain Millstone Grit and Carboniferous Limestone. Lower reaches are Permian and Triassic Sandstones and Triassic Mudstone. Some superficial deposits within river valleys. Land use is predominantly moorland and pasture.

28009 Trent at Colwick

EA Midlands

Station: Velocity-area station in navigable Trent. Main channel approx. 62m wide; cableway span 99m. Holme sluices 750m u/s affect water levels up to medium flows. Bypassed at high flows on rb when gravel workings inundated, but bank modifications and construction of Holmepierpoint canoeing course make this less likely. Cableway upstream at Trentside was used to obtain flows with confidence during the event of November 2000 (the highest on record), with all flows contained at this point. Substantial flow modifications due to imports, WRW, cooling water and industrial usage.

Catchment: Predominantly Mercia Mudstone geology with some Permian and Triassic Sandstone and Carboniferous Limestone. Extensive terrace gravels and alluvium within river valleys maintain baseflow.

28011 Derwent at Matlock Bath

EA Midlands

Station: Velocity-area station about 20m wide in a deep channel. Well rated. Highest floods will bypass along the adjacent A6 road. No gaugings above bankfull. Rating fits gaugings well up to the level of the highest gauged flow (3.1m). Substantially affected by Derwent reservoirs, mill operation, particularly in the early record.

Catchment: Responsive upland catchment. Geology predominantly Millstone Grit with some Coal Measures to the east and Carboniferous Limestone in the west draining The Wye. Peat covered moorlands occur in the headwaters with forestry and pasture elsewhere.

28012 Trent at Yoxall

EA Midlands

Station: Electromagnetic gauge replaced VA station in 1995 but has underestimated flows >20m³s⁻¹. Cableway only measures in-bank flows and is bypassed at highest flows. Two velocity-area sites were used prior to 1995; the first (just d/s of bridge) closed after river re-grading in 1976, the second (50 m d/s of original site) began in 1974. Earliest record indifferent, with bypassing at high flows. Weed growth is severe and required summer rating adjustments. Significant modification to flows. Runoff influenced by reservoir(s), public water supply abstraction, groundwater abstraction/recharge and effluent returns and industrial/agricultural abstraction.

Catchment: Large diverse catchment with Coal Measures in the headwaters and Triassic Mudstone and Permian and Triassic Sandstones elsewhere. Approx 30% Boulder Clay and Till deposits with large gravel terraces providing storage alongside the main river. Mixed farming, sand and gravel extraction, industrial development.

28014 Sow at Milford

EA Midlands

Station: VA station immediately d/s of Holdiford road bridge. Cableway spans 38m. Channel 25m broad, subject to severe weed growth (retrospective correction of rating made) and siltation; variable and imprecise low flows. Channel regraded 1964-7. Flows not processed between 1977-92. Flows significantly augmented from WRW (Cannock, Stafford).

Catchment: Low relief catchment, rural west, urbanised south and east. Geology: predominantly Keuper Marl in west, with Permian and Triassic sandstones in east. Appreciable Boulder Clay in south. Approx 15% of the catchment is urban with other landuse consisting of some mixed farming, light industry and some forestry.

28015 Idle at Mattersey

EA Midlands

Station: Originally VA station prone to severe seasonal weed growth and unstable ratings; EM gauge since 1982 in reach between two bridges and trapezoidal flood banks. Pre-EM data (1965-82) removed as unreliable. Fully contained. Data telemetered to West Stockwith PS. Generally slow response. Lowest flows may be unreliable. Reservoir(s) in the catchment together with significant abstraction and effluent returns affect runoff.

Catchment: Low relief catchment, moderate in headwaters. Tributaries rise on Magnesian Limestone, then traverse outcrop of Sherwood Sandstone. Lower reaches underlain by alluvium and Mercia Mudstone. Approx 15% of the catchment is urban, with Mansfield in the headwaters. Otherwise land use is predominantly rural, arable farming.

28016 Ryton at Serlby Park

EA Midlands

Station: Velocity-area station closed in 1978. Summer flows unreliable due to erratic behaviour (possibly weed growth).

28017 Devon at Cotham

EA Midlands

Station: Velocity-area station, closed in 1978. Suspicion that flows underestimated. Summer 1976 flows under review.

Catchment: Largely agricultural.

28018 Dove at Marston on Dove

EA Midlands

Station: VA station up to 1974, prone to weed growth; summer flows may not be adjusted. Flat V Crump profile weir thereafter; however, weed problem remains. Not reliable at high flows as subject to drowning. Very wide floodplain. Small bypass (Tutbury Mill Fleam) included in naturalised flow series. Reservoirs in the catchment together with significant public water supply abstractions affect runoff.

Catchment: Middle and upper reaches drain over Carboniferous Limestone and Millstone Grit. Lower reaches broad and meandering. Below Rocester, Sherwood Sandstone and Mercia Mudstone dominate. Land use is predominantly pasture, forestry and mixed farming.

- 28019 Trent at Drakelow Park** **EA Midlands**
Station: Velocity-area station. Complex rating history owing to river regrading (1965 and 1973). High flow precision limited by ungauged flow over lb. Flows substantially modified, particularly by imports into the Tame system. Substantial storage in valley gravels.
Catchment: Very large catchment. Small areas of Coal Measures in the Stoke area. Approx 25% of catchment is overlain by Boulder Clay and 10% by valley gravel, terraces and alluvium. Drift free areas mostly Triassic Mudstones and Triassic and Permian Sandstones. Approx 25% of the catchment is urban with large urban industrial areas, otherwise the main land use is mixed farming.
- 28020 Churnet at Rocester** **EA Midlands**
Station: Velocity-area station. 500m d/s of Podmore's Mill, Rocester.
- 28021 Derwent at Draycott** **EA Midlands**
Station: Velocity-area station, closed in 1977 and superseded by 28067. January 1975 flows erroneous.
Catchment: Large catchment with moorland headwaters on Carboniferous Grit and Limestone. Lower reaches on Sherwood Sandstone and Mercia Mudstone. Valley broadens considerably below Derby with extensive sand and gravel terraces. Range of agricultural and industrial activity.
- 28022 Trent at North Muskham** **EA Midlands**
Station: US gauge augmented VA station for low flows in 1996. Cableway span 105m; lowest Trent gauge above tidal limit. Backwater from Cromwell Lock d/s affects high flow rating. Above 7.8m station bypassed on rb. Substantial flow modifications owing to imports, WRW, cooling water and industrial usage.
Catchment: Largest gauged catchment on Trent, with varied land use. Predominantly impervious owing to glacial clay and Mercia Mudstone, but some s'st and l'st (Dove, Derwent and d/s Nottingham).
- 28023 Wye at Ashford** **EA Midlands**
Station: 1:20 Flat V weir commissioned in 1994. Just d/s of bridge in meandering reach; channel 11m wide, cableway span 25m. Inundates lb but bridge stops bypassing. Severe seasonal weedgrowth led to closure of original VA station in 1977 (telemetry of levels maintained). Early record of limited value (but 1976 7-day minimum may be lower than that for 1995). Modest net augmentation to flows from WRW and PWS.
Catchment: Moderate to high relief catchment in S Pennines. Carboniferous Limestone with basic sills and intrusions in upper catchment. Isolated hill top peat. Buxton in the headwaters, otherwise moorland, grazing, forested main valley.
- 28024 Wreake at Syston Mill** **EA Midlands**
Station: Originally, Crump profile weir 4.6m wide, low modular limit, replaced 1982 with EM gauge. Difficult to gauge; very low velocities at low flows, station bypassed at high flows. May overestimate flows. Rapid response. The April 1998 period-of-record maximum flow is estimated at 98.1 m³s⁻¹ by the EA. Levels indicate the the flow on 09/03/1975 may have been higher, but the magnitude cannot be verified due to complications with the rating history. Significant augmentation from WRW.
Catchment: Moderate relief catchment, draining west from the Oolitic Limestone scarp. Predominantly Boulder Clay overlying Liassic clays. Rural catchment, mixed farming, containing Melton Mowbray.
- 28026 Anker at Polesworth** **EA Midlands**
Station: Crump profile weir with flanking floodbanks to contain out-of-channel flows. Cableway and d/s recorder. Low modular limit and prone to weed growth, causing variable drowning and uncertainty with high flows. Substantial modification owing to PWS imports to the catchment.
Catchment: Lower reaches drain Permian and Triassic Sandstones and the Coal Measures. Sherwood sandstone and Mercia Mudstone over the remainder of the catchment are widely blanketed with Boulder Clay. Predominantly agricultural catchment, although contains Nuneaton and Hinkley; with urban land use accounting for approx 15% of the catchment area.
- 28027 Erewash at Sandiacre** **EA Midlands**
Station: Two rectangular concrete flood drainage channels, each 3.9m wide, 3.09m deep, separated by divide wall 1m high. Unstable ratings. Informal low flow controls installed 1981; data improved but use with care (esp. low flows). Closed 1984, reopened 1991 as multiple US operation. Stop boards can close one channel at low flows. All flows contained. Substantial augmentation from mine drainage and STWs.
Catchment: Low to moderate relief catchment draining Carboniferous Coal Measures with Permian and Triassic rocks on E and S boundaries. Significant urban fraction, approx 30%, otherwise arable and grazing land use.
- 28028 Soar at Wanlip** **EA Midlands**
Station: Compound Crump weir, closed in 1981. Responsive regime.
Catchment: Lower catchment dominated by Leicester; headwaters rural.
- 28029 Kingston Brook at Kingston Hall** **EA Midlands**
Station: Compound Crump profile weir with crest tapping in a channel flanked by floodbanks. Weed growth problems, severe backing up from the Soar in high flows. Not bypassed but inundates u/s. Theoretical rating appears to underestimate flows. Moderate influence from WRW and spray irrigation. Experimental catchment.
Catchment: Flat, agricultural catchment whose solid geology is Triassic Mudstones and Lower Lias. Diamicton overlies the upper reaches of the catchment, whilst the lower valley is overlain by alluvial deposits.
- 28030 Black Brook at Onebarrow** **EA Midlands**
Station: Trapezoidal Flume. Well rated, full range station, not bypassed. Some contribution from M1 runoff, but otherwise natural. International Hydrological Decade Experimental Basin.
Catchment: Small rural catchment of moderate relief; hills of impermeable Pre-Cambrian rocks, valleys infilled with Keuper Marl and Boulder Clay. Responsive. Mostly pasture.
- 28031 Manifold at Ilam** **EA Midlands**
Station: Crump profile weir, 12.5m wide, modular to bankfull in straight reach, rocky bed, somewhat insensitive but good quality data throughout the range. Minimal interference from PWS.
Catchment: Headwaters of moderate relief and drain sandstone and mudstone of the Millstone Grit; middle reach has cut deep gorges through Carboniferous Limestone. Responsive catchment. Sheep grazing and moorland.
- 28032 Meden at Church Warsop** **EA Midlands**
Station: Non-standard trapezoidal flume, rated by c/m. Measures flows entering Sherwood Sandstone outcrop. Mining subsidence in 1976 caused drowning of flume until d/s channel regraded in 1981. Flows significantly affected by u/s quarry de-watering, giving recessions a stepped appearance. Sewage effluent dominates low flows. Station closed between 1984 and 1990.
Catchment: Catchment of moderate relief, rising on Magnesian Limestone, subordinate Permian Marl and Sherwood S'st. Mining was previously dominant industry; many spoil tips. Sutton in Ashfield in headwaters, also contains part of Mansfield Woodhouse.
- 28033 Dove at Hollinsclough** **EA Midlands**
Station: Compound Crump profile weir, crest lengths 1.2 and 3.02m. Fully modular, has never been overtopped. Originally an experimental catchment with associated comprehensive climate station. Out of action Oct 1986-Oct 1996. Zero flow in Jan 1986 thought to be due to frozen catchment. Some trouble with left bank accretion, incised gauging section, heavy undergrowth. Natural flow regime.
Catchment: Headwater gauge for the River Dove. Steep slopes and flashy regime. Geology predominantly Namurian Millstone with some Carboniferous Limestone in the East. Landuse principally grassland.
- 28035 Leen at Triumph Road Nottingham** **EA Midlands**
Station: Two rectangular concrete flood drainage channels, each 3.05m wide, 2.75m deep, separated by divide wall 1m high. Unstable ratings. Informal low flow controls installed 1981; data improved but use with care (esp. low flows). Closed 1984, reopened in 1991 as multiple US operation. All flows contained. Minor net disturbance to baseflow dominated flow regime.
Catchment: Moderate to low relief catchment draining south into Nottingham. Geology predominantly Magnesian Limestone in the west with Permian Mudstones and Sherwood Sandstones to the east. Significant urban fraction, approx 50%, in lower catchment otherwise arable and grazing land use.
- 28036 Poulter at Twyford Bridge** **EA Midlands**
Station: Original 4.88m wide Crump profile weir submerged from late 1972 by mining subsidence; channel regraded in 1981, but no solution. Single path US gauge installed in 1992 revived monitoring. Poor and patchy record. Sited where Poulter leaves Sherwood Sandstone outcrop. Minor augmentation from sewage; inline lakes in Clumber and Welbeck Parks ensure sluggish response.
Catchment: Catchment rises on Magnesian Limestone with subordinant Permian Marl; mainly underlain by Sherwood Sandstone. Predominantly rural; part of Bolsover and Shirebrook in headwaters.
- 28037 Derwent at Mytham Bridge** **EA Midlands**
Station: Downstream of LadyBower Reservoir, artificial flow regime, substantial reduction in runoff due to PWS exports.
Catchment: Steep moorland headwaters, with extensive hilltop peat. Shale and sandstone form the lower parts of the valleys, gritstone tops the hills (Middle Carboniferous).
- 28038 Manifold at Hulme End** **EA Midlands**
Station: Velocity-area station closed in 1982. Rating not validated above level of highest spot gauging (0.7m / ~11 m³s⁻¹).
Catchment: Responsive catchment. Sheep grazing and moorland.
- 28039 Rea at Calthorpe Park** **EA Midlands**
Station: Crump profile weir, 3.66m wide, with flanking broad-crested weirs set in a formalised, roughly rectangular channel. Model rated. High flow gauged off nearby footbridge, but hazardous owing to high velocities. Prone to u/s siltation. Significant imports modify flow regime. Very responsive, used for flood forecasting.
Catchment: Almost totally urbanised catchment with overlying clay except in the headwaters in the Lickey Hills.

28040 Trent at Stoke on Trent**EA Midlands**

Station: Crump profile weir, 4.12m wide, modular throughout range. Liable to collect rubbish. Affected by impounding res., discharges from three WRW, plus mine drainage. Substantial flow modification in early record but reduced to significant through '80s. Flow affected by STW closure: effluent from Stoke diverted to other STW d/s of gauge.

Catchment: Moderate relief catchment, significantly urbanised at Biddulph and Stoke on Trent. Catchment drains the Coal Measures with approx. 70% of the catchment covered with Boulder Clay. Responsive Catchment.

28041 Hamps at Waterhouses**EA Midlands**

Station: Flat V weir with poor, rocky, approach. Mostly contained within bank except for Aug-71 maximum (missing from NRFA). Station closed 1982-2000.

28043 Derwent at Chatsworth**EA Midlands**

Station: Velocity-area station approx. 36m wide at bankfull. Cableway span 51m. D/s shoal as a control, but shoal and rating are not too stable. All but extreme flows contained. Substantially affected by Derwent reservoirs.

Catchment: Upland catchment with peat covered moorlands in the headwaters. Geology: predominantly Millstone Grit, with some western tributaries draining Carboniferous Limestone. Important flood forecasting station. Predominantly pasture.

28044 Poulter at Cuckney**EA Midlands**

Station: Crump profile weir 3.71m broad, modular to bankfull. Designed to measure the flow as the Poulter entered the Bunter Sandstone outcrop. High baseflow component, subdued hydrographs. U/s water gardens further damp response. U/s farm abstraction. Minimal modifications to flow regime from WRW.

Catchment: Catchment of moderate relief draining from the scarp of the Magnesian Limestone eastwards. Subordinate outcrops of Permian Marl. Some urban development and coal mining spoil heaps.

28045 Meden/Maun at Bothamsall/Haughton**EA Midlands**

Station: The Meden and Maun join then split u/s of the gauging points. This is a combination record of dmfs from the Meden at Bothamshall and the Maun at Haughton. No combined peak flows available (those provided are for the Meden). Both stations were trapezoidal flumes, rated by c/m. Poor record.

Catchment: The lower two thirds of the catchment is Permian and Triassic Sandstones with Permian Magnesian Limestone upstream. The catchment includes Mansfield and adjacent former coal mining area. It is almost entirely free of Drift deposits.

28046 Dove at Izaak Walton**EA Midlands**

Station: Crump profile Flat V weir, 7.59m wide, deep vertical sidewalls, modular to bankfull. Gauged to >Qmed. Extreme flows may bypass on the lb, but all flows contained to date. Excellent station, narrower than the main channel and thus self cleaning. Natural flow regime.

Catchment: Long narrow catchment. Upper reaches on Millstone Grit mudstone and sandstone. Western watershed is formed by a steep Carboniferous Limestone ridge. The Dove's passage across the Carb. l'st is characterised by deep gorges (Wolfscoote Dale, Dove Dale). Largely moorland.

28047 Oldcoates Dyke at Blyth**EA Midlands**

Station: Crump profile Flat V weir set in 1:2 sloping sidewalls (7.3 wide at vee full). Reasonable approach d/s of a road bridge. Wading gaugings taken u/s of bridge should site back-up (owing to weed growth). Low modular limit but rarely exceeds vee full. Base flow dominated. Substantial augmentation of low flows from WRW.

Catchment: Moderate relief catchment, sited where the river crosses the Triassic s'st outcrop, mostly draining Magnesian l'st but includes Coal Measures, Permian Marl & s'sts. Rural catchment arable farming as dominant land use.

28048 Amber at Wingfield Park**EA Midlands**

Station: Crump profile Flat V weir, 5.49m at V-full, in trapezoidal channel. Higher flows gauged from bridge u/s. Extreme flows bypass on rb. Fairly low modular limit. Contains Ogston PWS reservoir; substantial augmentation from mine pumping and sewage.

Catchment: Upland catchment with upper half of catchment draining Millstone Grit, partially blanketed with Boulder Clay. Bisection l'st and tuff inlier of Ashover Dome. Lower half predominantly Coal Measures. Landuse predominantly moorland in the headwaters.

28049 Ryton at Worksoop**EA Midlands**

Station: Crump profile Flat V weir, 4.57m at V-full, in trapezoidal channel. D/s bridge provokes early non-modularity. Modified stage discharge curve produced for non-modularity at high flows. Significant flow augmentation via gw pumping and WRW, and abstractions for canal use.

Catchment: Catchment of moderate relief on dip slope of Magnesian l'st outcrop with a narrow band of Permian Marl near the gauge. Extractive industries in the west otherwise mixed farming and forestry.

28050 Torne at Auckley**EA Midlands**

Station: Crump profile Flat V weir in trapezoidal channel, 8.9m wide at V-full. Original cableway removed. Subsidence affected performance in 1990s, second well installed d/s. Bypassing unlikely but extent of drowning under review. High range unreliable from backing up from artificial drainage and/or summer weed growth. 1973 peak under review - triggered by 70mm storm but flow may be over-estimated. Generally, sluggish response. Substantial flow augmentation from WRW and mine drainage.

Catchment: R. Torne rises on dip slope of Magnesian l'st and Sherwood S'st but soon enters Trent/Humber ancient floodplain. Tidally drained. Contains mine workings and agriculture.

28052 Sow at Great Bridgford**EA Midlands**

Station: Crump profile Flat V weir, 9.1m wide, in trapezoidal channel, with floodbanks to contain out of channel flows. Cableway. Rating problems; weed growth causes variable drowning, affecting high flow quality. Minimal interference from sewage effluent and groundwater pumping for PWS.

Catchment: Low relief agricultural catchment, primarily on Mercia Mudstone, with some Sherwood Sandstone in headwaters. Glacial gravel in valleys maintain baseflows.

28053 Penk at Penkridge**EA Midlands**

Station: Originally VA station, 10m wide, cableway span 56m, u/s of A449 road bridge. Problem site subject to weed growth and bed movement, improved after 1976 regrading. Closed in 1983, level only site until 1990, when Crump profile Flat V weir in trapezoidal channel (V-full width 8.8m) was installed. Substantial augmentation of flows from WRW.

Catchment: Low to moderate relief catchment, glacial gravels over Mercia Mudstone to the west with Boulder Clay over Sherwood S'st to the east. Western part of the catchment rural; part of Wolverhampton in the south and Cannock in the East. Elsewhere, mixed farming with some forestry.

28055 Ecclesbourne at Duffield**EA Midlands**

Station: Crump profile Flat V (1:10) weir set in sloping (1:1) 1.25m high sidewalls, 7.2m wide at V-full. Likely to be modular to structure full. High flows gauged from d/s bridge. Closed 1983-89. PWS abstraction and WRW discharge balance to yield substantially natural regime.

Catchment: Moderate relief catchment, solid geology predominantly Millstone Grit with Boulder Clay cover mid-catchment. Essentially rural with Wirksworth in headwaters.

28056 Rothley Brook at Rothley**EA Midlands**

Station: Crump profile Flat V weir in a trapezoidal channel. Possibility of bypassing on rb. Well rated, but backs up from d/s road bridge at highest flows. Substantial imports enter the river from WRW.

Catchment: Geology predominantly Mercia Mudstone overlain by Boulder Clay with ancient Charnwood Forest rocks outcrop to the N. Predominantly rural, but drains a portion of NW Leicester and contains number of small towns.

28058 Henmore Brook at Ashbourne**EA Midlands**

Station: Crump profile Flat V weir, 6.0m wide, within vertical wing walls. Rb approach built up into low floodbank. Modular limit high, but no arrangements to deal with non-modular discharge. Contains Carsington pump storage reservoir. Station closed between 1984 and 1993.

Catchment: Catchment of moderate relief in S Pennines, draining drift-free Millstone Grit and Carboniferous Limestone. Responsive catchment. Land use predominantly forest and pasture, some moorland.

28059 Maun at Mansfield STW**EA Midlands**

Station: Velocity-area station with trapezoidal critical depth flume installed in 1964. Flume has drowned in past due to summer weed growth and rubbish accumulation. Closed in 1984, replaced by 28115 (Mansfield The Dykes) in 1996. Station situated immediately d/s of STW. Flows augmented by runoff from urban area of Mansfield which effectively increases catchment area by approx 5km².

Catchment: Underlying geology Magensian Limestone and Permian sandstone. Catchment almost entirely urbanised: Mansfield and Sutton in Ashfield.

28060 Dover Beck at Lowdham**EA Midlands**

Station: Crump profile Flat V weir (1:10) in a trapezoidal (1:1) channel. Subject to weed growth; low modular limit. Baseflow dominated. Affected by spray irrigation abstraction and minor WRW effluent.

Catchment: The river drains SE from a moderate to low relief catchment. The bulk of the catchment comprises outcrop Triassic sandstone. Flanking hills nearer the gauge are of Mercia Mudstone. Predominantly rural catchment with mixed farming

28061 Churnet at Basford Bridge**EA Midlands**

Station: Crump profile Flat V weir in trapezoidal channel. Drowns out due to weed growth. Gaugings up to bankfull, which fit rating curve well. Cableway can gauge high flows, but gauging above 2.2m is difficult due to bypassing, although gauging still fit curve well. Substantial modification to flow regime by exports from reservoirs and imports via WRW and industrial usage. Prescribed flow point. Replaced 28042 in 1975.

Catchment: Catchment of moderate relief with mixed geology; primarily Sherwood Sandstone and shales and s'st of the Millstone Grit series. Some blanketing of Boulder Clay and glacial sand and gravel. Contains Leek and Tittesworth Res. but otherwise low grade agriculture or pasture.

28066 Cole at Coleshill**EA Midlands**

Station: Crump profile Flat V weir in trapezoidal channel, 10.9m at V-full, with floodbanks to contain out-of-channel flow. Gauged from bridge - formerly a cableway of span 48m, which extended across floodbanks. Needs further high flow gaugings and a review of the rating above bankfull. There is a massive scatter at present that could lead to underestimation of QMED by up to 30%. Moderate modification to flows from effluent returns.

Catchment: Substantially urbanised catchment (S Birmingham suburbs). Underlying geology: Mercia Mudstone with extensive coverings of Boulder Clay and glacial sand and gravel.

28067 Derwent at Church Wilne**EA Midlands**

Station: Crump profile Flat V weir, 27m wide, in trapezoidal channel. No cableway. Very broad floodplain. 20km d/s of St Mary's Bridge (28085); substantial abstractions and returns in between. High flows of variable quality as weir drowns; calculated by extrapolation from St Mary's Bridge and gaugings at Draycott. Can back up from Trent. Prescribed flow point.

Catchment: Large catchment with moorland headwaters on Carboniferous Grit and Limestone. Lower reaches on Sherwood Sandstone and Mercia Mudstone. Valley broadens considerably below Derby with extensive sand and gravel terraces. Range of agricultural and industrial activity.

28070 Burbage Brook at Burbage**EA Midlands**

Station: Compound rectangular thin-plate weir (1.5 m wide section at right bank, 4.5 m section 0.15 m higher at left bank, separated by sheet steel divide plate between crests; overall width 6 m). Wing wall stage 1.09 m for small section, over 2m for large weir. No cableway, but footbridge; site unlikely to ever be gauged during events. No spot gaugings, therefore rating equation should not be extrapolated beyond structure full (1.1 m). Very responsive, natural regime.

Catchment: Natural peat based catchment on Millstone Grit. Lower parts of catchment steep while upper parts flatter.

28072 Greet at Southwell**EA Midlands**

Station: Crump profile Flat V (1:10) weir, 6m wide, in concrete 1:1 trapezoidal channel, straightened reach. Rough, inclined sides to about 2.5m. Good approach, does not drown out, all flows contained. Installed to monitor flows where river crosses Sherwood/Mercia Sandstone to Mercia Mudstone boundary. Natural regime with subdued response.

Catchment: Geology: predominantly Sherwood/Mercia Sandstone, with some Mercia Mudstone along southern border. Low relief, river channels lined with clay, sand and gravel alluvium, more extensive u/s. Rural, agricultural land use.

28074 Soar at Kegworth**EA Midlands**

Station: Multi-path US gauge rebuilt in 1991 (no data Jan and Feb 1991) to improve on accuracy of existing single-path gauge (1978-84). Replaced VA site at Zouch. Reach at station is canalised part of Soar navigation, has low velocities and wide floodplain. Bypassing possible above bankfull (>3.15m). Flows substantially modified by inputs from WRW along Soar valley.

Catchment: Moderate to low relief. Geology: predominantly Mercia Mudstone with some sandstones in the west and Lias clays and l'sts in the east. Ancient hard rocks outcrop in Charnwood Forest. Majority of catchment overlain by Boulder Clay with sands and gravels within river valleys. Catchment contains Leicester and Loughborough. Agricultural land use.

28079 Meece Brook at Shallowford**EA Midlands**

Station: Crump profile Flat V weir, 5m wide, 1:10 cross-slopes, with crest tapping. Cableway for out-of-bank flows. Backs up from d/s bridge. Interference from gw pumping and sewage effluent, net effect of reduction in runoff. Baseflow maintained by glacial valley gravel.

Catchment: Low relief, agricultural catchment, draining Sherwood S'st in the Northeast headwaters, Mercia Mudstone elsewhere. Overlain by river terrace gravels and alluvium in valleys.

28080 Tame at Lea Marston Lakes**EA Midlands**

Station: Unusual twin bay, chevron shaped Crump profile weirs, 21.5m total width, discharging into an inline settlement lagoon. Bypassed at very high flows, poor flow estimation under these conditions. Weed booms were installed in 2002, 30m upstream of twin weirs but produced large head difference. Weed booms damaged/bent when hit by debris during medium/high flow. Due to problems booms replaced with automatic screens. May get pulsing & sudden bursts when screens cleared. Still slight head difference, but not as bad. May affect rating/velocity. Replaced 28004 Lea Marston in 1982 (large scatter in gaugings at all levels), record combined. Substantial flow modification, large imports.

Catchment: Substantially urbanised catchment containing Birmingham. Solid geology: Coal Measures group with sandstones in the west and Mercia Mudstone elsewhere. Catchment mostly overlain by extensive cover of Boulder Clay and glacial sand and gravel in equal proportion.

28081 Tame at Bescot**EA Midlands**

Station: A trapezoidal flume, ineffective as d/s regrading not carried out. Converted to EM gauge with poor results. Bed insulation removed and station converted to US in 1989. High flow rating subject to hysteresis. Substantial imports from WRW. Above 45 m³s⁻¹ washland overspill u/s operates.

Catchment: Almost entirely urbanised catchment just below confluence of upper Tame branches. Solid geology predominantly Coal Measures overlain by extensive Boulder Clay and sand and gravel.

28082 Soar at Littlethorpe**EA Midlands**

Station: Electromagnetic station in a straight reach. Flood relief channel joins on the right bank just u/s. Prone to weed growth. Very low velocities; at lowest flows may yield unreliable data. Bypassed at high flows. Banks raised just upstream of station in 1998 to keep flows in bank to a higher stage. Replaced Narborough (28051) - records combined. Substantial imports via WRW.

Catchment: Predominantly agricultural catchment just south of Leicester. Geology predominantly Mercia Mudstones overlain by extensive Boulder Clay and glacial gravel cover. Significant river terraces and alluvium in lower reaches.

28083 Trent at Darlaston**EA Midlands**

Station: Multipath US gauge installed beneath A34 road bridge on gentle curve. Station undermined in 1987 flood, reconstructed 1990/1. Out-of-bank flow gauged by transducers between bridge abutments. Subject to siltation. Flow regime dominated by Strongford WRW discharge (Stoke-on-Trent).

Catchment: Moderate relief catchment, substantially urbanised with Stoke-on-Trent and Newcastle-under-Lyme. Geology mainly Coal Measures and Marls, Millstone Grit and subordinate Sherwood S'st, widely covered by Boulder Clay. Mining, industrial and mixed agricultural land use.

28085 Derwent at St. Marys Bridge**EA Midlands**

Station: Ten-channel, interleaved cross path US gauge in the centre of Derby. Opened in 1984, ultrasonic gauge reconfigured in March 1993. All flows contained. Record combined with 28010 (1.75km u/s) - long, curved broad-crested masonry weir - complex rating history, very insensitive. Small degree of bypassing. Substantial flow modification owing to Derwent reservoirs, mill operations (particularly before 1970s), and PWS abstractions.

Catchment: Large, predominantly upland catchment draining Millstone Grit and Carboniferous Limestone. Lower reaches drain Coal Measures on the lb and Triassic sandstones and marls on the rb. Peat moorland headwaters; forestry, pasture and some arable. Contains the towns of Matlock and Buxton.

28086 Sence at South Wigston**EA Midlands**

Station: EM gauge set in 1:1 formalised banks and flood embankment, 20m d/s of the control (dismantled railway bridge). Sharp bend immediately d/s, mill stream confluence u/s. In 2002 the electromagnetic flows were out by 10% - a new coil/cable was installed in March 2002. Moderately responsive. Replaces Blaby (28054), records combined. Substantially augmented by WRW discharges, particularly Wigston.

Catchment: Moderate to low relief catchment to E and S of Leicester. Mainly Lower Lias (mudstones and l'sts) but wholly blanketed by Boulder Clay and alluvium except for headwaters. Urbanised downstream end, otherwise arable and grazing land use.

28087 Tame at Perry Park**EA Midlands**

Station: Flume. Responsive regime with significant artificial influences.

Catchment: Low-lying catchment with large urban component.

28091 Ryton at Blyth**EA Midlands**

Station: EM station in a straight reach, d/s of a gentle bend. Data transmitted to West Stockwith pumping station to control regime to the tidal Trent. Extreme events only would overtop flood banks. Deep, slow, baseflow dominated flow regime. Replaces Serlby Park (28016). Moderate net effect on flows by WRW and abstraction.

Catchment: Moderate and low relief catchment. Headwaters drain Magnesian Limestone; bulk underlain by Permian Marl and Sherwood Sandstone. Mainly Drift free. Apart from Worksop, wholly rural, mainly arable farming.

Soar at Pillings Lock**EA Midlands**

Station: Multipath US set in Soar Navigation (merges with Grand Union Canal) 100m u/s of Pillings Lock. Low banks. US transducers on the broad floodplain to calibrate out of bank flows. Very substantial flow modification from WRW and reservoirs in Charnwood Forest.

Catchment: Moderate to low relief catchment with Triassic Marls and S'st to the west and Lias clays and l'sts to the east, widely blanketed in Boulder Clay. Ancient hard rocks outcrop in Charnwood Forest. Lower catchment dominated by Leicester; headwaters rural.

28095 Tame at Hopwas Bridge**EA Midlands**

Station: Velocity-area station immediately d/s of Hopwas road bridge with cableway between training banks to contain the majority of high flows. Some bypassing but accounted for in rating. Site replaces Elford (28005). Suffers from heavy weed growth requiring retrospective rating adjustments. Weed growth contributes to over-estimation of runoff. Station used primarily for water quality purposes only.

Catchment: Catchment predominantly Mercia Mudstones with some shales and limestones. Overlain by Boulder Clay in the headwater with sands and gravels within the valleys. Mixed farming and urbanised catchment

28102 Blythe at Whitacre**EA Midlands**

Station: EM gauge immediately u/s of confluence with R. Cole. Owned by Severn-Trent plc, operated by NRA/EA until late 1996. Channel approx 16m wide. Widespread u/s inundation in flood, backs up from Tame and Cole. Residual flow gauge for PWS abstraction for Shustoke Res. Net effects of WRW and PWS modest but all the flow may be abstracted. Quite responsive. Data quality poor; numerous gaps in record.

Catchment: Low relief catchment SE of Birmingham. Mercia Mudstone faulted against Coal Measures in extreme E. About 50% cover of glacial sands and gravels and terrace gravels. Mainly rural with mixed farming but contains part of Solihull and Dorridge. All river u/s of gauge designated as SSSI.

28103 Henmore Brook at Carsington Outflow EA Midlands

Station: Rectangular thin-plate weir measuring outflows from Carsington Water (used as storage in Derwent compensation scheme).

28109 Sow at Walkmill EA Midlands

Station: Vee notch weir opened in 2002.

Catchment: Low relief, agricultural catchment. Predominately sandstone.

28110 Oldacre Brook at Brocton EA Midlands

Station: Vee notch weir opened in 2002.

Catchment: Small, rural, sandstone catchment.

28115 Maun at Mansfield the Dykes EA Midlands

Station: Crump profile Flat V (1:10) weir, 4.8m wide, low vertical wingwalls set in wider channel. Lb at about 2m, rb higher. Fully contained. Weir prone to u/s siltation - affects calibration; rating based on gaugings. Superseded Mansfield STW (28059). Low flows dominated by sewage effluent and augmented by runoff from urban area - catchment area increases by approx. 5 sq.km. Very atypical water balance.

Catchment: Moderate relief catchment near headwaters of Maun. Rises on Magnesian Limestone and crosses onto Sherwood S'st. Heavily urbanised with Mansfield and Sutton in Ashfield immediately u/s.

28116 Maun at Whitewater Bridge EA Midlands

Station: Flat V weir, 5.2m wide with 0.64m high wingwalls. Built to measure flows d/s of the Sherwood Sandstone aquifer and to complement gauge at Mansfield (28115) which measures flows u/s of aquifer. The Maun is influent in the Sherwood Sandstone reaches; low flows can decline below those at 28115.

Catchment: Geology predominantly Sherwood Sandstone with Limestone in the west and Mercia Mudstone to the east. Little Drift cover. Contains urban areas of Mansfield and Sutton in Ashfield. Mixed land use of arable and woodland.

28117 Derwent at Whatstandwell EA Midlands

Station: Large Flat V weir, 25m wide, u/s of A6 road bridge. Built to provide accurate flow info. u/s of Ambergate/Carsington intake point. Cableway installed for full-range calibration up to 1:100 year flows. Flows substantially affected by Derwent reservoirs.

Catchment: Responsive upland catchment, peat covered moorlands in headwaters. Main Derwent drains the Millstone Grit; the largest tributary, the Wye, drains Carboniferous L'st. Land use mainly pasture and forestry.

28118 Meden at Perlethorpe EA Midlands

Station: Flat V weir, 1:10 cross slopes, Crump profile, 5.2m wide, wing walls at 0.64m, replacing d/s station (28045). Subdued response with WRW effluent augmenting low flows.

Catchment: Moderate to low relief catchment underlain by the Notts coalfield. The Maun rises on generally sandy facies of the Magnesian Lst, crosses onto Sherwood Sst, the gauge sited close to the junction with the Mercia Mudst. Upper catchment dominated by urban centres (Mansfield) and mining spoil; middle and lower reaches rural and forest.

54001 Severn at Bewdley EA Midlands

Station: Currently a 20-path ultrasonic gauge (refurbished in 2003). VA station with rock control prior to 1989. Peak flows available from 1972. Stage monitoring site relocated in 1950 and 1968; lowest flows reprocessed in 1976 for 1921-68. Pre-1968 records of modest precision. The period-of-record maximum flow is listed as 637 m³s⁻¹ in March 1947, although this is based on a daily mean flow (no instantaneous peak available) and the true peak is likely to have been higher. Significant exports for PWS and power generation; minimum flow maintained by releases from Clywedog and Vyrnwy Reservoirs and Shropshire g/w. Naturalised flow series, from 1968 only, accommodates major usages other than g/w support. Some earlier records adjusted for Vyrnwy (1966-7).

Catchment: Diverse catchment; wet western 50% from impermeable Palaeozoic rocks and river gravels; drier northern 50% from Drift covered Carboniferous to Liassic sandstones and marls. Moorland, forestry, mixed farming.

54002 Avon at Evesham EA Midlands

Station: VA station. Recording site, control and gauging site are widely separated; recording at site where all flows contained. The cableway is 2.5km downstream at Hampton Park where all flows are measured. These are then reconciled with flows gauged on the same day upstream at Hinton. Gauge site can measure out-of-bank flows. Lengthy historical series of flood peaks. Navigation control at lock d/s. Coarse early low flow record owing to crude rating. Extensive modification to low flow regime from abstractions and returns.

Catchment: Large catchment of low relief, draining argillaceous rocks almost exclusively. Contains some large towns, but chief land use is agriculture.

54003 Vyrnwy at Vyrnwy Reservoir EA North West

Station: Rectangular notch, 24.4m long on the Vyrnwy River; stone cill overflow weirs on the rivers Cownwy and Marnant (whose flows are mostly diverted into the reservoir). Cownwy diversion has Flat V weir. Naturalised monthly record available from 1879, daily record from 1920. Direct supply to Liverpool.

Catchment: Steep, very wet catchment draining Drift-free Silurian and Ordovician slates and shales.

54004 Sowe at Stoneleigh EA Midlands

Station: Up to 1979 two humped invert flumes, total width 7.16m, and an overflow weir at 1.45m measured discharge. Rating dubious when overflow weir in operation. Since 1979 compound Crump profile weir with crest tapping. Prone to weed growth. Gw pumping, bulk imports and proximity to Coventry result in low flows dominated by sewage effluent.

Catchment: Substantially urbanised catchment. Western half on outcrop Coal Measures; Eastern half Mercia Mudstone Group overlain by Boulder Clay and glacial sand and gravel.

54005 Severn at Montford EA Midlands

Station: Velocity-area station up to 1994 when cross-path ultrasonic installed up to bankfull. Fully contained; since 1985 all floods can be gauged (earlier, rb only). Very prone to weed growth; much summer rating variability. High flows from US and gauging need reconciling. Regulation from Vyrnwy and Clywedog reservoirs and PWS abstractions have significant effect at low flows. Limited series of naturalised flows available.

Catchment: High relief headwaters. Valleys are broad bottomed with moderate slope and feature Boulder Clay, fluvial gravel and extensive washlands which slow response. Outcrop solid geology Ordovician and Silurian shales, grits and mudstones. Moorland, forestry, grazing, low grade agriculture.

54006 Stour at Kidderminster Callows Lane EA Midlands

Station: Original VA station (Gilt Edge) in formalised trapezoidal channel; variable, weed affected low flows; out-of-bank flows estimated. US gauge at a new site (Callows Lane) operational from July 1990. The US is beneath the Kidderminster bypass and is formed by the 4m high walls of the box culvert beneath this road bridge; natural control 20m downstream of this bridge. It is known that the period-of-record maximum flow occurred on 27 Mar 1955, but the magnitude cannot be verified because of the historical changes at the site - an alternative peak in Dec 2000 is listed as the maximum in the Hydrometric Register. Gw pumping for PWS and industry leads to substantial augmentation from sewage and industrial effluents.

Catchment: Low relief, substantially urbanised catchment. Higher ground on flanks of river drain marls and s'st (Upper Coal Measures) but a faulted trough of Sherwood Sandstone is the major feature. Some Boulder Clay and valley gravel.

54007 Arrow at Broom EA Midlands

Station: Up to 1976 rated section; not rated above bankfull when extensive inundation. Replaced in 1976 with a Crump profile weir, 12m wide with a higher flow capacity. Gw pumping for PWS significantly augments low flow through effluent returns.

Catchment: Low relief, predominantly agricultural catchment upon Mercia Mudstone, with small glacial gravel deposits in the eastern headwaters. Responsive; sewage effluent maintains low flows. Contains Redditch and Alcester.

54008 Teme at Tenbury EA Midlands

Station: Velocity-area station with gravel control. Well gauged to bankfull. U/s shoaling may render low flow rating variable from year to year. Rarely out of bank. Adjustments small and dispersed; natural catchment. Installation of Flat V at d/s 54029 has largely eliminated apparent inconsistency between the two flow series. Negligible abstraction and effluent flows.

Catchment: Left bank characterised by high relief hills and broad valleys. Steep and narrow on right bank. Geology: mainly Palaeozoic sediments with Pre-Cambrian crystalline rocks of the Longmynd. Relatively Drift free; some valley gravel and Boulder Clay in the lower reaches. Landuse mainly forestry and grazing.

54010 Stour at Alscot Park EA Midlands

Station: Compound broad crested weir, overall width 17.6 m, with shallow central drop section 0.15 m lower and 9.12 m wide. Set in old amenity weir with sluices. New thin-plate side weir built 21/3/00. Problems due to variable sluice operation during high flows. Extensive flood plain, but flow on this is unlikely. Bypassing occasionally via two small mill offtakes. Weir theoretically rated. Numerous ratings, many of the changes only affect low flows. Very few gaugings - all at low flows.

Catchment: Catchment geology predominantly Lower Lias, with Middle and Upper Lias and Oolite outcrops in the west and east. Mercia Mudstone at d/s end of catchment. Little cover except alluvium within valleys. Mixed arable and grassland landuse.

54011 Salwarpe at Harford Hill EA Midlands

Station: Original VA station with bed of stone blocks replaced in 1992 by Flat V Crump profile weir, 7m wide, cross slopes 1:20, wing walls at 0.7m in reasonably straight reach. Additional cableway. Fully contained. VA station very prone to weed growth, summer corrections made: low flows of variable quality. Gauged to bankfull only. Groundwater for PWS leads to significant augmentation from sewage; spray irrigation abstraction seasonally significant.

Catchment: Generally low relief catchment, draining Clent and Lickey hills. Contains Bromsgrove and Droitwich Spa. Virtually Drift free with predominant geology: Mercia Mudstone in the lower reaches. Mainly agricultural.

54012 Tern at Walcot**EA Midlands**

Station: Initially rated section (1959-76), then gabion control (1976-1978), both very prone to weed growth leading to unstable S-D relation; now Flat V weir 15m wide. Automatic system for flushing crest tapping chamber. Bypass channel: can be operated to enable work on weir, producing short-term low or zero flows (e.g. 10 July 2003). Regional gw pumping for PWS and Severn regulation. Industrial effluent from Wellington and Newport; abstractions for spray irrigation. Net result only moderate.

Catchment: Geology: mainly Triassic Sandstones with Triassic mudstones and Lower Lias to the northwest overlain by mixed glacial drift deposits. Predominantly agricultural, low relief catchment. Mixed land use.

54013 Clywedog at Cribynau

Station: Compound triangular cross-section weir with low-flow flume, downstream of Clywedog reservoir. Approach partially infilled in 1967 to reduce deposition on flanks. Record spans period of construction (Apr-1964 to Dec-1966) and opening (1968) of reservoir.

Catchment: Steep, wet catchment draining Ordovician and Silurian shales and slates. Substantially Drift free. Most tributaries afforested on valley sides.

54014 Severn at Abermule**EA Midlands**

Station: VA station in straight reach with rock/gravel bed. Control shifts during highest floods. Some weed growth but not severe. Some flow occurs through gravel bed, noticeable at low flows. Flow regime dominated by Clywedog releases when regulation in operation at low flows (from 1968). Significant abstraction for canal feeder at Penarth weir.

Catchment: High relief headwaters but broad main channels of moderate slope with Boulder Clay and fluvial gravel. Solid geology predominantly Ordovician slates and shales. Responsive catchment.

54015 Bow Brook at Besford Bridge**EA Midlands**

Station: Prefabricated Flat V Crump profile weir, 4.01m wide, 1:10 cross slopes, wing walls at 0.67m, replaced full-width (2.44m) rectangular thin plate weir, thus improving flood flow measurement. Cableway retained. Important gauge for monitoring abstraction licences at low flows. Problems with weedgrowth and siltation. Extensive floodplain plus backing up from d/s bridge and the R Avon. Significant abstractions for spray irrigation plus sewage augmentation. Highest recorded flow (09/04/98) probably an overestimate.

Catchment: Drift free, draining Mercia Mudstone in headwaters and Lias clays otherwise. Low lying, agricultural catchment. Fairly responsive catchment.

54016 Roden at Rodington**EA Midlands**

Station: Model tested trapezoidal flume and flanking broad-crested weirs within vertical sidewalls 7.3m apart. Tapping to measure tailwater levels (not used in last 25 years). Channel prone to weed growth. Weir drowns at high flows. Net effect of general gw abstractions and returns insignificant; minor seasonal influence from spray irrigation. Shropshire GW scheme affects (augments) low flows when in operation.

Catchment: Geology: predominantly Triassic Mudstones and Lower Lias in the north with Permian Sandstones to the south, closer to the gauge. Blanketed extensively by Boulder Clay and morainic sand and gravel.

54017 Leaddon at Wedderburn Bridge**EA Midlands**

Station: Trapezoidal flume flanked by broad-crested weirs within vertical sidewalls. Model rating includes drowned conditions; when the Severn is high backing up occurs as flap valves operate. Weed growth may cause drowning. Cableway for high flows. Massive scatter in gaugings at high flows. 2000 high flow gaugings are considered more accurate than earlier ones. Minimal augmentation from gw pumping, spray irrigation may become significant at Q95. Mostly natural regime.

Catchment: Low relief, agricultural catchment. Virtually Drift free; headwaters and middles reaches s'ts of Devonian and Triassic age, some Palaeozoic mixed sediments to the north, Mercia Mudstone in the lower reaches.

54018 Rea Brook at Hookagate**EA Midlands**

Station: Model tested trapezoidal flume and flanking broad-crested weirs within vertical sidewalls 7.3m apart. Built in 1960s, now eroding and needs rebuilding. Lb inundated at high flows but velocities low and rating extrapolation reasonable. All flows contained by d/s road bridge. Substantially natural catchment. Minor effects from sewage effluent at lowest flows.

Catchment: Broad, flat main channel flanked by steeply graded streams. Complex geology; s'ts and shales (Pre-Cambrian to Silurian). Lower reaches entirely covered by Boulder Clay and fluvio-glacial sand and gravel. Moorland and low grade agriculture.

54019 Avon at Stareton**EA Midlands**

Station: Crump profile weir, 7.3m wide with crest tapping. Current metering from footbridge u/s. Highest floods overtop right bank and follow old river channel. Early record to 1971 had Coventry sewage outfall diverted through station. Augmentation by gw pumping and surface transfers. Moderate influence from abstractions and returns.

Catchment: Geology: from Upper Lias in the headwaters through Middle and Lower Lias with Mercia Mudstones and Triassic Sandstones in the lower reaches. Extensive covering of superficial deposits. Predominantly agricultural, low relief catchment, containing Rugby.

4020 Perry at Yeaton**EA Midlands**

Station: Crump profile weir, 6m wide with (unused) crest tapping. Channel very prone to weed growth; may suffer from siltation u/s. All floods contained. Substantial gw abstraction has indirect effect. Effluent returns in catchment may have substantial effect at lowest flows.

Catchment: River rises on Millstone Grit and traverses Sherwood Sandstone and Mercia Mudstone, although there is extensive coverage by glacial sands and gravels with some peat deposits. Some marshland with complex artificial drainage.

54022 Severn at Plynlimon flume**CEHW**

Station: A compound sharp-edged weir, capacity 10 m³s⁻¹, with flanking broad crests provided poor quality data from 1953-58 (some notable minima, e.g. summer 1955). Record gaps not recoverable. Since 1968, trapezoidal flume with side contractions, capacity 43 m³s⁻¹. Aug. 1977 peak due to very intense local storm; little impact in neighbouring catchment (55/8). Flat recessions and flow jumps related to silting/flushing of the flume/inlet pipe. U/s silt trap (installed Oct 1971) improved station performance but extreme low flows suspect, Aug., 1976 considered lowest on record. IH (now CEH) experimental catchment; 15 min. runoff totals available, also rainfall, evaporation and soil data from a dense monitoring network. Natural flow regime.

Catchment: Very wet (2400mm), responsive catchment on Palaeozoic shales, grits and mudstones. 67% of catchment afforested up to 1985 when some clear felling took place. Forest slopes very steep, peat moorland hilltops.

54023 Badsey Brook at Offenham**EA Midlands**

Station: Original trapezoidal flume (rating supported by c/m gaugings but poor state of repair and weedgrowth problems affecting low flows) replaced, in 1995, by Flat V Crump profile (1:10) weir in straightened cut. 5m wide, wing walls at 0.7m. Cableway. Flood banks contain all but highest flows but inundation u/s. The Flat V weir rating fits gaugings well below 2 m stage. April 1998 flood at 3.14m, estimated as 100 cumec, well above rating limit so considerable uncertainty in this magnitude. PWS from headwater springs; river abstractions for horticulture. Sewage works short way u/s. Net result moderate; significant at low flows.

Catchment: River rises from springs on Cotswolds scarp; steep headwaters. Drift free, mostly Liassic argillaceous rocks. Agriculture and horticulture dominate.

54024 Worfe at Burcote**EA Midlands**

Station: Crump profile weir, 5.5m wide, with crest tapping. Flows generally contained. Substantial impact from surface and groundwater abstractions for PWS, industry, irrigation and the Shropshire Groundwater Scheme.

Catchment: Predominantly agricultural, low relief catchment draining Triassic sandstones; intermittent Boulder Clay and glacial sand and gravel cover.

54025 Dulas at Rhos-y-pentref**EA Midlands**

Station: Trapezoidal flume, 15.9m wide, with side contractions to 13.7m in critical section, between 1.5m wing walls. Very large capacity (c140-150 m³s⁻¹) flume - should contain all but the most extreme flows. Shoals of shale fragments u/s need annual clearing and also block intake pipes; 3 separate intakes increase chances of maintaining reliable stage recording throughout the range. Changes in accretion clearance patterns render low flows after 1997 less reliable and these are under review. Natural flow regime.

Catchment: A high relief, wet and responsive catchment on Silurian shales and slates with limited Boulder Clay coverage in the south and west of the catchment. Land use mainly pasture, forest and moorland.

54026 Chelt at Slate Mill**EA Midlands**

Station: Concrete trapezoidal flume constructed in 1969. A poor station, prone to variable silt build-up at lower end of flume. All flows contained within structure but high flow performance uncertain; no current metering since 1995. Flows not processed after 1984 due to poor rating; level record maintained. Reservoir(s) in catchment affect runoff. Runoff reduced by public water supply and industrial/agricultural abstraction, increased by effluent returns - site located downstream of STW.

Catchment: Small catchment with Dowdeswell reservoir in the headwaters, largely an urban catchment. The river runs through the centre of Cheltenham and then through low lying farmland. Underlying geology is largely Lower Lias clays with Middle and Upper Lias formations in the headwaters with river terrace sands and gravels along the main valley.

54027 Frome at Ebley Mill**EA Midlands**

Station: Velocity-area station on a curved reach. Control is a compound broad-crested weir. River inundates widely at gauging section. Possibly some bypassing above 18 m³/s. Suffers from weed growth at low flows. Substantial headwater abstractions for PWS; further industrial abstractions and significant sewage outfall.

Catchment: Steep headwaters drain the Cotswolds scarp of Oolitic L'st and Lias s't. Valley bottoms are considerably urbanised and underlain by Lias clays. The station is in Stroud. A large number of historic structures (e.g. weirs and sluices) exist along the river which is closely linked to the canal at a number of points.

- 54028 Vyrnwy at Llanymynech** **EA Midlands**
Station: Velocity-area station, 35m wide, in a substantially straight reach with natural shoal control. Rating relatively stable. Out-of-bank flows gauged from a cableway extension over the floodplain. Three major PWS abstractions in the catchment have a substantial effect on the flow regime, notably the supply exported to Liverpool from Lake Vyrnwy.
Catchment: Geology: predominantly Silurian and Ordovician sandstones and mudstones overlain by Boulder Clay and sands and gravels in the main tributaries. Steep headwater streams and broad-bottomed valleys. Land use is moorland, forestry and grazing.
- 54029 Teme at Knightsford Bridge** **EA Midlands**
Station: Flat V weir with training banks to contain higher flows; cableway for full range calibration. Construction of the weir resulted in missing data during November and December 1998. Previously a VA station which had a gravel control affected by weed growth at low flows. PWS abstractions and sewage returns insignificant; sensibly natural flow regime.
Catchment: Left bank: high relief hills and broad valleys. Right bank: steep and narrow. Geology mainly Palaeozoic sediments with Pre-Cambrian crystalline rocks of the Longmynd. Relatively Drift free; some valley gravel and Boulder Clay along main tributaries. Land use predominantly moorland, forestry and grazing.
- 54032 Severn at Saxons Lode** **EA Midlands**
Station: Originally velocity-area station between abutments of demolished railway bridge. Multipath US gauge from 1987. High flows mostly contained by Embankments to the bridge contain all but the highest flows (when some bypassing can occur). Affected by high tides and tidal gates on R. Avon at Tewkesbury. Substantial modifications to flow owing to PWS exports, and effluent returns (chiefly the R. Stour and Worcester).
Catchment: Very large, diverse catchment, relatively broad flood peaks. Land use mainly agriculture and forestry, with subordinate industrial development in the east.
- 54034 Dowles Brook at Oak Cottage** **EA Midlands**
Station: Flat V Crump profile weir 6m wide, with a cableway to allow high flow gauging. Mostly modular even at high flows. Flood banks on a 36m wide floodplain should contain most flows but bypassing does occur - high range defined by few gaugings. Flashy response. No significant abstractions or returns but flow patterns can be affected by sluice operation.
Catchment: The catchment is mostly Drift free, situated on sandstones and marls of Upper Carboniferous age. The river bisects the Wyre Forest; all but the headwaters are afforested.
- 54036 Isbourne at Hinton on the Green** **EA Midlands**
Station: Crump profile weir, 4.5m wide by 0.5m deep, in an incised trapezoidal channel. Cableway for high flows. Commonly exceeds bankfull but not bypassed. Insensitive at low flows. PWS from headwater springs; spray irrigation and WRW effluent have dominant effect on the lowest flows. The Isbourne is spring-fed but responsive to storms.
Catchment: Steep headwaters; rise from springs from the Cotswold Oolites; Drift free, most of the catchment drains Lias clays. Agriculture and horticulture dominate. EA use as a tributary index gauge in flood forecasting system.
- 54038 Tanat at Llanyblodwel** **EA Midlands**
Station: From Feb 1992 Crump profile Flat V (1:20) weir, 12.4m wide, 0.72m high wing walls, replaced VA station with natural rock step control approx. 150m d/s of cableway. Gravel bed. Right bank floodplain approx. 50m wide, partially crossed by cableway. Sewage effluent has insignificant effect upon flow regime.
Catchment: High relief headwaters and broad bottomed valleys of moderate slope with Boulder Clay and fluvial gravel. Solid geology predominantly Ordovician slates and shales. Land use: moorland, forestry and pasture.
- 54040 Meese at Tibberton** **EA Midlands**
Station: Crump profile weir, 6m wide, installed for the Shropshire Groundwater Scheme. Weir drowns only at very high flows, but channel recently re-graded to further reduce the risk. Problems with high flow gaugings. Indirectly affected by large PWS gw abstractions; otherwise spray irrigation and canal impoundment have moderate effect.
Catchment: Agricultural, very low relief catchment with high baseflow component. Drains Sherwood Sandstone outcrop; intermittent Boulder Clay and glacial sand and gravel.
- 54041 Tern at Eaton On Tern** **EA Midlands**
Station: Two-bay Crump profile weir with identical crest heights, 6m total width, with crest tapping set into old mill sluices. U/s cableway. Significant gw abstractions. Part of Shropshire Groundwater Scheme network. Agricultural and PWS abstractions balance effluent returns.
Catchment: Agricultural, low relief catchment. Outcrop Triassic and Coal Measures s'ts near the gauge; intermittent Boulder Clay and glacial sand and gravel become dominant over the upper catchment.
- 54043 Severn at Upton On Severn** **EA Midlands**
Station: Velocity-area station opened in 1955. Rated by gauging from Upton Bridge. Superseded in 1970 by 54032 2km d/s.
Catchment: Very large, diverse catchment, relatively broad flood peaks. Land use mainly agriculture and forestry, with subordinate industrial development in the east.
- 54044 Tern at Ternhill** **EA Midlands**
Station: Rectangular notch 4m wide by 0.43m deep with side contractions. Cableway for high flows. Not yet out of bank (to end of 2006). Significant ground and surface water abstractions in the catchment with effluent from Market Drayton. Shares a recorder hut with the adjacent Bailey Brook gauge (54052). Irregular operation of sluices from Oakleigh Park may affect natural flow.
Catchment: Agricultural, low relief catchment, high baseflow from Bunter s't and glacial sand and gravel. Boulder Clay typifies the right hand bank geology.
- 54046 Worfe at Cosford** **EA Midlands**
Station: Originally a rectangular weir, 3.05m wide, with side contractions. Suffered from substantial leakage, rebuilt in 1990: weir 4m wide. Station installed to monitor affects of PWS abstractions. Affected by Shropshire Groundwater Scheme. Substantial impact from gw abstractions for PWS (Cosing Stream), and irrigation.
Catchment: Predominantly agricultural, low relief catchment draining Sherwood S't with intermittent Boulder Clay and glacial sand and gravel cover.
- 54048 Dene at Wellesbourne** **EA Midlands**
Station: Flat V Crump profile weir, 7.97m wide; cross-slope 1:20, large d/s fall, all flows contained. Moderate influence from effluent discharges and seasonal spray irrigation.
Catchment: Predominantly agricultural catchment draining Edge Hill. Some Boulder Clay to the east overlying, predominantly, argillaceous rocks of the Lower Liassic series with Mercia Mudstone closer to the gauge.
- 54049 Leam at Princes Drive Weir** **EA Midlands**
Station: Complex history; originally a thin-plate notch set in a broad-crested curved weir with a (leaking) sluice gate. Record poor, high flows unreliable. The sluice was replaced by a second, lower thin-plate weir which became operational in 1979 and has led to improved data. Gauging close to the peak lends credence to the extreme April 1998 flood value. Station very important for monitoring PWS abstractions on the Leam and to measure releases from Draycote pumped storage reservoir; imports of water and gw pumping; substantial modification of flow regime. Some naturalised data from 1989.
Catchment: Agricultural catchment of low relief, substantially Drift free although sands and gravels exist along the lower reaches. The lower fifth of the catchment drains Mercia Mudstone; the remainder underlain by Liassic argillites.
- 54050 Leam at Eathorpe** **EA Midlands**
Station: Side-contracted central low flow flume, flanked by broad-crested weirs in a straight reach. Exceeds bankfull but not bypassed. Flashy response. Rated by model test and c/m. Flow regime dominated by the operation of Draycote Reservoir via the Eathorpe intake approx. 100m u/s - abstraction and support. Important flow forecasting site.
Catchment: Low relief catchment. Mercia Mudstone in the lower catchment is overlain by river terraces, otherwise Lower Lias clays and silts. The north has abundant glacial sands and gravels. Wholly rural apart from south Rugby. Mixed farming.
- 54052 Bailey Brook at Ternhill** **EA Midlands**
Station: Rectangular notch, 1m wide, 0.63m deep with side contractions, which act as broad-crested weirs above notch full. Stays in bank. Shares a recorder hut with the gauge (54044) on the adjacent river, confluence 10m d/s. Minimal flow augmentation from WRW. Affected by irregular discharges and storage effects of Sandford Hall Lake. Baseflow dominated regime but can be responsive.
Catchment: Small, low relief catchment instrumented for monitoring the Shropshire Groundwater Scheme. Solid geology: argillaceous rocks of the Lower Lias and Mercia Mudstones. Extensively overlain by Boulder Clay and glacial sand and gravel.
- 54053 Corve at Ludlow** **EA Midlands**
Station: Velocity-area station, closed in 1976.
- 54054 Onny at Onibury** **EA Midlands**
Station: Velocity-area station, closed in 1976.
- 54057 Severn at Haw Bridge** **EA Midlands**
Station: Velocity-area station at a road bridge (B4213). Difficult site, but includes Avon flow. Tidally affected; substantial bed movement. Both restrict accuracy. Likely to be combined with the u/s Deerhurst US record (installed Dec1995) when satisfactory method found. Substantial modification to flow owing to PWS exports and effluent returns (chiefly to the Stour, Worcester, Avon and Thames).
Catchment: Very large, diverse catchment, lowest on the Severn. Paleozoic slates in Welsh headwaters, Permo-Triassic sediments in middle reaches and Jurassic and Liassic clays in the Avon basin.
- 54058 Stoke Park Brook at Stoke Park** **EA Midlands**
Station: Flat V weir, closed in 1978. Part of Shropshire Groundwater Scheme network.
Catchment: Agricultural, low relief catchment.
- 54059 Allford Brook at Allford** **EA Midlands**
Station: Flat V weir, closed in 1979. Part of Shropshire Groundwater Scheme network.
Catchment: Agricultural, low relief catchment.

- 54060 Potford Brook at Sandyford Bridge** **EA Midlands**
Station: Prefabricated Flat V Crump profile weir, initially installed for the Shropshire Groundwater investigation. Site closed 1979-86 and repositioned 1987 to avoid backing up. Low flows may be significantly affected when the Severn augmentation is in operation. Baseflow dominated but can be responsive.
Catchment: Flat catchment on predominantly Sherwood S'st overlain by intermittent Boulder Clay and glacial sands and gravel.
- 54061 Hodnet Brook at Hodnet** **EA Midlands**
Station: Flat V weir, closed in 1977. Part of Shropshire Groundwater Scheme network.
Catchment: Agricultural, low relief catchment.
- 54062 Stoke Brook at Stoke** **EA Midlands**
Station: Prefabricated Flat V Crump profile weir, 1.6m wide, installed for the Shropshire Groundwater Investigation. Base flow affected by gw pumping.
Catchment: Agricultural catchment with argillaceous rock of the Lower and Middle Lias in the headwaters and mixed Permian and Triassic Sandstones within the lower catchment. Overlain by intermittent Boulder Clay and glacial sands and gravels.
- 54063 Stour at Prestwood Hospital** **EA Midlands**
Station: Original secondary velocity-area station replaced in 1995 with a Flat V Crump profile weir, 11m wide, 1:20 cross slopes, wing walls at 0.9m in a good reach. Contained on rb, possibly bypassed on lb behind the hut. Gw for PWS significantly augments low flows as effluent. Pre-2000 minima were significantly higher - causation under review.
Catchment: A largely urban catchment (approx. 40%), draining the western suburbs of Birmingham. Underlying geology predominantly argillaceous and sandstone rocks of the Carboniferous with Triassic Sandstones within the lower third of the catchment
- 54065 Roden at Stanton** **EA Midlands**
Station: Velocity-area station, closed in 1979. Part of Shropshire Groundwater Scheme network.
Catchment: Predominantly Triassic Mudstones and Lower Lias. Blanketed extensively by Boulder Clay and morainic sand and gravel.
- 54066 Platt Brook at Platt** **EA Midlands**
Station: Prefabricated Flat V Crump profile weir, 2m wide, installed for Shropshire Groundwater Investigation. Very limited artificial disturbances to the natural flow regime.
Catchment: Flat catchment on predominantly Permian Sandstones overlain by Boulder Clay and glacial sands and gravel.
- 54067 Smestow Brook at Swindon** **EA Midlands**
Station: Velocity-area station, closed in 1978.
Catchment: Low relief. Significant urban area (Wolverhampton). Predominantly Triassic Sandstones.
- 54069 Springs Brook at Lower Hordley** **EA Midlands**
Station: Flat V weir, closed in 1978. Part of the Shropshire Groundwater Scheme network.
- 54070 War Brook at Walford** **EA Midlands**
Station: Prefabricated Flat V Crump profile weir, 2m wide, installed for Shropshire Groundwater Investigation. Very limited impact of artificial influences on the flow regime.
Catchment: Very flat catchment with meres puddled on peat and Boulder Clay. Some glacial sands and gravels.
- 54080 Severn at Dolven** **EA Midlands**
Station: Informal station (NRFA data: 1977-83) replaced by compound triangular profile (1:2, 1:8) weir in 1999, crests 7.1m and 12.0m (total), wing walls at 1.6m. Cableway approx 60m for floodplain flows. Should contain the 1% probability flood. Designed to permit fish movements and counting. 10km d/s of Clywedog reservoir so control patterns dominant at low flow.
Catchment: A high relief, wet and responsive catchment on Silurian shales, mudstones and slates with Boulder Clay on valley sides. Land use is pasture, forest and moorland.
- 54081 Clywedog at Bryntail** **EA Midlands**
Station: Flat V weir, 16m wide; 1:20 cross-slope, immediately below Clywedog reservoir. Installed for the purpose of measuring compensation and regulation releases. Reservoir drawn down over winter months to moderate flood peaks.
Catchment: Steep, wet catchment draining Ordovician and Silurian shales and slates. Substantially Drift free. Most tributaries afforested on valley sides.
- 54083 Crow Brook at Horton** **EA Midlands**
Station: Flat V Crump profile weir, 8m wide; cross-slope 1:10, installed for Shropshire Groundwater Investigation. June 1982 peak under review.
Catchment: Catchment of moderate relief whose headwaters are in Telford and drain glacial sand and gravel overlying Permian Sandstones. Lower reaches clad in Boulder Clay.
- 54084 Cannop Brook at Parkend** **EA Midlands**
Station: Crump profile weir, 3m wide, 1m wingwalls, set in a wider channel. Closed between 3/86 and 2/92. Substantially natural flow regime (but sewage effluent from Parkend). Similar minimum flows in 1982 and 1983.
Catchment: Moderately steep catchment entirely within the Forest of Dean; drains the Upper Coal Measures - principally s'st with thin shale and coal horizons with little Drift cover.
- 54085 Cannop Brook at Cannop Cross** **EA Midlands**
Station: Flat V Crump profile weir, 2m wide; cross-slope 1:10. Natural, responsive regime.
Catchment: Small, moderately steep, afforested catchment in the Forest of Dean; drains Upper Carboniferous s'sts.
- 54087 Allford Brook at Childs Ercall** **EA Midlands**
Station: 90 degree Vee notch with side contractions set in an access chamber to a culverted section. Standard and tipping bucket raingauges adjacent. Close to a Shropshire GW scheme abstraction point.
Catchment: Agricultural catchment on Bunter Sandstone overlain by Boulder Clay in the lower catchment.
- 54089 Avon at Bredon** **EA Midlands**
Station: Ultrasonic single path instrument installed in 1979, unsuccessful experiment. Replaced in 1988 by multipath cross configuration US in broad reach. Flows are valid to bankfull (but US has under-measured, data being reassessed). River inundates hams on lb extensively during floods. For very high flows use 54002. Extensive flow modification by abstractions and returns. Responsive regime.
Catchment: Large catchment of low relief, draining argillaceous rocks almost exclusively. Contains some large towns but chief land use is agriculture.
- 54090 Tanllwyth at Tanllwyth Flume** **CEHW**
Station: Rectangular, side contracted critical depth flume designed to gauge streams which have supercritical flow regimes. U/s sediment trap for sediment yield studies assists in maintaining performance. Natural catchment nested within 54022. Primary 15 minute dataset available.
Catchment: Steep and very wet (~2500mm). Mature coniferous plantations cover catchment. Geology: Silurian shales and grits. Rainfall, evaporation and soil moisture estimates also available from dense monitoring network.
- 54091 Severn at Hafren Flume** **CEHW**
Station: Rectangular, side contracted critical depth flume designed to gauge streams which have supercritical flow regimes. Drowning may occur following big floods owing to sediment deposited d/s. IH (now CEH) research catchment nested within 54022. Primary 15 minute dataset available. Responsive, natural regime.
Catchment: Upper third has rounded, peat moorland headwaters; lower two thirds has steep, incised valleys with mature conifer plantations. Geology: Palaeozoic shales, grits and mudstones. Very wet (>2400mm). Rainfall, evaporation and soil moisture estimates also available from dense monitoring network.
- 54092 Hore at Hore Flume** **CEHW**
Station: Rectangular, side contracted critical depth flume designed to gauge streams which have supercritical flow regimes. Drowning may occur following big floods owing to sediment deposited d/s. Natural, IH (now CEH) research catchment nested within 54022. Primary 15 minute dataset available.
Catchment: Very wet (c2500mm) with steep gradients. Highest and lateral fringes of catchment are peat moorland. The remaining 78% had mature coniferous forest until 1985, when the lower two thirds was clear felled. Replanting has taken place. Geology: Palaeozoic grits, shales and mudstones. Very steep gradients, ~2500mm rain. Rainfall, evaporation and soil moisture estimates also available from dense monitoring network.
- 54094 Strine at Crudgington** **EA Midlands**
Station: Electromagnetic gauge, using a bubbler device for level measurement, in trapezoidal channel. Very low velocities experienced. Replaced poor weed-affected open channel site in 1981. Early record not available. Substantial modification to flow regime from WRW discharges.
Catchment: Very flat catchment draining Weald Moors. Headwaters dominated by argillaceous Carboniferous rocks. Lower reaches mostly Permian Sandstone overlain by mixed superficial deposits. Urban areas include Newport and the northern part of Telford.
- 54095 Severn at Buildwas** **EA Midlands**
Station: Multiple US cross-configuration gauging station. Flows fully contained by Buildwas Bridge and floodbanks. Substantial modifications of lowest flows by Clywedog and Yrnyrn Reservoirs and Shropshire Groundwater Scheme; otherwise artificial effects modest.
Catchment: Large diverse catchment. Geology largely mixed Palaeozoic formations with moorland and forestry land use in the wet headwaters. Permian Sandstones dominate in the lower reaches with extensive Drift cover of Boulder Clay and sands and gravels and mixed farming landuse.
- 54096 Hadley Brook at Wards Bridge** **EA Midlands**
Station: Crump profile Flat V (1:10) weir set in low 0.5m vertical wingwalls. Straight approach. Very responsive; out of structure flows could be gauged from an u/s bridge. Monitors compensation flows from a compensation borehole as substantial gw abstraction in the catchment.
Catchment: Low to moderate relief catchment principally on Mercia Mudstone; Headwaters have Sherwood S'st outcrops. Wholly rural with mixed farming.

54097 Hore at Upper Hore flume**CEHW**

Station: Rectangular, side contracted critical depth flume designed to gauge streams which have supercritical flow regimes. Drowning may occur following big floods owing to sediment deposited d/s. Natural catchment nested within 54022. Researchers should note the availability of the primary 15 minute dataset.

Catchment: The highest and southern lateral fringes of catchment are peat moorland. Remaining 70% has mature coniferous forest planted in 1958 and 1960. Geology: Palaeozoic grits and shales. Very steep gradients, ~2500mm rain. Rainfall, evaporation and soil moisture estimates also available from dense monitoring network.

54098 Cam at Cambridge**EA Midlands**

Station: Flat V weir, 6m wide with 2.295m wing walls and integral access bridge. Subject to accretion u/s. Owned and built by British Waterways but now operated by the EA. No dmfs 17/06 - 08/07/98 - gauge house rebuilding. Cam acts as important feeder for Gloucester and Sharpness Canal. Relatively unresponsive flow regime.

Catchment: Drains Cotswold escarpment. Geology predominantly argillaceous Lias formations. Overlain by limited drift deposits. Contains the town of Cam.

54099 Coley Brook at Coley Mill**EA Midlands**

Station: Rectangular thin-plate weir 1.9m wide with concrete side contractions, set in existing brick lined channel. Non standard approach (sharp bend u/s). Weir drowns at high flows. Flows affected by u/s PWS abstractions and spray irrigation. High baseflow component.

Catchment: Geology: Triassic Sandstones overlain by Boulder Clay and sands and gravels within the lower reaches. Land use is mainly arable farming.

54100 Lonco Brook at Whitleyford Bridge**EA Midlands**

Station: Flat V weir, opened in 2002.

Catchment: Agricultural, low relief catchment.

54110 Severn at Deerhurst**EA Midlands**

Station: Cross path ultrasonic gauge designed to measure low to medium flows where tides affect the flow regime. High flow and gauging site at Haw Bridge (54057). Difficulties in establishing a merged record. Substantial modification to flow owing to PWS exports and effluent returns (chiefly to the Stour, Worcester, Avon and Thames).

Catchment: Very large, diverse catchment, Paleozoic slates in Welsh headwaters, Permo-Triassic sediments in middle reaches and Jurassic and Liassic clays from the Avon catchment.

54114 Avon at Warwick**EA Midlands**

Station: Responsive regime with evident artificial influences.

Catchment: Low relief catchment. Mostly agricultural, but containing Rugby, Coventry, Leamington Spa.

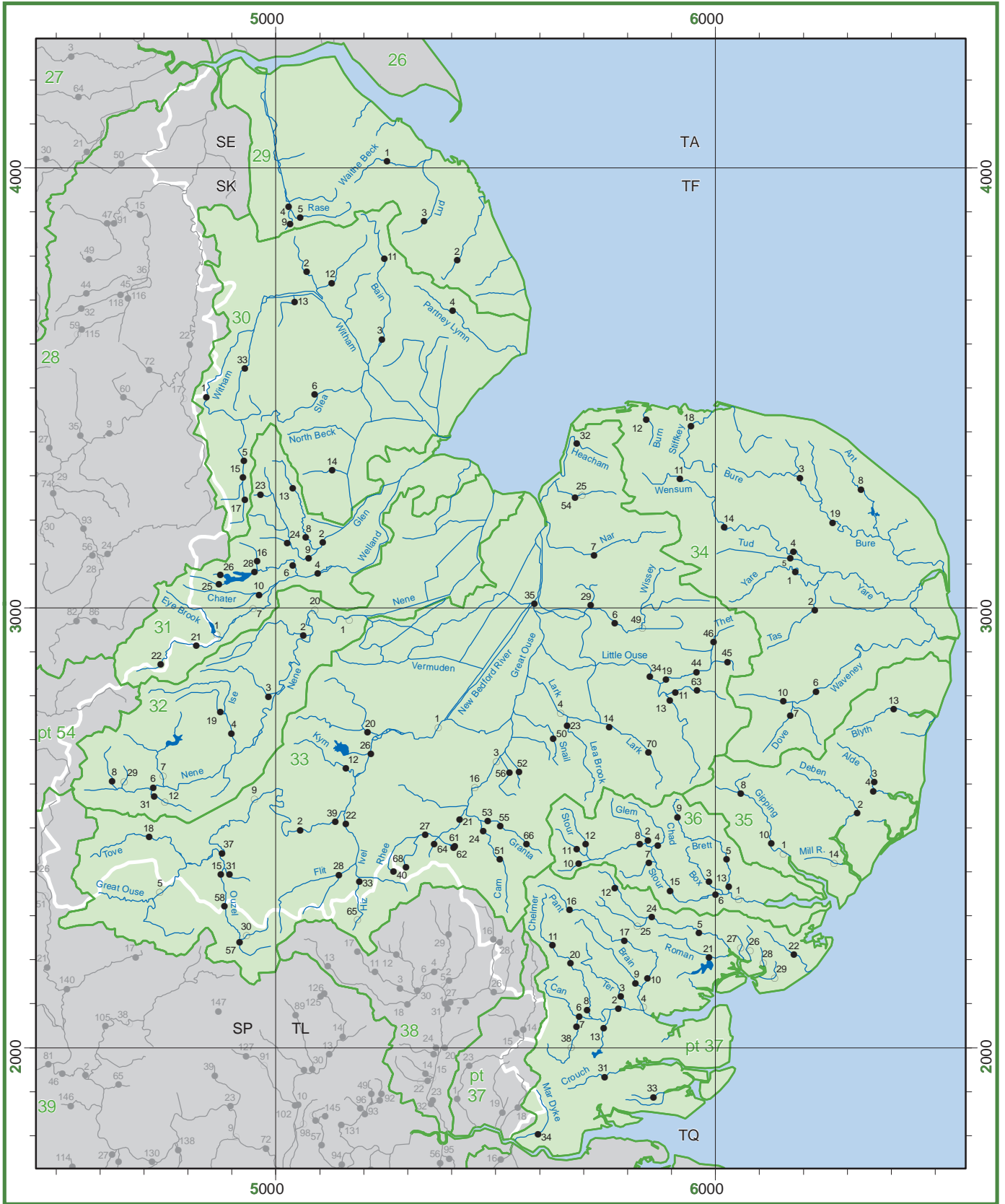
GAUGING STATION REGISTER

Region: EA Anglian

Area: 26,795 km²

Average rainfall (1971-2000): 609 mm

Map 6: ANGLIAN



Gauging Station Register I

Station number	River name	Station name	Grid reference	Catchment area	Station type	SLA	Period of record	Percent complete	Base Flow Index	Mean ann. rain (mm)	Mean ann. runoff (mm)	Mean ann. loss (mm)	Mean flow (m ³ /s)	Q95 (m ³ /s)	Q70 (m ³ /s)	Q50 (m ³ /s)	Q10 (m ³ /s)	Median ann. flood (m ³ /s)	Peak flow (m ³ /s)	Date of peak	7-day min. (m ³ /s)	Date of min.
29001	Waithe Beck	Brigsley	TA253016	108.3 FL			1960-05	100	.85	691	86	605	0.30	0.06	0.13	0.19	0.7	2.0	7.2	26/04/81	0.01	02/08/96
29002	Great Eau	Claythorpe Mill	TF416793	77.4 CC			* 1962-05	99	.89	693	269	424	0.68	0.28	0.43	0.56	1.2	3.2	13.3	11/07/68	0.17	25/08/76
29003	Lud	Louth	TF337879	55.2 C			* 1968-05	100	.90	700	256	444	0.45	0.13	0.24	0.35	0.9	3.1	7.2	02/11/68	0.07	13/12/91
29004	Ancholme	Bishopbridge	TF032911	54.7 CC			1968-05	98	.52	624	346	278	0.60	0.03	0.23	0.42	1.3	6.1	22.6	26/04/81	0.00	02/09/72
29005	Rase	Bishopbridge	TF032912	66.6 C			* 1971-05	100	.55	645	215	430	0.46	0.06	0.14	0.25	1.0	9.5	24.1	12/10/93	0.02	25/08/76
29009	Ancholme	Toft Newton	TF033877	27.2 FV			* 1974-05	96	.53	613	165	448	0.14	>0.00	0.02	0.05	0.4	1.8	7.1	26/04/81	0.00	01/08/95
30001	Witham	Claypole Mill	SK842480	297.9 B			* 1959-05	100	.68	626	198	428	1.85	0.35	0.73	1.17	4.0	16.1	37.6	11/02/77	0.03	22/07/76
30002	Barlings Eau	Langworth Bridge	TF066766	210.1 FV			1960-05	80	.43	614	207	407	1.39	0.04	0.19	0.52	3.5	20.3	36.3	21/01/85	>0.00	24/09/64
30003	Bain	Fulby Lock	TF241611	197.1 B			1962-05	100	.59	672	198	474	1.26	0.11	0.34	0.68	2.9	16.3	39.5	12/10/93	0.01	29/06/76
30004	Lymn	Partney Mill	TF402676	61.6 C			* 1962-05	99	.65	696	256	440	0.50	0.14	0.25	0.35	0.9	7.1	13.3	26/04/81	0.07	04/07/76
30005	Witham	Salterford total	SK927335	126.1 CB			* 1968-05	73	.78	664	208	456	0.83	0.14	0.34	0.59	1.8	7.2	15.2	09/03/75	0.05	15/08/76
30006	Slea	Leasingham Mill	TF088485	48.4 TP			1974-05	97	.91	618	357	261	0.55	0.00	0.04	0.30	1.5	1.7	3.8	12/02/01	0.00	20/06/97
30011	Bain	Goulceby Bridge	TF246795	62.5 C VA			* 1971-05	100	.75	694	172	522	0.34	0.07	0.14	0.22	0.7	2.5	6.1	26/04/81	0.00	02/09/72
30012	Stainfield Beck	Creampoke Farm	TF127739	37.4 CC			* 1970-05	97	.44	636	187	449	0.24	0.01	0.04	0.10	0.6	5.9	21.5	21/01/85	0.00	17/06/99
30013	Heighington Beck	Heighington	TF042696	21.2 C			1976-05	100	.76	614	182	432	0.13	0.02	0.05	0.08	0.3	0.6	1.2	13/02/77	>0.00	04/08/96
30014	Pointon Lode	Pointon	TF128313	11.9 C			* 1972-05	90	.49	603	211	392	0.08	>0.00	0.01	0.04	0.2	2.6	15.7	02/01/98	0.00	15/11/96
30015	Cringe Brook	Stoke Rochford	SK925297	50.5 TP			1976-05	100	.89	695	189	506	0.29	0.06	0.14	0.23	0.6	1.6	3.8	10/04/98	0.38	20/09/76
30017	Witham	Colsterworth	SK929246	51.3 FV			1978-05	100	.50	665	145	520	0.24	0.02	0.06	0.12	0.5	5.9	0.7	14/09/91		
30033	Brant	Brant Broughton	SK929545	65.8 FV			1990-05	92	.33	588	95	493	0.23	0.01	0.03	0.06	0.5	10.2	16.7	06/11/00	>0.00	02/09/91
31001*	Eye Brook	Eye Brook Reservoir	SP853941	60.1 C			1937-99	78	.41	669	119	550	0.23	0.04	0.04	0.06	0.6	6.3	33.9	09/03/75		
31002	Glen	Kates Br and King St Br	TF106149	341.9 FV+FL*			1960-05	100	.59	630	111	519	1.21	0.5	0.24	0.54	3.0	17.2	36.6	10/03/75	0.00	26/08/76
31004	Welland	Tallington	TF095078	717.4 CB+2C			1967-05	99	.51	656	176	480	3.80	0.40	1.22	2.00	8.9	37.0	94.5	11/04/98		
31006	Gwash	Belmesthorpe	TF038097	150.0 C			* 1967-05	100	.84	648	159	489	0.75	0.29	0.42	0.57	1.4		26.5	06/05/69	0.16	06/09/76
31007*	Welland	Barrowden	SP948999	411.6 C			1968-03	97	.49	658	177	481	2.14	0.23	0.49	0.94	4.3		107.8	10/03/75	0.07	24/08/76
31008	East Glen	Manthorpe	TF068160	136.2 FV			1968-05	83	.27	632	97	535	0.29	0.00	>0.00	0.04	0.7				0.00	11/10/02
31009	West Glen	Shillingthorpe	TF074113	173.0 C			1970-05	89	.67	634	80	554	0.36	0.03	0.10	0.18	0.9				0.00	23/12/90
31010	Chater	Fosters Bridge	SK961030	68.9 CC			* 1968-05	100	.53	669	239	430	0.52	0.07	0.17	0.27	1.2	10.3	27.3	06/11/00	0.02	19/08/76
31013	East Glen	Irnham	TF038273	71.5 FV			1969-05	96	.32	628	69	559	0.13	0.00	0.01	0.04	0.3				0.00	06/08/96
31016	North Brook	Empingham	SK957089	36.5 C			1969-05	100	.91	641	216	425	0.25	0.07	0.13	0.19	0.5	0.7	1.9	25/02/77	0.03	24/08/76
31021	Welland	Ashley	SP819915	250.7 C VA			* 1970-05	99	.39	660	187	473	1.40	0.14	0.27	0.53	3.4				0.04	24/08/76
31022	Jordan	Market Harborough	SP740867	20.8 C			1970-05	89	.34	667	190	477	0.09	>0.00	0.01	0.03	0.2				0.00	19/08/95
31023	West Glen	Easton Wood	SK965258	4.4 FV			* 1972-05	99	.13	658	167	491	0.02	0.00	0.00	>0.00	0.1	1.9	7.8	14/08/80	0.00	15/10/05
31024	Holywell Brook	Holywell	TF026148	22.3 C			1971-05	88	.88	632	186	446	0.13	0.02	0.06	0.10	0.3				0.00	24/08/76
31025	Gwash South Arm	Manton	SK875051	24.5 FV			* 1978-05	100	.27	699	241	458	0.19	0.01	0.02	0.05	0.5	11.2	22.5	02/06/81	>0.00	06/09/91
31026	Eggleton Brook	Eggleton	SK878073	2.5 FV			1978-05	99	.31	672	278	394	0.02	0.00	>0.00	0.01	>0.0	1.0	2.4	26/01/02	0.00	07/11/03
31028	Gwash	Church Bridge	SK951082	76.5 CC			1982-04	99	.80	672	70	602	0.16	0.08	0.10	0.12	0.3					
32001*	Nene	Orton	TL166972	1634.3 MIS			1939-96	89	.51	634	181	453	9.30	1.10	2.83	4.66	23.9	56.4	382.3	18/03/47	0.26	14/08/44
32002	Willow Brook	Fotheringhay	TL067933	89.6 FL			1938-05	97	.72	621	279	342	0.79	0.25	0.50	0.64	1.4	5.8	15.0	17/03/47	0.07	09/08/44
32003	Harpers Brook	Old Mill Bridge	SP983799	74.3 CC			* 1938-05	99	.48	638	179	459	0.43	0.07	0.13	0.19	0.9	9.9	22.0	26/04/81	0.03	04/07/76
32004	Ise Brook	Harrowden Old Mill	SP898715	194.0 FV			* 1943-05	99	.55	648	221	427	1.34	0.19	0.44	0.72	3.0	14.9	30.2	02/07/58	0.06	15/08/44
32006	Nene/Kislingbury	Upton	SP721592	223.0 FL+C			* 1939-05	100	.60	664	189	475	1.33	0.26	0.51	0.79	2.8	11.6	20.8	11/07/68	0.09	19/09/44
32007*	Nene Brampton	St Andrews	SP747617	232.8 FV			1939-03	98	.59	661	156	505	1.13	0.22	0.41	0.63	2.3	18.8	51.4	10/03/47	0.02	15/08/44
32008	Nene/Kislingbury	Dodford	SP627607	107.0 C			* 1945-05	99	.57	672	184	488	0.63	0.11	0.22	0.34	1.4	10.1	29.2	16/03/47	0.04	09/09/49
32012*	Wootton Brook	Lady Bridge	SP736571	53.3 C			1968-00	45	.47	638	260	378	0.22	0.03	0.06	0.10	0.4					
32019	Slade Brook	Kettering	SP873763	58.3 FV			1970-05	69	.62	650	272	378	0.35	0.06	0.13	0.21	0.7		28.6	10/04/98	0.02	25/08/76
32020*	Wittering Brook	Wansford	TL089995	46.9 C			1970-85	100	.86	603	150	453	0.23	0.09	0.14	0.18	0.4				0.01	24/08/76
32029*	Flore	Experimental Catchment	SP655604	7.0 FL			1973-79	92	.42	640	160	480	0.04	>0.00	>0.00	0.01	0.1	2.5				
32031	Wootton Brook	Wootton Park	SP726577	73.9 FV			1982-05	97	.44	645	179	466	0.42	0.04	0.10	0.17	1.0	6.1	12.1	12/02/01	0.03	05/08/95
33001*	Bedford Ouse	Brownhill Staunch	TL369727	3030.0 MIS			1936-62	98	.40	616	148	468	14.41	0.99	3.40	6.17	36.5					
33002	Bedford Ouse	Bedford	TL055495	1460.0 MIS			* 1933-05	100	.53	654	226	428	10.43	1.03	2.92	5.07	26.9	91.4	278.0	15/03/47	0.01	28/08/34
33003*	Cam	Bottisham	TL508657	803.0 MIS			1936-87	99	.66	588	144	444	3.64	0.91	1.70	2.43	7.0				0.23	17/08/44
33004*	Lark	Isleham	TL648760	466.2 MIS			1936-86	99	.64	613	121	492	1.80	0.44	0.92	1.36	3.4				0.05	26/08/76
33005*	Bedford Ouse	Thornborough Mill	SP736353	388.5 MIS			1951-91	100	.50	666	209	4										

Gauging Station Register I cont'd

Station number	River name	Station name	Grid reference	Catchment area	Station type	SLA	Period of record	Percent complete	Base Flow Index	Mean ann. rain (mm)	Mean ann. runoff (mm)	Mean ann. loss (mm)	Mean flow (m ³ /s)	Q95 (m ³ /s)	Q70 (m ³ /s)	Q50 (m ³ /s)	Q10 (m ³ /s)	Median ann. flood (m ³ /s)	Peak flow (m ³ /s)	Date of peak	7-day min. (m ³ /s)	Date of min.	
33037	Bedford Ouse	Newport Pagnell	SP877443	800.0	CC+C	*	1969-05	97	.47	663	177	486	4.46	0.39	1.02	1.72	11.2	63.4	122.0	10/04/98	0.09	25/10/03	
33039	Bedford Ouse	Roxton	TL160535	1660.0	FV	*	1972-05	100	.57	644	219	425	11.39	2.04	3.81	6.26	27.4	94.7	167.2	12/04/98	0.25	24/08/76	
33040	Rhee	Ashwell	TL267401	2.0	FL		1965-05	98	.97	596	941		0.06	0.02	0.04	0.05	0.1	0.2	0.4	30/05/79	0.01	13/04/97	
33044	Thet	Bridgham	TL957855	277.8	C		1967-05	100	.74	645	189	456	1.64	0.40	0.72	1.15	3.5	8.0	15.9	29/08/87	0.13	24/08/76	
33045	Wittle	Quidenham	TM027878	28.3	CB		1967-05	100	.66	630	156	474	0.14	0.02	0.05	0.08	0.3	1.1	3.4	16/09/68	0.00	24/08/76	
33046	Thet	Red Bridge	TL996923	145.3	C		1967-05	100	.62	646	202	444	0.95	0.14	0.30	0.55	2.1	8.1	17.5	16/09/68	0.03	23/08/76	
33049*	Stanford Water	Buckenham Tofts	TL834953	43.5	B		1973-80	100	.89	665	194	471	0.27	0.11	0.16	0.22	0.5	0.8			0.07	24/08/76	
33050	Snail	Fordham	TL631703	60.6	FV		1960-05	86	.88	588	163	425	0.30	0.11	0.20	0.26	0.5	2.0	2.7	06/05/78	0.06	05/08/92	
33051	Cam	Chesterford	TL505426	141.0	CB		1964-05	95	.67	618	140	478	0.61	0.16	0.29	0.40	1.1	9.0	13.0	01/02/79	0.12	25/08/73	
33052	Swaffham Lode	Swaffham Bulbeck	TL553628	36.4	C		1963-05	85	.96	566	140	426	0.16	0.05	0.10	0.14	0.3	0.4	1.4	13/10/93	0.02	26/08/76	
33053	Granta	Stapleford	TL471515	114.0	MIS	*	1949-05	87	.57	587	69	518	0.24	0.01	0.05	0.11	0.5				0.00	04/12/97	
33054	Babingley	Castle Rising	TF680252	47.7	FV	*	1976-05	100	.95	688	329	359	0.50	0.16	0.34	0.44	0.8	1.1	2.1	28/03/79	0.08	07/08/96	
33055	Granta	Babraham	TL510504	98.7	FV		1963-05	77	.56	597	78	519	0.24	0.01	0.06	0.12	0.5	4.1	20.4	22/10/01	0.00	22/08/65	
33056	Quy Water	Lode	TL531627	76.4	MIS		1965-05	89	.80	563	90	473	0.21	0.01	0.06	0.12	0.5				0.00	07/08/76	
33057	Ouzel	Leighton Buzzard	SP917241	119.0	C		1976-05	84	.68	654	203	451	0.81	0.21	0.36	0.53	1.7	7.6	10.2	12/02/01	0.13	05/08/76	
33058	Ouzel	Bletchley	SP883322	215.0	FV	*	1978-05	94	.59	658	270	388	1.88	0.47	0.76	1.10	3.8	25.2	37.3	23/09/92	0.35	18/08/97	
33061	Shep	Fowlmere One	TL402460	3.4	C		1995-05	99	.94	563	786		0.08	0.02	0.04	0.06	0.2				0.01	31/05/97	
33062	Guilden Brook	Fowlmere Two	TL403457	3.4	FL		1964-05	62	.96	554	503	51	0.06	0.02	0.03	0.04	0.1				>0.00	06/10/97	
33063	Little Ouse	Knettishall	TL955807	101.0	MIS		1980-05	100	.69	622	150	472	0.47	0.13	0.22	0.31	0.9	4.3	6.6	27/08/87	0.05	31/08/90	
33064	Whaddon Brook	Whaddon	TL359466	16.0	FL		1980-05	87	.88	573	198	375	0.10	0.04	0.06	0.08	0.2				0.02	05/10/05	
33065*	Hiz	Hitchin	TL185290	11.9	CC		1980-99	83	.86	648	87	561	0.03	0.01	0.02	0.02	0.1				0.00	04/12/97	
33066	Granta	Linton	TL570464	59.8	CC		1981-05	100	.47	620	102	518	0.19	0.01	0.03	0.07	0.4	4.4	5.5	09/10/87			
33068	Cheney Water	Gatley End	TL296411	5.0	C		1982-05	67	.95	592	94	498	0.02	0.00	>0.00	0.01	>0.0						04/07/05
33070	Lark	Fornham St.Martin	TL847672	110.2			1985-05	99	.50	636	106	530	0.34	0.01	0.07	0.15	0.8				0.00	09/09/92	
34001	Yare	Colney	TG182082	231.8	MIS		1959-05	97	.66	664	193	471	1.40	0.33	0.59	0.92	3.0	8.0	21.8	17/09/68	0.14	11/07/76	
34002	Tas	Shotesham	TM226994	146.5	FV	*	1957-05	98	.60	630	162	468	0.74	0.17	0.31	0.44	1.6	7.3	62.3	16/09/68	0.93	23/08/76	
34003	Bure	Ingworth	TG192296	164.7	MIS	*	1959-05	100	.83	691	218	473	1.13	0.57	0.81	0.99	1.8	6.0	17.8	27/04/81	0.40	09/07/76	
34004	Wensum	Costessey Mill	TG177128	570.9	MIS	*	1960-05	98	.74	691	222	469	4.05	1.29	2.33	3.18	7.4	20.0	34.0	29/01/84	0.36	06/08/91	
34005	Tud	Costessey Park	TG170113	73.2	FL	*	1961-05	99	.64	674	143	531	0.34	0.08	0.15	0.23	0.7	3.0	11.0	27/04/81	0.03	06/07/76	
34006	Waveney	Needham Mill	TM229811	370.0	CC	*	1963-05	100	.47	608	156	452	1.81	0.30	0.49	0.77	4.1	24.3	113.2	17/09/68	0.22	30/07/90	
34007	Dove	Oakley Park	TM174772	133.9	CC	*	1966-05	99	.46	594	169	425	0.69	0.14	0.21	0.30	1.4	14.8	37.2	16/09/68	0.12	06/09/73	
34008	Ant	Honing Lock	TG331270	49.3	C	*	1966-05	97	.86	602	210	452	0.32	0.18	0.25	0.30	0.5	1.1	2.6	26/04/81	0.10	01/07/76	
34010	Waveney	Billingford Bridge	TM168782	149.4	MIS	*	1968-05	96	.45	618	156	462	0.76	0.08	0.17	0.30	1.7	14.5	59.5	16/09/68	0.02	16/08/76	
34011	Wensum	Fakenham	TF919294	161.9	MIS	*	1967-05	91	.83	711	175	536	0.87	0.24	0.50	0.71	1.6	4.6	9.7	12/02/77	0.13	07/08/96	
34012	Burn	Burnham Overy	TF842428	80.0	CC	*	1966-05	100	.95	683	130	553	0.32	0.09	0.20	0.28	0.6	1.0	1.5	14/06/98	0.06	11/09/91	
34014	Wensum	Swanton Morley Total	TG020184	397.8	CC		1969-05	97	.75	698	222	476	2.76	0.93	1.54	2.15	5.1		30.8	01/02/04	0.46	19/08/91	
34018	Stiffkey	Warham All Saints	TF944414	87.8	FV		1972-05	94	.79	682	195	487	0.55	0.13	0.30	0.43	1.0	3.0	12.5	11/02/77	0.05	23/08/76	
34019	Bure	Horstead Mill	TG267194	313.0	MIS		1974-05	98	.80	682	240	442	2.35	1.04	1.72	2.13	3.6	12.9	34.8	27/04/81			
35001*	Gipping	Constantine Weir	TM154441	310.8	MIS		1964-96	48	.45	598	136	462	1.35	0.13	0.38	0.58	3.3				0.06	20/08/76	
35002	Deben	Naunton Hall	TM322534	163.1	CC	*	1964-05	97	.34	610	161	449	0.76	0.08	0.18	0.27	1.6	10.7	29.5	17/09/68	0.01	11/07/76	
35003	Alde	Farnham	TM360601	63.9	MIS	*	1961-05	99	.37	608	145	463	0.30	0.04	0.07	0.10	0.6	8.3	11.7	01/02/79	0.02	07/07/76	
35004	Ore	Beversham Bridge	TM359583	54.9	CC	*	1965-05	96	.46	617	180	437	0.31	0.07	0.11	0.14	0.6	5.3	11.9	02/02/79	0.03	27/06/76	
35008	Gipping	Stowmarket	TM058578	128.9	CC	*	1964-05	98	.39	589	157	432	0.64	0.08	0.13	0.22	1.4	12.2	34.0	02/02/79	0.06	03/08/90	
35010	Gipping	Bramford	TM127465	298.0	MIS		1969-05	100	.50	589	126	463	1.19	0.18	0.36	0.57	2.8	18.6	42.4	02/02/79	0.05	09/08/76	
35013	Blyth	Holton	TM406769	92.9	CC		1970-05	99	.35	607	147	460	0.41	0.06	0.10	0.13	0.9	13.4	32.2	01/02/79	0.04	10/08/90	
35014*	Mill River	Newbourn	TM270420	27.1	MIS		1948-69	93	.92	606	177	429	0.15	0.11	0.13	0.15	0.2						
36001*	Stour	Stratford St Mary	TM042340	844.3	MIS		1928-92	97	.50	603	116	487	3.10	0.57	1.04	1.52	7.6				0.06	14/07/76	
36002	Glem	Glemsford	TL846472	87.3	FL		1960-05	99	.43	608	167	441	0.48	0.07	0.12	0.19	1.1	8.2	23.0	15/09/68	0.01	03/10/97	
36003	Box	Polstead	TL985378	53.9	FL	*	1960-05	100	.63	583	124	459	0.22	0.06	0.10	0.13	0.4	3.8	10.1	29/01/88	0.03	11/09/73	
36004	Chad Brook	Long Melford	TL868459	47.4	EW		1965-05	100	.47	603	171	432	0.26	0.03	0.07	0.13	0.6	5.4	15.0	16/09/68			
36005	Brett	Hadleigh	TM025429	156.0	EW		1962-05	100	.47	593	145	448	0.71	0.09	0.20	0.32	1.6	11.6	26.6	10/10/87	0.03	20/08/97	
36006	Stour	Langham	TM020344	578.0	FL	*	1962-05	100	.52	596	166	430	3.03	0.57	1.14	1.79	6.4	29.5	90.0	17/09/68	0.10	12/07/76	
36007	Belchamp Brook	Bardfield Bridge	TL848421	58.6	FL		1960-05	100	.42	571	97	474	0.19	0.02	0.04	0.06	0.4	4.6	20.0	21/10/01	0.01	04/08/97	
36008	Stour	Westmill	TL827463	224.5	FL		1960-05	100	.43	609	184	425	1.34	0.14	0.44	0.66	2.7	18.3	60.0	16/09/68			
36009	Brett	Cockfield	TL914525	25.7	EW	*	1968-05	98	.32	621	146	475	0.13	>0.00	0.01	0.03	0.3	4.0	8.7	21/10/91	0.00	01/11/97	
36010	Bumpstead Brook	Broad Green	TL689418	28.3	EW	*	1968-05	100	.23	610	155	455	0.14	>0.00	0.01	0.02	0.3	6.9	27.8	21/10/01	0.00	23/08/76	
36011	Stour Brook	Sturmer	TL696441	34.5	EW	*	1968-05	100	.38	611	211	400	0.23	0.05	0.07	0.10	0.5	6.2	25.3	16/09/68	0.03	26/07/73	
36012	Stour	Kedington	TL708450	76.2	EW	*	1968-05	100	.52	619	354	265	0.83	0.05	0.23	0.38	2.3	12.8	42.0	16/09/68			
36013	Brett	Higham	TM032354	195.0	EW		1971-05	56	.58	621	166	455	0.50	0.09	0.22	0.32	1.1						
36015																							

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Station number	River name	Station name	Catchment area	Sensitivity	Bankfull/structurefull Factors affecting runoff	Descriptors				Elevation				Bedrock			Superficial			Landuse						
						BFIHOST	FARL	PROPWET	DPSBAR	Station level (mOD)	10 percentile (mOD)	50 percentile (mOD)	90 percentile (mOD)	Maximum level (mOD)	High perm. (%)	Moderate perm. (%)	Very low perm. (%)	Gen. high perm. (%)	Mixed perm. (%)	Gen. low perm. (%)	Woodland (%)	Arable/horticultural (%)	Grassland (%)	Mountain/heath/bog (%)	Urban extent (%)	
29001	Waithe Beck	Brigsley	108.3	3	17.0 PGEI	.88	0.961	29	52	16	57	95	127	162	100	0	0	<1	20	0	3	73	20	0	1	
29002	Great Eau	Claythorpe Mill	77.4	12	12.8 GI	.71	0.952	28	53	7	22	64	115	148	100	0	0	<1	23	0	7	83	10	0	0	
29003	Lud	Louth	55.2	26	20.0 G	.82	0.958	29	60	15	53	89	131	153	100	0	0	<1	29	0	6	80	10	0	2	
29004	Ancholme	Bishopbridge	54.7	63	20.9 SRGI	.56	0.996	26	12	4	11	22	54	68	21	32	46	8	28	<1	1	81	16	0	0	
29005	Rase	Bishopbridge	66.6	39	18.0 PGEI	.52	0.996	29	29	4	15	35	119	161	21	21	58	39	22	6	12	50	33	0	2	
29009	Ancholme	Toft Newton	27.2	75	10.0 GI	.63	0.997	26	12	8	14	26	59	68	27	31	42	3	19	0	2	78	18	0	0	
30001	Witham	Claypole Mill	297.9	11	43.0 RPE	.59	0.975	27	30	17	32	91	135	157	38	<1	61	10	14	0	7	60	23	<1	4	
30002	Barlings Eau	Langworth Bridge	210.1	30	22.5 GI	.53	0.982	28	15	4	11	26	62	142	22	31	47	7	60	0	3	70	20	0	2	
30003	Bain	Fulsby Lock	197.1	24	42.0 SPI	.76	0.963	29	39	10	33	79	124	153	49	0	51	7	63	0	4	77	15	<1	1	
30004	Lynn	Partney Mill	61.6	24	18.0 PI	.57	0.979	29	53	15	33	61	104	146	68	0	32	3	12	0	9	73	15	0	1	
30005	Witham	Saltersford total	126.1	17	RPGI	.76	0.973	27	31	58	97	122	141	157	84	2	14	<1	25	0	11	60	22	<1	1	
30006	Slea	Leasingham Mill	48.4		2.1 PGI	.81	0.964	23	28	12	19	53	102	127	63	29	8	22	3	0	3	52	35	0	4	
30011	Bain	Goulceby Bridge	62.5	32	30.0 SGI	.84	0.949	29	45	52	76	113	133	153	94	0	6	10	45	0	5	77	16	<1	0	
30012	Stainfield Beck	Creampoke Farm	37.4	64	9.2 N	.52	0.999	29	29	8	22	54	103	135	17	22	61	16	64	0	4	70	23	0	1	
30013	Heighington Beck	Heighington	21.2	61	8.8 GI	.95	0.963	26	19	11	25	54	71	77	95	5	0	1	<1	0	1	64	19	0	8	
30014	Pointon Lode	Pointon	11.9		5.7 I	.34	1.000	22	29	3	19	45	67	81	0	19	81	4	72	0	23	57	13	0	1	
30015	Cringle Brook	Stoke Rochford	50.5	21	6.3 N	.85	0.931	27	32	76	107	131	148	157	89	0	11	0	11	0	9	63	26	0	0	
30017	Witham	Colsterworth	51.3	29	9.4 R	.66	0.993	27	22	87	108	122	139	156	82	0	18	0	44	0	9	62	21	<1	3	
30033	Brant	Brant Broughton	65.8			.37	0.995	27	18	10	15	24	64	105	2	0	98	23	<1	0	3	75	16	0	1	
31001	* Eye Brook	Eye Brook Reservoir	60.1		SR	.32	0.837	30	71	55	87	138	185	222	6	0	94	3	25	0	17	44	33	0	0	
31002	Glen	Kates Br and King St Br	341.9	68	GI					6				13												
31004	Welland	Tallington	717.4		SPEI	.48	0.925	29	48	13	57	102	154	228	21	7	72	3	30	0	12	47	34	<1	2	
31006	Gwash	Belmesthorpe	150.0	23	24.0 SRP	.67	0.757	28	37	24	61	101	146	211	52	5	43	0	28	0	10	48	27	<1	2	
31007	* Welland	Barrowden	411.6	14	SEI	.37	0.970	30	51	35	66	110	157	222	5	3	93	5	34	0	11	46	40	0	1	
31008	East Glen	Manthorpe	136.2		20.0 G	.59	0.983	22	27	16	42	71	105	131	26	55	19	2	36	0	13	66	17	<1	1	
31009	West Glen	Shillingthorpe	173.0		3.0 G	.58	0.991	23	36	14	42	84	113	134	51	45	4	<1	46	0	16	62	17	<1	1	
31010	Chater	Fosters Bridge	68.9		19.2 N	.53	0.998	30	62	38	70	107	163	228	28	<1	71	0	21	0	14	51	32	0	1	
31013	East Glen	Irnham	71.5		G	.64	0.997	23	22	42	61	82	114	131	47	35	18	2	33	0	10	70	14	<1	1	
31016	North Brook	Empingham	36.5		SI	.78	0.910	30	32	50	84	114	137	155	100	0	0	0	37	0	14	61	19	0	2	
31021	Welland	Ashley	250.7	32	22.1 REI	.33	0.992	30	47	56	76	113	155	216	0	<1	100	7	38	0	7	46	42	0	2	
31022	Jordan	Market Harborough	20.8			.29	1.000	30	45	75	91	121	143	158	0	<1	100	9	43	0	6	53	37	0	1	
31023	West Glen	Easton Wood	4.4		10.7 N	.32	1.000	27	33	81	92	110	120	123	83	17	0	0	100	0	33	61	4	0	0	
31024	Holywell Brook	Holywell	22.3		G	.63	0.939	26	37	27	55	86	113	134	54	46	0	0	42	0	22	52	19	<1	1	
31025	Gwash South Arm	Manton	24.5	50	16.1 I	.31	0.995	30	61	84	110	148	181	211	0	0	100	0	90	0	9	36	50	0	1	
31026	Egleton Brook	Egleton	2.5		3.6 N	.56	1.000	30	41	84	90	104	141	154	0	0	100	0	0	0	9	61	25	0	1	
31028	Gwash	Church Bridge	76.5		SRP	.48	0.603	30	41	56	84	110	163	211	15	0	85	0	34	0	12	35	31	<1	3	
32001	* Nene	Orton	1634.3		17.0 SPEI	.53	0.918	26	35	3	41	90	136	224	2	53	44	5	40	<1	10	54	26	<1	5	
32002	Willow Brook	Fotheringhay	89.6	8	7.4 SEI	.37	0.899	25	29	15	45	91	123	141	2	95	3	<1	51	0	15	42	20	<1	11	
32003	Harpers Brook	Old Mill Bridge	74.3	16	15.2 N	.42	1.000	30	38	30	57	90	121	145	0	80	20	0	73	0	21	52	23	0	2	
32004	Ise Brook	Harrowden Old Mill	194.0	58	26.0 SI	.54	0.974	29	40	45	73	107	145	195	0	56	44	3	39	<1	9	51	28	<1	6	
32006	Nene/Kislingbury	Upton	223.0	21	E	.45	0.974	30	47	62	87	125	160	224	0	13	87	16	16	0	9	49	35	0	3	
32007	* Nene Brampton	St Andrews	232.8	26	SPEI	.54	0.918	30	43	59	87	115	153	206	0	52	48	<1	32	0	9	54	28	<1	4	
32008	Nene/Kislingbury	Dodford	107.0	21	10.0 E	.46	0.958	30	42	79	102	130	160	213	0	6	94	23	24	0	8	51	32	0	4	
32012	* Wootton Brook	Lady Bridge	53.3		0.5	.44	0.996	30	26	65	81	102	117	130	0	65	35	4	78	0	19	56	21	<1	2	
32019	Slade Brook	Kettering	58.3		SEI	.62	0.954	29	44	56	77	109	139	162	0	63	37	0	23	<1	9	52	22	<1	9	
32020	* Wittering Brook	Wansford	46.9		EI	.89	0.974	21	26	9	30	63	85	96	74	14	12	2	1	0	12	60	21	0	2	
32029	* Flore	Experimental Catchment	7.0			.43	1.000	30	39	80	90	102	127	149	0	23	77	13	14	0	7	58	33	0	0	
32031	Wootton Brook	Wootton Park	73.9	27	N	.47	0.997	30	28	64	79	101	123	142	0	54	46	7	64	0	19	54	23	<1	2	
33001	* Bedford Ouse	Brownshill Staunth	3030.0		SPGEI	.46	0.950	25	28	3	27	75	129	247	16	26	58	8	52	1	8	58	24	<1	4	
33002	Bedford Ouse	Bedford	1460.0		SPGEI	.45	0.938	30	31	25	64	101	139	247	7	43	49	4	57	<1	11	51	31	<1	4	
33003	* Cam	Bottisham	803.0	11	30.0 GEI	.65	0.992	25	28	2	16	52	107	166	77	1	21	8	36	<1	6	69	17	0	4	
33004	* Lark	Isleham	466.2		GEI	.78	0.965	26	23	2	16	52	101	125	100	0	0	15	52	2	13	62	18	<1	3	
33005	* Bedford Ouse	Thornborough Mill	388.5		40.0 SPGEI	.48	0.983	31	27	71	88	113	142	182	0	56	44	4	58	0	13	48	34	<1	1	
33006	Wissey	Northwold	274.5	9	11.5 PGEI	.76	0.946	30	20	5	24	45	70	94	100	0	0	4	73	0	16	53	27	0	1	
33007	Nar	Marham	153.3	12	25.6 PGEI	.80	0.926	26	23	5	21	64	80	92	98	0	2	18	46	0	9	74	14	0	1	
33009	* Bedford Ouse	Harold Mill	1320.0	7	84.0 SPGEI	.45	0.933	30	31	41	72	104	141	247	8	44	48	4	56	<1	11	50	31	<1	3	
33011	Little Ouse	County Bridge Euston	128.7	12	30.0 GEI	.65	0.985	28	17	13	24	39	55	66	100	0	0	4	72	0	12	71	15	0	1	
33012	Kym	Meagre Farm	137.5	66	49.0 EI	.31	0.992	24	26	17	33	63	88	104	0	0	100	9	60	0	6	75	18	0	1	
33013	Sapiston	Rectory Bridge	205.9	40	14.0 GEI	.61	0.975	28	19	16	34	53	69	95	99	<1	0	14	76	0	8	72	14	0	2	
33014	Lark	Temple	272.0	7	25.0 GEI	.78	0.944	27	23	9	29	53	98	125	100	0	0	13	70	2	16	61	14	<1	4	
33015	Ouzel	Willen	277.1	9	43.0 GEI	.47	0.930	31	35	57	80	104	141	247	30	2	68	7	37	1	6	50				

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Station number	River name	Station name	Catchment area	Sensitivity	Bankfull/structure/full	Factors affecting runoff	Descriptors				Elevation				Bedrock			Superficial			Landuse					
							BFH0ST	FARL	PROPWET	DPSBAR	Station level (mOD)	10 percentile (mOD)	50 percentile (mOD)	90 percentile (mOD)	Maximum level (mOD)	High perm. (%)	Moderate perm. (%)	Very low perm. (%)	Gen. high perm. (%)	Mixed perm. (%)	Gen. low perm. (%)	Woodland (%)	Arable/horticultural (%)	Grassland (%)	Mountain/heath/bog (%)	Urban extent (%)
33037	Bedford Ouse	Newport Pagnell	800.0	6	71.0	PGEI	.44	0.943	30	30	54	81	110	144	186	0	61	39	3	63	0	13	48	35	<1	2
33039	Bedford Ouse	Roxton	1660.0	11	122.0	PGEI	.45	0.939	28	30	16	46	96	137	247	7	39	55	6	55	<1	10	51	30	<1	4
33040	Rhee	Ashwell	2.0	14	1.1	RG					40	47	54	75	84											0
33044	Thet	Bridgham	277.8	15	10.0	GEI	.68	0.942	31	13	15	27	39	53	71	100	0	0	5	79	0	14	65	17	0	1
33045	Wittle	Quidenham	28.3	32	2.2	GI	.53	0.974	31	15	24	30	44	52	55	100	0	0	3	75	0	8	78	11	0	1
33046	Thet	Red Bridge	145.3	24	14.6	GI	.58	0.944	31	13	20	31	44	56	71	100	0	0	2	98	0	8	73	14	0	2
33049	* Stanford Water	Buckenham Tofts	43.5		1.3	N	.85	0.915	31	13	15	27	40	50	61	100	0	0	<1	86	0	26	28	44	0	1
33050	Snail	Fordham	60.6	21	7.8	GI	.74	1.000	26	28	10	17	72	106	118	100	0	0	17	25	0	9	34	48	0	5
33051	Cam	Chesterford	141.0	14	46.0	GEI	.58	0.993	29	41	35	63	96	117	144	95	0	0	4	63	0	10	69	14	0	3
33052	Swaffham Lode	Swaffham Bulbeck	36.4	32	2.6	GE	.94	0.998	26	21	3	9	28	53	97	100	0	0	7	0	0	4	77	13	0	1
33053	Granta	Stapleford	114.0	70	7.5	GEI	.67	0.999	26	34	15	32	79	110	125	100	0	0	4	49	0	7	76	11	0	1
33054	Babingley	Castle Rising	47.7	67	11.0	GEI	.91	0.944	24	28	5	18	56	81	93	91	0	9	10	23	0	11	71	16	<1	1
33055	Granta	Babraham	98.7	36	6.5	GEI	.64	0.999	26	36	23	42	84	110	125	100	0	0	2	54	0	7	77	11	0	1
33056	Quy Water	Lode	76.4	50	2.4	GEI	.88	1.000	26	23	8	10	34	98	123	100	0	0	10	9	1	4	78	12	0	2
33057	Ouzel	Leighton Buzzard	119.0	9	7.0	GEI	.52	0.991	31	33	81	89	106	143	247	39	2	59	8	13	<1	4	60	29	0	3
33058	Ouzel	Bletchley	215.0	9	96.0	GEI	.48	0.987	31	36	66	88	109	142	247	37	2	61	7	32	<1	5	56	30	0	4
33061	Shep	Fowlmere One	3.4	40	0.5	G	.91	0.956	25	16	20	24	32	43	53	100	0	0	0	0	0	3	82	15	0	0
33062	Gullden Brook	Fowlmere Two	3.4	15	1.5	G	.91	0.956	25	16	19	24	32	43	53	100	0	0	0	0	0	3	82	15	0	0
33063	Little Ouse	Knettishall	101.0	19	7.9	GEI	.60	0.982	28	17	16	27	41	57	66	100	0	0	5	82	0	8	76	13	0	1
33064	Whaddon Brook	Whaddon	16.0	13	0.5	GE	.94	0.997	24	24	16	20	36	86	122	100	0	0	0	0	0	4	72	18	0	12
33065	* Hiz	Hitchin	11.9	50		GEI	.97	1.000	30	58	63	78	98	154	171	100	0	0	9	0	12	10	68	15	0	3
33066	Granta	Linton	59.8	25	3.9	GEI	.51	1.000	26	36	40	66	94	113	125	100	0	0	0	73	0	8	79	9	0	1
33068	Cheney Water	Gatley End	5.0		0.1						43	48	53	70	78											0
33070	Lark	Fornham St.Martin	110.2	87	13.0		.66	0.970	28	29	26	45	75	104	125	100	0	0	9	82	0	10	63	15	0	7
34001	Yare	Colney	231.8	9	19.0	GI	.53	0.971	31	19	8	29	46	62	85	100	0	0	6	94	0	6	73	17	0	2
34002	Tas	Shotesham	146.5	16		GEI	.43	0.993	29	20	10	30	45	55	71	78	22	0	<1	100	0	7	71	19	0	2
34003	Bure	Ingworth	164.7	9	4.3	GI	.78	0.974	31	23	12	30	48	77	104	41	59	0	42	58	0	11	75	12	0	1
34004	Wensum	Costessey Mill	570.9		18.8	GI	.69	0.930	30	21	5	29	50	71	96	93	7	0	20	74	0	9	74	14	<1	1
34005	Tud	Costessey Park	73.2	16		GI	.60	0.973	31	20	9	34	47	57	82	100	0	0	10	89	0	9	68	17	0	3
34006	Waveney	Needham Mill	370.0		23.0	RI	.42	0.998	28	16	17	31	47	60	65	42	58	0	8	92	0	5	78	14	0	1
34007	Dove	Oakley Park	133.9	10	23.6	RGI	.43	0.996	28	15	21	39	52	61	65	15	85	0	7	93	0	5	80	12	0	1
34008	Ant	Honing Lock	49.3	20		PGI	.81	0.978	31	21	2	15	32	46	64	0	100	0	33	66	0	9	68	13	0	5
34010	Waveney	Billington Bridge	149.4	33	7.5	REI	.44	0.999	29	15	20	29	42	52	61	91	9	0	10	90	0	6	73	17	0	2
34011	Wensum	Fakenham	161.9	13	11.0	GI	.86	0.993	29	17	34	46	63	75	93	100	0	0	13	77	0	7	77	13	<1	1
34012	Burn	Burnham Overy	80.0	8	2.8	GEI	.97	0.997	30	27	3	22	52	64	83	100	0	0	11	60	0	4	84	12	0	1
34014	Wensum	Swanton Morley Total	397.8	7		GEI	.69	0.955	30	19	19	38	57	74	96	100	0	0	18	77	0	8	76	13	<1	1
34018	Stiffkey	Warham All Saints	87.8	17		PGI	.79	0.997	31	26	5	25	51	73	97	100	0	0	7	77	0	9	78	12	<1	1
34019	Bure	Horstead Mill	313.0	9		RGI	.79	0.968	30	20	1	13	36	65	104	21	79	0	38	54	0	12	71	13	0	1
35001	* Gipping	Constantine Weir	310.8		275.0	GI	.48	0.950	28	22	2	27	56	76	98	59	31	8	14	83	0	7	72	12	0	4
35002	Deben	Naunton Hall	163.1	11	12.3	RGI	.40	0.986	26	22	6	24	50	62	66	6	24	0	17	83	0	5	79	12	<1	1
35003	Alde	Farnham	63.9	17		GI	.37	0.988	26	26	5	20	43	55	63	20	80	0	13	87	0	7	74	15	<1	1
35004	Ore	Beversham Bridge	54.9	12	12.0	GI	.45	0.988	26	23	2	18	38	53	61	52	48	0	26	74	0	7	76	12	<1	2
35008	Gipping	Stowmarket	128.9	11	32.2	GEI	.40	0.996	28	25	25	44	62	83	98	49	51	0	5	95	0	6	77	10	0	3
35010	Gipping	Bramford	298.0	16	17.0	GI	.46	0.961	28	28	6	31	57	77	98	63	33	2	12	85	0	6	75	12	0	3
35013	Blyth	Holton	92.9		31.8	GI	.35	0.993	26	27	12	20	41	53	61	0	100	0	9	81	0	4	76	15	<1	2
35014	* Mill River	Newbourn	27.1			I	.89	0.983	26	20	4	19	30	40	51	0	100	0	74	7	0	11	41	16	<1	16
36001	* Stour	Stratford St Mary	844.3		9.8	RPGEI	.51	0.988	25	33	5	38	70	105	128	71	<1	24	14	82	0	6	75	14	<1	2
36002	Glem	Glemsford	87.3	19	20.0	GI	.40	0.982	26	37	34	62	92	115	128	100	0	0	11	89	0	7	78	13	0	1
36003	Box	Polstead	53.9	19	11.0	GEI	.55	0.993	26	27	16	43	62	72	84	44	0	45	22	78	0	5	75	15	0	1
36004	Chad Brook	Long Melford	47.4		11.0	GI	.44	1.000	28	29	35	56	80	105	126	100	0	0	<1	100	0	7	84	7	0	1
36005	Brett	Hadleigh	156.0		25.0	GEI	.43	0.994	28	30	18	45	71	89	111	86	0	8	5	95	0	5	81	11	0	1
36006	Stour	Langham	578.0	7	40.0	RPGEI	.51	0.985	25	34	6	40	75	110	128	76	0	19	12	82	0	6	76	13	<1	2
36007	Belchamp Brook	Bardfield Bridge	58.6	34	9.0	GIN	.52	0.996	25	36	27	48	66	80	88	68	0	17	15	85	0	4	90	4	0	0
36008	Stour	Westmill	224.5	15	25.0	RGEI	.41	0.994	26	33	33	61	92	113	125	100	0	0	5	95	0	6	77	13	0	2
36009	Brett	Cockfield	25.7		8.0	N	.40	1.000	28	19	59	78	88	93	111	100	0	0	0	100	0	4	86	8	0	1
36010	Bumpstead Brook	Broad Green	28.3		6.0	GIN	.39	0.999	27	34	56	74	98	115	125	100	0	0	0	100	0	4	87	7	0	1
36011	Stour Brook	Sturmer	34.5	30	5.7	GEI	.38	0.999	26	34	55	75	100	116	123	100	0	0	4	96	0	6	62	14	0	10
36012	Stour	Kedington	76.2	30	10.0	RGEI	.40	0.990	26	30	53	76	100	113	123	100	0	0	2	98	0	8	72	17	0	1
36013	Brett	Higham	195.0		9.6	SGEI	.48	0.995	27	31	6	36	66	89	111	70	1	24	13	87	0	6	77	15	<1	1
36015	Stour	Lamarsh	480.7	4	35.0	RPGEI	.47	0.987	26	33	18	49	81	111	128	90	0	4	9	90	0	6	78	12	0	2
37002	Chelmer	Rushes Lock	533.9	35	1																					

Gauging Station Register III

EA Anglian

29001 Waithe Beck at Brigsley

EA Anglian

Station: Broad trapezoidal flume (1.83m wide at base) with theoretical rating confirmed to 0.9 m³s⁻¹. All recorded flows have been contained within the structure. Gw abstraction near Grimsby and irrigation abstractions have significant effect on low flows.

Catchment: Predominantly Chalk (c.80%) catchment with rural (mainly arable) land use.

29002 Great Eau at Claythorpe Mill

EA Anglian

Station: Simple low flow Crump profile weir 3.073m wide with flanking broad-crest sections. Total width 9.687m. Both components are theoretically rated. Flows to May 1973 suspect due to error in gauged head and rounding of crest during cleaning. Small amounts of abstraction for irrigation in summer.

Catchment: Predominantly Chalk (c.80%) catchment with around 30% of catchment covered with superficial deposits (Boulder Clay, sands and gravels and alluvium. Rural (mainly arable) land use.

29003 Lud at Louth

EA Anglian

Station: Crump profile weir, 4.569m wide, at u/s end of long culvert (capacity limited to 20 m³s⁻¹ - yet to be exceeded). Theoretical rating supported by current metering, but gaugings needed to confirm the high flow rating. Flows recorded 1966-1968 at sharp-crested weir at Bridge Street. Groundwater abstraction has a modest impact on flows; mill regulation can also produce short-term artificial spikes. 1920 flood estimated at about 140 m³s⁻¹.

Catchment: Catchment is predominantly (c70%) Chalk, with around 30% superficial deposits, mainly Boulder Clay. Largely rural catchment with mainly arable farming, although there is urban development (Louth) just upstream of station.

29004 Ancholme at Bishopbridge

EA Anglian

Station: Compound Crump profile weir, with central crest 2.448m wide and total width of 9.131m. Theoretical rating confirmed to 5.5 m³s⁻¹, but structure drowns in high flows and is affected by weed growth in summer. Flows are very heavily augmented in summer from Trent-Witham-Ancholme transfer scheme.

Catchment: Flat low-lying rural catchment. Geology: approx. 50% clay and 50% Lincolnshire L'st; significant superficial deposits (c30%), mainly Boulder Clay and confined to E half of catchment. Land use: principally arable.

29005 Rise at Bishopbridge

EA Anglian

Station: Crump profile weir (crest length 3.658m) with theoretical calibration. Station drowns above about 9 m³s⁻¹, and relationship between u/s and d/s levels depends on weed growth and the disposition of sluices and gates at Harlam Weir d/s. Abstractions for public supply in upper reaches has some effect on summer low flows. Some effluent returns.

Catchment: Catchment is predominantly (c90%) clay, with over 60% superficial deposits of blown sand and Boulder Clay. Predominantly rural catchment, mixed arable and pasture.

29009 Ancholme at Toft Newton

EA Anglian

Station: Flat V weir (3.03m wide) with theoretical calibration confirmed by check gaugings. There is no drowning or bypassing, and the station is immediately u/s of entry point of flows from Toft Newton reservoir. Suspect low flows in May 2003 await resolution. No major abstractions or returns.

Catchment: Flat, low-lying catchment developed on Lincolnshire L'st and clays, with some Boulder Clay cover in E half. Predominantly rural, mainly arable land use.

30001 Witham at Claypole Mill

EA Anglian

Station: An old three level weir, total width of 24.99m converted to a standard broad-crested Lea design. Rated by c/m; no bypassing or drowning. Fairly insensitive but range and gauge quality good. Substantial modification of low flows by transfer to Rutland Water and PWS at Saltersford; >50% of low flows may be abstracted representing between 10 and 30% of average flow. Some effluent returns.

Catchment: The catchment is clay (50%) with limestone (40%), mainly clay d/s of Grantham. Some superficial deposits of Boulder Clay in headwaters and gravel terrace deposits in valleys. Largely rural, although Grantham is within the catchment.

30002 Barlings Eau at Langworth Bridge

EA Anglian

Station: A natural section was replaced in Nov 1965 by a low flow compound Crump profile weir, which ceased operating in Sept 1978. The present Flat V weir has been operating since June 1980 and the theoretical rating is confirmed by check gaugings. Structure drowns at about 19 m³s⁻¹. Irrigation abstractions reduce summer low flows.

Catchment: Flat catchment. Mixed geology, with significant (>60%) superficial deposits, predominantly Boulder Clay. Predominantly rural but with some new urban development.

30003 Bain at Fulsby Lock

EA Anglian

Station: Broad-crested weir 4.6m wide situated in old lock; rated by model tests. Small bypass channel u/s feeds original river course and a disused model flume, gauged by sharp-crested weir. Flows over bypass not processed since 1981 and subsequent low flows therefore underestimated. Revesby Reservoir has a very minor influence, and abstractions for irrigation may be significant in dry summers.

Catchment: Catchment is mainly Chalk and clay, with s't in the headwaters, overlain by 70% superficial deposits (predominantly Boulder Clay, with alluvium and sands and gravels along valley bottom). Rural catchment, predominantly arable.

30004 Lymn at Partney Mill

EA Anglian

Station: Crump weir with 5m crest rated by model tests and confirmed by check gaugings. The weir is probably non-modular at very high flows due to backing up behind struts and a bridge, but is bypassed just before this point. Abstraction for irrigation in upper reaches may have effect on low flows in summer.

Catchment: Catchment with mixed permeability bedrock geology and some superficial deposits. Rural, predominantly arable land use.

30005 Witham at Saltersford total

EA Anglian

Station: Compound weir with round-crested low flow weir (1.83m wide) and broad-crested high flow portion (8.25m wide). Discharge computed from a single stage recorder to 1973, when it was discovered that a trout screen diverted flow over high flow weir. Second recorder installed, which was removed in Feb 1985 when trout screen was removed. Major abstractions for PWS immediately u/s, with significant effect on low flows.

Catchment: Flat catchment, underlain by l'st and clay with c.25% cover of Boulder Clay on E margin and in S. Predominantly rural.

30006 Slea at Leasingham Mill

EA Anglian

Station: Rectangular thin-plate weir 1.372m wide set in old gate site, modified in 1984. Theoretical rating, with section above thin-plate treated as broad-crested weir. No drowning. Gw abstraction has potential for reducing summer low flows.

Catchment: Unresponsive catchment, predominately l'st with some superficial deposits including river terrace deposits (sand and gravel) in valley. Rural catchment, mixed agriculture, some urban development in lower catchment u/s of station.

30011 Bain at Goulceby Bridge

EA Anglian

Station: Free-fall drop under bridge calibrated by c/m until Dec 1969 and standard full-range Crump profile weir (crest length 4.877m) since Aug 1971 (no records between). Abstraction for irrigation can have a significant effect on low flows in dry summers.

Catchment: Catchment on the scarp slope of the Lincolnshire Wolds. Underlain by Chalk (50%) and s't (20%) with significant (> 50%) superficial deposits, mainly Boulder Clay and some sands and gravels. Rural catchment, predominantly arable farming.

30012 Stainfield Beck at Creampoke Farm

EA Anglian

Station: Before 1998, compound Crump profile weir with (non-processed) crest tapping which became non-modular above about 2 m³s⁻¹. Central weir 1.225m wide, total width 5.791m. Divide piers lowered in 1986 to stop debris entrapment. Replaced by 8m wide Flat V with crest tapping. No major abstractions or returns.

Catchment: Flat catchment underlain by Kimmeridge Clay. Extensive (80%) superficial deposits, mainly Boulder Clay, blown sand and alluvium. Rural, mixed farming with minor urban development along river valley u/s of station.

30013 Heighington Beck at Heighington

EA Anglian

Station: Crump profile weir 3.51m wide with theoretical calibration. Expected to drown at high flows. Summer low flows may be heavily influenced by gw abstraction for irrigation.

Catchment: Very slow responding, permeable geology - almost entirely limestone, with minimal superficial deposits. Predominantly rural, mixed farming but with some urban development.

30014 Pointon Lode at Pointon

EA Anglian

Station: Crump profile weir 2.445m wide with theoretical calibration. Raised walls at Crump weir sides, with flat concrete surface between each wall and channel bank. When upstream level higher than Crump walls, whole structure acts as non-standard compound weir. Expected to drown at high flows. Abstractions for irrigation have minor effect on summer low flows.

Catchment: Drainage channel in low lying area draining highland limestone, with 70% Boulder Clay cover. Rural catchment with mixed farming and over 20% woodland, mainly in upper catchment.

30015 Cringle Brook at Stoke Rochford

EA Anglian

Station: Sharp-crested weir 2.74m wide in tunnel under A1. Weir drowns above about 0.25 m³s⁻¹, but flows depend on position of weirs and sluices immediately d/s. Rating includes an allowance for drowning using assumed positions of d/s weirs and sluices. Exceptionally low flows in Oct 1990 under review. No artificial influences. Major supply abstraction point d/s of station.

Catchment: Catchment underlain by Oolitic L'st and Lias clay. Rural, land use is mixed farming.

30017 Witham at Colsterworth**EA Anglian**

Station: Flat V weir 4.996m wide; theoretical calibration. Summer flows very heavily augmented by transfers from Rutland Water until Jun 1985, when direct Rutland/Saltersford pipeline opened. Low flows in summer 1994 are under review.

Catchment: Rural catchment underlain by l'st and Boulder Clay.

30033 Brant at Brant Broughton**EA Anglian**

Station: Crump profile Flat V (1:10) weir, 6m wide, set in vertical wingwalls 1.5m high. U/s and sidewall tappings for non-modular flow estimation (not used). Channel u/s formed by training banks circa 1m higher than walls. Station under investigation.

Catchment: Low relief catchment to W of Lincoln Edge. Geology: Lower Lias clays and subordinant l'sts with some Middle Lias on eastern watershed. Over 20% cover by broad band of river terrace sands and gravels, which forms much of western catchment. Rural catchment, with predominantly arable land use.

31001 Eye Brook at Eye Brook Reservoir

Station: Originally operated by Corby and District Water Co. Immediately d/s of reservoir built to supply water to Corby Steelworks. Crump weir with 10.89m crest replaced broad-crested weir with central rectangular notch in 1957. Small Crump weir for compensation flows. Records also kept of reservoir levels. Water from reservoir lost to catchment but licensed abstractions have been halved since 1980.

Catchment: Mostly clay with some sand and gravel. Catchment is largely rural. Surface area of reservoir constitutes about 3% of catchment.

31002 Glen at Kates Br and King St Br**EA Anglian**

Station: Combined station. Kates Bridge was originally a broad-crested weir, replaced in Nov 1971 by Flat V weir, 9.7 m wide, Ultrasonic gauge for high flows installed in 1999. Combined with standing-wave flume at King Street. All recorded flows within modular limits. The Glen is influent in upper reaches. Low flows reduced by irrigation abstractions, influenced by pumping from gravel works and groundwater abstraction outside the catchment. Flows also affected by Gwash-Glen transfer scheme since 1989.

Catchment: Mixed geology of clay (60%) and limestone (30%) in headwaters. Over 40% superficial deposits, mainly Boulder Clay. Rural catchment, mixed agricultural land use with some woodland. Glen becomes a Fenland river below the gauging stations.

31004 Welland at Tallington**EA Anglian**

Station: Flows measured over broad-crested weir (total width 28.35m) on main river and two Crump profile weirs (both with 6.1m crest length) on West Deeping and Lolham Mill streams. Total flow is sum of three. Weir at Lolham drowns in summer due to weeds, and true flows estimated. Post-1994 flow record contains many gaps and anomalous sequences and should be used for indicative purposes only, particularly at low flows. Significant quantities of water abstracted u/s for transmission to Rutland Water (which controls 11% of catchment), with significant effect on low flows.

Catchment: Gauging site where river becomes Fenland river. Largely clay, with some Boulder Clay cover. Rural catchment, mixed farming, some urban development u/s of station.

31006 Gwash at Belmesthorpe**EA Anglian**

Station: Full-range Crump profile weir (crest length 8.5m) with no drowning problems, designed to be modular throughout range. Site is 13km d/s of Rutland Water and flows have been very significantly influenced since 1975. Flows also affected by Gwash-Glen transfer scheme.

Catchment: Geology: 50% clay and 40% l'st, with 30% Boulder Clay cover. Predominantly rural catchment with mixed farming, but dominated by reservoir.

31007 Welland at Barrowden**EA Anglian**

Station: Crump weir 3.04m wide measures flows to 4.2 m³s⁻¹. Flow record from 1996 subject to truncation when flows exceed this limit. Higher flows bypass weir via syphon and are measured d/s at Tixover (31005). Tixover is a rated section about 18m wide with rating depending on position of d/s sluices: assumed open in floods. Very high Tixover flows possibly influenced by overbank spillage u/s. Period-of-record maximum flow of 107.8 m³s⁻¹ recorded in March 1975, but the flood record is not homogeneous owing to changes post-1997. Eye Brook reservoir has little influence, but low flows reduced by abstractions.

Catchment: Geology is mostly l'st overlain by 30% Boulder Clay and alluvium. Rural catchment with mixed farming.

31008 East Glen at Manthorpe**EA Anglian**

Station: Flat V weir replaced simple Crump profile weir in Mar 1973. Low flows only. Many high flows are truncated or missing, which means the mean runoff is unrepresentative.

31009 West Glen at Shillingthorpe**EA Anglian**

Station: Simple Crump profile weir, crest 1.83m broad. Rated up to 0.49m (3.0 m³s⁻¹ - flows truncated, hence not a full range station). Multi-path, cross configuration ultrasonic gauge installed to measure high flows from 2000, although truncation problem persists in recent flow record. Truncated and missing flows make for an unrepresentative annual runoff. Flow regime affected by the Gwash-Glen transfer scheme.

31010 Chater at Fosters Bridge**EA Anglian**

Station: Compound Crump profile weir with theoretical calibration. Central weir 1.054m wide, total width 6.077m. Not drowned but possibly bypassed in very extreme floods. No major abstractions or returns.

Catchment: Rural catchment. Geology variable - includes clay (75%), limestone (15%) and sandstone (10%). Some Boulder Clay cover. Rural catchment with mixed farming, some woodland in lower catchment.

31013 East Glen at Irnham**EA Anglian**

Station: Flat V weir replaced simple Crump profile weir in Nov 1977. Low flows only. Many high flows truncated or missing, which means that mean runoff is unrepresentative.

Catchment: N-S trending catchment of subdued relief. Mixed geology: Upper Jurassic Oxford Clay in lower catchment overlying Cornbrash and Oolite Series of Mid Jurassic. Around 30% Boulder Clay cover. Rural, predominantly arable land use.

31016 North Brook at Empingham**EA Anglian**

Station: Simple Crump profile weir, crest 2.36m broad. Rated up to 0.584m (2.503 m³s⁻¹) but unsuitable for high flows. Catchment contains two artificial lakes.

Catchment: Geology: Lincolnshire Limestone, Boulder Clay on highest ground. Rural catchment of mixed farming, with small wooded areas.

31021 Welland at Ashley**EA Anglian**

Station: Crump profile weir in realigned channel beneath bridge. Weir has crest length of 6.97m and is theoretically calibrated to wing wall height with rated section above. Flows above 22 m³s⁻¹ - including all floods - influenced by bridge soffit and are therefore unreliable. Abstractions for irrigation and reservoir for maintenance of canal flow.

Catchment: Catchment developed on low permeability bedrock geology with 40% superficial deposits, mainly Boulder Clay. Rural catchment with mixed farming; Market Harborough is in upper catchment.

31022 Jordan at Market Harborough**EA Anglian**

Station: Simple Crump profile weir, crest 1.47m broad. Rated up to 0.354m (0.673 m³s⁻¹). Low flows only. Most high flows are truncated or missing, leading to unrepresentative mean runoff.

Catchment: Low permeability bedrock geology, with 50% superficial deposits, mainly Boulder Clay. Rural catchment with mixed farming.

31023 West Glen at Easton Wood**EA Anglian**

Station: Flat V weir with crest length of 8.05m theoretically rated to 10.7 m³s⁻¹. Installed as part of study into recharge of Lincolnshire L'st. No abstractions or returns.

Catchment: Small catchment entirely on Boulder Clay: flows disappear into l'st d/s of gauging station. Rural catchment, mixed farming with 30% woodland.

31024 Holywell Brook at Holywell**EA Anglian**

Station: Crump weir, 2.498m wide. Calibrated up to around 1.8 cumes only. Baseflow dominated flow regime.

Catchment: A rural catchment (some woodland) developed mainly on Jurassic l'st - with some superficial deposits.

31025 Gwash South Arm at Manton**EA Anglian**

Station: Flat V weir (crest length 5m) measuring inflows to Rutland Water. Weir is theoretically calibrated. HR Wallingford report suggests modular to around 15.3 m³/s in summer and 17 m³/s in winter. Station bypassed at high flows. No abstractions, small returns.

Catchment: Rural catchment on Boulder Clay.

31026 Egleton Brook at Egleton**EA Anglian**

Station: Flat V weir 2m wide measuring inflows to Rutland Water. Theoretically rated, but could drown at high flows due to sharp bend d/s and weed growth. No abstractions or returns - sensibly natural regime.

Catchment: Small catchment developed on low permeability geology. Rural, mixed farming.

31028 Gwash at Church Bridge**EA Anglian**

Station: Compound Crump profile weir. Immediately d/s of Rutland Water. Site monitors compensation flows.

32001 Nene at Orton**EA Anglian**

Station: Series of sluices, weirs and lock. Ratings revised and historical data altered in 1975 and 1983. Ultrasonic gauge tested in 1976 but abandoned. Flows >17 m³s⁻¹ measured at Wansford (32010) 12km u/s and corrected for smaller area. Wansford was a rated section (ratings and data revised in 1981) but now has a cross, multiple path ultrasonic gauge measuring the full-range. Provenance of 1947 peak data is uncertain and under review, but this was undoubtedly an exceptional event. Water abstracted at Wansford and sent to Rutland Water, with significant effect on low flows.

Catchment: Lowest gauging point on Nene. Mostly clay (72%) and rural, but includes some towns and several small reservoirs.

32002 Willow Brook at Fotheringhay**EA Anglian**

Station: From 2000, Flat V weir, subject to bypassing and considered unreliable above 1.2m. Pre-2000, structure was a flume (1.676m wide throat) with rating based on model tests. Bypassing occurred at 6.5 m³s⁻¹ and was not allowed for; 1938 - 2000 record considered unreliable above 1.38m. Lost 4.66 sq.km. of catchment to Harpers Brook in 1963. Low flows significantly influenced by extractions for Corby steelworks (including imports from Eye Brook) until 1980. Three small reservoirs continue to have minor influence on low flows.

Catchment: Underlain by clay (75%) in headwaters and l'st (15%), with around 50% Boulder Clay cover. Largely rural with mixed farming in lower catchment, but includes Corby (up to 20% of catchment area is built up) in upper catchment.

32003 Harpers Brook at Old Mill Bridge**EA Anglian**

Station: Flat V, 4.04m wide between existing wing walls, modular to approx. 20 m³s⁻¹. Replaced (in 1998) a compound Crump profile weir - central crest 1.22m, total crest length 3.66m, calibration confirmed to 4.8 m³s⁻¹, but weir drowned around 7 m³s⁻¹. Rated section prior to 1965. Considerable floodplain inundation above about 1.5 Qmed, therefore significant uncertainty attends highest flows. Highest peak flow of 22 m³s⁻¹ in 1981 is extrapolated and should be treated with caution. The HIF of 15.6 m³s⁻¹ on 10/04/98 is likely to be an under-estimate; the flow was not captured but it may have been the highest on record. Catchment area increased by 8% after diversion from Willow Brook in 1963. Natural catchment.

Catchment: Low-lying impervious catchment, >70% cover of Boulder Clay. predominantly agricultural, with 20% forest. Some ironstone mines working until early 1980s.

32004 Ise Brook at Harrowden Old Mill**EA Anglian**

Station: Flume with low flow notch and side weir to 1965, compound Crump profile weir to April 1976, and theoretically-rated Flat V weir with 5.15m crest since. Crump weir modular to 15.6 m³s⁻¹ (but bypassed at 14.2). Flat V also bypassed. Two small storage reservoirs with minor influence on low flows; receives Kettering effluent.

Catchment: Underlain by clay (60%) and sandstone (25%) with 40% superficial deposits, mainly in higher areas on catchment margins. Mainly rural catchment of mixed farming, but includes Kettering (10% of catchment area) in lower catchment.

32006 Nene/Kislingbury at Upton**EA Anglian**

Station: Main channel flow measured in 3.2m wide standing wave flume under mill. Flow in bypass channel measured at Crump profile weir (crest 6.12m) since 1969 and flows summed to produce total. Before 1969 flows through bypass controlled by broad-crested weir with no recorder, and total flows based on average relationship between levels in main channel and bypass. Very high flows bypass both channels. No major abstractions but sewage effluent can effect flow patterns.

Catchment: Mostly clay (70%) with 30% superficial deposits, mainly Boulder Clay. predominantly rural catchment with land use of mixed farming.

32007 Nene Brampton at St Andrews**EA Anglian**

Station: Main channel flow measured in 2.743m wide standing-wave flume in mill race. Flow in bypass channel measured at 9.11m wide broad-crested weir and flows summed to produce total. No recorder on bypass before 1969 - total flows were estimated using average relationship between levels in flume and bypass. Bypassing of both structures commences at about 17 m³s⁻¹. Abstraction from three water supply reservoirs reduce low flows - 30% of catchment controlled by reservoirs.

Catchment: Mostly clay (76%), with 30% cover of Boulder Clay. Predominantly rural catchment of mixed farming. Urban development (Northampton) in lower catchment, u/s of station.

32008 Nene/Kislingbury at Dodford**EA Anglian**

Station: Crump profile weir with 2.667m crest replaced broad-crested weir with low flow notch in 1967. Weir theoretically calibrated, but bypassing begins at 7 m³s⁻¹. Floodplain flow is considerable once the river is out of bank, so ratings not considered reliable at high flows. Weir drowns at high flows. Reservoirs and abstractions affect regime, and low flows influenced by returns from STW.

Catchment: Mostly clay (73%), nearly 50% superficial deposits (Boulder Clay, glacial sand and gravel in lower valley). Predominantly rural with mixed farming.

32012 Wootton Brook at Lady Bridge**EA Anglian**

Station: Simple Crump profile weir, crest 1.83m broad. Rated up to 0.25m (0.488 m³s⁻¹). Low flows only until mid 1990s. Largely natural; one small discharge in headwaters. Sporadic flood record.

Catchment: Underlain by 80% Boulder Clay. Small rural catchment, with 20% woodland.

32019 Slade Brook at Kettering**EA Anglian**

Station: Full-range Flat V weir. Replaced low flow simple Crump profile weir (crest 2.42m broad, rated up to 0.3m: 0.848 m³s⁻¹) in early 1988, following river improvements. Most high flows are truncated or missing in pre-1988 record, low flows only.

Catchment: Catchment is 50% clay and 50% s'st, with over 20% cover of Boulder Clay. Rural headwaters, with urban development (Kettering) in lower catchment.

32020 Wittering Brook at Wansford**EA Anglian**

Station: Simple Crump profile weir, crest 2.44m broad. Rated up to 0.308m (0.896 m³s⁻¹). Low flows only. Truncation of high flows results in unrepresentative mean runoff.

32029 Flore at Experimental Catchment

Station: Trapezoidal critical depth flume rated to 1.92m (8.49 m³s⁻¹). Low flows only. Closed in 1985.

32031 Wootton Brook at Wootton Park**EA Anglian**

Station: Triangular Flat V weir (crest length 8m); theoretical rating. Drowns at high flows due to limited capacity of culverts d/s. No abstractions or returns. Just d/s of Lady Bridge gauging station (32012), a low flow-only station running 1968 to 1985.

Catchment: Mostly underlain by Boulder Clay with some exposed Upper Lias clays and small areas of plateau gravel and Oolitic L'st. Catchment predominantly rural, with expanding Northampton suburbs near gauging station.

33001 Bedford Ouse at Brownhill Stauch**EA Anglian**

Station: Lowest station on the Bedford Ouse. Station consisted of a navigation lock and three radial gates with a low flow notch. Complicated hydrometric arrangement, with no unique stage-discharge relationship. Low flows based on gate openings, Rated section for high flows, using calibration by float measurement. Site closed in 1962. Record likely to be of poor quality, but provides indication of runoff patterns from 1936 - 62.

Catchment: Large, mixed catchment. Geology of Great Oolite and Oxford clays, with substantial Boulder Clay cover. Mixed rural land use, some urban development in lower valleys.

33002 Bedford Ouse at Bedford**EA Anglian**

Station: 3 broad-crested weirs, 30m, 20m and 12m wide + 3 vertical sluice gates (either fully open/closed). High flow rating confirmed by current meter measurements. The rating assumes set gate openings. Recommended to be used to bankfull only. Records before 1959 based on daily gauge-board levels and gate openings (limited accuracy, few hifs & many replicated dmfs). Recommended flow record, from 1972, from Roxton d/s (33039). The Apr 1998 peak flow is thought to be an overestimate. The period-of-record maximum is believed to have occurred in Mar 1947; no peak flow available but is unlikely to be significantly higher than the DMF (278 m³s⁻¹). Surface and groundwater abstractions in catchment for PWS, Milton Keynes' effluent now significant.

Catchment: Geology: predominantly clay. Land use: agricultural with some urban development in lower valley areas over last 25 years.

33003 Cam at Bottisham**EA Anglian**

Station: Triangular profile weir, 7.7m wide, plus two vertical lift gates and a lock. Prior to Jun 1982 broad-crested weir incorporating a sharp-crested rectangular central notch, 2.4m wide. The lock is opened at high flows. Weir drowns at approx. 0.3m head. Patchy peak-flow record available. Two substantial gw abstractions for industry; 21 for PWS. All abstractions returned within the catchment.

Catchment: Geology: Chalk; overlain by Boulder Clay in the S. Land use: predominantly agricultural.

33004 Lark at Isleham**EA Anglian**

Station: Navigation lock with vertical lift gate u/s plus a 16m broad high level weir in bypass channel for flood flows only. Small notch inserted in 1980. 1986 weir was lowered, altered to triangular profile and flows diverted to the bypass channel. The lock is now used during high flows only. Since 1968 major peaks diverted through cutoff channel (10 km u/s) - to the Relief Channel at Denver. Two large gw abstractions (Bury St Edmunds).

Catchment: Geology: Chalk. Land use: arable.

33005 Bedford Ouse at Thornborough Mill**EA Anglian**

Station: Flat V Crump profile weir 10.2m wide and two sluice gates 3.6m broad. Before 1976 weir was broad-crested with centre V notch. A bypass channel exists, but operation of gates has ensured the highest flows have been recorded. Flows not calculated since Aug 1991.

Catchment: The catchment is flat and lies mainly on the Great Oolite. One large tributary drains an area of Oxford Clay. There is a water supply reservoir and a number of ornamental lakes in the catchment.

33006 Wissey at Northwold**EA Anglian**

Station: Flow record is summation of a rectangular critical depth flume (4.9m wide, local number 33106) and a weir on a separate side stream (from March 1981, local number 33206) which takes approx. 10% runoff. Streams rejoin just d/s of gauges. Drowning common - flows adjusted. Limited net impact of abstractions and discharges but spray irrigation increasing (substantial proportion from groundwater).

Catchment: Geology: Chalk overlain by 70% Boulder Clay (permeable in parts). Low population density. Largely arable in (northern) upper catchment, extensive grassland and some woodland in lower (southern) half of catchment.

33007 Nar at Marham**EA Anglian**

Station: Critical depth flume, 7.16m wide. Prior to Apr 1982, flume (7.47m wide) contained low flow notch. Weed growth can be a problem during summer if not cut regularly. Anomalous summer flows in June 2004 and August 2006, resulting from locals damming the weir; awaiting reprocessing (2007). Surface water abstraction for PWS immediately u/s of station. Other abstractions in catchment. Three small underground abstractions were abandoned in 1986.

Catchment: Geology: Chalk catchment overlain by Boulder Clay in upper reaches. Land use: agricultural, predominantly arable.

33009 Bedford Ouse at Harrold Mill**EA Anglian**

Station: Compound structure comprising a compound broad-crested weir plus two side spilling broad-crested weirs u/s. Not constructed for flow measurement, essentially a level site. Rated by formulae. High flows estimated. Major abstractions in catchment.

Catchment: Geology: L'st overlain by Boulder Clay. Land use: mainly agricultural with substantial urban development over last 15 years (Milton Keynes).

33011 Little Ouse at County Bridge Euston**EA Anglian**

Station: Compound weir with triangular profile centre section, 3.4m broad; broad-crested flanks in trapezoidal channel - 9m. Gw abstractions for PWS and spray irrigation. HIFs from Nov 1960.

Catchment: Geology: predominantly Chalk with significant Boulder Clay cover. Land use: agricultural, predominantly arable.

33012 Kym at Meagre Farm**EA Anglian**

Station: Compound weir with triangular profile centre section 3m wide and broad-crested flanks in a trapezoidal channel, 8.5m wide. Rating modified to correct for drowning by weed growth using tailwater levels. Predominantly natural regime, modest abstractions for agriculture. One of 3 stations used to calculate Offord flow to determine abstraction regime at Grafham Water.

Catchment: Geology: predominately clay catchment - very flashy by Anglian standards. Land use: agricultural, predominantly arable.

33013 Sapiston at Rectory Bridge**EA Anglian**

Station: Rectangular thin-plate weir, 8.8m broad, suppressed end contractions. Minor gw abstractions for PWS and agriculture. HIFs from May 1960.

Catchment: Geology: predominately Chalk with Boulder Clay cover. Land use: agricultural, predominantly arable.

33014 Lark at Temple**EA Anglian**

Station: Compound broad-crested weir with rectangular cross-section, 5.8m broad, central notch 3m broad. Full range rating confirmed by c/m measurements. Flows affected by milling u/s of gauging station. Significant gw abstractions in catchment for PWS, industry and agriculture.

Catchment: Geology: predominantly Chalk - 70% overlain with Boulder Clay. Land use - agricultural.

33015 Ouzel at Willen**EA Anglian**

Station: 10m wide Flat V Crump profile weir replaced compound broad-crested weir, 10m broad, in 1977 when river realigned. Radial lifting gate immediately u/s of weir diverts very high flows to adjacent balancing reservoir which empties d/s of weir. This may result in high flows being appreciably less than those seen upstream at Bletchley (33058). Annual floods do not bypass.

Catchment: Mixed bedrock geology, with Greensand and Oxford Clay and some Boulder Clay cover. Primarily rural catchment of mixed agriculture, although Leighton Buzzard is in catchment, and southern suburbs of Milton Keynes are situated in lower valley just u/s of station.

33016 Cam at Jesus Lock**EA Anglian**

Station: Broad-crested weir in V-shaped plan, 21.3m long in parallel with two sluice gates and a navigation lock. Flows based on upstream and downstream levels and gate openings, subject to inaccuracies from gate opening data. Some abstractions in catchment. Station closed in 1983.

Catchment: Chalk catchment partly overlain by Boulder Clay. Gauging station is in Cambridge.

33018 Tove at Cappenham Bridge**EA Anglian**

Station: Compound broad-crested trapezoidal weir, 7.6m broad; central notch, 2.7m broad. Theoretical rating since Aug 1970. Prior to that data hydraulic model derived rating. The weir is subject to drowning at high flows.

Catchment: Geology: predominantly Chalk overlain with 50% Boulder Clay. Land use: agricultural.

33019 Thet at Melford Bridge**EA Anglian**

Station: Triangular profile weir, 6.2m broad. Theoretical rating modified in Apr 1968. Weir subject to drowning during summer due to weed growth d/s. Flows are affected by groundwater abstraction, and by augmentation during drought conditions.

Catchment: Predominantly Chalk catchment; approx 70% overlain by Boulder Clay. Land use: primarily arable, with some grassland and forestry.

33020 Alconbury Brook at Brampton**EA Anglian**

Station: Flat V CP weir in trapezoidal channel, plus ultrasonic for use when head above crest > 1m, replaced (from 3/6/95) broad-crested CP weir with central low flow notch (closed in Sep 1993). Theoretical rating but hydraulic model calibration for flanks prior to Apr 1978. Pre 1993 rating modified by c/m measurement to correct for drowning. Drowns at approx. 1m stage; spills at 2m. High flows impeded by bridges u/s and d/s. The highest flow on record is estimated by the EA to be 70 m³s⁻¹ on 10/04/98, although the gauge was subject to bypassing. Influenced by abstraction and effluent returns.

Catchment: Predominantly impervious catchment. 50% Boulder Clay cover. Land use: mainly arable.

33021 Rhee at Burnt Mill**EA Anglian**

Station: Trapezoidal cross-section weir with triangular profile crest, 6.1m broad. Weir drowns out at high flows; rating modified by c/m measurements to correct for drowning. Weir also subject to drowning during summer due to weed growth d/s. Substantial gw abstractions for PWS. Augmentation from gw sources to regulate river flow. Some effluent returns.

Catchment: Predominantly Chalk catchment - approx 15% overlain with Boulder Clay, in NW. Land use is primarily arable.

33022 Ivel at Blunham**EA Anglian**

Station: Crump profile weir 7.31m wide. Drowning occurs at 0.91m (rating includes drowning correction). Significant bypassing when stage exceeds 1.1m; 'truncation' effect evident in annual maxima series. Pre-1966 record of poorer quality. Hydrograph shows influence of u/s mill operation. Effluent from STW has substantial effect on low flows. Many abstractions for spray irrigation. Groundwater abstractions for PWS. One of 3 stations used to calculate Offord flows to determine abstraction regime at Grafham Water.

Catchment: The Ivel rises near Hitchin and flows north across Greensand, Chalk and Gault Clays to meet the Great Ouse east of Bedford. 45% superficial deposits, mainly Boulder Clay with some glacial sands and gravels. Predominantly agricultural, with some urban development.

33023 Lea Brook at Beck Bridge**EA Anglian**

Station: Crump profile weir 4m wide, situated approx. 20m u/s of new road bridge. All but the very highest flows are contained. High flows may be affected by Beck Bridge and railway embankment in the floodplain, but no flood this large has been recorded so far. There is some doubt about the high flow calibration owing to two large concrete blocks which spoil the entry condition. The period-of-record maximum flow is believed to have been in Sept 1968, estimated as 17.5 m³s⁻¹ by the EA but likely to have been extrapolated. The low flow calibration has been confirmed by c/m. Some gw abstraction for PWS, also industrial/agricultural abstractions.

Catchment: A Chalk catchment with 40% Boulder Clay cover in upper (S) part of catchment. Some river terrace deposits in N. Land use of mixed agriculture.

33024 Cam at Dernford**EA Anglian**

Station: Rectangular thin-plate weir, 5.8m broad. Bridge pier may affect approach velocity at high flows. Weir subject to drowning, tailwater levels measured to assist rating. Five groundwater abstractions for PWS. Abstractions for industry and agriculture. Regime affected by effluent returns derived from Gw pumped within catchment.

Catchment: Predominantly pervious catchment underlain by Chalk. 50% Boulder Clay cover, primarily in headwater areas. Land use: predominantly arable.

33025 Babingly at West Newton Mill**EA Anglian**

Station: Sharp-crested weir inside converted mill building, with a bypass gate to a mill wheel. Owners manipulated bypass gate, with no record kept of such openings, which limits accuracy of flows (particularly high flows, so unsuitable for flood purposes). Spring-fed stream, with unrealistic runoff because contributing area is greater than topographical catchment. Station closed 1976.

Catchment: Small rural catchment, chalk with some Boulder Clay.

33026 Bedford Ouse at Offord**EA Anglian**

Station: Complex of automatic radial tilting weir, 15.2m broad; triangular profile weir, 14.8m broad; compound broad-crested weir, 22.7m broad. Navigation lock opened at flows above 40 m³s⁻¹. Abstraction 2km u/s for Grafham Water Res. (approx. 2 m³s⁻¹). Substantial surface water abstractions for PWS, industry and agriculture. Significant gw abstractions.

Catchment: Large catchment of mixed geology, with substantial superficial deposits (50% Boulder Clay). Land use: mixed agriculture, some substantial urban areas (Milton Keynes, Bedford) although overall urban fraction i

33027 Rhee at Wimpole**EA Anglian**

Station: Trapezoidal critical depth flume, 6.6m broad; horizontal crest 3.8m. Drowns at peak levels; correction incorporated into theoretical rating. Spills occasionally - high flows impeded by bridge abutments 20m d/s. Some surface water and groundwater abstractions in catchment.

Catchment: Predominantly Chalk catchment with approx. 25% Boulder Clay cover in N and W. Land use: agricultural, predominantly arable.

33028 Flit at Shefford**EA Anglian**

Station: Trapezoidal critical depth flume, 9.8m broad; 2.1m broad at horizontal crest. Structurefull 0.76m stage. Subject to drowning at medium flows. According to the EA, the highest peak flow on record is 33 m³s⁻¹ on 03/01/2003, although uncertainty attends this value as there was considerable ungauged floodplain flow. Flows affected by u/s mill operation. Surface water abstraction for spray irrigation. Abstraction for PWS closed 1985. Flows augmented by effluent from Luton.

Catchment: Geology: predominantly Greensand (60%), 45% Boulder Clay cover. Land use: mixed agriculture with patches of woodland. Several small towns in catchment.

33029 Stringside at Whitebridge**EA Anglian**

Station: A trapezoidal critical depth flume, calibrated by model and designed to operate in the non-modular range. High flow rating incorporates out-of-bank flows and should be reliable in periods when the channel has been maintained. Two groundwater abstractions for PWS, and abstractions for industry/agriculture.

Catchment: Small catchment, mostly low-lying, developed mainly on chalk, 20% Boulder Clay cover (mainly in W). Mixed land use - arable predominates, with significant woodland in E.

33030 Clipstone Brook at Clipstone**EA Anglian**

Station: Crump weir from 1966, replaced earlier broad-crested weir. No major abstractions. Station terminated in 1980.

Catchment: Greensand catchment, tributary to the river Ouzel.

33031 Broughton Brook at Broughton**EA Anglian**

Station: Flat V Crump profile weir 7.0m wide installed in 1977 when river realigned. Prior to 23/6/77 trapezoidal critical depth flume 7.4m wide, horizontal crest 1m wide. Flume was subject to drowning - flows corrected. One PWS abstraction accounts for virtually all abstraction in catchment. Station near STW, influenced by effluent return.

Catchment: Geology: clay and greensand catchment, with 50% Boulder Clay cover. The catchment is largely rural and flat, the edge just impinging on the Chiltern escarpment. Land use: mixed agriculture with some forestry in S, and some urban development.

33032 Heacham at Heacham**EA Anglian**

Station: Two Crump profile weirs in parallel, 3m broad. Weirs never drown. Gw abstraction for PWS and irrigation. Topographical catchment area substantially exceeds the true contributing area (by a factor of about two).

Catchment: Geology: predominantly Chalk, overlain by 40% Boulder Clay. Land use: agricultural.

33033 Hiz at Arlesey**EA Anglian**

Station: Crump profile weir, 7m broad. Subject to drowning at peak flows. Augmentation by effluent affects diurnal flow pattern. Significant gw abstractions for PWS.

Catchment: Predominantly Chalk catchment, with significant superficial deposits (20% Boulder Clay, 20% sands and gravels). Land use: predominantly arable farming but with significant urban development (Hitchin).

33034 Little Ouse at Abbey Heath**EA Anglian**

Station: Rectangular section Crump profile weir with crest tapping. Replaced 33008 (Thetford Staunch) in 1968. Weir subject to drowning and spills on rare occasions. Subject to weed growth, on crest and in channel. Instrument hut vandalised in August 2000, data missing until August 2002. Affected by Gw abstraction and, since the late 1980s, low flows augmented with groundwater in drought conditions.

Catchment: Geology: Chalk with approx. 80% superficial deposits, mainly Boulder Clay. Land use: predominately arable with significant areas of forest and heathland, particularly in centre and E. Urban development (Thetford) just u/s of station.

33035 Ely Ouse at Denver Complex**EA Anglian**

Station: Three sluices: d/s sluice discharges flow to maintain level in Relief Channel; u/s sluice diverts surplus into Cut Off Channel; dividing sluice can raise level by 0.6m, reversing flow in the Cut Off Channel where it is abstracted at Blackdyke and diverted into headwaters of Essex rivers (Ely Ouse/Essex Transfer Scheme). In high floods gates are raised permitting channel to be used for original flood protection purpose. Complexity of the structure and its management is reflected in the homogeneity of the flow series - which has extensive periods with no data or zero flows. Data should be used with great caution.

Catchment: Low lying catchment. Geology mixed: Peat and alluvium on Fenland Plain; Chalk overlain with Boulder Clay in higher regions to E and S: W predominately clay. High quality agricultural land.

33037 Bedford Ouse at Newport Pagnell**EA Anglian**

Station: Compound Crump profile weir (29.3m broad), with crest tapping and central notch (3m broad). Separate, complementary Crump weir (3.7m broad), with crest tapping (local number 33237) constructed in old mill throttle, 7m u/s of a double arch culvert; subject to drowning at high flows. Abstractions for PWS approx. 25km u/s, and abstractions within catchment for industry/agriculture.

Catchment: Mixed geology with significant component of permeable rocks, much of which is overlain by Boulder Clay. (60%). Land use: mix of arable and grassland, some forest and some urban development in lower catchment.

33039 Bedford Ouse at Roxton**EA Anglian**

Station: Flat V Crump profile weir (26m broad) with crest tapping, situated immediately u/s of confluence with R. Ivel. Drowns at very high flows (e.g. Easter Floods 1998) and can spill on rare occasions. Adjacent lock acts as an overspill in flood conditions. Use in preference to Bedford (33002) if possible. The period-of-record maximum flow in April 1998 was extrapolated and subject to bypassing but thought to be a reasonable estimate in a contemporary report by WS Atkins. Significant surface water and gw abstractions for PWS, industry and agriculture. One of 3 stations used to calculate Offord flows to determine abstraction regime at Grafham Water.

Catchment: Mixed geology, including significant Clay and Greensand fractions, with 50% Boulder Clay cover. Land use: predominantly agricultural with substantial urban development (Milton Keynes and Bedford).

33040 Rhee at Ashwell**EA Anglian**

Station: Trapezoidal Standing Wave Flume in moulded glass reinforced plastic. Situated 0.5km d/s of source of R. Rhee. Flows influenced by large gw abstractions for PWS. Min. spring flow of 0.03 m³s⁻¹ maintained by artificial gw recharge for conservation purposes. Gw contributing area exceeds topographic CA. Runoff data unrealistic.

Catchment: Geology: predominantly Chalk. Land use: agricultural.

33044 Thet at Bridgham**EA Anglian**

Station: Crump profile weir, 6m broad. Prior to Oct 1979, broad-crested weir (crest: 7.4m), situated under double-arch bridge. Current rating only reliable to bankfull, and limited gaugings at low flows. Theoretical rating for original weir confirmed by c/m measurements. Gw abstractions in catchment.

Catchment: Geology: Chalk with approx. 75% Boulder Clay cover. Land use: arable with some forest and grassland, several small towns.

33045 Wittle at Quidenham**EA Anglian**

Station: Compound broad-crested weir (crest 3m), with central notch separated by splitter plates; situated under road bridge. Theoretical rating modified by c/m measurements. Weir drowned in 1968 floods. HIFs available from 1973. Flow regime altered by pumping of two boreholes into river u/s of Quidenham to support Ely Ouse to Essex Transfer Scheme (abstraction point at Hockwold on the Little Ouse). Other abstractions in catchment.

Catchment: Geology: predominantly Chalk overlain with 60% Boulder Clay. Land use: predominantly arable.

33046 Thet at Red Bridge**EA Anglian**

Station: Crump profile weir 4m broad. Theoretical rating confirmed by current metering to structurefull, thereafter rating allows for drowning and spilling. Hiflows-UK lists period-of-record maximum as 17.5 in Sept 1968 - this was extrapolated and flow was likely to have been out of bank. Gw abstractions for PWS and industry; surface water abstractions for spray irrigation. Highest instantaneous flows available from 1973.

Catchment: Geology: Chalk overlain with 95% Boulder Clay. Land use: agricultural, predominantly arable.

33049 Stanford Water at Buckenham Tofts**EA Anglian**

Station: Site used pre-existing broad-crested weir between two lakes. Station was designed to measure discharge from pilot groundwater scheme area, although is largely natural. Discontinued 1980.

Catchment: Chalk overlain by Boulder Clay.

33050 Snail at Fordham**EA Anglian**

Station: Flat V Crump profile weir, 4m broad. Prior to 1985 subsidiary Crump profile weir (0.7m broad) measured bypass channel discharge. Flows combined into single series. Side weir removed 12/84 and main weir rating adjusted to compensate (flows increased by 2%). The rating is valid up to modular flow limit. Significant gw abstractions for PWS and surface water abstractions for spray irrigation.

Catchment: Geology: Chalk, with 20% Boulder Clay cover (in S) and some river terrace deposits. Land use: rural, with 50% grassland. Around 10% built-up area (Newmarket).

33051 Cam at Chesterford**EA Anglian**

Station: Compound broad-crested weir, 22.3m broad (in trapezoidal section) with central notch 3m broad, 0.23m deep. Significant gw abstractions for PWS.

Catchment: Geology: predominantly Chalk - approx. 60% Boulder Clay cover. Land use: rural, predominantly arable.

33052 Swaffham Lode at Swaffham Bulbeck**EA Anglian**

Station: Crump profile weir, 2.5m broad (wing wall height 1.6m), situated immediately u/s of road bridge. Prior to 1973 thin-plate weir, 1.45m broad. Theoretical rating for Crump weir fits well to gaugings. Significant gw abstractions for PWS.

Catchment: Geology: Chalk, with no appreciable superficial deposits. Land use: predominantly arable.

33053 Granta at Stapleford**EA Anglian**

Station: Compound weir with Crump notch (1.5m broad) and broad-crested flanks (3m broad) superseded - in 1981 - original thin-plate weir; some flows estimated, only monthly means are considered valid. Suspect flows in Sept 2005 may be due to artificial damming upstream. High baseflow component; area of groundwater catchment is less than topographical catchment.

Catchment: Chalk catchment with 45% Boulder Clay cover. Land use: dominated by arable agriculture.

33054 Babingley at Castle Rising**EA Anglian**

Station: Triangular profile Flat V Crump weir, 4.5m broad; level of wingwalls is 1.2m above crest. Subject to drowning. Significant gw abstraction for PWS, abstractions for industry/agriculture. High baseflow catchment - groundwater catchment area exceeds topographic divide.

Catchment: Geology: predominantly Chalk catchment, with patchy cover of Boulder Clay (20%) and sands and gravels (10%). Land use: predominantly arable.

33055 Granta at Babraham**EA Anglian**

Station: Triangular profile Flat V weir, 8.3m broad; constructed on an old brick weir. Height of wing walls above crest - 0.6m. The station is drowned and bypassed at high flows. The period-of-record maximum flow in Oct 2001 is listed as 20.41 m³s⁻¹ by Hiflows-UK, but this is subject to considerable uncertainty owing to a large proportion of overbank flows. Significant gw abstractions for PWS.

Catchment: Geology: Chalk catchment with 50% superficial deposits (in headwater areas). Land use: predominantly arable.

33056 Quy Water at Lode**EA Anglian**

Station: Compound weir, 4.8m broad, with Crump profile centre section, 1m broad, 0.3m deep. At flows greater than 0.32 m³s⁻¹ flow occurs over broad-crested flanks between vertical side walls. Pre-1975 data imprecise. Peak flow data from 1979. In dry weather stream leaks through bed into the fen and can dry up. Three large abstractions in catchment for PWS.

Catchment: Geology: Chalk catchment, with patchy superficial deposits (20%) of Boulder Clay and sands and gravels. Land use: rural, predominantly arable.

33057 Ouzel at Leighton Buzzard**EA Anglian**

Station: Crump profile weir (6m broad) in trapezoidal section (7.5m broad). Weir subject to drowning at flows of approx. 4 m³s⁻¹. Intake weir (1m broad) to gravel pit, immediately u/s of station - infiltrates into Lower Greensand aquifer.

Catchment: Geology: predominantly Chalk. Rural catchment draining from the Chiltern escarpment. Land in lower reaches is gently undulating.

33058 Ouzel at Bletchley**EA Anglian**

Station: Flat V weir, 10m broad. Constructed to measure flows just u/s of urban development (Milton Keynes). In a country park and subject to vandalism. Small Gw abstractions. Flows augmented by effluent from Leighton Buzzard.

Catchment: Mixed geology - mainly Upper and Lower Greensand, with some Chalk and Oxford Clay. Land use: mainly rural with mixed farming, Leighton Buzzard within catchment.

33061 Shep at Fowlmere One**EA Anglian**

Station: Crump weir 1.1m wide installed in Mar 1983. Replaced a rectangular thin-plate weir operational from 1978. Levels from 1964. Station opened as part of gw scheme. Weed growth d/s may affect flow. Bridge invert immediately d/s would cause drowning above 0.4m³s⁻¹. Mean annual runoff exceeds mean annual rainfall - this is under investigation (Jan 2008).

Catchment: Very small, mainly gw fed, catchment draining from the Chalk, SSE of Cambridge. Rural - mainly arable with some grassland, marsh and woodland.

33062 Guilden Brook at Fowlmere Two**EA Anglian**

Station: Trapezoidal flume in trapezoidal, straight channel. Opened as part of gw scheme. Abstraction u/s for spray irrigation. High baseflow contribution - groundwater catchment area exceeds topographical area, resulting in unrealistic runoff.

Catchment: Very small, mainly gw fed, catchment draining the Chalk, SSE of Cambridge. Rural - mainly arable, some grassland, orchard and deciduous woodland.

33063 Little Ouse at Knettishall**EA Anglian**

Station: Compound Crump profile weir, 4.5m broad. Structure drowns above 3.35 m³s⁻¹. Minor abstractions and returns. 3 wells constructed in 1987 to augment low flows.

Catchment: Chalk catchment with 75% Boulder Clay cover. Land use: predominantly arable.

33064 Whaddon Brook at Whaddon**EA Anglian**

Station: Pre-cast fibreglass flume set in concrete; long-crested flume crest 0.1m broad. Flows affected by effluent from Royston STW u/s of station.

Catchment: Small Chalk catchment. Land use: mixed farming but with significant (20%) built-up area (Royston).

33065 Hiz at Hitchin**EA Anglian**

Station: Old concrete weir with crest reshaped by steel beam to form compound Crump profile, 6.2m wide; central notch 1m wide, 0.14m deep. Substantial abstractions for PWS. High baseflow - groundwater catchment area is less than the topographical area, resulting in notably low mean runoff.

Catchment: Small spring fed stream flowing through Hitchin market place. Geology - predominantly Chalk catchment with small amounts of sand, gravel and clay. Land use: 90% arable, 10% urban.

33066 Granta at Linton**EA Anglian**

Station: Compound Crump Weir, 5.3m broad with 1.5m central crest. Structure drowns when u/s water level exceeds about 0.46m. Some gw abstraction. River is pump supported to maintain flow at approx. 0.03 m³s⁻¹; zero flows occur when pumps fail.

Catchment: Small Chalk catchment with 70% Boulder Clay cover. Land use is agricultural, predominantly arable.

33068 Cheney Water at Gatley End**EA Anglian**

Station: Crump weir, 0.3m broad, only measures up to a level of 0.23m. It dams a broad pool immediately u/s which is spring fed. The station was opened to monitor this spring as part of a groundwater scheme. Flows are affected by groundwater abstraction. The spring did not flow at all throughout 1997. Flows are now normally supported by groundwater pumping, pumps failed in 1998. (Station also known as Steeple Morden.)

Catchment: Superficial deposits free Chalk catchment. Rural, mainly arable farming.

33070 Lark at Fornham St.Martin**EA Anglian**

Station: Site consists of three parts: Central crump profile low flow weir, 2.57 m wide, set between flanks which are treated as a broad-crested weir 0.796 m wide (rb width 0.66 m, lb width 0.136 m, length of crest 1.30 m), and a side-weir for flood relief purposes, which consists of a crump weir 5.17 m wide in a bypass channel.

34001 Yare at Colney**EA Anglian**

Station: A compound weir 11.9m wide reconstructed in Jan 1964 from single level broad-crested weir. The present structure has a Crump section 8.9m wide separated by a pier from a broad-crested weir at a lower level. Frequent bypassing on the left bank. Topographical catchment exceeds contributing area (gw catchment). Mill sluices artificially regulate flow. Gw is abstracted for agricultural uses. Significant seasonal variations in abstractions due to the use of water for spray irrigation in the summer.

Catchment: Chalk catchment with superficial deposits, mainly Boulder Clay (85%) and alluvium. Rural catchment, land use is predominantly arable.

34002 Tas at Shotesham**EA Anglian**

Station: Originally a flume set between high rough walls bypassed at 14 m³s⁻¹. Reconstructed in 1970 as a Flat V Crump and a bypass channel with movable gates added in 1980. Some high flows only partially gauged as water diverts around the station through the bypass channel. Magnitude of flood peak in Sept 1968 is uncertain owing to bypassing, but was undoubtedly an exceptional event generated by 80 - 100mm rainfall. Small net augmentation of flows (sewage effluent).

Catchment: Predominantly Chalk catchment overlain with drift, mainly (95%) Boulder Clay. Rural catchment, predominantly arable.

34003 Bure at Ingworth**EA Anglian**

Station: Two ogee profile weirs beneath bridge arches, bypassed (through low spots in the bank u/s) at 4.3 m³s⁻¹ but maintains modularity. Occasionally drowns owing to weed and reed growth - some contention with coincident SSSI regime means that weed clearance is only done annually. Limited ground and surface water abstractions with some returns from public and agricultural uses.

Catchment: Mixed Clay and Chalk geology, overlain with superficial deposits of Boulder Clay (55%) and glacial sands and gravels (45%). Land use: agriculture, predominantly arable.

34004 Wensum at Costessey Mill**EA Anglian**

Station: 'Complex' structure comprising 30m Crump weir in main channel; tilting gate and 1.5m wide Crump weir in the mill channel. Gate fully automated in 1998; constantly regulating u/s levels to maintain level through the mill race. Also artificial regulation by sluice action at Taversham. Bypassed further upstream on the left bank at 20-25 m³/s. Many gaps in the record - in recent years particularly. Moderate surface and groundwater abstractions, influential in low flow years - very low flows in July 2006 believed to be due to over-abstraction.

Catchment: Predominantly Chalk catchment with 95% superficial deposits, mainly Boulder Clay but with sands and gravels in valley bottoms. Rural, predominantly arable farming.

34005 Tud at Costessey Park**EA Anglian**

Station: Four trapezoidal standing-wave flumes under a road bridge have movable dam boards placed across the two outer arches to increase the sensitivity of low flow measurements. Dam boards are only used at very low flows, less than 1m³/s. The gw catchment is smaller than the topographical catchment with consequent losses to adjacent catchments and low annual gauged runoff. Affected by Gw and surface water abstraction.

Catchment: Chalk catchment with superficial deposits of Boulder Clay (80%), sands and gravels and alluvium. Rural catchment with mixed farming, mostly arable.

34006 Waveney at Needham Mill**EA Anglian**

Station: Compound Crump weir 8.5m wide in main channel with single crested Crump in mill bypass. Sluice action at mill 2.4 km u/s is infrequent but evident in flow records; sluice rarely open after 1985. Suffers from weed growth problems. Surface water abstractions, and use of river gravels as an aquifer, influence flows but overall impact is minimal. Record affected by the Waveney Groundwater Scheme between 1975 and 1979.

Catchment: Geology: clay and chalk with 90% Boulder Clay cover. Land Use: rural, predominantly arable.

34007 Dove at Oakley Park**EA Anglian**

Station: Compound Crump weir with low flow notch and crest tapping; non-modular at 13 m³s⁻¹ and bypassed at 18 m³s⁻¹. Flows in Jul - Aug are higher than expected, due to an obstruction on the weir. Gw abstractions and effluent returns have a minor net effect on flows, however, between 1975 and 1979 effects more significant due to the Waveney Groundwater Scheme.

Catchment: Geology: chalk and clay catchment, overlain with >90% Boulder Clay. Land use: predominantly arable.

34008 Ant at Honing Lock**EA Anglian**

Station: Crump type weir utilising the fall of an old navigation lock. Immediately u/s is a large marshy area with dense weed growth from which some flow bypasses the station. No chart back up: limited space within kiosk. Logger failure Jan. 98 so no dmfs. Suspect data in summer 1996. Gw abstractions moderately reduce the natural runoff.

Catchment: Predominantly rural catchment of approximately 50% sand and gravel and 50% loam.

34010 Waveney at Billingford Bridge**EA Anglian**

Station: Two gauging stations located u/s of two bridge arches: i) compound Crump with low flow notch (insensitive, suffers occasional drowning due to d/s weedgrowth); ii) simple Crump with lifting gate to retain higher summer levels. Bypassing occurs at 6.4 m³s⁻¹, drowning can result from sluice action at Hoxne Mill. Surface and gw abstracted, effluent returned. Affected by Waveney Groundwater Scheme between 1975 and 1979.

Catchment: Geology: Chalk catchment overlain with 85% Boulder Clay. Land use: predominantly arable.

34011 Wensum at Fakenham**EA Anglian**

Station: Compound Crump with low flow notch, immediately u/s of Fakenham mill. A lifting gate for retaining summer levels acts as a sharp-crested weir. Gate is raised in winter to pass high flows. Unlikely to be bypassed apart from in exceptional events. Theoretical rating, gates taken into account. Gw abstractions have a minimal impact on runoff.

Catchment: Low-lying chalk catchment overlain with 75% Boulder Clay cover and some sands and gravels. Land use: predominantly arable.

34012 Burn at Burnham Overy**EA Anglian**

Station: A Crump weir which bypasses at 2.3 m³s⁻¹. Can be affected by mill operations c 50m upstream - notable effects on low flows in summer 2005. Annual hydrographs reflect high baseflow component from the Chalk aquifer. Gw abstractions have only a minimal impact on the natural runoff. May be a minor net import from outside the catchment due to effluent.

Catchment: Geology: chalk with 60% Boulder Clay cover and some sands and gravels. Land use: rural, predominantly (>80%) arable.

34014 Wensum at Swanton Morley Total**EA Anglian**

Station: Two structures 150m apart operate in parallel. Beneath the two-arch bridge are two Crump weirs which sometimes display non-modular flow as a result of summer weed growth d/s. Three Crump weirs are sited in arches beneath a second bridge (34214). Gw abstractions cause a moderate reduction in the natural runoff.

Catchment: Geology: chalk overlain by drift (70% Boulder Clay, 50% sands and gravels). Land use: rural, predominantly arable.

34018 Stiffkey at Warham All Saints**EA Anglian**

Station: Flat V weir with crest tapping, drowns above 0.8 m³s⁻¹. Prior to 1978 (when dredging took place) d/s weed growth during summer months could cause complete drowning of gauging structure at lower flows. Large abstractions from Gw for PWS causes a significant reduction in the natural runoff.

Catchment: Geology: chalk catchment with 75% Boulder Clay cover. Land use: rural, predominantly arable.

34019 Bure at Horstead Mill**EA Anglian**

Station: Compound Crump weir consisting of 5 Crumps: 4 at fixed levels, the narrowest of which incorporates a fish pass. A vertical lift gate converts the largest to a sharp edge weir, this gate is used, during summer months, to retain u/s water levels. Limited ground and surface water abstractions u/s. Hydrograph closely reflects mill gate operation. Data for 1997 - 2000 was reprocessed and loaded in 2003. Previous data was suspect owing to error in rating.

Catchment: Low lying rural catchment of sand and gravel.

35001 Gipping at Constantine Weir**EA Anglian**

Station: A 152 ft long, broad-crested weir, within tidal range (thus strictly on Orwell, not Gipping). Only measures flow at low tide. Station is primarily retained for estimation of high flows. Weir calibrated by model tests, no checks made. Situation is a problem - u/s and d/s bends are measured to correct for drowning. Major artificial influences (including Ipswich flood defence scheme), but net import is minor. Station closed.

Catchment: A rural catchment, the only town being Ipswich. Boulder Clay overlying Chalk.

35002 Deben at Naunton Hall**EA Anglian**

Station: A compound Crump (with crest tapping) and low flow notch. Bypassing occurs at 12 m³s⁻¹ and seasonal weed growth causes drowning. Some gw is transferred to beyond the catchment boundary and some is abstracted from within the catchment. The overall impact is to significantly reduce the natural runoff.

Catchment: Geology: mainly clay and chalk, overlain by Boulder Clay (80%) and sands and gravels (15%). Land use: rural, predominantly arable.

35003 Alde at Farnham**EA Anglian**

Station: Broad-crested weir of ogee section with low flow notch and steel plate divide walls. Rating is non-modular at high flows and flows go out of bank. Significant gw abstractions; some water exported. The gw contours show only token relationship to the surface topography. Runoff reduced by abstraction, with some water exported from catchment.

Catchment: Geology: mainly clay and chalk, overlain by Boulder Clay (85%) and sands and gravels (15%). Land use: rural, predominantly arable.

35004 Ore at Beversham Bridge**EA Anglian**

Station: A compound Crump weir with low flow notch and crest tapping that occasionally drowns as a result of d/s weedgrowth and siltation. Gw catchment exceeds topographic catchment. Gw abstractions make a moderate reduction in the natural runoff.

Catchment: Geology: mainly clay and chalk, overlain by Boulder Clay (75%) and sands and gravels (25%). Land use: rural, predominantly arable.

35008 Gipping at Stowmarket**EA Anglian**

Station: Compound Crump weir rebuilt in 1966 from a compound broad-crested weir. All flows contained. Minimal natural storage within the catchment and the Boulder Clay gives a flashy response. Abstractions from groundwater and effluent returns broadly balance. High flows have been significantly affected by flood relief scheme since the late 1980s.

Catchment: Geology: mainly clay and chalk, overlain by Boulder Clay (95%) and sands and gravels. Land use: mainly rural (arable farming) although there is some urban development just u/s of station.

35010 Gipping at Bramford**EA Anglian**

Station: Compound Crump weir with 2m, 5m & 12m sections. Flood gate (automated during summer 2001) converts 12m section to a sharp-edge weir. Bypassing occurs at 12 m³s⁻¹ and sluice operation on the weir is evident in the daily flow record. Gw abstractions have a significant impact on the natural runoff. Flows significantly affected by Ipswich flood relief scheme since the late 1980s.

Catchment: Geology: mainly clay and chalk, overlain by superficial deposits, mainly (>80%) Boulder Clay. Land use: mainly rural, (arable predominates), but with some urban development in lower elevation areas in the valley.

35013 Blyth at Holton**EA Anglian**

Station: An asymmetric compound Crump weir with low flow notch. Gw abstractions have a significant effect on the natural runoff. The river responds very rapidly to rainfall.

Catchment: Surface geology dominated by Boulder Clay (80%), with sands, gravels and crag deposits. The land use is predominantly rural.

35014 Mill River at Newbourn**EA Anglian**

Station: Trapezoidal sharp-edged weir in an old mill stream. Site known to suffer from bypassing. Station closed in 1969.

Catchment: Small catchment formed on Crag geology. Rural, with outer suburbs of Ipswich at top of catchment.

36001 Stour at Stratford St Mary**ESW**

Station: Three separate weirs and five sluice gates operated by Essex and Suffolk Water plc at Stratford St Mary WTW. Theoretically rated. Daily naturalised flows from 1932 to 1976. Records from 1928. Since Apr 1978 upper limit of reliable gauging 16 m³s⁻¹. Extreme floods bypass on rb. WTW (including PWS abstractions) and, to lesser extent Ely/Ouse Transfer Scheme (since 1971), highly influence flow.

Catchment: Rural. Chalk overlain by Boulder Clay in upper catchment and London Clay in lower part.

36002 Glem at Glemsford**EA Anglian**

Station: Trapezoidal flume with bypassing at high flows; modest modular limit; d/s water level recorder to allow for drowning. Occasional problems with weedgrowth. Highest floods unreliably gauged. Naturalised flows from 1960 to Sep 1976. Exceptional minimum in Oct 1997 follows cessation of augmentation (via Cranmore Green outfall) in Sept.

Catchment: Geology: Upper Chalk (exposed in river valley sides) is overlain by glacial sand and gravel (10%) and semi-pervious Boulder Clay (85%). Land use: rural, predominantly arable farming.

36003 Box at Polstead**EA Anglian**

Station: Trapezoidal flume with high flow rated spillway. Throat tapping; rarely drowns. Subject to reed/weed growth problems. Naturalised flows from 1961 to 1976. Minimal ground and surface water abstractions for agricultural purposes.

Catchment: Geology: predominantly London Clay; Chalk in N, all overlain by Boulder Clay (70%) and sands and gravels. Land use: rural, predominantly arable farming.

36004 Chad Brook at Long Melford**EA Anglian**

Station: 'Essex' profile (modified Flat V Crump) weir with low flow side weir which drowns in summer due to weed growth; poorly maintained channel also influences modular limit. High flow spillway accurate to 1.1m. Theoretically rated. Full range but unreliable at low flows; overall water-balance is convincing but low flow data should be treated as indicative only. Magnitude of period-of-record maximum flow in Sept 1968 is under review (Jan 2008) - flow is supported by EA, but may be an underestimate as flow known to have been extrapolated. Naturalised flows from 1965 to 1976. Runoff influenced by industrial/agricultural abstraction.

Catchment: Geology: Chalk with complete cover of Boulder Clay. Land use: rural, predominantly (85%) arable farming.

36005 Brett at Hadleigh**EA Anglian**

Station: 'Essex' profile (modified Flat V Crump) weir with low flow side weir and high flow rated spillway. D/s water level recorder to allow for drowning. Naturalised flows from 1962 to 1976. Since 1976, adjustments for gw abstractions for PWS and industrial abstraction from surface water are no longer made to the gauged daily mean flows. Minor effluent returns may affect flow.

Catchment: Geology: Upper Chalk overlain by semi-pervious Boulder Clay (>90%) and sands and gravels. Land use: rural, predominantly arable farming.

36006 Stour at Langham**EA Anglian**

Station: Twin-trapezoidal flume, throat tapping. Spillway channel with thin-plate weir constructed in 12/85 takes some flow above 1.45m. Rating combines the elements. Excellent site. Bypassing also occurs over opposite bank above 1.85m. More bypassing possible from 0.5km u/s during extreme events. Naturalised flows to 9/76. Occasional peaks due to mill operation and augmentation by intermittent pumping from Ely/Ouse Transfer Scheme. Low flows can be affected by PWS abstractions. Occasional augmentation from SAGS (Stour Augmentation Groundwater Scheme) borehole pumping.

Catchment: Geology: chalk outcrops in north, London Clay in south, overlain by superficial deposits, mainly semi-pervious Boulder Clay (75%). Land use: rural, predominantly arable, minor urban development in valley bottom.

36007 Belchamp Brook at Bardfield Bridge**EA Anglian**

Station: Trapezoidal flume with throat tapping. Full range station in winter, occasionally drowns in summer due to weed growth. Naturalised flows from 1965 to 1976, only minimal adjustments needed to flows since then.

Catchment: Geology: Chalk in N, clays in S, all overlain by Boulder Clay (80%) and sands and gravels. Land use: rural, predominantly (90%) arable.

36008 Stour at Westmill**EA Anglian**

Station: Compound trapezoidal critical depth flume with d/s level recorder. Affected by weed growth but rarely drowns out. Above 1.15m some flow passes over a broad-crested weir 100m u/s into a spillway. Since March 1971, flow augmented by intermittent pumping from the Ely/Ouse Transfer Scheme, archived flows adjusted for this until 1976. (Naturalised flows 1960 to 1976.)

Catchment: Geology: Upper Chalk overlain by superficial deposits, mainly semi-pervious Boulder Clay (90%). Land use: rural, predominantly arable.

36009 Brett at Cockfield**EA Anglian**

Station: 'Essex' profile (modified Flat V Crump weir). No spillway. Modular limit of 0.66m theoretically derived. No telemetry but planned for future. Naturalised flows from 1969 to 1976, only minimal adjustments needed since.

Catchment: Geology: Upper Chalk underlies the whole catchment, completely covered with Boulder Clay. Land use: rural, predominantly (85%) arable farming.

36010 Bumpstead Brook at Broad Green**EA Anglian**

Station: 'Essex' profile (modified Flat V Crump) weir with crest tapping and high flow spillway. Modular limit approx. 6.0 m³s⁻¹. Approx. limit of gauging is 12.5 m³s⁻¹. Naturalised flows from 1968 to 1976, only minor adjustments needed to the gauged dmfs, virtually natural catchment.

Catchment: Geology: Chalk catchment overlain by complete cover of Boulder Clay. Land use: rural, predominantly (>85%) arable.

36011 Stour Brook at Sturmer**EA Anglian**

Station: 'Essex' profile (modified Flat V Crump) weir with crest tapping, insensitive. Modular limit approx. 5.0 m³s⁻¹. Immediately d/s of Haverhill - urban runoff and STW discharges cause short, sharp peaks. Adjustments were made for industrial and sewage effluent and gw abstractions from 1968 to 1976.

Catchment: Geology: chalk with superficial deposits, mainly (95%) Boulder Clay. Land use: mainly rural (arable farming) upper catchment, considerable urban development (>15% of catchment area) in lower catchment.

36012 Stour at Kedington**EA Anglian**

Station: 'Essex' profile (modified Flat V Crump) weir, insensitive. No spillway. Crest tapping prone to siltation which made modular limit uncertain until 1970, when channel improved for Ely/Ouse Transfer Scheme, making station full range. Ponding u/s above 11.5 m³s⁻¹. Structure built on peat, some percolation beneath. Naturalised flows 1968-1976. Post '76 adjustments made for Ely/Ouse Transfer Scheme. Effect of Transfer Scheme results in unrealistic water balance.

Catchment: Geology: chalk overlain with drift, predominantly (95%) Boulder Clay. Land use: rural, mainly arable with some grassland.

36013 Brett at Higham**EA Anglian**

Station: 'Essex' profile (modified Flat V Crump) weir with crest tapping. Record incomplete, flows not calculated when drowning >70%. Very low modular limit due to backing up from Essex and Suffolk Water plc waterworks on Stour at Stratford St Mary (confluence approx. 450m d/s).

Catchment: Upper Chalk covered with semi-pervious Boulder Clay N of Hadleigh, lower reaches mainly London Clay overlain by superficial deposits. Predominantly rural catchment (except for Hadleigh).

36015 Stour at Lamarsh**EA Anglian**

Station: Flat V weir with low flow sharp-crested rectangular notch. Flood banks contain approx. 35.0 m³s⁻¹. No spillway. Breaching u/s may cause bypassing. Naturalised flows 1972-1976, since then adjustments needed for abstractions, discharges and PWS predominantly for Haverhill. Ely/Ouse Transfer Scheme adjustments already made.

Catchment: Geology: mainly Upper Chalk with some London clay in S, overlain by superficial deposits (85% Boulder Clay). Land use: mainly rural (predominantly arable), some built-up areas (Sudbury is 5km u/s of station).

37002 Chelmer at Rushes Lock**EA Anglian**

Station: Sharp-crested, shallow V profile weir (insensitive), replaced broad-crested timber weir in 1972. Complex hydrometric history. Weir provides head for lock (navigable river), discharge through lock not measured. Lock thought to influence flow pattern at low flows during busy periods, e.g. in summer of 2006. Weir repaired in 1982 because of serious leakage. No accurate measure of low or high flow, upper limit is 0.7m (19.99 m³s⁻¹). Bypassing begins at 0.57m. Flows naturalised from 1932 to 1976.

Catchment: Geology: mainly London Clay with extensive superficial deposits (50% Boulder Clay). Land use: mainly rural (arable farming predominates), but around 10% is built-up; Chelmsford is u/s of station.

37003 Ter at Crabbs Bridge**EA Anglian**

Station: Trapezoidal flume with throat tapping, replaced less accurate station - Hatfield Peverel, 900m d/s, in 1964. Theoretically rated. Modular limit 0.95m, no level yet recorded above 1.6m (structurefull). Hatfield Peverel record held with this station - 1932 to 1964. Naturalised flows - 1964 to 1976. Minor surface water abstractions for spray irrigation, small discharges from STW but net export through PWS.

Catchment: Geology: London clay, overlain with superficial deposits of Boulder Clay (80%) and sands and gravels. Land use: rural, predominantly arable farming.

37004 Blackwater at Langford**EA Anglian**

Station: Complex of weirs and sluices near the intake works of what was the Southend Water Company. Measurement included the amounts abstracted from the river. Quality of data is unknown as there is limited information on the site. Station closed 1968.

Catchment: Practically the whole catchment is covered with Boulder Clay, overlying glacial gravels. In the South East, London clay underlies the drift but is rarely exposed.

37005 Colne at Lexden**EA Anglian**

Station: Large trapezoidal flume with d/s level recorder. Occasional weedgrowth problems. Spillway flow commences at 17.0 m³s⁻¹ (1.75m), flows above this are estimated (guided by highest gauging at 2.1m). Bypassed on the lb at very high flows. Naturalised flows for period 1959 to 1976. Exceptionally low summer 1965 flows under review. Provides flood warning for Colchester.

Catchment: Geology: mainly London Clay and some Upper Chalk, with superficial deposits of semi-pervious Boulder Clay (70%) and sands and gravels. Land use: rural, predominantly arable.

37006 Can at Beach's Mill**EA Anglian**

Station: Triple throated compound flume (built within mill race). Trapezoidal centre section for low flows. Limit of station - 35 m³s⁻¹. Spillway flow starts at 2.0m - very significant part of flow, allowance for this not made in record. Period-of-record maximum flow in Oct 2000 may have been higher due to spillway flows. High-end rating is currently under review (Jan 2008). Naturalised flows from 1962 to 1976. Adjustments needed for industrial and sewage effluent.

Catchment: Geology: London Clay overlain with Boulder Clay in N. Land use: rural, predominantly arable with some grassland; some built-up areas in upper catchment, in S.

37007 Wid at Writtle**EA Anglian**

Station: 'Essex' profile (modified Flat V Crump) weir. Rated spillway starts at 1.25m. Full range, modular station. Weir began to subside in 1991. Flow during summer months consists predominantly of STW discharge, of which approximately 0.08 m³s⁻¹ is derived from outside the catchment, adjustments needed for this. Flows naturalised from 1964 to 1976. Responsive regime.

Catchment: Geology: London Clay with scattered areas of Boulder Clay cover. Land use: mainly rural, mixed arable and grassland, but with significant urban component (15% built-up).

37008 Chelmer at Springfield**EA Anglian**

Station: 'Essex' profile (modified Flat V Crump) weir. Full range station, no drowning. Naturalised flows from 1965 to 1976. Surface water abstraction, mainly for spray irrigation, some industrial purposes. Gw abstractions from confined chalk aquifer for PWS and industrial activities.

Catchment: Geology: mainly London Clay, with 75% cover of Boulder Clay. Land use: mainly rural (arable farming predominates) but with urban development (N Chelmsford) just u/s of station.

37009 Brain at Guithavon Valley**EA Anglian**

Station: 'Essex' profile (modified Flat V Crump) weir with throat tapping. Drowning occurs at very low levels but with minimal effect. Station prone to vandalism. Some abstractions for agriculture; naturalised flows available from 1962 to 1976.

Catchment: Geology: London Clay with superficial deposits, mainly Boulder Clay (70%) and sands and gravels. Land use: Mainly rural, but some built-up areas; Braintree in mid-catchment and parts of Witham just u/s of station.

37010 Blackwater at Appleford Bridge**EA Anglian**

Station: Double throated trapezoidal flume with throat tappings and a high flow rated spillway starting at 1.80m. Drowning starts at 1.2m (13.0 m³s⁻¹), degree of drowning variable. Oct 2001 was undoubtedly an exceptional event, but magnitude suspect as likely to have been affected by drowning; may be reduced in light of reviews undertaken by Hiflows-UK (Jan 2008). Naturalised flows from 1962-1976. Intermittently affected, since 1971, by Ely/Ouse Transfer Scheme pumping, significantly affected in the late 1980s and 1990s. Abstractions from both Chalk and gravel aquifers for PWS.

Catchment: Geology: London Clay with Chalk in the headwaters, overlain by cover of Boulder Clay (80%) and sands and gravels. Land use: rural, predominantly arable.

37011 Chelmer at Churchend**EA Anglian**

Station: Trapezoidal flume (with central division wall which commences above the lowest contraction) with throat recorder and spillway for flows over 1.42m. Measures up to the 1 in 10 year flood (approx. 1.69m) above which bypassing occurs. Drowning minimal. Responsive regime. Naturalised flows from 1963 to 1976. Minimal adjustments needed.

Catchment: Upland (for East Anglia) catchment at head of R. Chelmer. Upper quarter of catchment is Chalk, remainder is London Clay, both overlain by Boulder Clay (85%). Land use: rural, predominantly arable farming.

37012 Colne at Poolstreet**EA Anglian**

Station: Trapezoidal flume with throat tapping. V notch plate installed in summer to measure low flows. High flow spillway (above 1.34m). Above 1.6m flows are estimated as major bypassing occurs. Rarely non-modular. Naturalised flows from 1963-1976. Great Yeldham PWS borehole may influence flows, but unquantifiable. Period of Ely/Ouse Transfer Scheme pumping in 1982.

Catchment: Upland (for East Anglia) catchment. Geology: Upper Chalk, London Clay present in southern half, all overlain with Boulder Clay (90%) and sands and gravels. Land use: rural, predominantly (>80%) arable.

37013 Sandon Brook at Sandon Bridge**EA Anglian**

Station: 'Essex' profile (modified Flat V Crump) weir with crest tapping. Insensitive. Modular limit approx 0.6m. Subject to weed growth and accretion. CA includes 13.7 sq.km draining to Hanningfield Reservoir 10km u/s. Naturalised flows (1963-1976) account for reservoir compensation water (0.011 m³s⁻¹) and storm overflows. Minor additions from industrial effluent.

Catchment: Geology: London clay with sand and gravel over high ground in NE. Land use: rural, mainly arable with some grassland.

37016 Pant at Coptford Hall**EA Anglian**

Station: 'Essex' profile (modified Flat V Crump) weir (insensitive) with crest tapping. Measures up to 12.0 m³s⁻¹, flows above this are estimated because of the spillway. Naturalised flows 1965-1976. Intermittent pumping of Ely/Ouse Transfer Scheme has major effect on station, which is only 5km d/s of the Great Sampford Outfall.

Catchment: Geology: mainly Upper Chalk, overlain by Boulder Clay (85%). Glacial gravels exposed along the whole river valley. Land use: rural, predominantly arable.

37017 Blackwater at Stisted**EA Anglian**

Station: 'Essex' profile (modified Flat V Crump) weir with crest tapping. No spillway. Modest modular limit affected by weed growth. Urban runoff from Braintree. Naturalised flows 1969-1976. Minor adjustments needed for ground and surface water abstractions, sewage and industrial effluent and Ely Ouse/Essex discharges. Net effect - minor export of water.

Catchment: Geology: Upper two-thirds of catchment Chalk, remainder London Clay (exposed in valleys), all overlain with Boulder Clay (85%) and glacial gravel. Land use: mainly rural (arable predominates) but with Braintree in lower valley, just u/s of station.

37020 Chelmer at Felsted**EA Anglian**

Station: 'Essex' profile (modified Flat V Crump) weir with crest tapping measuring up to 1.21m - limit of reliable gauging, higher flows estimated. Flood plain storage starts at 1.1m, no spillway. Drowning commences at 0.6m, and varies in severity. Naturalised flows 1970-1976. Minimal abstractions, adjustments needed for STW and industrial effluent discharges.

Catchment: Geology: Chalk in N, London Clay elsewhere, overlain with 75% Boulder Clay. Land use: rural, predominantly arable.

37021 Roman at Bounstead Bridge**EA Anglian**

Station: Initially a temporary broad-crested weir 3/65-9/69 with low flow V notch (data suspect). 'Essex' profile (modified Flat V Crump) weir with crest tapping from 11/3/70. Low modular limit (0.4m); affected by weed growth and siltation (structure drowned from winter 1990/91 to May 92 and from 10/06/98 onwards). Limited overspill starts at 0.35m - 3.0 m³s⁻¹. Flows naturalised 1970-1976.

Catchment: Rural catchment in conservation area. London Clay covered with glacial gravel and Boulder Clay in the upper third.

37022 Holland Brook at Thorpe le Soken**EA Anglian**

Station: 'Essex' profile (modified Flat V Crump) weir (very insensitive) with crest tapping. Tidal influence very important, gauging limits variable due to d/s tidal conditions, with drowning starting at very low levels. Very gentle river gradient makes siltation a major problem, accompanied by weed growth. Flows naturalised 1970-1976, abstractions significant at low flows.

Catchment: Geology: London Clay with cover of Boulder Clay (35% of area) in NW. Land use: rural, predominantly arable with some grassland.

37024 Colne at Earls Colne**EA Anglian**

Station: 'Essex' profile (modified Flat V Crump) weir with crest tapping prone to siltation. Flows are estimated when siltation severely affects response of station. Low modular limit - approx. 0.5m. No spillway. Naturalised flows 1971-76. Adjustments now needed for additions and abstractions.

Catchment: Geology: Upper Chalk in N, London Clay in S, with superficial deposits of Boulder Clay (70%) and sands and gravels in the valley. Land use: mainly rural, dominated by arable, but with some urban development in valley u/s of station.

37025 Bourne Brook at Perces Bridge**EA Anglian**

Station: Compound V-notch thin-plate weir. Rating limit of 0.6m (c.1 m³s⁻¹) so high flows are truncated.

Catchment: Rural tributary to the river Colne.

37026 Tenpenny Brook at Tenpenny Bridge**EA Anglian**

Station: Thin-plate weir. Installed to monitor irrigation abstractions.

Catchment: Rural catchment on London Clay

37027 Sixpenny Brook at Ship House Bridge**EA Anglian**

Station: n-plate weir. Until 1967 stages were recorded with Bristol instruments (circular charts). Discrepancies were reported between gauge board readings and Bristol readings. Installed to monitor irrigation abstractions.

Catchment: Rural catchment on London Clay

37028 Bentley Brook at Saltwater Bridge**EA Anglian**

Station: Thin-plate weir. Until 1967 stages were recorded with Bristol instruments (circular charts). Discrepancies were reported between gauge board readings and Bristol readings. Installed to monitor irrigation abstractions. Closed 1976.

Catchment: Rural catchment on London Clay

37029 St Osyth Brook at Main Road Bridge**EA Anglian**

Station: Thin-plate weir. Until 1967 stages were recorded with Bristol instruments (circular charts). Discrepancies were reported between gauge board readings and Bristol readings. Installed to monitor irrigation abstractions. Closed 1976.

Catchment: Rural catchment on London Clay.

37031 Crouch at Wickford**EA Anglian**

Station: Crump weir, very small fall because approaching tidal limit. Rated channel for high flows calibrated by c/m and float measurements. Low modular limit. Pre- 24/1/69 add 0.107m to recorded head. Significant urban runoff from Billericay and Basildon. Low flows heavily influenced by STW discharge.

Catchment: Geology: mainly London Clay, negligible superficial deposits. Land use: urban areas (Basildon, Billericay) make up 35% of catchment, particularly developed in S. Remaining area in N of catchment is mixed farming.

37033 Eastwood Brook at Eastwood**EA Anglian**

Station: Non-standard weir, insensitive at low flows, however, a good stepped fall, so no drowning. Replaced original weir, decommissioned 1995 (hence missing data), new weir is a replica of previous structure. Full range station. Very flashy, composed almost entirely of urban runoff. High flows on 12th and 13th September 2003 (not seen at surrounding sites) are the result of a burst water main within the catchment.

Catchment: Small low-lying catchment. Geology: London Clay with 30% superficial deposits of fluvial deposits. Land use: heavily urbanised catchment (70% built-up area), situated in industrial estate on outskirts of Southend.

37034 Mar Dyke at Stifford**EA Anglian**

Station: 'Essex' profile (modified Flat V Crump) weir with d/s tapping. Low modular limit, degree of drowning variable: backs up from tidal gates 3km d/s. Reverse flow possible. River subjected to flood relief scheme: channel widened and banks raised, only overtopped in extreme events. Suffers from summer weed growth.

Catchment: Geology: predominantly London Clay. Middle and lower catchment below 10m: fenland, rising to over 100m in extreme N and W: wooded areas. Land use: arable farming; clay pits in lower catchment.

37038 Wid at Margaretting**EA Anglian**

Station: Sharp-edged trapezoidal weir with central rectangular notch. Weir becomes non-modular at relatively low flow ($2.8 \text{ m}^3\text{s}^{-1}$). Up to $9.6 \text{ m}^3\text{s}^{-1}$ acts as rated section with approximate rating determined by current meter readings. Some bypassing known to occur well before this flow. Flows influenced by abstractions and effluent returns. Closed 1974 and replaced by Writtle (37007).

Catchment: London Clay catchment, mainly rural although with parts of Brentwood at top of catchment.

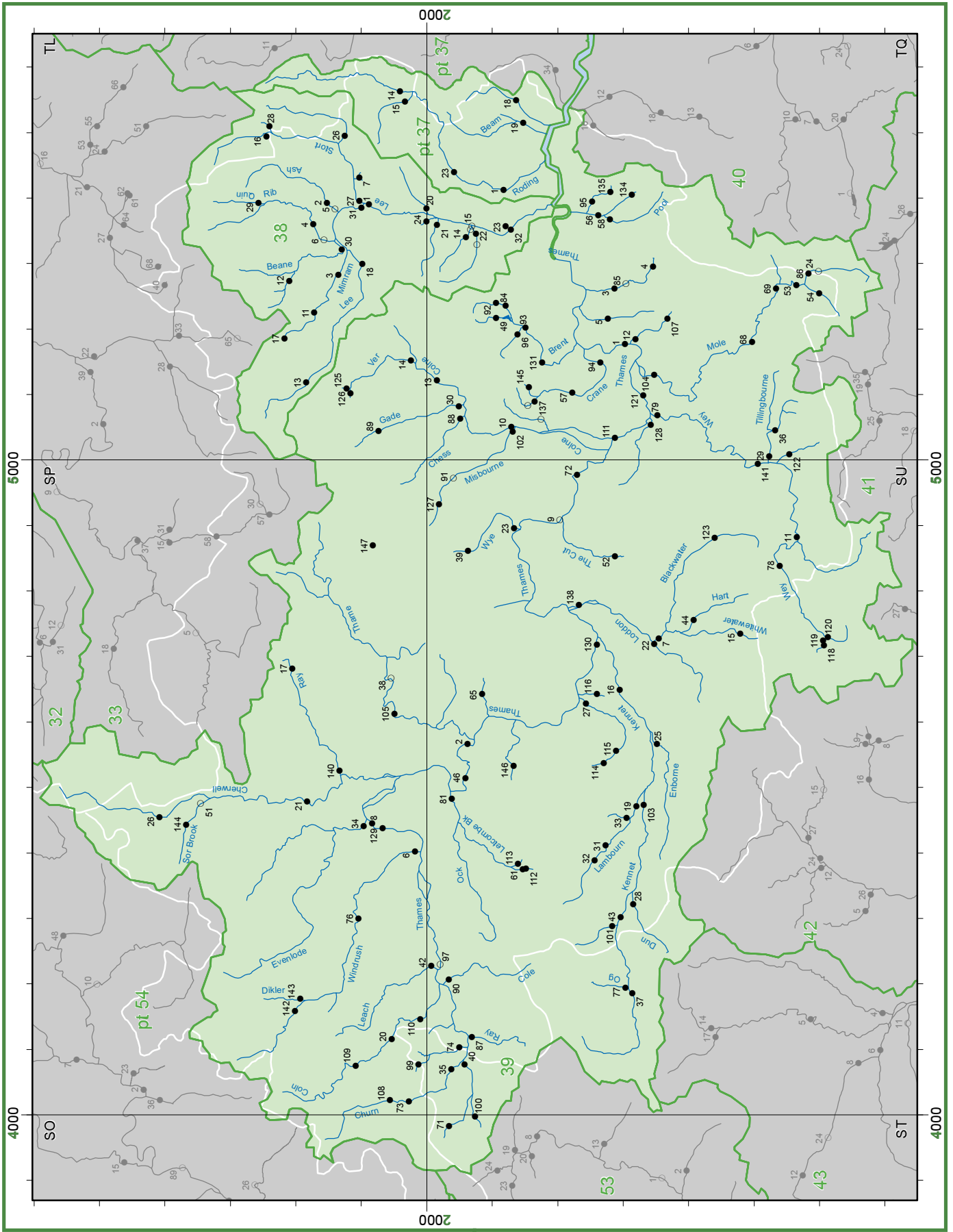
GAUGING STATION REGISTER

Region: EA Thames

Area: 12,917 km²

Average rainfall (1971-2000): 710 mm

Map 7: THAMES



Gauging Station Register I

Station number	River name	Station name	Grid reference	Catchment area	Station type	SLA	Period of record	Percent complete	Base Flow Index	Mean ann. rain (mm)	Mean ann. runoff (mm)	Mean ann. loss (mm)	Mean flow (m ³ /s)	Q95 (m ³ /s)	Q70 (m ³ /s)	Q50 (m ³ /s)	Q10 (m ³ /s)	Median ann. flood (m ³ /s)	Peak flow (m ³ /s)	Date of peak	7-day min. (m ³ /s)	Date of min.
37001	Roding	Redbridge	TQ415884	303.3	EW	*	1950-05	100	.39	622	193	429	1.83	0.22	0.47	0.75	4.4	22.0	75.0	31/10/00	0.10	11/08/90
37014	Roding	High Ongar	TL561040	95.1	EW		1963-05	100	.35	610	166	444	0.49	0.02	0.06	0.13	1.1	11.1	19.5	30/11/00	0.00	11/07/76
37015	Cripsey Brook	Chipping Ongar	TL548035	62.2	FV		1961-05	76	.30	629	206	423	0.38	0.02	0.06	0.11	0.9	6.7	0.0	07/11/75		
37018	Ingrebourne	Gaynes Park	TQ553862	47.9	EW	*	1970-05	100	.50	601	217	384	0.33	0.10	0.13	0.18	0.7	6.2	29.0	21/11/74	0.06	24/08/76
37019	Beam	Bretons Farm	TQ515853	49.7	EW	*	1965-05	96	.38	601	210	391	0.33	0.07	0.11	0.16	0.7	9.2	17.8	02/10/93	0.03	23/08/76
37023	Roding	Loughton	TQ442955	269.0	C		1971-05	81	.31	610	188	422	1.56	0.10	0.23	0.42	3.5	25.4			0.04	11/08/90
38001	Lee	Feildes Weir	TL390092	1036.0	MIS	*	1883-05n	98	.59	643	165	478	5.38	1.58	2.74	3.74	9.4	43.0	118.0	17/03/47	0.00	13/07/49
38002	Ash	Mardock	TL393148	78.7	FV		1980-05	100	.53	642	121	521	0.30	0.05	0.09	0.14	0.6	6.8	19.1	22/10/01	0.01	18/09/97
38003	Mimram	Panshanger Park	TL282133	133.9	FL	*	1952-05	100	.93	655	126	529	0.54	0.22	0.40	0.49	0.8	1.9	5.8	23/07/96	0.14	20/08/76
38004	Rib	Wadesmill	TL360174	136.5	FL+C	*	1979-05	100	.59	635	120	515	0.52	0.07	0.19	0.29	0.9	12.1	42.5	16/09/68	0.02	22/08/97
38005	Ash	Easneye	TL380138	85.2	TP		1960-81	99	.55	629	114	515	0.32	0.06	0.11	0.16	0.6	7.2	16.7	14/11/74	0.02	06/09/76
38006	Rib	Herts Training School	TL335158	148.1	TP		1956-82	96	.58	625	137	488	0.61	0.13	0.24	0.33	1.1	11.6	28.6	06/05/78	0.04	24/08/76
38007	Canons Brook	Elizabeth Way	TL431104	21.4	FL	*	1953-05	100	.40	618	264	354	0.18	0.04	0.06	0.09	0.4	7.2	14.4	14/06/93	0.01	16/05/54
38011	Mimram	Fulling Mill	TL225169	98.7	C		1957-05	69	.95	675	70	605	0.22	0.02	0.14	0.19	0.4	0.4	2.9	13/10/93	0.00	06/03/98
38012	Stevenage Brook	Bragbury Park	TL274211	36.0	FV	*	1974-05	100	.26	647	84	563	0.10	0.01	0.02	0.03	0.2	2.7	9.5	25/11/03	0.01	06/09/76
38013	Upper Lee	Luton Hoo	TL118185	70.7	TP B		1960-05	100	.64	666	109	557	0.24	0.00	0.08	0.17	0.6	3.1	9.1	17/06/84	0.00	18/11/03
38014	Salmon Brook	Edmonton	TQ343937	20.5	FV	*	1956-05	99	.29	667	252	415	0.16	0.02	0.04	0.07	0.4	4.6	12.4	29/10/00	0.01	30/10/64
38015	Intercepting Drain	Enfield	TQ355932	7.4	FL		1969-82	88	.51	612	469	143	0.11	0.04	0.06	0.07	0.2	6.1	7.0	30/05/79		
38016	Stansted Sp	Mountfichet	TL500246	20.5	TP	*	1969-05	100	.98	639	89	550	0.06	0.01	0.04	0.06	0.1	0.1	0.6	21/10/01	0.00	02/01/98
38017	Mimram	Whitwell	TL184212	39.1	C	*	1970-05	100	.97	657	70	587	0.09	0.02	0.06	0.08	0.2	0.2	0.7	13/10/93	0.00	23/11/97
38018	Upper Lee	Water Hall	TL299099	150.0	C	*	1971-05	100	.82	664	275	389	1.30	0.50	0.84	1.11	2.2	7.5	15.8	30/05/79	0.27	24/08/76
38019	Salmon Brook	Montague Road	TQ354932	33.9	FL		1971-76	69	.27	641	125	516	0.14	0.02	0.03	0.06	0.3	3.3				
38020	Cobbins Brook	Sewardstone Road	TQ387999	38.4	FL		1971-05	97	.27	620	184	436	0.22	0.01	0.03	0.06	0.5	8.4	40.0	29/10/00	>0.00	11/08/76
38021	Turkey Brook	Albany Park	TQ359985	42.2	FV	*	1971-05	99	.22	671	154	517	0.21	0.01	0.02	0.05	0.5	7.1	20.7	30/05/79	>0.00	10/09/91
38022	Pymmes Brook	Edmonton Silver Street	TQ340925	42.6	C		1954-05	100	.49	681	354	327	0.48	0.11	0.20	0.29	1.0	20.5	37.1	20/07/65	0.07	26/09/69
38023	Lee flood relief	Low Hall	TQ356880	1243.0	C		1980-05	99	.22	650	58	592	2.27	0.07	0.21	0.49	5.7	45.2	147.9	29/10/00		
38024	Small River Lee	Ordnance Road	TQ370988	41.5	FV		1973-05	100	.47	643	234	409	0.30	0.06	0.13	0.19	0.6	5.1	18.7	31/05/83	0.03	11/08/76
38025	Pymmes Brook	Alcazar	TQ340925	41.4	VA		1954-74	99	.53	685	418	267	0.53	0.10	0.20	0.40	1.0	19.0	37.1	20/07/65	0.07	26/09/69
38026	Pincey Brook	Sheering Hall	TL495126	54.6	FV	*	1974-05	100	.38	622	179	448	0.32	0.03	0.06	0.11	0.7	11.0	19.8	30/10/00	0.01	24/08/76
38027	Stort	Glen Faba	TL393093	280.2	US		1985-05	94	.46	617	168	449	1.47	0.20	0.48	0.78	3.0	15.3	39.7	30/10/00	0.09	10/08/90
38028	Stansted Brook	Gypsy Lane	TL506241	25.9	FV		1972-05	100	.45	637	101	536	0.08	0.01	0.02	0.04	0.2	1.8	5.4	21/10/01	>0.00	10/02/92
38029	Quin	Griggs Bridge	TL392248	50.4	FV	*	1978-05	100	.44	642	95	547	0.15	0.01	0.04	0.06	0.3	6.5	21.3	21/10/01	>0.00	24/11/97
38030	Beane	Hartham	TL325131	175.1	FV	*	1979-05	100	.76	640	105	535	0.59	0.19	0.35	0.46	1.0	5.0	30.6	13/10/93	0.13	26/09/97
38031	Lee	Rye Bridge	TL385098	758.3	US		1993-05	92	.68	647	155	492	3.53	0.50	1.37	2.17	7.5	28.1	87.6	13/10/93	0.00	28/12/05
38032	Lee	Lea Bridge	TQ352872	1364.0	US		1994-05	65	.72	649	134	515	5.48	2.98	3.94	4.49	8.5					
39001	Thames	Kingston	TQ177698	9948.0	US	*	1883-05n	100	.64	720	249	471	78.17	18.80	35.40	53.70	173.0	315.6	800.0	18/11/94	0.01	05/09/76
39002	Thames	Days Weir	SU568935	3444.7	MIS	*	1938-02n	98	.64	715	261	454	28.30	3.40	8.81	16.40	68.5	149.6	349.2	17/03/47	0.15	09/07/76
39003	Wandle	Connollys Mill	TQ265705	176.1	FL		1962-05	92	.86	744	347	397	1.82	0.70	1.35	1.68	2.8	10.3	40.0	15/09/68	0.04	27/01/63
39004	Wandle	Beddington Park	TQ296655	122.0	EM	*	1936-05	75	.79	780	47	733	0.18	0.02	0.10	0.16	0.4	3.4	17.1	06/08/81	>0.00	17/04/73
39005	Beverley Brook	Wimbledon Common	TQ216717	43.5	FL	*	1935-05	67	.65	639	406	233	0.55	0.22	0.37	0.43	0.9	12.7	25.0	15/09/68		
39006	Windrush	Newbridge	SP402019	362.6	CB	*	1950-05	99	.87	765	288	477	3.29	0.73	1.59	2.57	6.6	11.3	22.5	04/01/03	0.12	23/08/76
39007	Blackwater	Swallowfield	SU731648	354.8	CC	*	1952-05	100	.67	715	274	441	3.07	0.99	1.64	2.25	5.8	21.1	42.3	17/09/68	0.48	17/08/53
39008	Thames	Eynsham	SP445087	1616.2	MIS	*	1951-02n	100	.67	745	283	462	14.76	1.98	5.06	9.68	33.8	78.1	91.8	05/01/03	0.13	12/09/76
39009	Thames	Bray Weir	SU909797	6915.3	MIS		1959-82	100	.70	714	267	447	58.21	15.26	26.50	41.40	127.0				7.35	24/08/76
39010	Colne	Denham	TQ052864	743.0	B	*	1952-05	100	.87	718	176	542	4.10	1.82	2.90	3.68	6.6	10.5	22.2	03/01/03	0.80	25/08/76
39011	Wey	Tilford	SU874433	396.3	C	*	1954-05	100	.72	866	257	609	3.24	1.29	1.86	2.43	5.5	26.6	79.0	16/09/68	0.70	04/09/55
39012	Hogsmill	Kingston upon Thames	TQ182688	69.1	B	*	1956-05	98	.74	684	474	210	1.03	0.54	0.73	0.86	1.6	12.9	26.3	06/08/81	0.35	06/09/76
39013	Colne	Berrygrove	TQ123982	352.2	CC		1934-05	96	.67	697	73	624	0.81	0.14	0.37	0.54	1.6	5.3	26.5	02/01/03	0.00	16/08/65
39014	Ver	Hansteads	TL151016	132.0	CC	*	1956-05	100	.88	716	103	613	0.43	0.08	0.26	0.36	0.8	1.4	3.1	14/02/01	0.01	05/09/76
39015	Whitewater	Lodge Farm	SU731523	44.6	C	*	1910-05	99	.94	796	257	539	0.36	0.17	0.26	0.32	0.6	1.3	2.3	12/02/01	0.08	26/08/49
39016	Kennet	Theale	SU649708	1033.4	C	*	1961-05	100	.87	782	299	483	9.75	3.76	5.80	7.93	17.3	38.5	71.0	11/06/71	1.03	24/08/76
39017	Ray	Grendon Underwood	SP680211	18.8	FL	*	1962-05	93	.17	642	163	479	0.10	0.00	>0.00	0.01	0.2	5.3	16.3	10/07/68	0.00	19/08/05
39019	Lambourn	Shaw	SU470682	234.1	C	*	1962-05	100	.96	742	234	508	1.73	0.76	1.14	1.48	2.9	3.6	6.7	19/12/00	0.42	19/08/76
39020	Coln	Bibury	SP122062	106.7	C	*	1963-05	100	.93	823	400	423	1.35	0.40	0.68	1.06	2.7	3.7	6.5	15/12/00	0.19	25/08/76
39021	Cherwell	Enslow Mill	SP482183	551.7	CC	*	1965-05	100	.66	689	220	469	3.81	0.65	1.35	2.46	9.0	19.9	100.0	10/04/98	0.09	26/08/76
39022	Loddon	Sheepbridge	SU720652	164.5	C	*	1965-05	100	.76	755	428	327	2.22	0.96	1.31	1.71	3.8	16.8	26.4	16/09/68	0.54	24/08/76
39023	Wye	Hedsor	SU896867	137.3	C	*	1964-05	100	.94	774	232	542	1.01	0.47	0.76	0.96	1.5	2.9	4.4	25/09/81	0.28	25/08/76
39024	Watwick Stream	Gatwick	TQ288402	31.1	VA		1952-77	100	.56	872	463	409	0.45	0.11	0.22	0.30	0.9	6.3	18.7	15/09/68	0.05	22

Gauging Station Register I cont'd

Station number	River name	Station name	Grid reference	Catchment area	Station type	SLA	Period of record	Percent complete	Base Flow Index	Mean ann. rain (mm)	Mean ann. runoff (mm)	Mean ann. loss (mm)	Mean flow (m³/s)	Q95 (m³/s)	Q70 (m³/s)	Q50 (m³/s)	Q10 (m³/s)	Median ann. flood (m³/s)	Peak flow (m³/s)	Date of peak	7-day min. (m³/s)	Date of min.
39052	The Cut	Binfield	SU853713	50.2 MIS	*	1957-05	99	.46	682	251	431	0.39	0.07	0.14	0.23	0.8	7.9	18.1	01/06/81	0.01	09/09/67	
39053	Mole	Horley	TQ271434	89.9 CBVA		1961-05	96	.45	815	477	338	1.40	0.26	0.53	0.76	2.9	25.7	63.3	16/09/68	0.14	24/08/76	
39054	Mole	Gatwick Airport	TQ260399	31.8 FLC	*	1961-05	100	.23	820	333	487	0.33	0.02	0.04	0.10	0.8	10.1	22.3	15/09/68	>0.00	24/08/84	
39055	* Yeading Bk West	Yeading West	TQ083846	17.6 FV		1979-94	96	.39	663	242	421	0.13	0.01	0.04	0.06	0.3	4.2	10.4	17/08/77	>0.00	28/08/83	
39056	Ravensbourne	Catford Hill	TQ372732	120.4 FL	*	1977-05	100	.55	727	111	616	0.43	0.12	0.21	0.28	0.8	16.1	28.4	09/06/92	0.07	31/08/05	
39057	Crane	Cranford Park	TQ103778	61.7 FL		1978-05	100	.36	648	259	389	0.51	0.11	0.18	0.25	1.1	12.7	17.9	17/08/77			
39058	Pool	Winsford Road	TQ371725	38.3 FL		1978-05	99	.56	668	237	431	0.29	0.10	0.15	0.20	0.5	9.4			0.04	10/09/99	
39061	Letcombe Brook	Letcombe Bassett	SU375853	4.0 FV	*	1971-05	98	.96	743	671	72	0.09	0.01	0.04	0.07	0.2	0.2	1.1	04/01/71	>0.00	28/06/76	
39065	Ewelme Brook	Ewelme	SU642916	13.4 FV	*	1970-05	87	.98	709	108	601	0.05	0.01	0.03	0.04	0.1	0.1	0.3	14/08/80	0.00	16/11/97	
39068	Mole	Castle Mill	TQ179502	316.0 C		1971-05	94	.43	791	377	414	3.74	0.79	1.17	1.77	8.5	57.7	100.0	28/12/79	0.50	31/08/73	
39069	Mole	Kinnersley Manor	TQ262462	142.0 MIS	*	1972-05	96	.40	802	494	308	2.21	0.32	0.65	1.04	4.6	46.4	74.8	06/11/00	0.14	24/08/76	
39071	Thames	Ewen	SU007973	63.7 MIS		2002-05	100	.68	825	160	665	0.33	0.00	0.01	0.11	0.9				0.00	14/11/05	
39072	Thames	Royal Windsor Park	SU982773	7046.0 US	*	1979-05	96	.72	718	250	468	57.81	15.00	26.70	40.00	126.0	215.0	405.8	05/01/03	10.89	20/07/05	
39073	Churn	Cirencester	SP020028	84.0 FV		1979-05	100	.90	890	287	603	0.75	0.04	0.20	0.50	1.9	2.6	3.6	23/01/99	0.00	25/10/03	
39074	Ampney Brook	Sheepen Bridge	SU105950	74.4 FV		1980-05	99	.73	794	326	468	0.75	0.00	0.14	0.47	2.0	4.4	10.3	28/12/94	0.00	17/10/05	
39076	Windrush	Worsham	SP299107	296.0 MIS		1942-05	68	.83	780	282	498	2.19	0.66	1.10	1.57	4.3	9.6	17.2	13/12/00	0.30	15/08/44	
39077	Og	Marlborough Poulton Fm	SU194697	59.2 FV		1980-05	100	.95	820	177	643	0.33	0.01	0.09	0.19	0.8	1.0	4.1	02/01/03	0.00	16/12/90	
39078	Wey(north)	Farnham	SU838462	191.1 MIS	*	1978-05	99	.73	892	129	763	0.76	0.18	0.35	0.53	1.5	6.4	28.1	30/10/00	0.11	01/09/05	
39079	Wey	Weybridge	TQ068648	1008.0 US		1979-05	92	.65	802	203	599	6.95	2.28	3.63	4.92	13.3	38.5	83.4	07/11/00	1.47	11/08/90	
39081	Ock	Abingdon	SU481966	234.0 CC	*	1962-05	98	.64	653	209	444	1.53	0.33	0.55	0.86	3.5	10.5	23.8	03/01/03	0.11	25/08/76	
39084	Brent	Brent Cross	TQ236880	36.4 TP		1989-05	100	.34	698	316	382	0.36	0.07	0.10	0.15	0.8	15.9	35.0	29/10/00	0.06	29/07/90	
39085	* Wandle	Wandle Park	TQ266703	176.1 FL		1936-60	49	.81	702	299	403	1.60	0.90	1.19	1.42	2.4	6.4	9.1	08/07/56			
39086	Gatwick Stream	Gatwick Link	TQ285417	33.6 C		1975-05	100	.61	842	674	168	0.72	0.26	0.35	0.49	1.3	9.6	14.6	06/11/00	0.12	13/08/76	
39087	Ray	Water Eaton	SU121935	84.1 US	*	1974-05	99	.58	723	490	233	1.32	0.45	0.62	0.84	2.6	14.1	32.2	27/09/74	0.27	25/08/76	
39088	Chess	Rickmansworth	TQ066947	105.0 C	*	1974-05	100	.95	766	180	586	0.60	0.21	0.42	0.54	1.0	1.2	2.5	18/05/01	0.07	26/08/76	
39089	Gade	Bury Mill	TL053077	48.2 FL		1975-05	100	.92	742	101	641	0.16	0.03	0.09	0.13	0.3	0.7			0.01	21/08/76	
39090	Coie	Inglesham	SU208970	140.0 CC		1976-05	100	.53	698	268	430	1.20	0.14	0.34	0.62	2.7	13.9	26.3	28/12/79	0.08	27/09/97	
39091	* Misbourne	Quarrendon Mill	SU975963	66.3 B		1978-85	99	.81	789	62	727	0.12	0.02	0.06	0.09	0.3				0.01	02/10/80	
39092	Dollis Brook	Hendon Lane Bridge	TQ240895	25.1 FV		1979-05	97	.30	703	278	425	0.22	0.03	0.05	0.09	0.5	7.4	24.0	21/12/89	>0.00	01/10/89	
39093	Brent	Monks Park	TQ202850	117.6 FL		1978-05	98	.23	692	264	428	1.00	0.14	0.28	0.49	2.3	25.0	65.4	23/09/92			
39094	Crane	Marsh Farm	TQ154734	81.0 FL		1977-05	100	.35	638	207	431	0.53	0.02	0.14	0.28	1.3	8.1	13.4	28/12/79			
39095	Quaggy	Manor House Gardens	TQ394748	33.5 FL	*	1978-05	99	.47	651	142	509	0.15	0.04	0.06	0.09	0.3	4.7	7.6	09/06/92	0.02	20/09/02	
39096	Wealdstone Brook	Wembley	TQ192862	21.8 FV		1979-05	99	.24	677	195	482	0.14	0.02	0.03	0.05	0.3	12.0	29.2	22/09/92			
39097	* Thames	Buscot	SU230981	997.0 MIS		1980-98	98	.71	772	289	483	9.15	1.24	3.33	5.88	21.4				0.74	20/08/95	
39098	* Pinn	Uxbridge	TQ062826	33.3 EM		1984-03	96	.21	671	196	475	0.20	0.01	0.03	0.05	0.5	6.9	10.8	30/12/02			
39099	Ampney Brook	Ampney St. Peter	SP076013	45.3 FV	*	1983-05	100	.78	818	402	416	0.57	>0.00	0.15	0.40	1.4	2.8	5.1	31/12/02	0.00	27/11/03	
39100	Swill Brook	Oaksey	ST997927	53.3 EM		1984-05	54	.39	790	176	614	0.32	0.00	0.01	0.06	1.0	2.5	9.1	03/12/05	0.00	21/10/05	
39101	Aldbourn	Ramsbury	SU288717	53.1 FV	*	1982-05	98	.97	808	121	687	0.21	0.02	0.05	0.09	0.6	0.7	1.8	08/01/03	0.01	31/10/97	
39102	Misbourne	Denham Lodge	TQ046866	94.8 C		1984-05	100	.90	763	95	668	0.28	0.06	0.16	0.22	0.5	0.7	2.7	08/05/88	0.02	02/10/97	
39103	Kennet	Newbury	SU472672	548.1 US		1989-05	97	.93	817	262	555	4.88	1.83	2.75	3.60	9.9	10.9	22.8	04/01/03	1.46	01/10/97	
39104	Mole	Esher	TQ130653	469.6 US		1984-05	78	.51	778	370	408	5.43	1.24	2.12	2.95	11.8	53.7	114.6	06/11/00			
39105	Thame	Wheatley	SP612050	533.8 US	*	1989-05	98	.59	655	230	425	3.79	0.85	1.25	1.86	9.7	21.2	74.1	03/01/03	0.64	12/09/90	
39107	Hogsmill	Ewell	TQ216633	33.7 FLVA	*	1988-05	85	.93	725	44	681	0.05	>0.00	0.01	0.03	0.1	0.2	0.3	16/05/01	>0.00	25/10/91	
39108	Churn	Perrott's Brook	SP022057	59.0 FV	*	1990-05	97	.89	871	344	527	0.63	0.04	0.19	0.45	1.6	1.9	4.4	01/01/01	0.00	24/10/03	
39109	Coln	Fossebridge	SP080112	82.0 C		1990-05	99	.91	849	176	673	0.47	0.03	0.10	0.27	1.2	1.5	2.8	05/01/01	>0.00	15/09/03	
39110	Coln	Fairford	SP151012	130.0 EM		1991-05	98	.95	822	486	336	1.99	0.63	1.03	1.62	3.9	5.2			0.50	28/10/96	
39111	Thames	Staines	TQ034713	8120.0 US		1990-05	93	.68	708	206	502	53.28	10.20	16.90	31.10	137.0	216.0	385.2	05/01/03	5.92	18/10/06	
39112	Letcombe Brook	Arabellas Lake	SU374852	3.1 FV		1992-05	98	.93	769	327	442	0.03	0.00	0.01	0.02	0.1	0.1	0.2	08/07/04			
39113	Manor Farm Brook	Letcombe Regis	SU383861	1.4 FV		1992-05	86	.78	772	309	463	0.01	>0.00	>0.00	0.01	>0.0	0.1	0.1	03/11/98	0.00	19/10/05	
39114	Pang	Frlisham	SU537730	89.8 FV	*	1991-05	100	.94	722	76	646	0.21	0.00	0.06	0.12	0.5	0.4	2.2	12/02/01	0.00	06/01/98	
39115	Pang	Bucklebury	SU556711	109.0 FV		1991-05	83	.89	719	70	649	0.25	>0.00	0.06	0.14	0.6	1.0	2.5	12/02/01	0.00	15/10/05	
39116	Sulham Brook	Sulham	SU642741	3.0 FV		1991-05	99	.63	669	696		0.07	>0.00	0.02	0.03	0.2	0.7	4.3	30/10/00	>0.00	28/08/97	
39118	Wey	Alton	SU717394	44.6 FV		1991-05	95	.93	880	55	825	0.08	0.00	>0.00	0.03	0.2	0.2	0.9	29/10/00	0.00	26/12/05	
39119	Wey	Kings Pond (Alton)	SU724395	45.9 TP		1991-05	99	.91	879	82	797	0.11	0.00	0.03	0.07	0.3	0.5	0.6	12/12/00	0.00	04/12/97	
39120	Caker Stream	Alton	SU729388	88.1 FV	*	1991-05	100	.44	935	33	902	0.09	0.00	>0.00	0.02	0.3	1.6	4.4	12/12/00	0.00	16/10/05	
39121	Thames	Walton	TQ099670	9291.5 US		1991-05	91	.65	737	205	532	53.89	9.25	16.40	30.90	138.0	234.0	344.7	5/12/00			
39122	Cranleigh Waters	Bramley	SU999462	109.5 US		1990-05	97	.40	797	336	461	1.10	0.20	0.29	0.43	2.5	16.3			0.16	19/08/98	
39123	Blackwater	Farnborough	SU879559	35.5 EM		1996-05	100	.73	764	472	292	0.52	0.18	0.33	0.42	0.9		4.4	06/11/00			
39125	Ver	Redbourn	TL109118	62.6 FV	*	1993-05	100	.92	719	51	668	0.10	0.00	0.01	0.04	0.3	0.2	2.2	12/02/01	0.00	26/12/05	
39126	Red	Redbourn	TL107119	18.5 FV		1993-05	99	.68	705	81	624	0.05	0.00	0.01	0.03	0.1	0.3	2.4	08/08/00	0.00	26/12/05	
39127	Misbourne	Little Missenden	SU9																			

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Station number	River name	Station name	Catchment area	Sensitivity	Bankfull/structurefull	Factors affecting runoff	Descriptors				Elevation				Bedrock			Superficial			Landuse						
							BFIHOST	FARL	PROPWET	DPSBAR	Station level (mOD)	10 percentile (mOD)	50 percentile (mOD)	90 percentile (mOD)	Maximum level (mOD)	High perm. (%)	Moderate perm. (%)	Very low perm. (%)	Gen. high perm. (%)	Mixed perm. (%)	Gen. low perm. (%)	Woodland (%)	Arable/horticultural (%)	Grassland (%)	Mountain/heath/bog (%)	Urban extent (%)	
37001	Roding	Redbridge	303.3	14	24.9	SEI	.33	0.983	29	30	6	36	71	93	115	0	0	99	3	63	0	8	62	16	<1	7	
37014	Roding	Herts Ongar	95.1	40	9.5	GI	.40	0.986	31	19	41	59	75	93	112	0	0	100	<1	100	0	6	78	12	0	1	
37015	Cripsey Brook	Chipping Ongar	62.2	33	25.0	SEI	.33	0.997	31	25	42	61	79	96	115	0	0	100	6	70	0	6	67	18	0	2	
37018	Ingrebourne	Gaynes Park	47.9	23	8.4	SEI	.28	0.985	27	43	12	28	64	94	117	0	0	83	<1	31	0	11	36	27	<1	17	
37019	Beam	Bretons Farm	49.7	26	9.6	SEI	.37	0.972	27	28	6	14	35	77	104	0	0	99	26	18	0	5	23	25	<1	34	
37023	Roding	Loughton	269.0	22	35.0	SEI	.34	0.990	29	29	18	45	73	93	115	0	0	99	2	69	0	7	68	16	<1	3	
38001	Lee	Feildes Weir	1036.0	38	51.7	PGEI	.57	0.952	29	37	28	64	99	137	226	71	0	22	20	53	7	11	59	19	0	8	
38002	Ash	Mardock	78.7	24	7.6	GI	.51	1.000	31	35	36	68	93	119	140	64	0	11	15	77	0	8	70	18	0	1	
38003	Mimram	Panshanger Park	133.9	7	2.3	GI	.72	0.985	30	44	47	82	122	154	193	97	0	0	15	9	36	13	57	18	0	7	
38004	Rib	Wadesmill	136.5	12	13.5	GI	.47	0.999	30	38	47	82	114	139	168	94	0	0	13	84	0	8	73	16	0	2	
38005	* Ash	Easneye	85.2	20	5.3	GI	.51	1.000	30	35	32	64	91	119	140	65	0	10	16	77	0	8	71	18	0	1	
38006	* Rib	Herts Training School	148.1	12	2.2	GI	.47	0.999	30	39	41	78	112	138	168	92	0	0	12	84	0	8	72	17	0	1	
38007	Canons Brook	Elizabeth Way	21.4	32	9.0	N	.35	0.988	31	29	38	59	73	99	107	0	0	100	29	48	0	10	22	22	0	25	
38011	Mimram	Fulling Mill	98.7	70	1.7	G	.75	0.980	30	43	66	101	133	157	193	100	0	0	6	<1	46	11	65	17	0	4	
38012	Stevenage Brook	Bragbury Park	36.0	60	3.0	SG	.66	0.968	30	32	71	86	100	128	145	100	0	0	43	1	28	9	24	20	0	28	
38013	Upper Lee	Luton Hoo	70.7	11	3.8	G	.87	0.947	30	40	98	116	134	162	226	100	0	0	13	3	3	6	22	18	0	33	
38014	Salmon Brook	Edmonton	20.5	60	6.0	P	.26	0.978	29	48	12	29	62	93	129	0	0	100	36	1	0	14	19	24	<1	29	
38015	* Intercepting Drain	Enfield	7.4	28	10.0																						
38016	Stansted Sp	Mountfitchet	20.5	17	0.1	G																					
38017	Mimram	Whitwell	39.1	55	0.3	G	.86	0.982	30	48	88	114	140	160	193	100	0	0	<1	0	35	12	69	16	0	1	
38018	Upper Lee	Water Hall	150.0	13	8.3	GEI	.69	0.932	30	41	44	75	116	152	226	90	0	6	28	13	10	12	32	21	0	20	
38019	* Salmon Brook	Montage Road	33.9	25	4.4	P	.30	0.980	29	44	9	20	59	92	129	0	0	100	43	1	0	12	17	23	<1	34	
38020	Cobbins Brook	Sewardstone Road	38.4	50	19.9	P	.22	0.997	29	44	17	35	73	103	117	0	0	100	0	21	0	12	56	17	<1	5	
38021	Turkey Brook	Albany Park	42.2	60	16.8	PG	.24	0.948	29	55	17	41	78	115	127	0	0	100	33	13	0	24	32	29	<1	7	
38022	Pymmes Brook	Edmonton Silver Street	42.6	42	22.6	N	.24	0.975	29	40	11	28	65	95	135	0	0	100	26	6	0	10	4	14	<1	58	
38023	Lee flood relief	Low Hall	1243.0	76			.53	0.891	29	37	5	47	92	133	226	59	0	35	19	48	6	12	51	19	<1	9	
38024	Small River Lee	Ordnance Road	41.5	23	21.2	G	.48	0.840	29	31	15	20	43	90	116	0	0	100	36	18	0	14	17	29	0	21	
38025	* Pymmes Brook	Alcazar	41.4				.24	0.975	29	40	14	28	65	95	135	0	0	100	26	6	0	10	4	14	<1	58	
38026	Pincey Brook	Sheering Hall	54.6	40	16.8	SPI	.39	0.984	31	24	43	67	81	99	111	0	0	100	1	99	0	9	65	18	0	3	
38027	Stort	Glen Faba	280.2		18.5	GI	.49	0.966	31	28	26	57	81	110	144	24	0	71	19	78	0	10	57	19	0	6	
38028	Stansted Brook	Gypsy Lane	25.9	40	5.5	SPG	.65	0.989	31	29	61	82	97	109	122	40	0	34	46	54	0	16	52	21	0	4	
38029	Quin	Griggs Bridge	50.4	30	11.5	G	.45	0.998	29	35	67	96	119	138	158	100	0	0	9	85	0	6	79	14	0	1	
38030	Beane	Hartham	175.1	16	24.4	PG	.54	0.992	30	39	35	73	107	133	152	96	0	0	15	42	8	11	60	17	0	7	
38031	Lee	Rye Bridge	758.3		51.0		.59	0.947	30	40	29	68	108	141	226	89	0	4	20	43	10	11	55	19	0	8	
38032	Lee	Lea Bridge	1364.0				.53	0.891	29	37	8	47	92	133	226	59	0	35	19	48	6	12	51	19	<1	9	
39001	Thames	Kingston	9948.0		450.0	SRPGEI	.65	0.942	30	42	5	50	100	182	330	43	10	37	14	7	7	16	36	32	<1	7	
39002	Thames	Days Weir	3444.7			PEI	.65	0.953	31	37	46	67	112	195	330	28	18	53	8	10	0	11	47	34	<1	3	
39003	Wandle	Connollys Mill	176.1	9	28.0	GE	.76	0.985	31	58	10	31	120	186	268	65	<1	26	17	2	23	18	8	23	<1	36	
39004	Wandle	Beddington Park	122.0	120	13.1	G	.85	0.993	33	75	33	79	155	196	268	87	<1	1	6	0	35	25	11	26	<1	23	
39005	Beverly Brook	Wimbleton Common	43.5	12	28.3	GE	.48	0.994	29	27	11	16	31	85	171	15	0	81	28	0	0	8	<1	16	0	50	
39006	Windrush	Newbridge	362.6	16		PGI	.79	0.951	33	61	63	99	181	253	317	74	0	26	2	6	0	13	46	34	<1	2	
39007	Blackwater	Swallowfield	354.8	12	26.0	GE	.63	0.886	32	32	42	60	80	126	224	19	0	19	20	6	2	22	18	25	3	H 13	
39008	Thames	Eynsham	1616.2			SPE	.69	0.946	32	39	60	76	118	222	330	55	5	40	9	8	0	11	45	35	<1	3	
39009	* Thames	Bray Weir	6915.3			SGEI	.67	0.954	31	42	21	62	107	188	330	40	13	40	11	8	5	13	41	34	<1	4	
39010	Colne	Denham	743.0	14	17.5	GEI	.63	0.903	29	43	34	74	118	174	266	81	0	10	18	9	30	14	36	26	<1	12	
39011	Wey	Tilford	396.3	10	37.5	GE	.80	0.957	35	59	48	77	126	190	280	78	9	12	4	<1	19	26	31	27	2	H 5	
39012	Hogsmill	Kingston upon Thames	69.1	15	36.0	E	.60	0.991	30	32	6	23	54	153	194	37	0	52	12	<1	4	13	8	27	<1	31	
39013	Colne	Berrygrove	352.2	28	7.4	GEI	.54	0.930	29	33	55	77	111	163	242	70	0	18	19	12	28	11	43	23	0	11	
39014	Ver	Hansteads	132.0	22	9.8	G	.68	0.947	30	39	62	93	134	180	242	92	0	0	17	3	49	9	51	20	0	11	
39015	Whitewater	Lodge Farm	44.6	17	3.0	G	.93	1.000	35	48	72	97	127	178	224	97	0	<1	<1	0	18	12	42	29	<1	4	
39016	Kennet	Theale	1033.4	7		RGI	.77	0.965	31	55	43	91	153	205	296	72	2	14	12	4	18	15	45	32	<1	2	
39017	Ray	Grendon Underwood	18.8		6.6	N	.24	0.982	32	28	66	72	84	114	184	0	6	94	0	0	0	17	37	41	0	0	
39019	Lambourn	Shaw	234.1	14	17.0	RG	.84	0.979	32	59	76	118	166	206	260	97	0	0	1	6	30	10	54	30	<1	1	
39020	Coln	Bibury	106.7	21		GE	.86	0.968	33	77	101	143	194	259	330	88	0	12	0	0	0	16	41	40	0	1	
39021	Cherwell	Enslow Mill	551.7	11	74.0	PE	.59	0.976	30	47	65	95	132	174	238	0	19	81	<1	8	0	9	50	33	0	2	
39022	Loddon	Sheepbridge	164.5	12	50.0	GEI	.59	0.947	33	33	42	58	86	140	228	43	0	44	2	5	3	15	39	29	0	9	
39023	Wye	Hedsor	137.3	14	12.0	GI	.80	0.984	30	88	27	88	153	208	252	100	0	0	3	4	39	19	24	36	<1	11	
39024	* Gatwick Stream	Gatwick	31.1	27		E	.61	0.945	36	51	58	70	104	139	172	0	91	9	14	0	0	44	10	16	<1	16	
39025	Enborne	Brimpton	147.6	16	32.0	GI	.50	0.978	32	54	59	83	113	164	296	11	5	53	24	<1	<1	24	29	38	<1	2	
39026	Cherwell	Banbury	199.4	12	50.0	P	.41	0.950	30	43																	

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Station number	River name	Station name	Catchment area	Sensitivity	Bankfull/structurefull	Factors affecting runoff	Descriptors				Elevation					Bedrock			Superficial			Landuse				
							BFIHOST	FARL	PROPWET	DFSBAR	Station level (mOD)	10 percentile (mOD)	50 percentile (mOD)	90 percentile (mOD)	Maximum level (mOD)	High perm. (%)	Moderate perm. (%)	Very low perm. (%)	Gen. high perm. (%)	Mixed perm. (%)	Gen. low perm. (%)	Woodland (%)	Arable/horticultural (%)	Grassland (%)	Mountain/heath/bog (%)	Urban extent (%)
39052	The Cut	Binfield	50.2	17	26.0	EI	.36	0.939	29	25	46	60	72	92	128	0	0	61	5	0	0	23	6	29	<1	24
39053	Mole	Horley	89.9	13	26.0	PE	.46	0.947	36	34	52	60	81	127	172	0	38	62	12	2	0	26	14	26	<1	19
39054	Mole	Gatwick Airport	31.8	20	12.3	PE	.44	0.943	36	34	57	66	84	114	145	0	12	88	7	2	0	21	17	32	<1	14
39055	* Yeading Bk West	Yeading West	17.6	195			.17	0.999	29	16	32	39	50	63	113	0	0	95	0	0	0	4	2	19	0	54
39056	Ravensbourne	Catford Hill	120.4	20		G	.72	0.990	28	49	15	38	87	189	266	40	0	25	6	0	17	17	11	22	<1	34
39057	Crane	Cranford Park	61.7	32			.23	0.997	29	15	23	31	39	58	115	0	0	98	15	0	0	5	3	24	0	49
39058	Pool	Winsford Road	38.3	25		G	.53	0.977	29	31	17	31	53	90	147	0	0	56	4	0	0	11	1	14	0	55
39061	Letcombe Brook	Letcombe Bassett	4.0				.96	1.000	32	124	106	128	173	225	237	100	0	0	0	0	0	11	28	50	0	1
39065	Ewelme Brook	Ewelme	13.4			N	.93	1.000	29	78	66	101	133	212	229	85	15	0	20	0	4	9	38	49	0	1
39068	Mole	Castle Mill	316.0	19		GE	.44	0.961	36	41	39	56	77	122	241	14	19	67	8	1	4	22	20	35	<1	11
39069	Mole	Kinnersley Manor	142.0	19		E	.45	0.955	36	30	48	57	74	119	175	0	36	64	13	1	0	24	15	31	<1	15
39071	Thames	Ewen	63.7			6.2 G	.82	1.000	32	32	101	113	146	181	217	100	0	0	0	3	0	20	52	25	0	1
39072	Thames	Royal Windsor Park	7046.0			RPGEI	.66	0.954	30	41	14	60	105	187	330	40	12	40	12	8	5	13	41	34	<1	5
39073	Churn	Cirencester	84.0	21		9.4 GE	.84	0.949	33	94	111	156	214	266	295	93	0	7	0	2	0	22	34	39	0	1
39074	Ampney Brook	Sheepen Bridge	74.4	60		9.4 P	.74	0.975	32	29	78	91	128	190	251	88	0	12	2	5	0	9	54	33	0	1
39076	Windrush	Worsham	296.0	14		PN	.82	0.970	33	68	91	131	195	257	317	77	0	23	<1	3	0	14	47	35	<1	1
39077	Og	Marlborough Poulton Fm	59.2	30		3.3 G	.97	1.000	33	72	125	153	179	239	276	100	0	<1	4	0	5	7	51	35	0	1
39078	Wey(north)	Farnham	191.1	39		GE	.87	0.984	35	55	64	105	159	199	246	81	13	5	4	0	38	15	48	29	<1	3
39079	Wey	Weybridge	1008.0				.72	0.944	34	55	9	40	90	178	291	60	4	22	9	2	8	31	23	27	2 H	7
39081	Ock	Abingdon	234.0	20		22.7 GE	.62	0.986	31	24	51	61	80	124	260	11	31	59	15	10	0	8	53	32	0	2
39084	Brent	Brent Cross	36.4				.22	0.991	29	46	41	61	84	114	145	0	0	97	7	12	0	10	5	24	0	44
39085	* Wandle	Wandle Park	176.1				.62	0.982	31	63	11	36	136	189	268	75	<1	15	16	2	27	20	9	25	<1	30
39086	Gatwick Stream	Gatwick Link	33.6	20		E	.80	0.946	36	48	55	65	101	138	172	0	86	14	15	0	0	42	9	16	<1	18
39087	Ray	Water Eaton	84.1	14		GE	.39	0.992	34	27	76	84	103	136	212	3	20	77	<1	5	0	6	18	46	0	17
39088	Chess	Rickmansworth	105.0	22		PGE	.69	0.956	30	59	47	97	158	201	266	100	0	0	<1	4	53	18	35	33	0	6
39089	Gade	Bury Mill	48.2	23			.70	0.979	30	64	87	116	157	195	241	95	0	0	7	2	46	25	44	22	0	3
39090	Cole	Inglesham	140.0			G	.53	0.969	31	29	73	86	101	164	276	15	29	57	<1	8	0	7	41	36	0	7
39091	* Misbourne	Quarrendon Mill	66.3			G	.72	0.933	30	65	84	120	163	208	252	100	0	0	5	3	42	22	42	24	0	5
39092	Dollis Brook	Hendon Lane Bridge	25.1				.18	0.991	29	49	46	63	87	118	145	0	0	100	9	<1	0	10	7	32	0	34
39093	Brent	Monks Park	117.6	29		34.0	.20	0.930	29	38	25	44	67	109	153	0	0	99	7	4	0	9	4	18	<1	48
39094	Crane	Marsh Farm	81.0	174		28.0 G	.42	0.989	29	11	7	22	33	52	115	0	0	99	52	2	0	5	6	23	<1	49
39095	Quaggy	Manor House Gardens	33.5	41		8.0	.61	0.997	27	37	13	28	60	94	134	0	0	50	5	0	0	15	1	16	<1	48
39096	Wealdstone Brook	Wembley	21.8	40			.18	0.997	29	26	29	40	51	71	128	0	0	100	<1	0	0	6	2	15	0	51
39097	* Thames	Buscot	997.0			GE	.66	0.940	31	37	70	82	115	209	330	55	7	38	8	6	0	11	43	37	0	3
39098	* Pinn	Uxbridge	33.3			N	.17	0.940	29	36	31	40	58	86	143	0	0	52	8	<1	0	18	4	28	<1	31
39099	Ampney Brook	Ampney St. Peter	45.3	40			.81	0.964	33	38	95	117	156	205	251	100	0	0	0	0	0	10	52	34	0	0
39100	Swill Brook	Oaksey	53.3				.57	0.995	34	17	88	90	108	128	144	76	0	24	0	7	0	8	47	41	0	0
39101	Aldbourn	Ramsbury	53.1	41		N	.96	1.000	32	89	106	144	187	234	277	100	0	0	0	0	16	11	48	34	0	1
39102	Misbourne	Denham Lodge	94.8	17		GE	.72	0.935	29	61	35	79	147	198	252	97	0	0	18	7	35	21	34	28	0	7
39103	Kennet	Newbury	548.1				.85	0.969	31	57	70	116	166	213	294	89	3	<1	9	3	20	14	49	30	<1	1
39104	Mole	Esher	469.6				.52	0.949	35	47	10	42	74	132	265	24	13	56	10	2	4	26	18	31	<1	11
39105	Thame	Wheatley	533.8			GE	.49	0.984	31	34	50	69	88	138	268	15	24	61	2	6	<1	10	36	45	<1	4
39107	Hogsmill	Ewell	33.7				.84	0.991	32	43	29	45	108	169	194	69	0	12	8	0	9	15	9	29	0	27
39108	Churn	Perrott's Brook	59.0				.85	0.949	33	97	120	165	218	267	295	93	0	7	0	1	0	23	34	38	0	1
39109	Coln	Fossebridge	82.0				.87	0.972	33	85	117	161	211	267	330	83	0	17	0	0	0	18	37	41	0	1
39110	Coln	Fairford	130.0			E	.85	0.973	33	71	84	126	180	254	330	90	0	10	0	0	0	15	42	39	0	1
39111	Thames	Staines	8120.0				.65	0.946	30	41	10	59	105	185	330	44	11	37	14	8	8	14	39	33	<1	6
39112	Letcombe Brook	Arabella's Lake	3.1				.97	1.000	32	129	113	129	172	225	237	100	0	0	0	0	0	11	30	48	0	0
39113	Manor Farm Brook	Letcombe Regis	1.4				.97	1.000	32	79	110	120	143	214	224	94	0	6	0	0	0	7	7	82	0	0
39114	Pang	Frilsham	89.8				.87	1.000	32	56	74	106	140	187	238	97	0	0	8	0	15	7	57	28	<1	1
39115	Pang	Bucklebury	109.0				.81	1.000	32	56	64	96	132	183	238	83	0	3	10	0	12	12	51	28	<1	1
39116	Sulham Brook	Sulham	3.0			E	.41	1.000	29	46	43	45	48	98	105	100	0	0	67	0	0	26	37	32	0	0
39118	Wey	Alton	44.6				.95	0.984	35	56	101	140	170	194	216	100	0	0	0	0	51	17	55	23	0	1
39119	Wey	Kings Pond (Alton)	45.9				.95	0.967	35	56	99	134	170	193	216	100	0	0	<1	0	50	16	53	23	<1	3
39120	Caker Stream	Alton	88.1			E	.92	0.999	35	52	100	122	171	208	246	90	9	<1	2	0	44	14	48	31	<1	2
39121	Thames	Walton	9291.5				.66	0.944	30	42	9	53	102	183	330	45	10	35	14	7	8	16	37	32	<1	6
39122	Cranleigh Waters	Bramley	109.5				.47	0.943	36	55	35	49	69	120	260	32	0	68	9	<1	0	29	22	37	<1	4
39123	Blackwater	Farnborough	35.5				.65	0.849	35	34	67	70	84	111	187	10	0	21	20	12	0	22	11	16	6 H	23
39125	Ver	Redbourn	62.6			E	.65	0.995	30	44	92	121	160	195	242	89	0	0	8	0	57	10	56	25	0	4
39126	Red	Redbourn	18.5			E	.64	0.993	30	30	92	112	136	156	171	93	0	0	3	0	64	7	64	13	0	9
39127	Misbourne	Little Missenden	47.2				.72	0.961	31	65	101	133	172	217	252	100										

Gauging Station Register III

EA Thames

37001 Roding at Redbridge

EA Thames

Station: 'Essex' profile (modified Flat V Crump) weir superseded insensitive broad-crested weir in 1962. Calibration above 35 m³s⁻¹ is based upon model tests. Flows augmented by moderate net import of water (naturalised flows 1951-75) but diversion of Luxborough STW effluent, completed in 1987, reduced dmfs. Pattern of low flows influenced by abstractions.

Catchment: Low lying, mainly impervious (London Clay and superficial deposits) catchment. Land use: rural with significant urban development close to the gauging station.

37014 Roding at High Ongar

EA Thames

Station: 'Essex' (modified Flat V) weir in an 11m wide section. Model-based calibration. Overall operates (>1.7m) into a bypass channel; bypassing can also occur on both banks. Structure subject to drowning (during high flows backwater effects from two d/s bridges are influential); computed flows assume modularity - c/m rating under development; complex history of flood ratings. Evidence of weir settlement discovered in 1991, flows corrected 1987-91. Naturalised flows: 1964-76; minimal net import. Responsive flow regime. Spray irrigation can substantially deplete low flows.

Catchment: Generally low lying, largely impermeable (London Clay/glacial deposits), agricultural catchment.

37015 Cripsey Brook at Chipping Ongar

EA Thames

Station: Flat V weir (5.6m broad) installed in 1981 - superseded a compound thin-plate weir of limited capacity, most early flows truncated at around 2.5 m³s⁻¹. Modular calibration - therefore over-estimation of flows during periods of drowned flow (e.g. autumn 2000 - exceptionally high flow on the 29th Oct.). Flows missing (probably including POR minima) for much of 1976. Responsive flow regime. Sewage effluent is an important component of low flows. Impact of abstraction also evident on hydrograph.

Catchment: Predominantly impermeable catchment (London Clay but with extensive areas of glacial deposits). A rural catchment, agriculture is the primary land use.

37018 Ingrebourne at Gaynes Park

EA Thames

Station: 'Essex' profile (modified Flat V Crump) weir in 9.5m wide section. All but exceptional floods contained. Model-based calibration assumes modularity; however, drowning occurs above about 7 m³s⁻¹ (pressure tapping unreliable). Runoff increased by effluent returns but reduced by industrial/agricultural abstractions; minor net augmentation of runoff (transfer from R. Beam). Naturalised flow available for period 1970-75.

Catchment: Largely impermeable catchment (London Clay/glacial deposits). Rural headwaters but substantial urban development around lower reaches.

37019 Beam at Bretons Farm

EA Thames

Station: 'Essex' (modified Flat V Crump) weir in 10.4m wide section. Model-based calibration assumes modularity; drowning is uncommon. Separate spillway accommodates flow > 16 m³s⁻¹. Naturalised flows: 1966-75; very small net diminution in runoff. Flood storage lagoons (on R. Rom) influence flows patterns (from late 1980s).

Catchment: A predominantly impermeable catchment (London Clay overlain in places by glacial deposits). Mainly rural headwaters, substantial - and growing - urban development in lower reaches.

37023 Roding at Loughton

EA Thames

Station: Crump weir (single crest), installed 1989; modular limit approx. 0.6m. (no tail or d/s levels recorded). C/m calibration, updated following gaugings taken during 2000 and 2002 floods. High flow rating under review; treat flows with caution. Prior to 1983: 'Essex' weir, subject to drowning. No data from 1982-88.

Catchment: Predominantly impermeable catchment (London clay and glacial deposits). Main land use is agriculture with significant urban areas.

38001 Lee at Feildes Weir

EA Thames

Station: From 1/1/97, flows normally sum of 38027 and 38031 (but occasional erratic performance of these US stations can impact on the precision of Feildes Weir flows; recent flows are under review). Previously: thin-plate weir (insensitive - 29m wide) and 3 vertical-lift sluices; completed 1978 to improve hydrometric range and precision. Model rated. All flows (bar lockages) now contained but Ryemeads STW effluent bypasses. Pre-1978: barrage of gates/sluices (operation evident on hydrographs, pre-1930 stationally); no peak flows prior to 1965, low flows probably under-estimated. Station out of commission in 1976 but late summer flows probably the lowest on record. Mill operation could produce particularly low flows in the early record (e.g. on Sundays). Gauging instigated by Beardmore in 1850s (flood of Oct. 1857 estimated as >250 m³s⁻¹, greatly exceeding any subsequent event). Significant g/w abstraction; net export from catchment. Naturalised flows (New River abstraction only) from 1883.

Catchment: A mainly pervious (Chalk) catchment with extensive Drift cover. Predominantly rural headwaters; significant urban growth in lower valley.

38002 Ash at Mardock

EA Thames

Station: Flat V weir (1:10 cross-slope) 3.9m wide constructed in 1979, replaced a flume which was subject to bypassing and inaccurate at low flows (hence discharges assessed at d/s station - 38005). Current station remains modular and is virtually full range. U/s lake storage, sluice activity and gw abstractions have a minor effect. Baseflow dominated regime but significant runoff generated from clays in the headwaters.

Catchment: Solid geology U Chalk extensively overlain by Boulder Clay; glacial sands and gravel and alluvium in the valleys. Rural catchment.

38003 Mimram at Panshanger Park

EA Thames

Station: Critical-depth flume; 5m wide. Theoretical calibration confirmed by gaugings (but computed flows may be slightly overestimated). All flows contained. Appreciable net export of water (considerable groundwater abstraction in headwaters). Very high baseflow component, but peak flows increasing due to urbanisation; Amax is commonly recorded during the summer half-year.

Catchment: A predominantly permeable catchment (Upper Chalk - overlain by glacial deposits near headwaters); mainly rural but substantial urban growth in the lower valley - the Mimram drains Welwyn Garden City.

38004 Rib at Wadesmill

EA Thames

Station: Trapezoidal flume plus side-spilling Crump weir on the overflow channel. Modular calibration has applied during rare periods of drowned flow. All except highest floods contained. Daily flow data available (1957-83) for d/s limited range station (38006). Flows influenced by significant gw abstractions (net export).

Catchment: Geology: U Chalk extensively overlain by Boulder Clay; glacial sands and gravel in the valleys. Predominantly rural. Significant runoff generated from Buntingford, Thundridge and clays high up the catchment.

38005 Ash at Easneye

EA Thames

Station: Compound thin-plate weir (reconstructed in 1976 to increase flow range) - subject to bypassing and inaccurate at low flows. Decommissioned in 1981, superseded by Mardock (38002).

38006 Rib at Herts Training School

EA Thames

Station: Compound rectangular thin-plate weir (c3 metres wide) for low flows; high flows measured u/s at 38004. Station decommissioned in the early 1980s (when 38004 became the primary station).

38007 Canons Brook at Elizabeth Way

EA Thames

Station: Full range critical-depth flume in rectangular section. Theoretical calibration extends to 11 m³s⁻¹ (gaugings needed to confirm rating at high flows). Over the period 1965-80 low flows were monitored at a (less sensitive) Crump weir in series with the flume. Balancing reservoirs in Harlow (and the New Town development itself) influence the flow pattern but there are no significant abstractions or discharges. Pre-1970 data less reliable but an important (>50 yr) urban time series.

Catchment: The catchment is impervious - London Clay. Rural headwaters; heavily urbanised below.

38011 Mimram at Fulling Mill

EA Thames

Station: Mid-70s 2.75m wide Crump-profile weir, insensitive at low flows. Originally the station comprised two complementary thin-plate weirs. The Crump rating extends to 2.5 m³s⁻¹; the station was not designed for high flow measurement. The weir drowns easily owing to seasonal weedgrowth. Flows substantially diminished by gw abstractions with a considerable net export of water.

Catchment: Chalk catchment (with overlying glacial deposits in some areas). Predominantly rural.

38012 Stevenage Brook at Bragbury Park

EA Thames

Station: Flat V weir - 2.75m wide; constructed in 1974 to supersede the original broad-crested weir operated by Stevenage Development Corporation - flow records prior to 1974 are sporadic and of poor quality. The Flat V weir remains modular up to 4.1 m³s⁻¹; higher floods uncorrected (including notable Nov. 2003 peak). Gw abstractions significantly reduce runoff and the release of water from flood storage lagoons can influence the flashy flow regime.

Catchment: A Chalk catchment now largely urbanised.

38013 Upper Lee at Luton Hoo

EA Thames

Station: Rectangular thin-plate weir (0.92m wide) plus insensitive broad-crested overflow weir for flows > 0.33 m³s⁻¹. Outfall from an ornamental lake. Only very high floods exceed the capacity of the overflow weir. Flows are substantially reduced as a result of gw abstractions (significant export). Significant periods of zero flow (occasionally interrupted by small releases via sluice above the thin-plate weir). Pre-1966 data very suspect.

Catchment: A Chalk catchment (with Drift cover) now substantially urbanised.

38014 Salmon Brook at Edmonton

EA Thames

Station: Flat V weir (1:10 cross-slope), 5m wide (insensitive at low flows) in slightly trapezoidal section - superseded a less effective (particularly at very low flows) compound broad-crested structure in 1980. Backing-up behind the d/s culvert can (rarely) result in drowning during flood conditions. No significant abstractions and discharges from/to the Salmon Brook. Very similar minimum flows during the 1964 and 1959 droughts.

Catchment: Impervious (London Clay) catchment. Salmon Brook rises on Enfield Chase, in the lower reaches the catchment is heavily urbanised.

38015 Intercepting Drain at Enfield**EA Thames**

Station: Trapezoidal flume installed as part of the Lower Lee Monitoring Programme. Runoff is surface drainage from heavily built-up areas of Edmonton and Enfield plus parts of the flow of the Sadlers Mill Stream (high flows are diverted to the Intercepting Drain, substantially enhancing the runoff). Very responsive regime - with clear urban runoff signal.

38016 Stansted Sp at Mountfitchet**EA Thames**

Station: Two complementary thin-plate weirs (rectangular and 90 degree V notch) measuring spring flow discharging to the R. Stort. V notch rebuilt in 1989 and new rating table used. Very stable discharge but station can be overwhelmed in exceptional floods. 21/10/2001 peak triggered by >90mm storm. Significant local gw abstraction producing substantial net export of water. Hydrological catchment cannot be readily determined hence runoff is not representative.

Catchment: The contributing area to the Chalk springs is mainly rural.

38017 Mimram at Whitwell**EA Thames**

Station: Crump weir, 1.0m crest (rather insensitive) within wider section. All flows contained and modular. Low flows occasionally augmented by pumping from local tube wells but overall runoff is significantly reduced by groundwater abstraction. Upstream cress-beds can influence low flow pattern. Generally stable flow regime, sustained from Chalk springs - hydrological catchment divide is uncertain. Dry for over three months in late 1997.

Catchment: A predominantly pervious (Chalk), rural catchment.

38018 Upper Lee at Water Hall**EA Thames**

Station: Crump weir, 6.0m wide in an artificial channel. Modular throughout the flow range. All flows contained. Some early data (of limited quality) for two nearby gauging stations. Luton STW effluent augments flows and strongly affects the low flow regime. Moderate net import of water.

Catchment: Catchment is mainly pervious (Chalk) but with glacial Drift in the headwaters. Land use: principally agricultural with some important (expanding) urban centres.

38019 Salmon Brook at Montague Road**EA Thames**

Station: Trapezoidal flume. Structure drowned regularly, short record and data of poor quality. Station decommissioned in 1981.

38020 Cobbins Brook at Sewardstone Road**EA Thames**

Station: Trapezoidal critical-depth flume, overall width 10m, insensitive to low flows. Drowning and damage to the exit transition (repaired 1992) influence the station's performance; recorded flows may be overestimates. Net impact of abstractions and discharges on the natural, responsive flow pattern is minimal; motorway runoff can, however, be significant.

Catchment: Cobbins Brook drains an impervious (London Clay) catchment which includes part of Epping Forest and significant urban development in the vicinity of the gauging station.

38021 Turkey Brook at Albany Park**EA Thames**

Station: Flat V weir, 6m broad (insensitive) in a concrete-lined channel. All but extreme floods contained. Structure drowns occasionally. Very responsive flow regime. Minor net export due to groundwater abstractions. Large ornamental lake in headwaters.

Catchment: A largely impervious catchment (Tertiary clays and glacial deposits). The headwaters drain Enfield Chase but there is significant urban development near the gauging station.

38022 Pymmes Brook at Edmonton Silver Street**EA Thames**

Station: Crump weir (width: 6.16m) in concrete channel, installed in 1972; superseded a rated trapezoidal section, data from 1954 (rating change in 1963; series reprocessed). Few confirmatory gaugings at high flows. Rarely overtopped. Drowns regularly (c0.7m stage) - flows corrected since 1982; previous high flows under review. Pre-1965 runoff substantially enhanced by sewage effluent (now treated outside catchment). Currently no significant abstractions or discharges.

Catchment: Impervious (London Clay) catchment. Pymmes Brook rises on Enfield Chase but catchment is now approx. 60% urban.

38023 Lee flood relief at Low Hall**EA Thames**

Station: Crump weir 17.1m broad (insensitive) in concrete flood relief channel (see station 38001). Distribution of flows in the R. Lee and the flood channel controlled by sluices at Chalk Bridge. Discharge is a factor in the operational control of the tidal barrier at Bow Creek. Combination of flows with 38032 provides total outflow of the Lee into the tidal Thames.

38024 Small River Lee at Ordnance Road**EA Thames**

Station: Flat V weir (1:10 cross-slope), 8m wide. Subject to drowning - crest tapping does not operate effectively. Responsive regime. Minor impact of artificial influences on flows, low discharges affected by gravel workings and pumped drainage from the M25 can be important.

Catchment: A predominantly impervious (clay), catchment with substantial superficial cover. Suburban in the valley, rural headwaters with considerable woodland.

38025 Pymmes Brook at Alcazar**EA Thames**

Station: Formalised rectangular section rated by c/m. Decommissioned in 1974. Limited accuracy. Minimum flows during the dry autumn of 1969. Notable 1965 peak is unconfirmed but was triggered by a storm of >50mm.

38026 Pincey Brook at Sheering Hall**EA Thames**

Station: Flat V weir (1:10.9 cross-slope), width 4.02m. Minor impact of artificial influences but spray irrigation can be significant (especially in the upper part of the catchment). Balancing ponds at Stansted Airport provide some headwater regulation.

Catchment: Pervious (Chalk) headwaters, mainly London Clay in lowest reaches. Land use: mainly agricultural but the Pincey Brook drains Stansted Airport and Hatfield Forest.

38027 Stort at Glen Faba**EA Thames**

Station: Multi-path ultrasonic (cross-path), superseded a single-path device. Very low velocities (canalised river) hampered calibration. Some early dmfs estimated due to instrumentation malfunction. All but exceptional flows contained. Limited net impact of artificial influences but substantial gw abstraction in headwaters (a proportion is exported).

Catchment: Chalk headwaters, London Clay dominates lower catchment (considerable Drift cover). Rural upper catchment, substantial urban development (including Harlow & Bishops Stortford) in the valley.

38028 Stansted Brook at Gypsy Lane**EA Thames**

Station: Flat V weir (1:10 cross-slope) in slightly trapezoidal channel (3.5m wide). Modular. All flows contained. Some early data (from 1964) available for a limited-range weir d/s. Very few abstractions in the catchment but flows influenced by motorway runoff and u/s storage lagoon (Stansted Airport); sluice closure can result in occasional zero flows. Stable discharge at very low flows - due to spring outflows - but subject to artificial disturbance.

Catchment: Mixed geology with clear west-east contrast: Chalk dipping below Eocene clays; extensive Drift cover. Largely rural but with substantial urban development above the catchment outlet.

38029 Quin at Griggs Bridge**EA Thames**

Station: Flat V weir, 4.5m wide. Shallow depth of approach. Calibration assumes station is not subject to drowning. Net export of water - increasing from the mid-1980s, gw abstractions can be especially significant during droughts e.g. late-1990. Stable baseflow but responsive to storm events; sewage effluent discharge pattern also sometimes detectable.

Catchment: A mainly impervious catchment (extensive glacial deposits overlying Chalk); agricultural land use predominates but some urban development close to the gauging station.

38030 Beane at Hartham**EA Thames**

Station: Flat V weir, 8m wide. All flows contained. Modular throughout the flow range; theoretical calibration adopted. Substantial baseflow but the Drift cover (and urban areas) provide a rapid runoff response to storms. Significant gw abstractions (particularly in the headwaters); moderate net export of water.

Catchment: Solid geology: Chalk substantially overlain by Boulder Clay, glacial sands and gravel. Mainly rural but contains Stevenage, also moderate urban development close to the catchment outfall.

38031 Lee at Rye Bridge**EA Thames**

Station: Multi-path, cross-configuration ultrasonic gauging station. 0.4km u/s of Feildes Weir - provides a check on a major component of 38001 flows. Sensibly continuous record. Flows occasionally exceed bankfull but gate operation at Feildes Weir greatly restricts overbank flow. Station is bypassed by separately monitored outflows from Ryemead STW.

Catchment: A mainly pervious Chalk catchment. Predominantly rural headwaters. Significant urban growth in the lower valley.

38032 Lee at Lea Bridge**EA Thames**

Station: Multi-path, cross-configuration ultrasonic gauging station (further check gaugings planned to confirm calibration). Occasional anomalous behaviour at very low flows. Combined with input of the Lee flood relief channel (at Low Hall - 038023), represents total inflow into the Thames from the Lee. Runoff reduced by New River abstraction (see 38001).

Catchment: A mainly pervious (Chalk) catchment with extensive Drift cover. Predominantly rural headwaters. Substantial urban growth in lower valley.

39001 Thames at Kingston**EA Thames**

Station: Ultrasonic station commissioned in 1974; multi-path operation from 1986 and back-up ultrasonic installed in 1991. Full range. Lockages not allowed for and high water temperatures can effect gauge performance at low flows. No peak flows pre-1974 when dmfs derived from Teddington weir (a 70m wide complex of gates, sluices, weirs and locks); tailwater rating used for flows >85 m³s⁻¹. Significant structural improvements since 1883 but high hydrometric accuracy not achievable for pre-1951 record (leakage and lockages result in underestimation of early low flows; mill operation also evident on early hydrographs. Gauged flow fell to zero in August 1976. 1894 peak gdf re-assessed in 2002 (800 m³s⁻¹). Increased channel capacity means that bankfull now very rarely exceeded. Baseflow sustained mainly from the Chalk and the Oolites; flashy response from tributaries draining the clay vales. Some effluent derives from outside the catchment but overall runoff is substantially decreased by major PWS abstractions; daily naturalised flows available.

Catchment: Diverse topography, geology and land use which, together with the pattern of water utilisation, has undergone important historical changes.

39002 Thames at Days Weir**EA Thames**

Station: Adjustable thin-plate weir (5.48m wide) plus 15 radial gates, replaced a barrage of radial and buck gates in 1969. Rating formulae based upon gaugings - tailwater calibration applies for flows $> 70 \text{ m}^3\text{s}^{-1}$; above $100 \text{ m}^3\text{s}^{-1}$ overspill occurs. River levels affected by lock movements and gates. D/s confluence with the Thame may also cause backwater effects. Peak flows under review. Hydraulic modelling indicates that the exceptional March 1947 flood may be overestimated. Daily naturalised flows available for POR (equal to gauged flows up to 1973) - allow for Didcot Power Station losses only.

Catchment: Mixed geology (Oolitic Limestone headwaters, Oxford Clay below). Predominantly rural with development concentrated along the valley; Swindon is the largest town.

39003 Wandle at Connollys Mill**EA Thames**

Station: Rectangular critical-depth flume (5.5m wide) with additional side flume added around 1999. Superseded (following channel improvements) Wandle Park immediately u/s (sporadic data available 1939-60). Inlet pipe altered in late 1980s to address velocity head problems. Theoretical calibration; gauging programme underway to verify the rating. The station drowns (and is bypassed) during notable floods. Sept. 1968 flood peak estimated at $c40 \text{ m}^3\text{s}^{-1}$ (earlier est. of $56 \text{ m}^3\text{s}^{-1}$ includes runoff from the Graveney). The flow regime has a large baseflow component but urban runoff and sewage effluent (some deriving from outside the catchment) also strongly influence flow patterns. Topographic catchment substantially exceeds effective drainage area.

Catchment: The Wandle drains from Chalk headwaters (with significant Drift cover) but the lower catchment is largely London Clay and heavily urbanised.

39004 Wandle at Beddington Park**EA Thames**

Station: Electromagnetic station (buried coil) replaced a compound Crump weir in 1991. Gauging programme to confirm calibration is ongoing. Prior to 1964 the station was a very insensitive broad-crested weir (constructed 1939). Historical record poor; uncertain calibration, algal growth on weir, inaccurate zero setting, etc. Hifs incomplete. Hydrometric problems continued into the 1980s. Flows corrected to allow for siltation. Relatively stable baseflow but urban runoff and complex water utilisation (including substantial gw abstraction) influence flow patterns; flashy storm response. Effective drainage area is smaller than topographical catchment.

Catchment: Primarily a Chalk catchment (with significant Drift cover) but London Clay predominates near to the gauging station. Suburban/urban land use dominates the lowest third of the catchment.

39005 Beverley Brook at Wimbledon Common**EA Thames**

Station: Trapezoidal critical-depth flume (overall channel width: 10m). Ongoing gauging programme to verify rating (which overestimates flows). Station originates in 1935; flume built in 1940 but no standing-wave until invert raised in 1961. Capacities of U/s and D/s culverts can influence flood flows. Bypassed during flood of Sept. 1968; peak estimated at $24\text{-}34 \text{ m}^3\text{s}^{-1}$. Highest gauging $c0.7 \text{ Qmed}$. Very patchy flow record prior to 1983. Artificial influences have sig. impact on the flow regime - runoff augmented by sewage effluent which has increased over time; groundwater abstractions also. Topographic catchment slightly exceeds effective drainage area.

Catchment: A narrow catchment; largely London Clay below Chalk headwaters. Suburban/urban land use dominates throughout the catchment.

39006 Windrush at Newbridge**EA Thames**

Station: Compound broad-crested weir (total crest width 8.3m) with complementary side-spilling weir (14.9m wide) into bypass channel. Subject to drowning; but large capacity and good rating (based on gaugings and used from 1962) but needs confirmation at highest flows. Early flows may be overestimated due to lack of weed cutting. Improvements in the method of water level measurement made in 1969. March 1947 flood (prior to commissioning of the gauging station) estimated at $28\text{-}31 \text{ m}^3\text{s}^{-1}$. Runoff diminished by a small net export of water (minor bypassing via side channels also occurs).

Catchment: A predominantly pervious (Oolitic L'st) catchment on the dip-slope of the Cotswolds. Mainly rural but the lower valley contains Witney and extensive gravel workings.

39007 Blackwater at Swallowfield**EA Thames**

Station: Two Crump weirs (main 4.6m wide, capacity $14.5 \text{ m}^3\text{s}^{-1}$; side 2.7m wide, capacity $11 \text{ m}^3\text{s}^{-1}$) on separate channels with separate ratings. Superseded original flume, plus side-spilling weir, in 1970. Weir capacity $c27 \text{ m}^3\text{s}^{-1}$. Minor bypassing of the side weir in flood conditions; overflows more frequent pre-1970. Responsive flow regime. Sewage effluent is a major component of low flows (large STWs at Camberley and Sandhurst), also some net import of sewage effluent; overall modest increase in runoff. Exact delineation of the hydrological catchment is difficult.

Catchment: Permeable (mostly Chalk) headwaters; clay, sands and alluvium in the valley. Substantial and expanding urban development in the catchment (the eastern half particularly) but some appreciable rural tracts remain; significant areas of heath and woodland.

39008 Thames at Eynsham**EA Thames**

Station: Complex barrage of gates and weirs, total breadth 30m. Some bypassing at extreme discharges when structure can be submerged. Early flow data derived from once-daily gaugeboard readings. Naturalised flows available for period of record; off-take for Farmoor reservoir is immediately u/s (operating from 1955).

Catchment: Geology: mixed - pervious headwaters (Oolitic L'st), Oxford Clay in lower reaches. Mainly rural with development concentrated along the valley bottom (and around Swindon).

39009 Thames at Bray Weir**EA Thames**

Station: Complex barrage of gates and sluices with a substantial leakage rate. Not a primary gauging station; flows are indicative only.

Catchment: Large catchment; scarp and vale topography developed on diverse geology. Predominately rural headwaters contrast with considerable suburban growth in the lower valley.

39010 Colne at Denham**EA Thames**

Station: Twin semi-circular broad-crested weirs (one section subject to drowning - no adjustment made to the rating). Insensitive - overall crest length 30m. Few high flow gaugings. Theoretical rating may appreciably underestimate modular flows. All flows contained. Complex water utilisation within the catchment, considerable groundwater abstraction - net diminution in flows - but increasing effluent contribution (including Maple Lodge STW) now constitutes a substantial proportion of low flows (baseflow from the Chalk also remains important). Hydrological and topographical divides do not coincide.

Catchment: A largely Chalk catchment (with extensive Drift cover); clay and gravel in the valley. The Chilterns scarp is largely rural but considerable suburban development characterises the lower Colne valley.

39011 Wey at Tilford**EA Thames**

Station: Crump weir (crest: 12m wide) replaced (in 1972) an informal broad-crested structure (incapable of precise flow measurement); differing hydrometric performance reflected in flow records. High flows based on gaugings (more needed to confirm the rating) and estimates of overbank flows; some historical flood discharges are under review. Gauged rating replaced Crump calibration in March 1997 (silt blockage of the pressure tapping was a continuing problem). Substantial baseflow but very responsive to storm events. Runoff influenced by groundwater abstractions/recharge and increased by effluent returns. Small net export of water. Topographical catchment exceeds the gw catchment.

Catchment: A predominantly pervious catchment (Chalk and Upper Greensand). Mainly rural with substantial woodland; arable agriculture predominates in the western part of the catchment.

39012 Hogsmill at Kingston upon Thames**EA Thames**

Station: Non-standard flume with bed invert/broad-crested weir, 9.1m wide, situated in a short reach between u/s and d/s bends. Effectively rated in modular range (extends beyond Qmed) but higher flows not well represented by current rating. Very responsive regime but sewage effluent - which has increased over time - dominates the dry weather flow; substantial imports of water, hence unrepresentative runoff. Relatively flashy response. Some pre-war data available; station relocated following post-war river works.

Catchment: Below the headwaters, a largely urban/suburban catchment in SW London developed mainly on London Clay and Chalk (the Hogsmill rises in the North Downs).

39013 Colne at Berrygrove**EA Thames**

Station: Compound Crump Weir with substantial fall d/s (but backwater effects noted during the 2000 and 2003 floods). Superseded (in 1991) a compound thin-plate weir (9.0m broad - often drowned and bypassed). Flows over the new weir include those for the Bucknall's Brook. Effluent (Blackbird's STW) is now a major component of low flows - can produce abrupt changes in a relatively stable flow regime. Groundwater catchment difficult to delineate; losses occur (to the Lee) via swallow holes. Runoff also diminished by long term gw abstraction (restoration programme began in 1991).

Catchment: A largely pervious (Chalk) catchment with extensive Drift cover. Rural headwaters; considerable urban development in the valley. Extensive gravel workings.

39014 Ver at Hansteads**EA Thames**

Station: Compound Crump weir - 2 crests, each 2.44m broad - rarely drowns. Superseded (in 1969) original broad-crested weir (plus bypass channel); the early flow data are of a lesser quality. Relatively stable, spring-fed flow regime but artificial influences (sewage effluent especially) evident in low flow patterns. Runoff diminished by large groundwater abstractions (including PWS for Luton) - increased sharply from 1950, changing the river's character - until restoration programme (ALF) initiated in the early 1990s; abstractions much reduced by the late 1990s. Topographical catchment area significantly exceeds the hydrological catchment.

Catchment: A permeable catchment (Chalk - with significant Drift cover). Mostly rural headwaters but with considerable urban development in the lower valley.

39015 Whitewater at Lodge Farm**EA Thames**

Station: Crump weir, full range with crest tapping - channel is of low gradient, weir is vulnerable to drowning (especially in summer when d/s weedgrowth can be heavy). Flows of lesser accuracy in the non-modular range. Superseded (1975) a nearby insensitive rectangular thin-plate weir operated originally by Mid-Southern Water Co. Data prior to 1975 are of much poorer quality (e.g. resulting from clinging nappe and damaged crest). Archived data: 1910-1926 monthly flows, 1927-1963 daily (but 7-day sequences of identical flows), from 1964 dmfs. Part of the catchment drains into the Basingstoke Canal; a proportion of this runoff returns to the Whitewater catchment. Other influences on the baseflow-dominated regime include groundwater abstractions and sewage outflows. U/s sluices (at old mill pond) and informal damming of the weir can also significantly disturb the flow pattern.

Catchment: Catchment is developed almost entirely on Chalk (with modest Drift cover) and is rural in character with scattered settlements.

39016 Kennet at Theale**EA Thames**

Station: Crump weir (15.9m broad) equipped with pressure tapping (not used) & d/s recorder. Cableway installed in 1999; subsequently removed. Some subsidence: fall of 41mm across the weir crest. Modular up to $24 \text{ m}^3\text{s}^{-1}$ and all but highest flows contained. Bypassing above $29 \text{ m}^3\text{s}^{-1}$, hence flood flows may be underestimated. Little net impact of abstractions and discharges (minor contribution to Kennet & Avon canal) but augmentation from WBGS during droughts. High baseflow component but responsive contribution from the R. Enbourne. Dmfs 04-24/12/98 estimated by NRFA (using 39103) due to gauging hut refurbishment.

Catchment: A mainly pervious catchment (Chalk with significant Drift cover), but the lowest quarter is largely impermeable. A primarily rural catchment with scattered settlements (Newbury is the largest town); significant urban growth along the Kennet valley.

39017 Ray at Grendon Underwood**EA Thames**

Station: Flat V replaced (in 1999) a trapezoidal critical-depth flume (capacity increased after 1964 flood) in a 6.5m wide channel. Data from 1982-86 less reliable, and incomplete; some data loss during 1999 rebuild. Restriction caused by d/s culvert causes drowning, weir likely to become non-modular below structurefull. By-passing observed in exceptional floods but not measured. Operated as an experimental basin by IH until 1987, then Thames Water, now operated by EA. Negligible artificial disturbance to the very responsive flow regime - representative catchment, important in national network terms.

Catchment: Relatively flat, impermeable (Oxford Clay) catchment largely given over to agriculture.

39019 Lambourn at Shaw**EA Thames**

Station: Crump weir (10.67m broad) with auxiliary d/s recorder. Possibility of a small overspill in high floods when storage may be provided by Donnington Lake. Theoretical rating confirmed by gaugings. The flow regime is baseflow dominated. PWS abstraction in headwaters and d/s sluices (occasionally) influence flows, but net artificial disturbance to the regime is limited (apart from periods during which the West Berks Groundwater Scheme is operating - providing low flow support, e.g. autumn 1976).

Catchment: Local suburban growth near gauging station but primarily a rural catchment (largely arable and grassland) developed on the Chalk of the Berkshire Downs (but significant Clay-with-Flints cover with alluvium in the valleys).

39020 Coln at Bibury**EA Thames**

Station: Crump weir (9.1m broad). Theoretical rating confirmed by gaugings. Modular throughout the range. Some overspill onto floodplain before design capacity reached; significant in extreme events (e.g. late-2000 floods and, particularly, July 2007). Limited impact of artificial influences on river flows - minor net import (sewage effluent). Baseflow dominated flow regime.

Catchment: Pervious (Oolitic Limestone) catchment on the dip-slope of the Cotswolds; predominantly rural (largely arable and grassland with scattered settlements).

39021 Cherwell at Enslow Mill**EA Thames**

Station: Asymmetrical compound Crump (crests: 3.05m and 6.10m) with side-spilling overflow weir for flows $> 10 \text{ m}^3\text{s}^{-1}$. Structure remains modular but flows $> 16 \text{ m}^3\text{s}^{-1}$ spill onto floodplain. Limited utility for flood analysis; level measurement imprecise prior to 1967 and bypassing has varied in magnitude through time. Recorded peaks are underestimates (the true peak for the April 1998 flood probably exceeded $100 \text{ m}^3\text{s}^{-1}$). Modest overall impact of artificial influences on runoff (net reduction).

Catchment: A largely rural catchment but with Banbury at its centre. Geology: mixed, but predominantly impermeable Liassic formations.

39022 Loddon at Sheepbridge**EA Thames**

Station: Two Crump weirs (2.1m crest, plus 6.9m crest oblique to channel flow; also flume installed in new by-pass channel in 2002) superseded flume/side-spilling weir (subject to bypassing) in 1970. Both Crumps remain modular and all but extreme flows are contained. Responsive flow regime with significant baseflow and effluent components - net import of water into the catchment (e.g. via Basingstoke STW).

Catchment: Headwaters are in the Chalk of the North Downs but the catchment is largely impervious. A predominantly rural catchment but with a substantial - and growing - urban fraction.

39023 Wye at Hedsor**EA Thames**

Station: Crump weir, 6.1m broad installed on a slight bend. Modular throughout the flow range. All but extreme floods contained. Low flows are significantly influenced by abstractions (particularly groundwater) and discharges (e.g. Wycombe STW) - mill operation evident in early record. Flashy response from growing urban fraction but regime remains baseflow dominated.

Catchment: A mainly pervious (Chalk) catchment with an overburden of Clay-with-Flints on the higher ground. Dip-slope valley in the Chilterns; rural headwaters but contains several growing urban/suburban centres in the lower valley (including Wycombe).

39024 Gatwick Stream at Gatwick**EA Thames**

Station: Velocity-area station. Responsive regime. Discontinued 1976, replaced by 039086.

Catchment: Substantially urbanised catchment, with significant woodland; moderate permeability.

39025 Enborne at Brimpton**EA Thames**

Station: Asymmetrical compound Crump weir (crest widths: 3.0m and 4.56m). Remains modular up to about $18 \text{ m}^3\text{s}^{-1}$; d/s recorder used to adjust for non-modularity since 1992. Good high flow calibration but banks overtopped during floods; no adjustment made for out-of-bank flows. Responsive regime. Net impact of abstractions (mostly gw) and discharges is moderate; overall there is a net export of water. From 1989 impact of West Berks Groundwater Scheme may be evident on low flows.

Catchment: Chalk outcrops in the headwaters but catchment is mainly impervious (Tertiary clays). Land use: principally agricultural with significant woodland and scattered settlements.

39026 Cherwell at Banbury**EA Thames**

Station: Asymmetrical compound Crump-type weir (crest widths: 3.0m, 8.9m). Modular limit about $22 \text{ m}^3\text{s}^{-1}$. April 1998 peak estimated at around $90 \text{ m}^3\text{s}^{-1}$ (but level exceeded structure-full by c1.5m). D/s level monitoring from 1992. A relatively responsive regime but a large u/s abstraction (Grimsbury) can appreciably distort the low flow hydrograph. Sewage effluent also appreciable. Approx. 50 sq.km of the catchment drains directly to the Oxford Canal; some of this runoff returns (via an overfall weir) u/s of Banbury.

Catchment: A largely impermeable urban (mainly of Liassic formations). Rural in character but considerable urban development near the catchment outfall.

39027 Pang at Pangbourne**EA Thames**

Station: Crump weir, 4.0m broad. Backing-up from Thames causes drowning, even submergence (crest-tapping performance has declined through time but tail-water tapping installed in 2001). No local bypassing but some overspill occurs into Sulham Brook during extreme floods. 1970s flows under review. Runoff substantially diminished by gw abstractions (but large reduction in Compton abstraction from early 1990s); occasional impact of WBGS but otherwise relatively few artificial influences on flows.

Catchment: Catchment is principally pervious (Chalk) but about 15% is impermeable (Reading Beds, London Clay and Alluvium); appreciable Drift/Clay-with-Flint cover also. A largely rural catchment with appreciable woodland and scattered settlements.

39028 Dun at Hungerford**EA Thames**

Station: Crump weir, 10.7m broad. Full range and modular. Abstractions and discharges are of minor significance. Small net loss, but essentially a natural baseflow-dominated flow regime.

Catchment: A mainly pervious (Chalk) catchment but with appreciable Clay-with-Flints cover in the northern part of the catchment. Rural character (chiefly agricultural but the Dun drains part of Savernake Forest).

39029 Tillingbourne at Shalford**EA Thames**

Station: Crump weir, 5.5m broad immediately d/s of ornamental pond. High flows often overestimated (backing-up from Wey causes drowning, crest-tapping operational but often blocked); some future revision of high flows anticipated. Substantial baseflow component to flow regime but also responsive to heavy rainfall. Some artificial flow regulation and very minor effect of abstractions and discharges. Sensibly natural runoff pattern.

Catchment: Geology: dominated by the Lower Greensand - nominally pervious but large clay component. The main valley is broad, but the headwaters drain the North Downs scarp, hilly terrain to the south also. A rural catchment with substantial woodland and many scattered settlements.

39030 Gade at Croxley Green**EA Thames**

Station: Compound Crump-type weir (three sections, total breadth 10.1m); sharp bend immediately d/s. all flows contained. The negligible inflow from the Grand Union Canal via an overfall weir is no longer monitored. Baseflow dominated regime but with significant artificial influences evident, particularly at low flows. The net effect of abstractions and discharges is to make the runoff rather unrepresentative; overall net export of water.

Catchment: Primarily a permeable (Chalk) draining the dip-slope of the Chilterns; appreciable Drift cover. Mixed land use: rural headwaters, considerable urban development below.

39031 Lambourn at Welford**EA Thames**

Station: Two Crump weirs and a broad-crested weir built under 3 arches of a bridge. Each weir is 2.92m long and the crest of the BC weir is set 0.31m higher. The station is located on a bend at the end of a long reach; poor location for gauging high flows. Station decommissioned in 1983, then recommissioned in 2004 (as part of LOCAR project). Baseflow-dominated regime. Some groundwater abstraction and occasional impact of the WBGs, but a largely natural flow regime.

Catchment: A rural catchment (largely arable and grassland) developed on the Chalk of the Berkshire Downs (but significant Clay-with-Flints cover and alluvium in the valleys).

39032 Lambourn at East Shefford**EA Thames**

Station: Compound Crump weir: centre crest 4.57m long and two side crests 0.3m higher and each 2.29m long. Located in a good, straight reach; flow pattern over the weir is excellent. Some weed growth upstream. All but very extreme flows contained (wing walls overtopped at around 7 m³s⁻¹). Baseflow dominated regime. Station decommissioned in 1983, recommissioned in 2003 as part of LOCAR (lowland catchment research) project.

Catchment: A rural catchment (largely arable and grassland) developed on the Chalk of the Berkshire Downs (but significant Clay-with-Flints cover and alluvium in the valleys).

39033 Winterbourne St at Bagnor**EA Thames**

Station: Crump weir, 3m broad - originally 5.5m but reduced to improve sensitivity (in 1968). Full range. Non-modular flow conditions can occur when stage is in excess of 0.25m. Stable, spring-fed regime. Runoff reduced by gw abstractions; for limited periods flows also substantially influenced by pumping and flow augmentation, associated with the West Berks Groundwater Scheme (e.g. winter 1969/70, 1976, 1989, 1998 and June 2004); cessation of test augmentation in the autumn of 1969 resulted in exceptionally low flows. Surface runoff contributed to remarkable peak in July 2007.

Catchment: A Chalk catchment (with extensive Clay-with-Flints cover); very rural character.

39034 Evenlode at Cassington Mill**EA Thames**

Station: Complex configuration - compound Crump weir (crests: 4.0m and 3.7m) plus two side-spilling weirs (broad-crested, 7.5m broad and Crump 4.6m broad); the latter discharge to a canal section. Heavily bypassed during the extreme flood of July 2007. Responsive regime. Near-natural catchment but small net import of water and some limited storage in Blenheim Lake.

Catchment: Headwaters largely impervious (Lias Series), pervious Oolitic L'st in lower reaches. A mainly agricultural catchment with scattered settlements.

39035 Churn at Cerney Wick**EA Thames**

Station: Asymmetrical compound Crump weir (crests: 1.8m and 3.7m wide). Full range (and modular) but bypassing can occur at high flows (e.g. 2000/01). Very limited head during periods of low flow, hence sensitivity problems. Groundwater-fed regime with notably steep seasonal recoveries during wet autumn/early winters. Gw abstractions result in sig. loss to the catchment; evaporation from gravel pits may also be a factor in recent years.

Catchment: Linear catchment on the dip-slope of the Cotswolds. Primarily pervious (Jurassic oolitic L'st) but with Oxford Clay in lower reaches. Rural in character; Cirencester is the largest town. Extensive open water (Cotswold Water Park) just upstream of Cerney Wick.

39036 Law Brook at Albury**EA Thames**

Station: Rectangular thin-plate weir, 2.7m broad. Flood discharges can exceed weir capacity and bypassing occurs on the rb; some leakage below weir plate also suspected to have occurred. Calibration under review, post-1993 rating may underestimate flow. Weir damaged in 1996 (summer low flows under review). Heavy accretion upstream of weir can be a problem. Baseflow dominated regime, but responsive on occasions. Apparent very late response (autumn) to winter recharge. Low flow pattern affected by inputs from artesian boreholes (supporting watercress beds). Runoff is less diminished since closure of Thames Water gw abstraction near to the station.

Catchment: Small, relatively steep, rural catchment draining from the Winterfold Forest and Hurtwood; substantial woodland and appreciable urban development in the lower catchment. Mainly pervious, developed principally on Hythe Beds.

39037 Kennet at Marlborough**EA Thames**

Station: Crump weir, 6.1m broad, with crest-tapping plus Crump-crested side weir for high flows. Full range and not subject to drowning. Baseflow-dominated regime. Runoff is low and baseflow dominated. The hydrological catchment is smaller than the topographical catchment; some diminution in flow also results from gw abstraction.

Catchment: A Chalk catchment with some Clay-with-Flints cover in the lower catchment. Predominantly rural; Marlborough close to outfall.

39038 Thame at Shabbington**EA Thames**

Station: Broad-crested weir (width:10.5 m), c/m calibration - imprecise at high flows when flows often exceed bankfull; some bypassing may occur on rb. New gauging station (39105) commissioned d/s in 1989; Shabbington decommissioned 1994. Responsive regime (but with baseflow contribution from the Chalk).

Catchment: A rural catchment draining from the Chilterns scarp but developed mainly on clays and Greensand.

39039 Wye at High Wycombe**EA Thames**

Station: Flat V (1:10 cross-slope) with crest tapping installed, in 1996, as part of ALF programme. Non-modular for significant periods - heavy weedgrowth in d/s section. Structure width exceeds natural channel width. Stable, spring-fed regime but impact of artificial influences evident. Previously flows were monitored, from 1937, at the same site - Two thin-plate weirs, 1.8 and 1.4m broad. Discontinued in 1975 due to poor hydrometric performance - data unreliable (not held on NRFA).

Catchment: A Chalk catchment with significant Clay-with-Flints cover. Mostly rural but appreciable urban and commercial development above the gauging station.

39040 Thames at West Mill Cricklade**EA Thames**

Station: Compound Crump weir (crests: 2.5m and 4.5m wide) with crest-tapping (but d/s levels used for drowning adjustment; may reduce flows too much). Drowning now more frequent during high flows due to reduced channel capacity d/s. Bypassing during extreme floods e.g. during winter of 2000/01. Groundwater-fed regime but notable seasonal recoveries during wet autumns. Artificial influences evident at low flows. Runoff somewhat diminished by gw abstractions but more than compensated by effluent imports from Cirencester.

Catchment: Mixed geology: Thames rises on the Cotswolds (Oolitic L'st); lower catchment is chiefly Oxford Clay. Land use: primarily agricultural. Extensive gravel workings in the main valley.

39042 Leach at Priory Mill Lechlade**EA Thames**

Station: Crump weir, 4.5m broad with crest-tapping. D/s weed growth and backing-up from the Thames can result in drowning (flows adjusted using tail levels). Bypasses at high flows. Previous maxima exceeded during Nov/Dec 2000 but flows not computed. Station does not measure all the flow from the catchment. An overflow channel 2-3 km u/s above gauging station flows into a distributory stream (gaugings have measured 0.05 - 1.24 m³s⁻¹). Baseflow dominated regime but responsive to significant storm events. Effluent derived from outside the catchment results in small net augmentation of runoff; otherwise artificial influences are minimal.

Catchment: A linear catchment on the dip-slope of the Cotswolds; developed mainly on the Oolitic Limestone. Mostly agricultural with scattered settlements; extensive gravel pits just above the catchment outfall.

39043 Kennet at Knighton**EA Thames**

Station: Two Crump weirs: 13.7m crest on the main channel plus a 1.7m crest on the Littlecote Stream. Good general association in flow patterns with u/s and d/s gauging stations but very flat gradient - main river is subject to frequent drowning with very high submergence ratios. Some pre-1980 flows uncorrected, data under review. Some bypassing during floods. Flows slightly diminished by gw abstraction. Baseflow dominates the flow regime.

Catchment: A Chalk catchment (limited Clay-with-Flints cover). Mainly rural (includes part of Savernake Forest) but some urban growth in the valley.

39044 Hart at Bramshill House**EA Thames**

Station: Crump weir, 4.0m broad, with crest and d/s tappings (the former is no longer used). Even so, poor low flow record due to weed-induced drowning; which entails considerable adjustments to the modular flow. Banks overtopped in extreme floods. Flows augmented by effluent derived from outside the catchment.

Catchment: Chalk headwaters but a mainly impermeable (Eocene formations with a limited overburden of glacial deposits) catchment. Mixed land use - rural tracts with considerable woodland but also includes growing urban development, (e.g. Camberley/Farnborough).

39046 Thames at Sutton Courtenay**EA Thames**

Station: Multi-path ultrasonic gauging station replaced original (first in the UK) single-path device in 1982. Rectangular channel in straight, navigable reach. Levels and velocity profile influenced by d/s sluices. Early data of lower precision - isolated extreme minima and some negative flows in 1976 (not archived). All but highest flows contained, significant bypassing in exceptional floods. Station between offtake and discharge for Didcot Power Station (naturalised daily flows available).

Catchment: Mixed geology: Oolitic L'st headwaters, Oxford Clay below. Mainly rural with development concentrated in the valleys.

39049 Silk Stream at Colindeep Lane**EA Thames**

Station: Flat V weir (1:10 cross slope, width: 8.5m). Theoretical rating. Further gaugings needed to establish modular range. Some bypassing during floods; d/s bridge acts as a control in high flows and may cause weir to drown. Debris in channel can influence hydrometric performance. Patchy flow record prior to 1981. Poorer quality pre-1973 data available for two earlier stations on the river (built in 1928 and 1944); significant river improvements undertaken in the 1950s. Responsive regime. Net impact of abstractions and discharges uncertain; artificial influences evident at low flows.

Catchment: Catchment is largely London Clay with a little Drift cover. Rural/suburban headwaters, heavily urbanised below.

39051 Sor Brook at Adderbury**EA Thames**

Station: Crump weir, commissioned in 1982, superseded a compound broad-crested weir (3.6m broad) plus sluice gates - monitoring the sluice position complicated the computation of the early flow data. High flow calibration for the Crump weir not fully defined. Some bypassing during floods. Record ends 1988. Minor impact of artificial disturbances on the flow regime.

Catchment: An impervious (Middle Lias), mainly rural catchment.

39052 The Cut at Binfield**EA Thames**

Station: Broad-crested weir (crest: 13.7m wide); low flow notch (crest: 1.22m wide) added in 1968 at outfall from an ornamental lake. Early flow data (prior to installation of notch) less precise. Possible some flow under main weir and leakage at the notch. Hydrograph shows mixed rural/urban response - including the effect of balancing ponds. Significant and increasing effluent component during periods of low flow (primarily from Ascot STW - this represents a net import of water).

Catchment: An impermeable catchment (London Clay). Rural headwaters, including considerable woodland but major New Town (Bracknell) development below - almost 30 per cent urban overall (with a substantial increase over the POR).

39053 Mole at Horley**EA Thames**

Station: Compound broad-crested weir. Central notch: 2.44m broad (crest changed in July 2003 to Crump profile with significantly lower crest level, to reduce u/s impoundment) plus flanking crests: 10.96m broad, rated section at high flows; well rated to 30 m³s⁻¹ but considerable uncertainty in extreme flow range. Sewage effluent contribution is increasing (much of it from outside the catchment); moderate overall increase in runoff.

Catchment: Catchment is mainly impermeable (chiefly Weald Clay) with mixed land use and growing urban component - includes Crawley, Gatwick Airport; considerable woodland also.

39054 Mole at Gatwick Airport**EA Thames**

Station: Four-path ultrasonic gauging station with look-up table rating for flows below the lowest sensors; some early reliability problems noted. Replaced (in 2005) earlier station 200 metres downstream: Rectangular flume (2.74m broad) in culvert below airport runway plus Crump weir in new overflow channel (built in 1984, and appears to influence the homogeneity of the flow record). Full range station but data under review. Ran dry for the first time in summer of 1995. Very limited disturbance to the responsive, natural flow regime (Gatwick Airport is not in the catchment); small net export of water.

Catchment: Impervious (Weald Clay) catchment; mostly rural but heavy urban development in the eastern third.

39055 Yeading Bk West at Yeading West**EA Thames**

Station: Flat V weir (width: 5.02m, 1:20 cross-slope) u/s of culvert below the Western Avenue. Limited depth of approach - structure drowns readily but satisfactory gauged rating (control passes to the culvert). Additional floodplain storage (provided as part of 1983 river improvement scheme) increased lag times. Since 1983 some bypassing - via a feeder ditch - has occurred. Persistent problems with zero setting of stage recorder in 1970s. Dms series ends in June 1994; station demolished in 1995.

Catchment: Impervious, suburban catchment in NW London.

39056 Ravensbourne at Catford Hill**EA Thames**

Station: Trapezoidal flume; breadth at the critical section: 4.267m; insensitive. Full range. Theoretical calibration - confirmatory gaugings required at medium and high flows. Flows reprocessed from Jan 1985. Runoff significantly reduced by groundwater abstractions. Artificial influences very evident at low flows. Regime heavily affected by urbanisation.

Catchment: The Ravensbourne rises as Chalk springs (in Holwood Park; dry valleys extend into the North Downs). The lower catchment is mainly impervious Eocene deposits. Below the headwaters the catchment is heavily urbanised.

39057 Crane at Cranford Park**EA Thames**

Station: Non-standard critical depth flume improvised from the invert of a footbridge. Straight reach, banks stabilised by timber revetments. Theoretical calibration - gaugings needed to verify rating and determine the modular limit. Low flows in summer 1986 under review. Pre-84 flows generally less reliable. Bypassing (lb) occurs above a stage of about 1.3m. Complex water utilisation. Small natural import of water from the Colne catchment. A relatively responsive regime.

Catchment: A flat, generally impervious (mostly London Clay) catchment. Urban/suburban development dominates land use - catchment also includes Northolt Airport.

39058 Pool at Winsford Road**EA Thames**

Station: Trapezoidal flume; breadth at the critical section: 3.05m. Full range. Theoretical calibration; gaugings required to confirm rating. During low flows, algal growth can cause apparent higher flow than d/s site at Catford Hill. Flows reprocessed from Jan 1985. Runoff is reduced by gw abstractions and artificial influences evident at low flows. Some earlier data (1961-71) exist for an u/s site - Selworthy Road (39827).

Catchment: The Pool River rises as Chalk springs (below Addington Hill) but flows mostly over impervious Eocene deposits. Land use: primarily a suburban/urban catchment in south London.

39061 Letcombe Brook at Letcombe Bassett**EA Thames**

Station: Flat V weir (3.0m wide) superseded original rectangular notch (1.0 m wide) in 1981. Baseflow dominated regime. Runoff suggests that the topographic catchment is considerably smaller than the actual contributing area. Flows substantially reduced by pumping from the Childrey Warren boreholes, can impact substantially on low flow patterns; ALF scheme implemented in 1992.

Catchment: Rural catchment on scarp slope of the Lambourn Downs (Chalk - Drift free except for peat on the highest hills in the south). Catchment area derived from Digital Terrain Model.

39065 Ewelme Brook at Ewelme**EA Thames**

Station: Flat V weir (width: 2m) installed in 1980 superseded (after 4-yr break) a thin-plate weir (width: 1.524m). Limited head - algal growth on crest can be a problem - but modular. Natural, stable flow regime (but local surface runoff can produce sub-daily events). 2000/01 daily flows outstanding. Significant pre-1950 artificial channel re-alignment in Ewelme. Pristine chalk stream, gravel bed (but largely impermeable in some reaches), fish farming and cress beds d/s (ceased activity in 1991). Groundwater catchment is smaller than the topographical catchment.

Catchment: A rural/agricultural catchment developed on the scarp-slope of the Chilterns (Chalk with some Drift cover). Ewelme village is the largest settlement.

39068 Mole at Castle Mill**EA Thames**

Station: Crump weir (15.0m broad) superseded original mill weir (velocity-area rated) in 1978; no dmf data 03/76-01/78. Crump weir is modular to structurefull. All but very high flows contained. Significant net import of water (sewage effluent).

Catchment: Impervious (mostly Weald Clay) catchment. Mixed land use with considerable urban/suburban development.

39069 Mole at Kinnersley Manor**EA Thames**

Station: Rectangular flume, 7.1m wide at throat, plus 1.48m rectangular side sluice. Calibration based on current meter gaugings which extend beyond bankfull. Bypassing occurs at flows >30m³s⁻¹; flows therefore uncertain in the highest range. Responsive regime (reflecting growing urban contribution) and enhanced runoff (significant net import of effluent, increasing through time) but otherwise moderate impact of artificial influences.

Catchment: A largely impervious catchment (mostly Weald Clay) but more permeable headwaters. Very mixed land use - rural tracts but with substantial urban centres; Crawley and Gatwick Airport are in the catchment. Notable urban growth since station commissioned.

39071 Thames at Ewen**EA Thames**

Station: Upgraded to full-width Flat V in 2002, full range capability. Previously, a Flat V weir (4.0 metres broad, 1:10 cross-slope) with thin-plate overfalls (very prone to drowning, resulting in incomplete high flow record; not considered a primary station, data removed from NRFA). Nearest gauging station to the source of the Thames. Zero discharge during extended droughts. Gw abstractions in catchment - small net export of water.

Catchment: A small rural Cotswolds catchment developed on permeable Middle Jurassic formations (mostly Upper Oolite).

39072 Thames at Royal Windsor Park**EA Thames**

Station: Multi-path ultrasonic gauging station superseded, in 1988, original single-path configuration (installed 1978). Some gaps in record. Calibration confirmed by gaugings. All but exceptional floods contained. 01/2003 peak: c405 m³s⁻¹. Baseflow from the Chalk and Oolitic L'st, quicker response from the Oxford Clay and Lower London Tertiaries. Station is u/s of the major PWS off-takes for London.

Catchment: Scarp and vale topography developed on diverse geology. Predominantly rural headwaters contrast with considerable suburban growth in the lower valley. Representative of large lowland catchments in England.

39073 Churn at Cirencester**EA Thames**

Station: Flat V weir (1:10 cross-slope, 4.5m broad). Auxiliary d/s water level recorder. All flows contained but bypassing can occur at very high flows (as in late 2000); hydrographs appear truncated. Baseflow dominated regime with zero flows during notable droughts. Significant diminution of runoff due to groundwater and surface water abstractions.

Catchment: Pervious (Oolitic L'st) catchment on the dip-slope of the Cotswolds. Primarily rural with small, scattered settlements.

39074 Ampney Brook at Sheepen Bridge**EA Thames**

Station: Flat V weir (1:10 cross-slope, 4.5m broad). Often drowned. Calibration under review - gaugings indicate that the drowned flow reduction factor (based on tailwater levels) over-compensates for non-modularity. Limited head at low flows, therefore insensitive. Some bypassing at highest flows. Small diminution of flow due to abstraction, otherwise a naturally responding catchment.

Catchment: The Ampney Brook rises in the pervious Great Oolite series but the lower catchment is principally Oxford Clay. A rural catchment.

39076 Windrush at Worsham**EA Thames**

Station: Multi-path ultrasonic commissioned in Dec 1995. Previously: Two adjustable radial gate (sharp-crested) weirs - drowning very rare but high flows unreliable; principally a low flow station, flood flows commonly not calculated. Some early flow data (from 1942) held by the measuring authority for the original rhymer weir; but very patchy record pre-1977. Large baseflow component but responsive to storm events. Negligible disturbance to the natural flow regime.

Catchment: A pervious (Oolitic L'st) catchment (with some low-permeability tracts) on the dip-slope of the Cotswolds. Predominantly rural - Witney is the largest settlement.

39077 Og at Marlborough Poulton Fm**EA Thames**

Station: Flat V weir (width: 3.0m) with auxiliary d/s recorder - seasonal weed growth causes drowning. Gw abstraction in the headwaters otherwise flow regime is natural and dominated by baseflow.

Catchment: The Og drains from the Chalk of the Marlborough Downs; very limited Drift cover. A rural catchment.

39078 Wey(north) at Farnham**EA Thames**

Station: Modified Crump weir (width: 9.14m) with thin-plate along the crest line. Calibration is theoretically based - a few confirmatory gaugings. Non-modular at high flows - also possible bypassing via culvert immediately u/s. August 1997 dmfs estimated. High baseflow component but very responsive to rainfall. Runoff considerably diminished by gw abstractions in the headwaters.

Catchment: A mainly Chalk catchment with Gault Clay in the lower reaches. Predominantly rural, some urban development on the watershed and close to the station.

39079 Wey at Weybridge**EA Thames**

Station: Multi-path ultrasonic (cross-configuration) replaced, in 2003, a single-path (Harwell design) US; gaugings used to develop adjustment factors. Weed-growth, low velocities and velocity distribution caused problems. Station monitors the complete Wey system; confluence with canal is just u/s. U/s storage produces some flood attenuation. Responsive regime.

Catchment: Diverse geology and land use. Largely permeable upper catchment (Chalk and Upper Greensand of the North Downs); impermeable Tertiary formations dominate the lower catchment. Land use: rural tracts with mixed woodland; considerable suburban development below the headwaters.

39081 Ock at Abingdon**EA Thames**

Station: Crump weir 7.79m wide (auxiliary d/s tapping) superseded original compound structure in 1979. Imprecise at low flows and weir drowns during floods - overspill can occur into Sandford Brook - more common pre-1979; no flow adjustment made. Substantial channel improvements but drowning now more frequent again. Significant number of abstractions and discharges - runoff moderately augmented by sewage effluent (derived from outside catchment). Contributing area exceeds topographical catchment.

Catchment: Largely flat, rural valley in Vale of The White Horse. Mixed geology - 50% pervious; Chalk downland forms southern watershed, remainder mostly Tertiary clays.

39084 Brent at Brent Cross**EA Thames**

Station: Rectangular thin-plate weir with rectangular notch. Limited number of check gaugings, highest at 4.1 m³s⁻¹; they suggest that calibration modestly overestimates high flows. Debris in channel can be a problem. Very responsive regime.

Catchment: Urban/suburban catchment in north-west London.

39085 Wandle at Wandle Park

Station: Flume. Hydrometric performance not documented. Patchy flow record but useful late 1930s data. 1956 peak should be considered as indicative only. Contemporary flows in the lower Wandle available for station 39003.

39086 Gatwick Stream at Gatwick Link**EA Thames**

Station: Crump weir (4.6m broad) with crest-tapping (almost permanently blocked but weir remains modular except during exceptional floods); located at the end of a culvert. Superseded earlier u/s velocity-area station, 1952-77. Modular apart from exceptional discharges. Very responsive flow pattern; runoff affected by sewage effluent and urban runoff; large net import to the catchment.

Catchment: Mixed geology but mainly impervious (Weald Clay). Mixed land use with significant urban and forested areas.

39087 Ray at Water Eaton**EA Thames**

Station: Multi-path ultrasonic superseded (in 1989) a Crump weir (width: 5.195m) with crest and d/s recorders; Thames backwater caused frequent drowning and high submergence ratios - flood data are of limited precision. Responsive regime. Flows heavily influenced by Swindon runoff (sewage effluent, balancing ponds etc.); net import of water.

Catchment: The Ray rises in the Marlborough Downs and drains a relatively flat, mainly impervious, catchment. Largely agricultural land use but very substantial and growing urban component (Swindon).

39088 Chess at Rickmansworth**EA Thames**

Station: Crump weir (6.0m broad) with auxiliary d/s recorder. Full range station but non-modular at high flows (tail levels monitored). Very minor channel bypasses the weir. Baseflow-dominated flow regime but artificial influences (primarily sewage effluent) evident on the hydrograph. Abstractions are of mainly low consumptive type with some gw abstractions for PWS; small net export from the catchment.

Catchment: The Chess is a Chalk stream draining the dip-slope of the Chilterns (significant Drift cover). Headwaters are rural; significant urban growth in the lower valley; Chesham is the largest town.

39089 Gade at Bury Mill**EA Thames**

Station: Rectangular flume with side contractions installed by Hemel Hempstead Development Corporation; the town has a significant effect on flood peaks (but moderated by balancing ponds u/s within built-up area). Leak in stilling well discovered in 1990. Vandalism and debris in channel can create problems. Rating has tendency to underestimate high flows. Baseflow-dominated regime with significant artificial disturbance.

Catchment: Dip-slope stream draining the Chilterns; solid geology Chalk with some tertiary and extensive Boulder Clay cover. A mainly rural catchment draining to Hemel Hempstead (part of which is u/s of the station).

39090 Cole at Inglesham**EA Thames**

Station: Compound Crump Weir (high central crest). Channel divides immediately below weir; left-hand side of the structure is subject to non-modular conditions (this can cause significant data processing problems). Drowning due to weedgrowth also likely in the summer. More gaugings required to confirm rating. Pre-1992 flows may be too low; possible overestimation of contemporary flood flows also. Some baseflow from the Chalk but a responsive regime influenced by rapid recent urban development.

Catchment: Chalk scarp headwaters but catchment is largely low-lying and impervious (clay). A mainly rural catchment, some urban growth below the headwaters (Swindon particularly).

39091 Misbourne at Quarrendon Mill**EA Thames**

Station: Informal broad-crested control - secondary station, superseded in 1984 by the new Denham Lodge station d/s. Complex baseflow dominated regime (the Misbourne has a number of influent reaches). Substantial gw abstraction (especially for Aylesbury and Amersham) - historical decline in Misbourne flows.

Catchment: The Misbourne is a dip-slope stream draining from the Chilterns - Chalk with a little Drift cover. Significant residential development in the valley but a largely rural (Green Belt) catchment given over to agriculture with scattered tracts of coniferous and mixed woodland.

39092 Dollis Brook at Hendon Lane Bridge**EA Thames**

Station: Flat V weir has replaced a compound broad-crested weir with rectangular thin-plate inset (lack of confirmatory gaugings, severe u/s siltation - occasionally moderated by flushing via sluice below weir). Modular throughout the flow range. Further gaugings required to confirm the Flat V rating. Some anomalous low flows (e.g. March 1997). Very responsive regime.

Catchment: Catchment in north-west suburbs of London: Barnet and Hendon but with significant rural tracts in western headwaters. Geology: entirely London Clay of Eocene age. Largely Drift free.

39093 Brent at Monks Park**EA Thames**

Station: Critical depth flume (rectangular) in a concrete channel, d/s of Brent Reservoir. Discrepancy between rating and available gaugings. Responsive regime with very artificial low flow pattern (Welsh Harp reservoir is u/s).

Catchment: A largely urban/suburban catchment in north-west London.

39094 Crane at Marsh Farm**EA Thames**

Station: Rectangular critical depth flume (insensitive) in a straight concrete channel. Theoretical rating; modular limit to be determined. Capacity approx. 30 m³s⁻¹; yet to be exceeded. Substantial artificial influence on flow pattern - evident at low flows: sewage effluent, automatic weir u/s diverts flow into the Duke's River, considerable area of gravel workings. Some natural runoff gain from the Colne catchment (but unlikely to compensate for the u/s diversion).

Catchment: Very flat - drainage network difficult to delineate. Mainly urban; catchment contains Heathrow Airport and several pumped storage res. (abstracting from Thames).

39095 Quaggy at Manor House Gardens**EA Thames**

Station: A critical depth flume (width: 4m, wing wall height: 2m) in a concrete channel. The flume was constructed in 1961 and calibrated theoretically - the low flow rating has since been revised on the basis of c/m gauging results; more gauging required to confirm the high flow rating). Modular range uncertain. The structure was overwhelmed by the 1968 flood but sensibly full range otherwise. Very responsive regime.

Catchment: The catchment is a mixture of urban and suburban development.

39096 Wealdstone Brook at Wembley**EA Thames**

Station: Flat V profile weir in a culvert (below Olympic Way Wembley). Following modifications to the structure in 1978 it was refurbished but crest is sub-standard and a few gaugings suggest that the theoretical rating may not be applicable especially in high flow range. Data under review (as more confirmatory gaugings required). Responsive regime.

Catchment: A largely impervious urban/suburban catchment in west London.

39097 Thames at Buscot**EA Thames**

Station: Complex weir - radial gates and overfall weirs - embracing two channels. Two u/s and two d/s head recorders. Calibrated using c/m measurements. All but highest flows contained. Small net export of water (due to gw abstraction).

Catchment: Mixed geology; runoff from the Cotswolds (Oolitic L'st) provides a significant baseflow but the Oxford Clay valley is much more responsive. Land use: rural/agricultural with settlements concentrated in the valley where gravel extraction is significant.

39098 Pinn at Uxbridge**EA Thames**

Station: Electromagnetic (overhead coil) station in formalised trapezoidal section. Full-range capability but limited number of higher flow gaugings suggest substantial overestimation in this range. Multiple 0.01 m³s⁻¹ entries are an instrumental artifact. Very flashy regime. Very limited impact of artificial influences on the flow pattern, particularly given its suburban character. EM coil removed in 2004 - station out of commission.

Catchment: An impermeable (largely London Clay) suburban catchment west of London. Headwaters rise in the countryside but substantial urban development throughout the catchment - including Pinner, Ruislip and Ickenham.

39099 Ampney Brook at Ampney St. Peter**EA Thames**

Station: Flat V weir, 1:10 cross-slope. Theoretical calibration confirmed by gaugings. Drowning unlikely (but d/s stilling well installed). Full range. Realistic late-2000 flow pattern (rare amongst Cotswold stations). Primarily natural baseflow-dominated regime but gw abstraction lower down the Churn catchment is likely to have an impact. Contributing area > topographical catchment. Station is located just d/s of a fish farm (now closed).

Catchment: The Ampney Brook is a dip-slope stream draining the pervious Great Oolite of the Cotswolds. A rural catchment with small, scattered settlements.

39100 Swill Brook at Oaksey**EA Thames**

Station: Flat V weir installed in 2002 (with US installed more recently to improve measurement when FV drowned). Superseded unreliable Electromagnetic gauge. Some bypassing at high flows. Essentially natural, responsive, flow regime but runoff may be influenced by gw pumping from the confined Oolite aquifer. Large range of velocities; zero flow during most summers. monitoring of the lowest flow rates is suspect. Early flow record is patchy.

Catchment: Relatively flat, rural catchment given over to agriculture. Primarily impervious (Oxford Clay).

39101 Aldbourne at Ramsbury**EA Thames**

Station: Two Flat V weirs - 1:10 cross-slopes (one is located on a bypass stream). Theoretical calibration. All flows contained. Sensibly natural baseflow-dominated flow regime.

Catchment: The Aldbourne drains a Chalk downland catchment (very modest Drift cover). Land use: predominantly agricultural - Aldbourne is the only significant settlement.

39102 Misbourne at Denham Lodge**EA Thames**

Station: Crump weir (crest: 3.5m wide) plus Flat V (width: 2.0m, 1:10 cross-slope) on small tributary. High flow range under review but drowning rare. Bypassed only in exceptional floods. Baseflow dominated Chalk stream, influent in some reaches (e.g. near the Chalfonts). Runoff substantially diminished by PWS abstractions; partially counteracted by alleviation of low flow scheme from 1992. Topographical CA confirmed as 94.8 sq.km (Gw catchment estimated at 81 sq.km.)

Catchment: Elongated dip-slope catchment in the Chilterns (Chalk with appreciable Drift cover). Significant urban growth in valley but catchment is largely Green Belt - agriculture with scattered tracts of woodland.

39103 Kennet at Newbury**EA Thames**

Station: Ultrasonic gauging station - six pairs of transducers in cross-path configuration. Relatively high velocities. Full range. New instrument kiosk installed in 1996 (to improve reliability in hot weather). Sensibly natural baseflow dominated flow regime but possible small impact of West Berkshire Groundwater Scheme during drought conditions.

Catchment: Principally a Chalk catchment but small tracts of low permeability above the station. Mainly rural (arable and mixed farming) with some urban growth concentrated along the valley.

39104 Mole at Esher**EA Thames**

Station: New ultrasonic commissioned in 2001. Full range capability and improved reliability. Replaced earlier US just u/s (in a reach created as part of the Mole Flood alleviation scheme); debris and siltation (blocking transducers) and high temperature gradients caused substantial malfunction particularly at low flows. Limited stage range, d/s gates control levels. Responsive regime. Some sewage effluent derives from outside the catchment.

Catchment: A largely impervious catchment divided by the W-E trending ridge of the North Downs (Chalk and Upper Greensand). Diverse land use - rural tracts and considerable suburban development.

39105 Thame at Wheatley**EA Thames**

Station: Multi-path ultrasonic (cross- configuration). Skewed flow, weed-growth and summer temperature gradients can limit accuracy but continuous record post-1990. Full range, railway embankment ensures no bypassing; c80 m³s⁻¹ gauged in 01/2003. Supersedes 39038 (u/s). Some spring flow contribution but responsive regime. Net import of water; sewage effluent is a sig. component of low flows.

Catchment: The Thame drains a typical clay (principally Oxford Clay, some Greensand also) vale NW of the Chiltern escarpment. Land use: largely agricultural (considerable grassland); Aylesbury is the major town.

39107 Hogsmill at Ewell**EA Thames**

Station: Rectangular flume; stage-discharge relation confirmed by c/m gaugings. Modular. Overfall u/s. Debris on u/s grill can influence levels. Grounding of float (stilling well floor corresponds to throat level of flume) can affect low flow accuracy. Frequently vandalised. Patchy flow record. Mean runoff suggests that topographical catchment greatly exceeds the contributing area.

Catchment: A largely suburban catchment developed mostly on Chalk (dip-slope of North Downs).

39108 Churn at Perrott's Brook**EA Thames**

Station: Flat V weir, 6 metres wide, 1:10 cross-slope. Full range - tailwater levels measured to facilitate flow computation in the non-modular range (but further gaugings required to check the reduction factor). Data missing for Nov/Dec 2000 (when previous maximum would have been exceeded). Extreme flow in July 2007. Baseflow dominant. Zero flow in severe drought conditions.

Catchment: Permeable (Oolitic L'st) catchment on the dip-slope of the Cotswolds. Land use: mostly agricultural, some woodland and scattered settlements.

39109 Coln at Fossebridge**EA Thames**

Station: Crump-profile crest, 7.8m wide (constructed on original overfall). Modular until high flows but submerged in floods; some bypassing also - intermittent flow in small bypass channel not measured. Baseflow-dominated regime. 39020 and 39110 are d/s.

Catchment: A rural, dip-slope, catchment developed on the Oolitic L'st of the Cotswolds.

39110 Coln at Fairford**EA Thames**

Station: Electromagnetic gauging station (buried coil). C/m calibration to be completed. Station performance generally good to bankfull - reasonable velocities are maintained at low flows (0.5 m³s⁻¹ is a typical drought minimum) - but flows may be overestimated by around 10%. Baseflow-dominated regime. Levels affected by STW.

Catchment: Linear catchment on the dip-slope of the Cotswolds (Oolitic Limestone). Rural with scattered settlements.

39111 Thames at Staines**EA Thames**

Station: Ultrasonic gauging station - multi-path (6) in cross configuration; transducers located in piles set in the channel. Excellent agreement between multi-meter check gaugings and US calibration. Levels affected by gate and lock movements. In hot weather temperature gradients can deflect beams. Major PWS abstractions u/s.

Catchment: Scarp and vale topography. Diverse geology. Predominantly rural headwaters contrast with substantial urban and suburban development in the lower reaches.

39112 Letcombe Brook at Arabellas Lake**EA Thames**

Station: Flat V weir at outfall of the lake. Baseflow-dominated regime of the Letcombe Brook is heavily influenced by gw abstraction; flow augmentation scheme in operation. Zero flow during notable droughts.

Catchment: Catchment area derived from the Digital Terrain Model. The Letcombe Brook is fed from springs issuing from the scarp slope of the Lambourn Downs (Chalk, Drift free); contributing area is very rural.

39113 Manor Farm Brook at Letcombe Regis**EA Thames**

Station: Flat V weir. Flow augmented to counteract impact of gw abstractions (external to the topographical catchment). Spring outflow; zero flow during notable droughts.

Catchment: The Manor Farm Brook is fed by spring flow issuing from the scarp slope of the Lambourn Downs (Chalk). A very rural catchment.

39114 Pang at Frilsham**EA Thames**

Station: Flat V weir on ephemeral stretch of the Pang. Floods exceed bankfull and weedgrowth causes occasional drowning (flows adjusted but high submergence ratios limit accuracy). Monitors progress of ALF programme (headwater abstractions - currently much diminished - having substantially reduced runoff in the past). Baseflow dominated regime; effluent can form a significant component of low flows.

Catchment: A largely permeable (Chalk with modest Drift cover) rural catchment; mostly arable and pasture with significant woodland on the Tertiary outcrops (in the south).

39115 Pang at Bucklebury**EA Thames**

Station: Flat V weir. All flows contained but weedgrowth causes drowning - flows adjusted but high submergence ratios limit accuracy (e.g. May/June 1995 when flows unreliable). Monitors progress of ALF programme (headwater abstractions substantially reduced runoff but abstractions greatly reduced since 1992). Flows affected by STW effluent and, rarely, by West Berkshire Groundwater Scheme.

Catchment: A very rural and largely permeable (Chalk with modest Drift cover) catchment with significant areas of woodland on the Tertiary outcrops.

39116 Sulham Brook at Sulham**EA Thames**

Station: Flat V weir. U/s and d/s levels monitored; modest d/s gradient and limited channel capacity/siltation causes structure to drown for substantial periods. Relatively responsive regime. Topographical catchment is substantially less than the true contributing area; runoff (which is reduced by gw abstraction) is therefore unrepresentative - in wet years runoff can greatly exceed rainfall. Levels/flows affected by STW until the mid-1990s (when effluent diverted).

Catchment: A very rural catchment developed mostly on Chalk (with substantial Drift cover); some woodland on the Tertiary outcrops.

- 39118 Wey at Alton** **EA Thames**
Station: Flat V weir (1:10) cross-slope. U/s and d/s levels monitored. Weir lowered in 2002; drowning now occurs more frequently. Baseflow dominated regime - the upper Wey is ephemeral. Topographic catchment differs from groundwater contributing area. Significant abstractions in the catchment.
Catchment: Mostly Chalk (with significant Drift cover); Upper Greensand outcrops in the east. Alton is the only large settlement; land use is largely pasture/arable.
- 39119 Wey at Kings Pond (Alton)** **EA Thames**
Station: Rectangular thin-plate weir at outfall from lake. Theoretical rating. Debris obstructing u/s grill can cause minor fluctuations in level. Flow data for Apr-Jul 1995 unreliable due to weed growth. Baseflow-dominated regime (zero flow during notable droughts) but some local urban runoff. Topographic catchment differs from groundwater contributing area.
Catchment: Mostly Chalk (with significant Drift cover) and Upper Greensand. Rural (apart from Alton).
- 39120 Caker Stream at Alton** **EA Thames**
Station: Flat V weir. U/s and d/s levels monitored. Weedgrowth controlled by regular maintenance. Ephemeral stream but relatively responsive. Groundwater-dominated regime; contributing area substantially less than the topographical catchment: unrepresentative mean annual runoff.
Catchment: Mixed geology (largely Chalk with substantial Drift cover). A rural catchment.
- 39121 Thames at Walton** **EA Thames**
Station: Ultrasonic gauging station, multi-path, cross configuration. Gaugings confirm calibration. In hot weather the gauge can malfunction (due to temperature gradients in the measuring section). No routine naturalisation - therefore d/s Kingston (39001) series is more hydrologically representative).
Catchment: Scarp and vale topography developed on diverse geology. Predominantly rural headwaters contrast with considerable suburban growth in the lower valley.
- 39123 Blackwater at Farnborough** **EA Thames**
Station: Electromagnetic station installed as part of a R&D project into flow in two stage channels. Calibration to be completed. Gaugings indicate that EM flows are overestimated in the low and medium range. 9/97 to 9/98 flows particularly suspect.
Catchment: Tertiary geology - mainly Bagshot Beds with London Clay in the headwaters and alluvium in the valley. Substantial and expanding urban development including Farnborough and Aldershot but large rural tracts remain; significant areas of heathland and woodland.
- 39125 Ver at Redbourn** **EA Thames**
Station: Flat-V weir (4.0m wide). U/s and d/s level measurements are routinely made - drowns but d/s reach regularly maintained by dredging to improve modularity. Gauging station initially constructed to monitor low flows. Groundwater-fed ephemeral stream. Runoff reduced by gw abstraction - which has greatly diminished since May 1993 (the Ver is included in the EA's Alleviation of Low Flows Programme).
Catchment: A predominantly rural catchment on the dip-slope of the Chilterns (Chalk with significant Drift cover); land-use mainly arable and pasture. Part of Redbourn is immediately above the station.
- 39126 Red at Redbourn** **EA Thames**
Station: Flat-V weir (4.0m wide) which frequently drowns. U/s and d/s measurements are routinely made. D/s reach regularly maintained by dredging which improves modularity. Gauging station initially constructed to monitor low flows. Flow data for Feb 1995 unreliable due to weed growth. Groundwater-fed ephemeral stream (but can be responsive).
Catchment: A predominantly rural catchment on the dip-slope of the Chilterns (Chalk); land-use is mainly arable/pasture; some urban development.
- 39127 Misbourne at Little Missenden** **EA Thames**
Station: Rectangular thin-plate weir with flanking Crump crests. Theoretical rating supported by gaugings (more scheduled to confirm calibration). Screen u/s of weir requires regular maintenance. Very rare, and minor, bypassing during extreme flood conditions (e.g. Feb. 2001). Heavy (but declining) gw pumping in the headwaters has reduced base flows (the Misbourne is included in the EA Low Flow Alleviation Programme). The Misbourne is a Chalk stream; ephemeral, and influent in some reaches.
Catchment: A mostly rural catchment on the dip-slope of the Chilterns (Chalk); some development in the lower catchment.
- 39128 Bourne (South) at Addlestone** **EA Thames**
Station: Velocity-area station - low level sharp-crested weir (rather insensitive with poor approach conditions. Control passes to road bridge at medium/high flows. Some confirmatory gaugings up to approx. 10 m³s⁻¹. Possible bypassing into R. Wey system (via canal) at very high flows. Patchy early record (when no back-up recorder). Rating change in Oct 1993 (earlier data may need reprocessing). Responsive regime.
Catchment: Geology: largely impermeable Bagshot Beds. Very mixed land use with woodland and heath plus significant urban development.
- 39129 Thames at Farmoor** **EA Thames**
Station: Multi-path cross-configuration ultrasonic gauging station d/s of intake for Farmoor Res. Drought flow accuracy uncertain (v. low velocities) and gaugings suggest that flows may be overestimated by around 5%. Naturalised flows not routinely calculated. Substantial left-bank by-passing (not via the Thames itself) under flood conditions. Levels affected by d/s gate movements, abstractions and lockages.
Catchment: Catchment is predominantly rural u/s of the station. Geology: mixed - pervious headwaters (Oolitic l'st), Oxford Clay in the lower reaches.
- 39130 Thames at Reading** **EA Thames**
Station: Multi-path cross-configuration ultrasonic gauging station sited beneath Reading Bridge (incorporates adjustment for flows outside the transducer piers), very minor bypassing via Gosbrook stream. Good c/m confirmation of calibration throughout the range; doppler gauging on 4/1/2003 at 300-310 m³s⁻¹. River levels affected by d/s weir and lock.
Catchment: Mixed geology with Cotswold headwaters (Oolitic l'st) and Oxford Clay. Land use: predominantly rural but with important, and growing, urban development in the valley (i.e. Oxford and Reading).
- 39131 Brent at Costons Lane Greenford** **EA Thames**
Station: Flat V weir with vertical wing walls (bankfull: 2m). Lowest flow recording station on the Brent. Flow does not incorporate the d/s Greenford tributary. The Welsh Harp reservoir has significant impact on the flow regime.
Catchment: A heavily urbanised catchment in north west London, developed on London Clay.
- 39134 Ravensbourne East at Bromley South** **EA Thames**
Station: Flat V weir (1:10 cross slope) with vertical wing walls. Full range station, which has been theoretically rated. Further gaugings needed to confirm rating. Superseded (in 1992) an earlier structure. Straight approach with no significant modification to the very responsive flow regime.
Catchment: The Ravensbourne rises as Chalk springs (in Holwood Park; dry valleys extend into the North Downs). The lower catchment is mainly impervious Eocene deposits. Below the headwaters the catchment is heavily urbanised (south London).
- 39135 Quaggy River at Chinbrook Meadows** **EA Thames**
Station: Flat V weir installed 2004 (large fall d/s implies full modular range); replaced (with marginal increase in catchment area) rectangular critical depth flume (flood walls added May 1982) 220m u/s. Original station subject to considerable gravel accretion. Sensibly continuous flow record. Responsive regime. No significant artificial influences.
Catchment: Geology: London Clay, also Reading/Woolwich Beds. A linear urban/suburban catchment in south London.
- 39137 Yeading West at Gutteridge Wood** **EA Thames**
Station: Rectangular flume. Flow data in January 2003 under review - minimum appears unrealistically low.
Catchment: Largely impervious suburban catchment in NW London.
- 39138 Loddon at Twyford** **EA Thames**
Station: Multi-path ultrasonic (cross configuration) located on gently curving reach. Full range. Some record gaps - power supply and instrumentation problems (e.g. siltation can cause difficulties with the lowest of the six flight paths) - these are being addressed. MAF easily contained. U/s spillage (floodplain storage rather than bypassing) begins around 60 m³s⁻¹.
Catchment: Mixed geology and land use. Chalk headwaters, mainly London Clay below. Large rural tracts but substantial urban development, in the eastern catchment particularly.
- 39140 Ray at Islip** **EA Thames**
Station: Multi-path cross-configuration ultrasonic gauging station (in two-channel section). Good hydrometric performance but very low velocities in low flow conditions. Only minor disturbances to the natural (and responsive) flow regime.
Catchment: Relatively flat impermeable (Oxford Clay) catchment given over largely to agriculture (but includes Bicester); station is just below Otmoor.
- 39141 Wey at Guildford** **EA Thames**
Station: Multi-path ultrasonic gauging station (cross configuration); upgraded in 2003. Installed below a road bridge in the centre of Guildford where the river and navigation channels are coincident. All but extremely rare flows contained. Responsive regime.
Catchment: Mixed geology and land use.
- 39142 Windrush at Bourton on the Water** **EA Thames**
Station: Crump Weir. U/s and d/s levels monitored; structure rarely drowns but submerged during exceptional floods. Baseflow-dominated regime; significant groundwater abstraction.
Catchment: Station sited close to the edge of the Oolitic l'st outcrop. A largely permeable catchment, very rural in character.
- 39143 Dikler at Bourton on the Water** **EA Thames**
Station: Crump Weir. All flows contained, no bypassing but weir submerged during floods. Substantial baseflow but responsive to rainfall. Significant groundwater abstraction.
Catchment: Mixed geology: Oolites and Lias. Rural catchment with very limited urban development (but station is just below Bourton).

39144 Sor at Bodicote**EA Thames**

Station: Crump Weir (u/s and d/s levels monitored); replaces Adderbury (39051) which closed in April 1988. Significant abstraction u/s - but only operates when flows > 0.16 m³s⁻¹. Peak of April 1998 flood estimated at around 17 m³s⁻¹. Appreciable baseflow but also very responsive to rainfall.

Catchment: Primarily an impermeable (Middle Lias) catchment - rural in character.

39145 Yeading Brook East at Western Avenue A40**EA Thames**

Station: Flat V weir from 1974, removed in 1981. Replaced in Oct 1985. EA hold records from water year 1988. Rebuilt in 1993, NRFA holds records from 1995. Very responsive regime.

Catchment: A heavily urbanised catchment in west London developed in London Clay.

39146 Mill Brook at Blewbury**EA Thames**

Station: Flat V weir. Thames Water abstraction u/s. Flow constraint 40 Megalitres/day. Groundwater catchment substantially exceeds the topographical catchment; runoff totals are unrealistic. Stable regime - the Mill Brook is spring-fed.

Catchment: Rural catchment developed on the Chalk (but Blewbury village is immediately u/s).

39147 Wendover Springs at Wendover**BW**

Station: Thin-plate weir (0.91m wide) monitoring outflow from the Wendover Springs (into the Wendover Arm of the Grand Union Canal). Algal/weed growth on and u/s of the crest can affect levels - overestimating runoff. Station commissioned in the 1962, processed flows from 1989 (microfilmed level charts for pre-1989 period). Complemented by historical monthly series 1841-1897; method of flow measurement uncertain but runoff patterns consistent with rainfall. Earliest extant gauging station in the UK - provides unique insight into spring flow variability in the 19th century.

Catchment: The Wendover Springs issue from the scarp slope of the Chilterns - Chalk (with a limited amount of Drift cover). Land use is mostly woodland and pasture but significant urban growth near the gauging station.

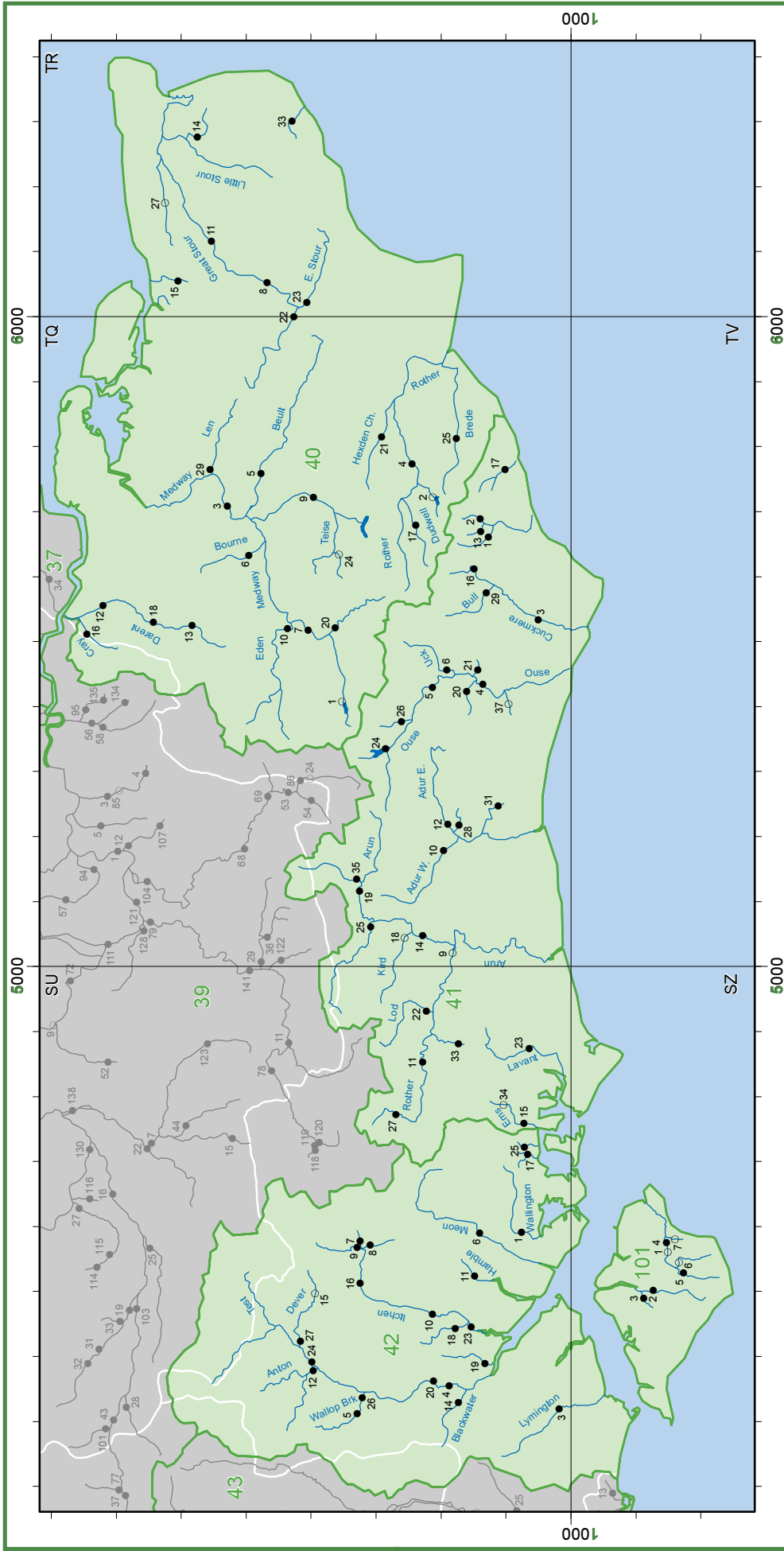
GAUGING STATION REGISTER

Region: EA Southern

Area: 10,604 km²

Average rainfall (1971-2000): 796 mm

Map 8: SOUTHERN



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Gauging Station Register I

Station number	River name	Station name	Grid reference	Catchment area	Station type	SLA	Period of record	Percent complete	Base Flow Index	Mean ann. rain (mm)	Mean ann. runoff (mm)	Mean ann. loss (mm)	Mean flow (m ³ /s)	Q95 (m ³ /s)	Q70 (m ³ /s)	Q50 (m ³ /s)	Q10 (m ³ /s)	Median ann. flood (m ³ /s)	Peak flow (m ³ /s)	Date of peak	7-day min. (m ³ /s)	Date of min.		
40001 *	Medway	Weir Wood Reservoir	TQ407353	26.9 FL			1953-67	100	.43	876	187	689	0.17	0.04	0.06	0.06	0.4	2.8	11.8	24/01/60				
40002 *	Darwell	Darwell Reservoir	TQ722213	9.6 TPFL			1956-75	97	.41	925	67	858	0.02	>0.00	0.01	0.01	>0.0							
40003	Medway	Taston	TQ708530	1256.1 MIS	*		1956-05	99	.40	764	282	482	11.08	1.45	2.86	4.54	25.4	138.6	358.6	16/09/68	0.43	24/08/76		
40004	Rother	Udiam	TQ773245	206.0 FV	*		1962-05	95	.35	879	340	539	2.16	0.18	0.38	0.75	5.4	38.5	65.7	12/10/00	0.07	07/12/89		
40005	Beult	Stile Bridge	TQ758478	277.1 MIS	*		1958-05	96	.24	706	233	473	2.04	0.06	0.20	0.42	5.4	42.1	101.8	13/10/00	>0.00	19/08/76		
40006	Bourne	Hadlow	TQ632497	50.3 FL	*		1959-05	78	.60	728	231	497	0.38	0.11	0.20	0.25	0.7	7.5	56.6	13/09/68	0.04	18/07/05		
40007	Medway	Chafford Weir	TQ517405	255.1 FL	*		1960-05	98	.48	857	357	500	3.01	0.51	0.92	1.53	6.5	50.6	106.2	03/11/60	0.16	08/10/05		
40008	Great Stour	Wye	TR049470	230.0 C VA			1962-05	96	.58	752	302	450	2.24	0.53	0.90	1.40	4.7	20.7	34.4	28/03/75	0.24	24/08/76		
40009	Teise	Stone Bridge	TQ718399	136.2 FV	*		1961-05	97	.46	818	317	501	1.36	0.21	0.57	0.85	2.6	28.1	104.4	12/10/00	0.08	21/08/76		
40010	Eden	Penshurst	TQ520437	224.3 C VA	*		1961-05	99	.35	763	262	501	1.82	0.23	0.43	0.70	3.9	29.5	212.0	15/09/68	0.04	12/09/62		
40011	Great Stour	Horton	TR116554	345.0 B VA	*		1964-05	100	.70	759	293	466	3.19	1.02	1.67	2.26	6.1	20.9			0.62	01/10/97		
40012	Darent	Hawley	TQ551718	191.4 C	*		1963-05	100	.73	738	110	628	0.66	0.03	0.27	0.50	1.4	2.8	49.0	16/09/68	0.00	08/11/76		
40013	Darent	Otford	TQ525584	100.5 CC	*		1969-05	100	.59	779	197	539	0.62	0.12	0.26	0.39	1.1	8.5	23.0	16/09/68	0.06	27/06/92		
40014	Wingham	Durlock	TR276576	37.7 VN			1971-05	62	.54	721	14	707	0.02	>0.00	0.01	0.01	0.0	0.1			0.00	07/08/96		
40015	White Drain	Fairbrook Farm	TR055606	31.8 FL	*		1969-05	93	.52	701	46	655	0.05	0.01	0.02	0.03	0.1	2.0	3.6	05/06/02	>0.00	21/08/97		
40016	Cray	Crayford	TQ511746	119.7 CC	*		1969-05	100	.72	701	137	564	0.52	0.12	0.31	0.44	0.9	7.3	26.4	27/08/77	0.01	11/09/73		
40017	Dudwell	Burwash	TQ679240	27.5 C	*		1971-05	87	.44	914	343	571	0.31	0.04	0.08	0.14	0.7	23.4			0.02	23/10/96		
40018	Darent	Lullingstone	TQ530643	118.4 B	*		1969-05	99	.75	771	196	575	0.72	0.14	0.38	0.58	1.4	3.3	6.7	26/12/85	0.02	12/07/76		
40020	Eridge Stream	Hendal Bridge	TQ522367	53.7 FV	*		1973-05	85	.45	893	422	471	0.71	0.09	0.19	0.33	1.5	26.9	34.1	12/10/00	0.05	19/08/76		
40021	Hexden Channel	Hopemil Br Sandhurst	TQ813290	32.4 FL	*		1975-05	78	.45	798	321	477	0.31	0.03	0.07	0.13	0.7	6.9	24.9	27/12/03	0.01	25/08/76		
40022	Great Stour	Chart Leacon	TQ992423	72.5 VA			2001-05	96	.64	712	295	417	0.63	0.13	0.26	0.39	1.5	5.4						
40023	East Stour	South Wilesborough	TR015407	58.8 FV			1976-05	94	.46	775	403	372	0.74	0.06	0.18	0.36	1.8	7.8	14.0	30/12/02	>0.01	15/06/76		
40024	Bartley Mill St	Bartley Mill	TQ633357	25.1 B			1974-05	30	.46	886	396	490	0.33	0.05	0.08	0.15	0.7				0.03	06/09/76		
40025	Brede	Brede Pumping Station	TQ813177	45.7 FL			2002-05	100	.55	733	263	470	0.38	0.07	0.12	0.20	0.9							
40027 *	Sarre Penn	Calcott	TR174625	19.4 FV			1975-94	89	.32	646	129	517	0.10	>0.00	0.01	0.02	0.3	1.7				0.00	05/08/92	
40029	Len	Lenside	TQ765556	69.7 FV			1984-05	90	.70	711	294	417	0.67	0.31	0.45	0.56	1.1	3.2	6.2	30/12/02				
40033	Dour	Crabble Mill	TR300430	49.5 FV	*		1976-05	82	.96	877	271	606	0.44	0.08	0.22	0.35	0.9	1.2	4.9	09/02/01	0.01	19/11/90		
41001	Nunningham Stream	Tilley Bridge	TQ662129	16.9 TPFL	*		1950-05	100	.35	841	349	492	0.19	0.01	0.03	0.06	0.4	8.5	18.0	27/12/03	0.01	16/09/96		
41002	Ash Bourne	Hammer Wood Bridge	TQ684141	18.4 TPFL			1951-05	99	.50	868	385	483	0.24	0.04	0.07	0.11	0.6	6.0	13.1	17/11/63				
41003	Cuckmere	Sherman Bridge	TQ533051	134.7 FVVA	*		1959-05	96	.27	845	334	511	1.31	0.07	0.16	0.37	3.2	39.4	98.0	12/10/00	0.01	24/08/76		
41004	Ouse	Barcombe Mills	TQ433148	395.7 US	*		1956-05	84	.41	857	319	538	3.72	0.29	0.88	1.63	8.5	61.5	217.5	22/11/74	0.11	30/06/76		
41005	Ouse	Gold Bridge	TQ429214	180.9 FVVA	*		1960-05	99	.50	862	381	481	1.18	0.34	0.69	1.14	4.8	32.3	94.4	12/10/00	0.13	23/08/76		
41006	Uck	Isfield	TQ459190	87.8 FV	*		1964-05	100	.42	845	407	438	1.13	0.16	0.30	0.51	2.3	34.3	132.2	12/10/00	0.08	06/09/76		
41009 *	Rother	Hardham	TQ034178	345.8 CC	*		1959-05	49	.63	928	459	469	4.97	1.37	2.34	3.29	10.3				0.76	13/07/05		
41010	Adur W Branch	Hatterell Bridge	TQ178197	109.1 MIS	*		1961-05	98	.31	803	355	448	1.18	0.02	0.14	0.31	3.6	11.3			0.01	17/09/96		
41011	Rother	Iping Mill	SU852229	154.0 CC	*		1966-05	100	.62	943	465	478	2.27	0.62	0.97	1.43	4.5	27.6	114.7	16/09/68	0.38	25/08/76		
41012	Adur E Branch	Sakeham	TQ219190	93.3 CC			1967-05	98	.35	846	422	424	1.24	0.16	0.27	0.46	2.8	28.8	57.9	12/10/00	0.06	25/08/76		
41013	Huggletts Stream	Hanley Bridge	TQ671138	14.2 TPFL			1950-05	97	.36	845	339	506	0.15	0.02	0.03	0.06	0.3	7.6	10.4	12/01/56	0.01	04/10/72		
41014	Anun	Pallingham Quay	TQ047229	379.0 FV	*		1970-05	97	.29	798	331	467	4.02	0.28	0.61	1.21	10.2	76.7	149.1	28/12/79	0.18	06/09/76		
41015	Ems	Westbourne	SU755074	58.3 CC			1967-05	100	.92	932	265	667	0.47	0.02	0.05	0.18	1.2	2.0	6.8	09/12/00	>0.00	26/10/69		
41016	Cuckmere	Cowbeech	TQ611150	18.7 CC	*		1939-05	85	.43	891	363	528	0.16	0.01	0.03	0.06	0.3	13.7	27.7	12/10/00	0.01	22/06/76		
41017	Combe Haven	Crowthurst	TQ765102	30.7 CC	*		1969-04	97	.40	802	333	469	0.33	0.02	0.06	0.13	0.7	6.7	10.7	31/10/00	0.01	16/10/89		
41018 *	Kird	Tanyards	TQ044256	66.8 C			1969-01	99	.16	818	404	414	0.86	>0.00	0.04	0.12	1.9	19.9			0.00	22/09/98		
41019	Arun	Alfoldean	TQ117331	139.0 CC	*		1970-05	100	.32	807	401	406	1.71	0.15	0.30	0.58	4.0	39.4			0.07	24/08/76		
41020	Bevern Stream	Clappers Bridge	TQ423161	34.6 C	*		1969-05	99	.28	900	435	465	0.47	0.02	0.06	0.13	1.2	13.6	33.6	12/10/00	0.01	18/09/90		
41021	Clayhill Stream	Old Ship	TQ448153	7.1 C			1969-05	98	.14	820	361	459	0.09	0.00	>0.00	0.01	0.2	4.0	18.7	12/10/00	0.00	24/09/05		
41022	Lod	Halfway Bridge	SU931223	52.0 C	*		1970-05	99	.35	885	343	542	0.58	0.05	0.11	0.22	1.4	17.1	41.5	27/12/79	0.01	07/09/91		
41023	Lavant	Graylingwell	SU871064	87.2 FV	*		1970-05	99	.81	958	110	848	0.30	0.00	0.00	0.00	0.9	1.4	7.8	14/12/00	0.00	28/12/05		
41024	Shell Brook	Shell Brook	TQ335286	22.6 FV			1971-05	99	.51	875	344	531	0.25	0.01	0.08	0.15	0.5	3.4	11.3	21/11/74				
41025	Loxwood Stream	Drungewick	TQ060309	91.6 CC	*		1971-05	99	.23	825	387	438	1.12	0.04	0.10	0.25	2.5	31.0	58.7	06/11/00	0.01	28/08/95		
41026	Cockhaise Brook	Holywell	TQ376262	36.1 C			1971-05	96	.53	861	351	510	0.40	0.05	0.11	0.21	0.9	10.0	22.0	06/11/00	0.02	07/10/02		
41027	Rother	Princes Marsh	SU772270	37.2 C	*		1972-05	100																

Gauging Station Register I cont'd

Station number	River name	Station name	Grid reference	Catchment area	Station type	SLA	Period of record	Percent complete	Base Flow Index	Mean ann. rain (mm)	Mean ann. runoff (mm)	Mean ann. loss (mm)	Mean flow (m ³ s ⁻¹)	Q95 (m ³ s ⁻¹)	Q70 (m ³ s ⁻¹)	Q50 (m ³ s ⁻¹)	Q10 (m ³ s ⁻¹)	Median ann. flood (m ³ s ⁻¹)	Peak flow (m ³ s ⁻¹)	Date of peak	7-day min. (m ³ s ⁻¹)	Date of min.
42026	Wallop Brook	Bossington	SU334313	61.1	FV	C	* 2000-05	100	.89	851	333	518	0.64	0.02	0.19	0.42	1.7				0.01	18/10/03
42027	Dever	Bransbury	SU422422	122.3	EM	*	2000-04	100	.95	830	317	513	1.23	0.30	0.73	1.01	2.5					
101001	* Eastern Yar	Alverstone Mill	SZ577857	57.5	TP		1961-97	45	.59	854	249	605	0.48	0.11	0.21	0.33	0.9				0.05	03/10/97
101002	Medina	Upper Shide	SZ504881	29.8	US	*	1965-05	85	.65	865	289	576	0.29	0.09	0.15	0.20	0.5	4.4	10.5	05/11/00	0.04	24/08/76
101003	Lukely Brook	Newport	SZ491886	16.2	CC		1980-05	67	.81	882	215	667	0.10	0.01	0.02	0.05	0.2	0.6	3.0	30/12/93	>0.00	10/08/86
101004	Eastern Yar	Burnt House	SZ583853	59.6	FV		1982-05	95	.43	848	234	614	0.49	0.05	0.12	0.20	0.9				>0.00	12/08/84
101005	Eastern Yar	Budbridge	SZ531835	22.5	FV	*	1982-05	100	.60	841	311	530	0.22	0.07	0.11	0.14	0.4	4.7	10.3	29/12/03		
101006	* Wroxall Stream	Waightshale	SZ536839	15.8	FV		1982-94	86	.48	861	268	593	0.13	0.03	0.05	0.08	0.3		15.6	20/11/86		
101007	* Scotchells Brook	Burnt House	SZ583852	9.2	FV		1982-96	95	.28	861	535	326	0.18	0.02	0.03	0.05	0.3				0.01	26/06/92

Gauging Station Register II

Station number	River name	Station name	Catchment area	Sensitivity	Bankfull/structurefull	Factors affecting runoff	Descriptors				Elevation				Bedrock			Superficial			Landuse						
							BFHOST	FARL	PROPWET	DPSBAR	Station level (mOD)	10 percentile (mOD)	50 percentile (mOD)	90 percentile (mOD)	Maximum level (mOD)	High perm. (%)	Moderate perm. (%)	Very low perm. (%)	Gen. high perm. (%)	Mixed perm. (%)	Gen. low perm. (%)	Woodland (%)	Arable/horticultural (%)	Grassland (%)	Mountain/heath/bog (%)	Urban extent (%)	
40001	* Medway	Weir Wood Reservoir	26.9		S		.43	0.761	36	83	62	84	115	153	191	0	100	0	0	0	0	0	37	23	28	0	3
40002	* Darwell	Darwell Reservoir	9.6		S		.42	0.744	34	92	21	45	95	146	192	0	100	0	0	0	0	0	49	6	35	0	0
40003	Medway	Teston	1256.1	12	14.0	SRPG	.44	0.954	35	54	7	23	68	130	268	11	48	41	6	5	<1	23	27	<1	3	1	
40004	Rother	Udiam	206.0	24	2.5	SGE	.39	0.975	35	93	2	32	77	135	196	0	100	0	0	4	0	0	34	13	46	0	1
40005	Beult	Stile Bridge	277.1	11	100.0	EI	.35	0.992	34	27	12	21	39	80	161	12	14	74	4	3	0	15	40	36	<1	2	
40006	Bourne	Hadlow	50.3	10	12.7	E	.63	0.964	36	64	24	42	95	155	234	66	0	34	<1	0	5	26	30	32	<1	4	
40007	Medway	Chafford Weir	255.1	10	60.0	SE	.44	0.936	35	83	31	62	104	162	242	0	100	0	0	4	0	35	16	32	<1	4	
40008	Great Stour	Wye	230.0	15	2.8	GE	.66	0.983	34	39	29	40	69	125	196	63	0	37	0	18	11	11	47	29	0	5	
40009	Teise	Stone Bridge	136.2	22	50.0	RPGE	.44	0.904	36	78	25	53	91	133	202	0	100	0	0	4	0	34	19	37	<1	1	
40010	Eden	Penshurst	224.3	18	60.0	SE	.42	0.920	35	47	28	47	72	129	268	16	29	55	4	3	1	22	26	41	<1	3	
40011	Great Stour	Horton	345.0	10	46.0	GE	.71	0.965	34	51	13	40	75	146	196	74	0	25	0	15	17	15	47	28	0	3	
40012	Darent	Hawley	191.4	85	27.0	G	.83	0.926	29	71	11	57	112	185	250	84	1	12	<1	4	15	23	28	30	<1	7	
40013	Darent	Otford	100.5	20	9.0	G	.80	0.909	36	71	60	83	133	193	250	75	2	23	0	2	14	28	22	28	<1	7	
40014	Wingham	Durlock	37.7		0.1	E	.81	0.999	34	35	4	17	56	106	135	80	0	0	<1	25	1	9	67	20	0	1	
40015	White Drain	Fairbrook Farm	31.8	16		E	.67	0.999	34	50	8	34	82	123	173	57	0	8	0	19	23	14	49	31	0	2	
40016	Cray	Crayford	119.7	28		G	.86	0.945	27	46	6	35	80	182	250	48	0	4	6	2	18	18	18	23	<1	26	
40017	Dudwell	Burwash	27.5	54	29.0	N	.43	0.994	35	105	28	61	114	159	192	0	100	0	0	0	0	40	8	47	0	1	
40018	Darent	Lullingstone	118.4	38	5.3	G	.81	0.906	32	73	44	75	127	189	250	79	2	18	0	3	16	27	24	29	<1	7	
40020	Eridge Stream	Hendal Bridge	53.7	20	2.2	E	.45	0.969	36	89	42	72	121	164	242	0	100	0	0	2	0	33	11	38	0	6	
40021	Hexden Channel	Hopemil Br Sandhurst	32.4	23	7.3		.41	1.000	35	76	5	26	65	102	141	0	100	0	0	1	0	25	26	41	0	1	
40022	Great Stour	Chart Leacon	72.5				.74	0.967	34	41	40	54	84	134	196	79	0	21	0	12	13	11	53	24	0	4	
40023	East Stour	South Williesborough	58.8	25		E	.64	0.997	34	43	35	48	76	120	186	71	0	29	0	24	8	8	53	34	0	2	
40024	Bartley Mill St	Bartley Mill	25.1		10.0		.45	0.997	36	98	57	80	119	152	202	0	100	0	0	<1	0	44	11	38	0	2	
40025	Brede	Brede Pumping Station	45.7				.47	0.974	34	79	2	21	53	93	162	0	100	0	0	<1	0	33	23	36	0	2	
40027	* Sarre Penn	Calcott	19.4			N	.30	1.000	22	38	18	40	65	94	119	0	0	100	0	9	0	38	36	20	0	2	
40029	Len	Lenside	69.7	16		E	.79	0.917	34	57	9	51	88	147	202	69	0	31	0	0	16	20	33	26	0	9	
40033	Dour	Crabble Mill	49.5	42		G	.78	0.958	34	92	16	68	130	154	185	100	0	0	0	11	50	15	39	38	0	3	
41001	Nunningham Stream	Tilley Bridge	16.9	60	8.8	R	.38	1.000	34	68	4	20	46	82	133	0	100	0	0	0	0	17	14	64	0	1	
41002	Ash Bourne	Hammer Wood Bridge	18.4	23	8.8	RG	.39	0.957	34	104	7	29	67	110	170	0	100	0	0	0	0	38	19	34	0	1	
41003	Cuckmere	Sherman Bridge	134.7	16	50.6	SP	.41	0.978	34	50	4	18	42	103	213	6	63	30	4	0	0	18	20	51	0	3	
41004	Ouse	Barcombe Mills	395.7			SRPGE	.46	0.950	34	64	5	24	56	119	247	2	83	15	<1	2	0	27	22	40	<1	3	
41005	Ouse	Gold Bridge	180.9	13	12.2	SRPGE	.49	0.922	35	74	11	34	70	129	202	0	96	4	0	2	0	32	23	33	<1	3	
41006	Uck	Isfield	87.8	31	76.0	E	.43	0.980	35	72	11	34	67	121	235	0	100	0	0	<1	0	25	15	50	0	3	
41009	* Rother	Hardham	345.8				.67	0.973	34	73	4	30	67	138	278	55	13	32	1	2	1	25	33	32	<1	2	
41010	Adur W Branch	Hatterell Bridge	109.1	23	11.3	N	.28	0.969	35	33	4	14	30	60	107	1	3	96	2	0	0	17	36	40	0	1	
41011	Rother	Iping Mill	154.0	7	67.0	GE	.68	0.973	35	75	27	49	81	144	269	55	18	27	0	0	3	24	34	32	<1	3	
41012	Adur E Branch	Sakeham	93.3	5	30.0	E	.38	0.961	34	48	3	18	42	90	233	8	44	49	0	0	0	21	28	35	<1	8	
41013	Huggletts Stream	Henley Bridge	14.2	35	8.8	RG	.40	1.000	34	86	6	24	57	99	133	0	100	0	0	0	0	16	25	55	0	1	
41014	Arun	Pallingham Quay	379.0	27		E	.39	0.958	35	50	4	25	56	108	291	5	12	83	5	0	0	32	26	33	<1	3	
41015	Ems	Westbourne	58.3	25	4.5	RG	.90	0.976	34	81	10	37	97	156	241	93	0	3	2	0	1	29	42	26	0	0	
41016	Cuckmere	Cowbeech	18.7	100	10.0	PG	.47	0.966	34	79	30	49	83	141	185	0	100	0	0	0	0	15	16	55	0	3	
41017	Combe Haven	Crowhurst	30.7	59	21.8	G	.42	0.973	34	73	2	16	47	85	141	0	100	0	0	2	0	23	23	46	0	2	
41018	* Kird	Tanyards	66.8		31.0	N	.36	0.961	35	41	9	22	44	77	280	1	0	99	5	0	0	31	31	33	0	0	
41019	Arun	Alfoidean	139.0	24	84.5	E	.47	0.941	36	53	21	41	73	121	291	3	31	66	2	0	0	28	25	33	<1	5	
41020	Bevern Stream	Clappers Bridge	34.6	87	25.0	E	.36	0.993	34	47	10	12	45	79	247	21	2	77	0	0	0	17	34	42	0	1	
41021	Clayhill Stream	Old Ship	7.1		13.9	N	.25	1.000	34	27	6	24	20	32	40	0	0	100	8	<1	0	20	20	54	0	0	
41022	Lod	Halfway Bridge	52.0	69	41.0	N	.48	0.951	35	79	14	41	70	149	278	23	0	77	0	0	0	42	23	31	<1	1	
41023	Lavant	Graylingwell	87.2			G	.94	1.000	34	102	21	54	124	190	254	92	<1	<1	8	0	1	31	37	27	0	1	
41024	Shell Brook	Shell Brook	22.6	90	23.3	SRP	.51	0.763	36	94	38	66	108	147	191	0	100	0	0	0	0	42	20	27	<1	1	
41025	Loxwood Stream	Drungewick	91.6	35	56.8	N	.32	0.962	35	56	13	31	60	117	275	13	0	87	2	0	0	44	21	29	<1	2	
41026	Cockhaise Brook	Holywell	36.1	44	8.0	PG	.43	0.894	35	100	29	56	98	159	202	0	100	0	0	0	0	38	20	36	<1	1	
41027	Rother	Princes Marsh	37.2	24	43.5	GE	.67	0.973	35	79	56	71	98	155	247	56	22	23	0	0	<1	25	28	31	3 H	3	

Gauging Station Register II cont'd

Station number	River name	Station name	Catchment area	Sensitivity	Bankfull/structurefull Factors affecting runoff	Descriptors				Elevation				Bedrock			Superficial			Landuse							
						BFIHOST	FARL	PROPWET	DPSBAR	Station level (mOD)	10 percentile (mOD)	50 percentile (mOD)	90 percentile (mOD)	Maximum level (mOD)	High perm. (%)	Moderate perm. (%)	Very low perm. (%)	Gen. high perm. (%)	Mixed perm. (%)	Gen. low perm. (%)	Woodland (%)	Arable/horticultural (%)	Grassland (%)	Mountain/heath/bog (%)	Urban extent (%)		
42026	Wallop Brook	Bossington	61.1			.95	1.000	34	44	32	57	82	111	172	100	0	0	0	0	<1	<1	0	6	42	44	0	1
42027	Dever	Bransbury	122.3			.94	0.986	34	37	50	68	92	127	182	100	0	0	<1	<1	9	10	57	28	<1	1	1	
101001 *	Eastern Yar	Alverstone Mill	57.5	6.3	PI	.74	0.992	33	85	4	21	60	152	242	72	13	12	18	9	<1	<1	7	42	41	0	3	
101002	Medina	Upper Shide	29.8	13	17.8	GI	.76	0.985	33	80	10	27	56	95	193	74	9	16	5	<1	3	7	51	35	0	2	
101003	Lukely Brook	Newport	16.2		10.5	GI	.89	0.976	33	130	13	38	95	162	210	79	9	5	0	0	23	8	42	42	0	3	
101004	Eastern Yar	Burnt House	59.6	50		PG	.74	0.992	33	85	7	21	59	151	242	73	13	12	18	9	<1	<1	7	42	41	0	3
101005	Eastern Yar	Budbridge	22.5	23		PGI	.71	0.996	33	87	17	34	86	156	235	68	22	10	17	9	<1	<1	6	47	39	0	2
101006 *	Wroxall Stream	Waightshale	15.8	32		GI	.76	0.982	33	95	16	29	79	184	242	72	14	14	14	8	<1	<1	9	38	44	0	3
101007 *	Scotchells Brook	Burnt House	9.2	35		GI	.75	1.000	33	73	7	11	40	106	234	98	0	2	9	8	0	12	36	33	0	10	

Gauging Station Register III

EA Southern

40001 Medway at Weir Wood Reservoir SW
Station: Trapezoidal critical depth flume with low flow notch - measures compensation and overflow from Weir Wood Res.

40002 Darwell at Darwell Reservoir SW
Station: Compound thin-plate weir for low flows. High flows monitored 70m d/s at rectangular critical depth flume. Measures outflows from Darwell Res. - storage augmented by pumping from R. Rother.

40003 Medway at Teston EA Southern
Station: Crump weir plus sharp-crested weir (on flood gate); insensitive, but less so than previous broad-crested weir. Flows > c25 m³s⁻¹ measured 2km d/s at East Farleigh (226 m³s⁻¹ gauged in 10/2000) - but some hysteresis problems; reprocessing anticipated. Water levels maintained for navigation purposes. Patchy record 1966-73. Combination of flows with Teston may not be complete on the NRFA. Springs provide some baseflow but a responsive regime. Bypassed by navigation lock. Complex water utilisation; low flow augmentation from Bewl Water (via R. Teise); Weir Wood and Bough Beech Reservoir also in the headwaters; >20 yrs of naturalised flows available.
Catchment: Mixed geology; impervious formations constitute up to 50% of the catchment. Diverse land use with significant areas of woodland and orchard; several substantial towns also (including East Grinstead and Tunbridge Wells).

40004 Rother at Udiam EA Southern
Station: Flat V weir with - since 12/2000 - multi-path ultrasonic to extend the range (calibration is ongoing). Cableway (65 m³s⁻¹ gauged in 11/2000). 1992-2000 flows truncated at approx. 5.9 m³s⁻¹ (d/s tidal sluice limited modularity of the Flat Veer); sig. underestimation of runoff - flows under review. Prior to 1992, broad-crested weir (crest deformation suspected, low flows may be overestimated). POR minimum should be considered indicative only; similar minimum in 1990. Flow confined (at Udiam) except in extreme floods. Responsive regime with evident artificial influences. Offtake for Darwell Res. (9.6 km²) u/s; other reservoirs and sewage effluent (some imported) also influence flow patterns (small net export of water). Robertsbridge flood alleviation scheme commissioned in 2003.
Catchment: Catchment developed mainly on clays of Wadhurst series (very limited permeability), substantial tracts of Ashdown Sands also. Rural with sig. woodland and scattered settlements.

40005 Beult at Stile Bridge EA Southern
Station: Flat V (with crest & d/s tappings), commissioned in 2003, with US for high flows (calibration to be completed) in long and reasonably straight reach. Structure limit: c6 m³s⁻¹. Replaced compound structure - central flume separated, by short divide piers, from broad-crested flanking sections. Calibration: model tests and cableway gaugings (79 m³s⁻¹ gauged during 10/2000 flood. Flood banking confines most flows (out-of-bank flows accounted for in rating). Possible backing-up from Medway during exceptional floods. Minor baseflow (from the Lower Greensand) but very responsive regime. Small overall impact of artificial influences - agri. abstraction (and, therefore, very variable).
Catchment: Geology: mainly Weald Clay (but includes some pervious sandstones). Rural (arable and grassland with significant woodland) with scattered settlements throughout the catchment.

40006 Bourne at Hadlow EA Southern
Station: Electromagnetic gauge (installed July 2002) located in a straight reach. Exceeds capacity (8.5 m³s⁻¹) of the previous trapezoidal critical depth flume; theoretical rating with some confirmatory gaugings but drowns at high flows - flow record often incomplete (F&M restrictions in spring 2001). 1968 flood estimated at 57 m³s⁻¹ on the basis of wrack marks. Very substantial baseflow contribution but capable of a flashy response. Some artificial regulation from a mill u/s. Significant spray irrigation.
Catchment: A largely rural catchment (with a substantial acreage devoted to orchards) developed on very mixed geology - pervious formations cover a little over half the catchment; rapid runoff from the Weald Clay.

40007 Medway at Chafford Weir EA Southern
Station: Humped trapezoidal flume (capacity 8.5 m³s⁻¹) plus rated section 0.8km d/s at Colliers Land Bridge; gaugings above bankfull included in the calibration. Channel subject to erosion. Bypassing occurs in major flood events e.g. 1960, 2000; stilling well extended after later event (to prevent 'flat-top' hydrographs). Quite a responsive regime despite significant baseflow. Catchment includes Weir Wood Res. (which provides compensation flows). Small net export. Sluices u/s can influence levels.
Catchment: Geology: mixed but mainly Ashdown Sands and Wadhurst Clay. The Medway drains from Ashdown Forest and the catchment is predominantly rural in character but with a number of towns close to the headwaters.

40008 Great Stour at Wye EA Southern
Station: Crump weir (width 7.61m) - drowns at <3 m³s⁻¹ (no flow adjustment) - VA station (just d/s) for high flows. Weedgrowth can cause overestimation of flows. Ashford effluent is a sig. component of low flows; small net import of water. Flood retention reservoirs above Ashford (constructed 1990-2). Hydrographs show evidence of u/s mill sluice operation (declining).
Catchment: The east and west branches of the Stour flow over impermeable (mainly) Weald Clay; below Ashford (the only major settlement) Chalk predominates. A rural catchment with mixed land use.

40009 Teise at Stone Bridge EA Southern
Station: Flat V weir (commissioned 09/95), 7m wide, superseded a broad-crested weir (crest width: 5.95m; weir capacity: approx. 3 m³s⁻¹) in trapezoidal section; weedgrowth could cause problems and no high flow gaugings pre-1995. Cableway at site - calibration now extends throughout the flow range (but less reliable above bankfull); gauging of 54 m³s⁻¹ after the 10/2000 peak. Significant baseflow but responsive also. Bewl Water Reservoir offtake is c1km u/s. Augmentation (from Bewl Water) dominates post-1976 low flow patterns. Also some regulation from Hope Mill Sluice approx. 3.2km u/s.
Catchment: A largely rural catchment with scattered settlements developed on the sands and clay of the Wealden Series.

40010 Eden at Penshurst EA Southern
Station: Crump profile weir (crest width: 4.877m), measures flows up to approx. 4 m³s⁻¹ complemented by VA station in straight reach below Vexour Bridge (3km u/s NGR: TQ510455). Also, US installed in 2003 to quantify hysteresis effects due to water impoundment at the Leigh Barrier (13 km d/s). Post-1995 low and high flows combined (with adjustment for CA) but combination of earlier dmfs is incomplete. Rating well defined and all but exceptional flows contained. Offtake for Bough Beech Reservoir is u/s - small net export of water. Also some slight regulation afforded by Hever Lake.
Catchment: A rural catchment with scattered settlements developed on sands and clays of the Wealden Series - impervious types predominate but many spring sources in the permeable headwaters.

40011 Great Stour at Horton EA Southern
Station: Broad-crested weir (width: 10.55m, insensitive) in trapezoidal section plus a VA section for flows >20 m³s⁻¹. Theoretical rating endorsed by gaugings. (EM installed 1992 - some technical difficulties, now rarely used). No wing walls but all flows contained by sloping side bunds. Substantial baseflow but relatively flashy storm response. Very modest net impact of artificial influences on runoff. Minor PWS and irrigation abstractions in lower valley - some counterbalancing due to small amounts of effluent (from outside the catchment). Flood storage reservoirs above Ashford (constructed 1990-2). U/s mill regulation evident on the hydrographs.
Catchment: The east and west branches of the Stour flow over Weald Clay; below the confluence (at Ashford - the only significant urban area). Geology: Chalk dominates - but with appreciable Drift cover. A rural catchment with mixed land use.

40012 Darent at Hawley EA Southern
Station: Crump weir (7.62m broad). Modular to bankfull. Crest width may be restricted during periods of low flow to increase sensitivity. Large structure capacity (30 m³s⁻¹) but bypassed (rt bank) during extreme flood of Sept. 1968 (flow estimated at approx 50 m³/s). Inflow u/s; flows commonly lower than at Lullingstone (40018). Sluices and abstractions to and returns from gravel workings u/s affect flow - evident at low flow (e.g. Oct 1989). Baseflows were greatly reduced by increasing gw abstractions, but the Darent Augmentation Scheme (in the ALF programme) now operates, can involve water imported from outside the catchment.
Catchment: A mainly pervious (Chalk and Upper Greensand) catchment with moderate Drift cover and some sand/clay; predominantly rural with some expanding urban centres.

40013 Darent at Otford EA Southern
Station: Compound Crump weir (crests: 3.04m and 2 x 2.286m broad) with crest tapping in a straight reach. Structure width exceeds natural channel width, in the past this has caused upstream accretion. Superseded original VA station in 1969. Modular rating only (gaugings indicate overestimation at high flows; structure drowns completely before bankfull). Station bypassed during floods and u/s accretion/bank encroachment is significant. Baseflow-dominated regime but responsive to storms. September 1968 floods estimated at 23 m³/s. Upstream g/w abstractions, which showed a substantial historical increase, have been reduced - helping increase flows during dry periods. U/s gravel pits can moderate flood flows.
Catchment: A mainly pervious (Chalk) catchment with considerable areas of Gault and Lower Greensand u/s of station. Predominantly rural with some expanding urban centres including Sevenoaks and Westerham.

40014 Wingham at Durlock EA Southern
Station: 120 degree V-notch weir; capacity of notch about 0.09 m³s⁻¹. Flows should be treated with caution: all but a few early peaks truncated. Some recent high flows set to missing. Theoretical rating. Drowns for extended periods - poorly maintained d/s channel subject to blockage after high flows. Sewage effluent is a very minor flow component. Topographical catchment substantially exceeds the contributing area.
Catchment: Mainly Chalk - overlain in parts by Drift - plus Tertiary deposits; baseflows derive from the Thanet Sands. Predominantly rural embracing the village of Ash.

40015 White Drain at Fairbrook Farm**EA Southern**

Station: Trapezoidal critical depth flume designed for modular operation. Principally a low flow station. Occasional overtopping onto wide alluvial floodplain. Flume tends to silt up, also blocking of stilling intake (e.g. in autumn 2000) - impacting on computed flows. Calibration limit $c2.7 \text{ m}^3\text{s}^{-1}$. POR maxima (2002) under review. Runoff diminished due to gw abstraction from the Chalk. Sewage effluent - discharging 1 km u/s - formed a major component of low flows until 1991 (treatment now undertaken outside catchment).

Catchment: Mixed geology: Chalk and Lower London Tertiaries provide baseflow, surface runoff from the London Clay.

40016 Cray at Crayford**EA Southern**

Station: Asymmetrical compound Crump profile weir (crests: 3.052m and 7.612m broad). Modular limit about $6 \text{ m}^3\text{s}^{-1}$; correction for drowning discontinued, probably around 1990. Significant bypassing is rare. Weedgrowth can be a problem. Major baseflow component but responsive to storms. Flows are substantially affected by artificial influences; surface and gw abstractions, stormwater overflows and extensive local gravel workings. Considerable net export of water.

Catchment: A mainly pervious (Chalk) catchment; the Cray flows in an alluvial tract which has been widely exploited for gravel/sand. Urban land use is extensive and increasing particularly in the lower catchment.

40017 Dudwell at Burwash**EA Southern**

Station: Crump profile weir (crest: 4.88m) in straight reach, high flow rating based on gaugings. Trash may gather in energy dissipator. Steep banks contain all but exceptional flows. Wide and flat floodplain. Bypassing at stages $>1\text{m}$. Some truncation of peaks around the modular limit ($c6 \text{ m}^3\text{s}^{-1}$). Responsive and essentially natural flow regime.

Catchment: A relatively steep catchment draining from the High Weald. Geology: Ashdown Sands (about 80% - variable permeability) and Purbeck Beds (about 20%). A largely rural catchment with significant woodland and scattered settlements.

40018 Darent at Lullingstone**EA Southern**

Station: Three-bay, non-standard broad-crested weir (total crest width: 11m) at outfall of an ornamental lake (hence stage range is limited); stop boards fitted, in the past, to increase low flow sensitivity. Large d/s fall ensures modularity. Calibration based on gaugings. Wind fetch across lake may possibly affect levels. 1968 flood greatly exceeded subsequent maxima. Baseflow dominated regime. Runoff diminished by major gw abstractions, but Augmentation Scheme now operates (borehole u/s); Darent is influent d/s. Some water meadows u/s (e.g. at Shoreham); sewage outflows from Sevenoaks now piped direct to Dartford.

Catchment: Catchment is predominantly pervious (Chalk). Mixed land use: agricultural with woodland plus expanding urban centres in the headwaters (including Sevenoaks).

40020 Eridge Stream at Hendl Bridge**EA Southern**

Station: Flat V weir (width: 5.6m) superseded velocity-area station (data: 1973-83). Significant u/s accretion. Theoretically rated, high flow rating not defined. Modular limit $c1.9\text{m}$. Many peaks truncated at around $17 \text{ m}^3\text{s}^{-1}$. Patchy record prior to 1986. Chart recorder only. Responsive regime. Runoff increased by effluent returns.

Catchment: Catchment drains Wealden area of Sussex/Kent, encompassing Hastings Beds, Tunbridge Wells Sand, Wadhurst Clay and Ashdown Beds. Rural, mainly agricultural land use.

40021 Hexden Channel at Hopemill Br Sandhurst**EA Southern**

Station: Trapezoidal critical depth flume. Structure capacity $2.25 \text{ m}^3\text{s}^{-1}$, channel capacity is considerably greater but bypassing on lb. Some truncation of peaks at around $5-7 \text{ m}^3\text{s}^{-1}$. December 2003 peak flow under review.

Catchment: A relatively narrow catchment trending SE from headwaters in the High Weald (source is in Bedgebury Forest). Rural land use - about 20% woodland - developed on Wadhurst Clay (about 50%) and the overlying Tunbridge Wells Sands.

40022 Great Stour at Chart Leacon**EA Southern**

Station: Flat V weir (7.96m broad; shallow approach depth - modular limit $c0.22\text{m}$) superseded - in 1979 - a velocity-area station (level records from 1967). Theoretical rating, VA calibration for high flows - but wide uncertainty band; site is not appropriate for high flow measurement (backwater effects from d/s road bridge). Some u/s regulation (mill sluice operation, Hothfield flood retention reservoir) otherwise very little artificial disturbance to the responsive flow regime.

Catchment: A largely impervious catchment (but some baseflow from the North Downs) trending SE towards Ashford. Rural with scattered settlements - urban development near to station.

40023 East Stour at South Willesborough**EA Southern**

Station: Flat V weir, 1:10 cross-slope, superseded a VA station (affected by weedgrowth) in 1976. Theoretical rating - to $5.3 \text{ m}^3\text{s}^{-1}$ (under review). Improved d/s conditions have increased modular range. Almost all flows contained but flood alleviation scheme truncates peaks. Mill sluice operation and, from 1990, flood retention reservoirs provide a degree of regulation. Runoff increased by sewage effluent.

Catchment: A rural catchment, developed mostly on clay. Significant land use change from the late 1980s (industrial/commercial development, By-pass etc) above Ashford.

40024 Bartley Mill St at Bartley Mill**EA Southern**

Station: Broad-crested weir with low flow notch. All flows contained. Station discontinued in 1981 but recommissioned in late 1990s. Sensibly natural flow regime - responsive but with significant natural baseflow support.

Catchment: A rural catchment in the Weald developed principally on Tunbridge Wells Sands and - in the headwaters - Wadhurst Clay.

40025 Brede at Brede Pumping Station**EA Southern**

Station: Flume. Calibrated to $3 \text{ m}^3\text{s}^{-1}$; low confidence in flows extrapolated above this threshold. Responsive regime. Powermill reservoir and abstraction borehole impact on the water balance.

Catchment: Small and largely impermeable catchment draining west to east. Mixed land use with significant woodland and scattered settlements; Battle is in the western headwaters.

40027 Sarre Penn at Calcott**EA Southern**

Station: Flat V (glass-fibre) weir, 1:10 cross-slope. Owned by Mid Kent Water. D/s channel control at high flows. Theoretical rating - confirmed by gaugings in low and medium ranges, zero flows possible. Chart recorder only. Decommissioned mid-1990s. All but exceptional flows contained, peak flows truncated at about $1.7 \text{ m}^3\text{s}^{-1}$ (max. processed stage). Patchy flow record prior to 1980. Natural regime.

Catchment: A mostly rural catchment developed on impervious Tertiary formations (London Clay predominates).

40029 Len at Lenside**EA Southern**

Station: Flat V weir, theoretically rated. Chart recorder only. Most flows contained but most peaks truncated at approx. $3.8 \text{ m}^3\text{s}^{-1}$. Dec. 2002 maximum generated by notable storm but flow is indicative only. Reliable springs sustain flows through summer months. Effluent returns from Leeds STW have major impact on flow pattern.

Catchment: Geology: Lower Greensand, Folkestone and Hythe Beds. Predominantly rural land use, although urbanised in lower catchment near confluence with the Medway.

40033 Dour at Crabble Mill**EA Southern**

Station: Flat V weir (1:20 cross-slope, capacity: $1 \text{ m}^3\text{s}^{-1}$) within concrete berms in brick-lined section, almost all flows contained. Modular. Theoretical rating - extends to $1.59 \text{ m}^3\text{s}^{-1}$ (exceeded in Feb/Mar 1995 and in early 2001 when outstanding flows (confirmed by current metering 3/2/01) reflect record groundwater levels and substantial urban runoff following $>40\text{mm}$ storm. VA station prior to 1984. Initially chart recorder only (now telemetry) also ornamental lakes u/s. Runoff reduced by substantial gw abstraction. Baseflow-dominated regime but urban fraction of catchment very responsive to notable storms.

Catchment: The Dour is a spring-fed Chalk stream (two main branches) draining to Dover. Rural headwaters but significant urban development in the lower valley above Crabble Mill.

41001 Nunningham Stream at Tilley Bridge**EA Southern**

Station: Compound thin-plate weir with compound critical depth flume. Plate weir (insensitive) used in summer to overcome drowning of flume and increase depth for 'wet fencing' u/s. Need to check data from plate weir changeover days. Many peaks appear truncated at around $9 \text{ m}^3\text{s}^{-1}$. Early flow records unreliable. Frequency of drowning reduced following d/s channel improvements - under non-modular conditions flows estimated using 41002. Essentially natural regime, although STW upstream. Gw augmentation during droughts (e.g. 1989/90).

Catchment: Varied topography developed on Hastings Beds - some permeable strata (Ashdown Sands). Land use is mainly arable with considerable woodland.

41002 Ash Bourne at Hammer Wood Bridge**EA Southern**

Station: Compound thin-plate weir with compound critical depth flume (with minor tilting). Plate weir used in summer (maintains depth for wet fencing u/s); insensitive and flow pattern can be erratic due to raising/lowering of plate. Frequency of drowning reduced following d/s channel improvements in 1953. Highest flows exceed the structure calibration. Limited storage in Ashburnham Lake. Minor net effect of abstractions and discharges but significant gw augmentation (from Ashdown Sands) in most summers - evidently artificial low flow pattern.

Catchment: A mainly impervious catchment (Wadhurst Clay) of rural character, with considerable woodland.

41003 Cuckmere at Sherman Bridge**EA Southern**

Station: Flat V weir (width 10m, cross-slope 1:10), high flows from VA station u/s at Arlington; all but exceptional flows contained, but peaks truncated at $c27 \text{ m}^3\text{s}^{-1}$ - common in 2000. Modular limit $c6 \text{ m}^3\text{s}^{-1}$, flows $>10 \text{ m}^3\text{s}^{-1}$ unreliable. New u/s cableway provides capability to upgrade high-flow rating. Prior to 1994: compound b-c weir (no flows 29/9/92 - 3/3/94) - drowned regularly (tidal influence); flows then assessed using fall-discharge method (adjustment discontinued). 1981 - peaks truncated at around $5 \text{ m}^3\text{s}^{-1}$ until c1990. Responsive flow pattern. Limited net impact of variations but Arlington pumped storage res. u/s.

Catchment: Relatively narrow catchment developed on mixed geology (mainly Hastings Beds and Gault Clay). Primarily a rural catchment with significant areas of woodland.

41004 Ouse at Barcombe Mills**EA Southern**

Station: In 1994, a 4-path ultrasonic gauge superseded (except for minimum flows) complex structure (weirs and sluices) - subject to drowning - sluice operation further complicates the derivation of discharges. Water utilisation in the catchment is complex; major abstraction located immediately u/s and Ardingly reservoir (2 km u/s) provides regulation. US was moved upstream of abstraction intake in 1999. High flow measurement problems remain.

Catchment: Geology: mixed - Hastings Beds (mainly permeable) predominate. A largely rural catchment with substantial woodland and scattered urban centres.

41005 Ouse at Gold Bridge**EA Southern**

Station: Flat V weir (crest: 10m wide, cross slope 1:10) commissioned 7/92, superseded a compound short-crested semi-circular weir (width 10.7m). Cableway for higher flows. Modular limit 8-10 m³s⁻¹. All but exceptional floods contained - no overtopping of flood banks in Oct 2000; 85 m³s⁻¹ c/m gauging following peak. But complex combination of drowning, circulatory effects (associated with inflows from a ditch carrying flows culverted under the A272) may occur at highest flows. Full flow record reprocessed in 2003. Releases from Ardingly res. (from 1978) have a substantial impact on low flows. STW and flood retention structures also have a limited influence on the responsive regime.

Catchment: Mixed geology with substantial permeable outcrops - particularly the Tunbridge Wells Sands. Diverse land use - chiefly rural with significant woodland but some urban centres.

41006 Uck at Isfield**EA Southern**

Station: Flat V (width 7.62m; 1:10 cross-slope) with cableway, crest tapping (not currently instrumented) and some non-standard elements (e.g. experimental fish-ladder,) constructed (in 1999) between the abutments of a pre-existing Crump weir (with crest tapping and capacity of c50 m³s⁻¹). Both original and existing weirs exhibit mid-range drowning (c10-30 m³s⁻¹). Cableway also installed in 1999 - improved high flow capability. Station is well sited d/s of railway embankment with large capacity bridge opening. All but very exceptional floods contained (by-passing commences at head of c2.4m). Flow record reprocessed in 2003. No substantial abstractions but discharge from STW (and operation of Uckfield Mill flood gates) can produce abrupt flow changes. Very responsive regime.

Catchment: Catchment geology is very mixed; Hastings Beds predominate. Above Isfield the catchment is rural with significant areas of woodland, but the Uckfield urban area is expanding.

41009 Rother at Hardham**EA Southern**

Station: Compound Crump weir and flood gate (installed in 1982) superseded a broad-crested weir. Lower Crump section acts as fish pass and flood gate is rarely used. Station drowns at 16 m³s⁻¹ or less (dependent on tide level); flows often truncated around this level (e.g. late-2000). High flows extrapolated from VA station at Fittleworth approx 3 km u/s. Critical site for low flows. Full combination of Crump weir and VA flows awaited. No data on NRFA 1977-98. Abstractions for for PWS (offtake is immediately u/s); minor spray irrigation impact.

41010 Adur W Branch at Hatterell Bridge**EA Southern**

Station: Three-bay rectangular critical-depth structure; flanking sections (each 2.16m wide) can be closed to concentrate flow in the central bay (0.864m). Stop-board removal can produce odd flow patterns. Flood flows bypass the structure. Almost all flood flows truncated at approx. 11 m³s⁻¹ (very common in 2000/01); few high flow gaugings. Sensibly natural - and very responsive - flow regime.

Catchment: A rural catchment developed principally on impervious formations - Weald Clay dominates.

41011 Rother at Iping Mill**EA Southern**

Station: Compound Crump profile weir (crests: 3.05m and 2 x 5.03m broad). Bankfull: 1.9m above crest. Non-modular during high flows (conveyance affected by growth of trees obstructing a d/s bridge; d/s siltation may also be a factor). New US d/s has high flow measurement capability. Bypassing (via mill channel) during exceptional floods. Station overtopped in 1968 flood, peak flow estimated at 100-150 m³s⁻¹. Many springs provide a large baseflow component but the Rother is very responsive to rainfall. Abstractions for spray irrigation and STW discharges affect the flow regime, particularly low flows - but limited impact overall. The Rother is influent above Iping Mill.

Catchment: Mixed geology; 60% pervious - large tracts of Lower Greensand. A mainly rural catchment with some urban development.

41012 Adur E Branch at Sakeham**EA Southern**

Station: Compound Crump profile weir (crests: 1.219m and 2 x 2.438m, rh crest is 0.01m higher than lh). Crest tapping (seldom used) removed in 1993-4 when weir crest and wingwalls replaced. Flows rarely corrected for frequent drowning due to d/s channel conditions (including sluices); high submergence ratios. Responsive regime. No substantial abstractions, small net import of water; Burgess Hill sewage effluent has substantial impact on low flows.

Catchment: Mixed geology - permeable headwaters but predominantly Weald Clay in lower reaches. Largely rural lower catchment but significant urban growth along the eastern catchment boundary (including Cuckfield, Burgess Hill and Haywards Heath).

41013 Huggletts Stream at Henley Bridge**EA Southern**

Station: Compound thin-plate weir with compound critical depth flume for higher flows. D/s dredging in 1952 facilitated modular operation (earlier data suspect) but intermittent drowning is still a factor. Responsive, essentially natural, flow regime but some gw augmentation (from Ashdown Sands) during droughts (e.g. 1989/90).

Catchment: Huggletts St. flows south from the main High Weald drainage divide. A rural catchment developed mostly on impervious formations - extensive tracts of Wadhurst Clay.

41014 Arun at Pallingham Quay**EA Southern**

Station: Flat V weir (installed in 1994) with (from 2002) US for high flows (calibration ongoing). Superseded an insensitive broad-crested weir (15m wide), with 0.03m fall along crest due to settlement. Limited gaugings to confirm rating. Despite cableway installation, velocity-area measurement is restricted by effects of tidal lag at high flows. Tides also cause drowning. All but exceptional floods contained (overtopped by 1974 flood) but most post-1979 peak flows truncated at about 55 m³s⁻¹. Flows comparable to the 1973 minimum occurred in several years. The Arun has a relatively natural, and very responsive, regime.

Catchment: Predominantly impervious (largely Weald Clay and Lower Greensand) catchment. Land use: mixed - basically rural, with substantial woodland. Growing urban fraction especially around Horsham.

41015 Ems at Westbourne**EA Southern**

Station: Asymmetrical compound Crump profile weir; crests: 0.61m (showing effects of erosion) and 4.12m broad. Theoretical rating. Modular throughout flow range. Differential drawdown can affect river level measurement. All flows contained but flows exceeded structure limit for significant periods in late 2000. Baseflow-dominated regime. Significant net export of water from the catchment (gw abstractions) but low flows augmented by compensation water (from borehole).

Catchment: The Ems - which is ephemeral over much of its length - is a Chalk stream draining the South Downs; Drift cover is minimal. A rural catchment with significant woodland and scattered settlements.

41016 Cuckmere at Cowbeech**EA Southern**

Station: Asymmetrical compound Crump profile weir (crests: 2.13m and 2.97m broad) with crest tapping - not currently used. Theoretical rating - supported by gaugings up to 0.6m stage. Very limited head during droughts. Weir drowns at around 6 m³s⁻¹. Structure capacity exceeded in large floods. Early data (1939-67) is of poorer quality and relates to low flows only. Responsive to rainfall on impervious fraction of catchment. STW discharges u/s, but earlier surface and gw abstractions have ceased.

Catchment: A rural catchment (with a significant urban fraction in the headwaters) developed on mixed geology (Hastings Beds predominate).

41017 Combe Haven at Crowhurst**EA Southern**

Station: Compound Crump profile weir (crests: 2.44m and 2 x 2.13m broad) subject to frequent drowning. Full range station. Poor differentiation between low flows over lengthy periods (repeated sequences of 0.02 m³s⁻¹ being common). Responsive regime. Earliest data less reliable due to subsidence of the weir.

Catchment: Mixed geology and land use. Mainly impervious formations (Wadhurst Clay) but with significant areas of Tunbridge Wells and Ashdown Sands. A predominantly rural catchment with some urban centres.

41018 Kird at Tanyards**EA Southern**

Station: Crump profile weir (8.7m broad - fall of 0.012m along crest due to settlement) with crest tapping - not currently used. Structure is insensitive and subject to drowning at low flows. Station decommissioned in 2001. Very minor impact of artificial influences on the exceptionally flashy flow regime.

Catchment: An impervious (Weald Clay) catchment given over to agriculture; some extensive woodland tracts.

41019 Arun at Alfoldean**EA Southern**

Station: Asymmetrical compound Crump profile weir (crests: 4.0m and 6.0m broad). Crest tapping not currently used; over-estimation of high flows (structure drowns frequently); but 1996-2002 flows truncated at c15 m³s⁻¹. 1983 minima under review (those of Aug. 1976 look more realistic). Stilling well leakage can influence water levels. Limited impact of artificial influences on responsive flow regime - small net augmentation due to sewage effluent, which can significantly affect low flow patterns.

Catchment: Principally an impervious (Weald Clay) catchment - mainly rural but includes Horsham.

41020 Bevern Stream at Clappers Bridge**EA Southern**

Station: Crump profile weir (crest: 6.0m broad, rather insensitive) with crest tapping - not currently used. Stream channel narrows d/s of structure but substantial fall below station; modular limit is about 8 m³s⁻¹. Bypassing occurs at high flows. No data from August 2005 due to the construction of a fish pass and subsequent instrumentation problems. Negligible impact of artificial influences on a responsive flow regime.

Catchment: Primarily an impervious (Weald Clay) catchment but N flowing tributaries from South Downs provide a significant baseflow. A rural catchment with considerable woodland.

41021 Clayhill Stream at Old Ship**EA Southern**

Station: Crump profile weir (crest: 3.0m broad) with crest tapping - structure drowns at around 2 m³s⁻¹. Insensitive at low flows (algal growth on crest can influence stage). Theoretical rating. Possible bypassing at notably high flows. Some (sporadic) early flow data available (at Southern Water) from 1955. Zero flows common in dry years.

Catchment: The Clayhill stream is ephemeral and drains an impervious (Weald Clay) catchment. Land use: almost exclusively rural with considerable woodland and scattered settlements.

41022 Lod at Halfway Bridge**EA Southern**

Station: Crump profile weir (crest: 7.05m broad) with crest tapping (easily blocked, not currently used but when in operation reduction factors of 0.8 assessed for high flows). All but highest flows modular. Rating confirmed to 10 m³s⁻¹ by gaugings but footbridge can control flows above about 40 m³s⁻¹. Some bypassing in exceptional floods. Minor flow regulation associated with u/s mill. Very responsive regime. Flows are sensibly natural - small net export of water due to gw abstraction.

Catchment: Primarily an impervious catchment with Weald Clay more extensive than pervious Lower Greensand. Steep topography in upper catchment. Rural with considerable woodland.

41023 Lavant at Graylingwell**EA Southern**

Station: Flat V weir; crest breadth 5m. Cross-slope 1:10, maximum head 1m. Weir capacity is 6 m³s⁻¹, bypassing during extreme events (e.g. Jan 1994 and Nov 2000 when peaks were around 8 m³s⁻¹ - based on c/m gaugings). Severe weed growth can cause structure to drown. Extended periods with zero flow. Baseflow-dominated regime but spring outflows can increase dramatically following exceptional rainfall. Runoff is substantially reduced by gw abstraction.

Catchment: The Lavant is an ephemeral stream draining the dip-slope of the South Downs (Chalk). A permeable catchment - sparsely populated in the headwaters. Land use: agricultural with significant woodland; some urban development close to Graylingwell.

41024 Shell Brook at Shell Brook**EA Southern**

Station: Flat V weir, 1:10 cross slope, from summer 1995, modified from the existing Crump profile weir (crest: 4.0m broad), station level remains unchanged. Runoff pattern changed fundamentally following the construction of Ardingly Res. (1978) immediately u/s.

Catchment: Catchment is mainly permeable Hastings Beds with Wadhurst Clay in the valley. A rural, heavily wooded basin.

41025 Loxwood Stream at Drungewick**EA Southern**

Station: Asymmetrical compound Crump profile weir (crests: 2.0m and 4.0m broad) with crest tapping. Full range - all but extreme flows contained; bunds rise from the wing walls to give station capacity of c57m³s⁻¹. Structure drowns at about 0.7m (may result from construction of an aqueduct d/s, high levels in the Arun can also be a factor). New high flow rating under development. Very responsive flow regime. Abstractions and discharges have a negligible impact on overall runoff but occasional anomalous behaviour at low flow.

Catchment: An impervious (mostly Weald Clay), rural catchment largely given over to agriculture; scattered settlements.

41026 Cockhaise Brook at Holywell**EA Southern**

Station: Crump profile weir (crest: 3.50m broad, renewed in 2002) for low and medium range flows. Velocity-area calibration for high flows has ceased and is incomplete (no cableway). All flows contained - training banks were constructed when the station was built. Flows become non-modular at approx. 2.6 m³s⁻¹. Limited impact of abstractions and discharges on river flow; small net loss.

Catchment: Geology: mixed - 50% permeable (chiefly Hastings Beds). A rural catchment with considerable areas of woodland.

41027 Rother at Princes Marsh**EA Southern**

Station: Crump profile weir (crest: 5.0m broad) with crest tapping - not currently used. Large capacity structure but modular limit is approx. 0.65m, primarily due to backwater effects of d/s road bridge - flows > 6 m³s⁻¹ should be treated with caution. D/s silt deposition can occasionally cause temporary drowning also. Mid-range gaugings suggest that rating may appreciably underestimate flow. Additional flow data available for prototype EM gauging station (1974-79) immediately d/s. Significant baseflow but responsive regime. Abstractions and discharges have a minor impact on flows - small net loss.

Catchment: Mixed geology - 50% permeable; Chalk predominates in the headwaters. A largely rural catchment but with woodland tracts and significant urban development in the lower catchment.

41028 Chess Stream at Chess Bridge**EA Southern**

Station: Rectangular flume (3.35m width) with a compound thin-plate weir (which is lowered onto the flume) for low flows - normally in place May to Nov; can result in modest discontinuities in processed flows. Flows remain modular in low and medium flow range. Drowning (d/s weedgrowth can be a factor) and bypassing a problem at very high flows. Very responsive regime but with spring-fed baseflow. No large abstractions, very minor effluent contribution to runoff. U/s penstock operation can influence flow pattern.

Catchment: Very mixed geology: The Chess Stream rises on the Chalk scarp of the South downs but lower catchment is largely impervious. Agriculture is the predominant land use; small but increasing urban fraction.

41029 Bull at Lealands**EA Southern**

Station: Flat V weir (crest width: 5m, cross-slope 1:10) constructed in 1978. Theoretically rated, most flows contained. An essentially natural and responsive flow regime with minimal abstraction.

Catchment: Rural catchment draining the High Weald. Mixed geology.

41031 Fulking Stream at Fulking**EA Southern**

Station: 90-degree V notch thin-plate weir (originally intended to be temporary). Chart recorder only. Replaced by similar structure d/s (in 2000) - less, prone to vandalism (originally sited in pub garden - hence missing data). Occasionally responsive but baseflow dominated regime (contributing area may differ appreciably from topographical CA), possibly influenced by gw abstraction.

Catchment: Very small catchment draining the north-facing escarpment of the South Downs (Chalk). Catchment area feeding spring is undetermined and varies seasonally (est. 1 sq.km). Rural, agricultural land use.

41033 Costers Brook at Cocking**EA Southern**

Station: Crump weir, crest width 1.22m. Chart recorder only. Damaged during Oct 1987 storm, subsequently reinstated but significant leakage around structure. Weir renovated in Jun 1996 to prevent leakage. Baseflow-dominated flow regime, influenced by gw abstraction. Catchment area topographically derived; true contributing area likely to differ and be subject to seasonal flux.

Catchment: Spring fed stream, issuing from north-facing scarp slope of the South Downs (Chalk).

41034 Ems at Walderton**EA Southern**

Station: Small pre-fabricated Crump weir (welded steel) monitoring the headwater flows of the Ems (ephemeral with lengthy periods of zero flow). Station decommissioned in 1984.

Catchment: The Ems drains the dip slope of the South Downs (Chalk).

41035 North at Brookhurst**EA Southern**

Station: Flat V weir, 1:10 cross-slope, 5m wide. Large modular range. No major abstractions or discharges. Very responsive regime with a minor baseflow (from the Greensand). Trace flows recorded in August 1995 and July 1996.

Catchment: A mainly impervious catchment developed on Weald Clay (some Horsham Stone) giving very rapid response times. Minor Greensand baseflow component from upper catchment. Rural with significant woodland and a number of small lakes.

41037 Winterbourne Stream at Lewes**EA Southern**

Station: Flat V replaced (in 1997) twin-crested (both 1.22m) Crump weir of steel construction (originally intended as temporary structure). Chart recorder only. Modular except for very high flows - when drowning can result from backing-up due to d/s culvert. Baseflow dominated regime. Runoff reduced by gw abstraction. Extended periods with zero flow.

Catchment: The Winterbourne drains the Chalk of the South Downs - negligible Drift cover. Some urbanisation near the catchment outfall. Significant arable farming in the valley.

42001 Wallington at North Fareham**EA Southern**

Station: Flat V weir (1:10 cross-slope, 6m wide) installed in 1991. Modular limit c1.0m; peaks truncated at c20 m³s⁻¹. Bypassing occurs before levels reach the top of the wing walls. Prior to 1991 - a compound critical-depth flume, flows truncated at around 10 m³s⁻¹ due to bypassing (missing data estimated using 42003). Flashy response but with appreciable baseflow - zero flow in 1976 only. Gw abstraction reduces runoff; spray irrigation can significantly reduce summer flows. Gw catchment < topographical catchment. No data 20/7-3/12/91 due to rebuilding.

Catchment: Permeable headwaters (Chalk) with impervious Eocene clays dominating below the headwaters. Largely rural but with significant urban development in the east of the catchment.

42003 Lymington at Brockenhurst**EA Southern**

Station: Compound thin-plate weir, width 7.3m, installed in 1996. Theoretically rated; structure limit 7.1 m³s⁻¹ but gaugings used to extent rating to c30 m³s⁻¹ in 2000. Bypassing occurs above 7 m³s⁻¹; most pre-1999 flows truncated at approx. 10 m³s⁻¹. Pre-1996: a thin-plate weir with V notch (no divide piers) - total breadth 8.48m - primarily for low and medium flows. Responsive regime with limited baseflow. Artificial influences have a negligible impact on flows, but land drainage has a long history within the catchment (and some wetland restoration began in 1997).

Catchment: Principally an impervious catchment (Tertiary clay; sand and gravel). Large tracts of heathland and forest - with valley bogs in the New Forest. Land use: mainly pasture with scattered small settlements; Brockenhurst is the only significant town.

42004 Test at Broadlands**EA Southern**

Station: Velocity-area station, difficult to calibrate - severe weed growth and an uneven velocity distribution. Hence flows from adjacent EM station (42013) often used to estimate or infill the Broadlands record. Flows can exceed $30 \text{ m}^3\text{s}^{-1}$ in very wet winters, e.g. 2000/01 and 1959/60 (when flows estimated). Baselow dominated regime but but some rapid runoff from the lower reaches of the Dun catchment. Topographic catchment slightly exceeds the drainage area. Considerable fish farming activity but sensibly natural flow regime.

Catchment: Highly permeable catchment (90% Chalk) but with some Tertiary deposits and some patchy Drift cover - alluvium in the lower valley. Downland given over largely to agriculture with a few urban centres.

42005 Wallop Brook at Broughton**EA Southern**

Station: Rectangular thin-plate weir (crest length confirmed as 6.009m in 2002; flows recalculated using this revised dimension). Theoretical rating. D/s weedgrowth can raise tailwater levels. Upper limit of the chart recorder has been exceeded on two occasions (including the late 1960 floods when flows estimated). Bypassing occurs at exceptionally high flows. Flows heavily influenced by PWS borehole $1 \text{ km} \text{ u/s}$; spray irrigation has a minor impact. The topographical catchment exceeds the gw catchment - may be only 36 sq.km. Sporadic missing data between 1992 and 1997 due to data logger problems.

Catchment: The Wallop Brook drains a permeable (100% Chalk) catchment - typical open downland of a rural character, the 'Wallops' are the only significant settlements.

42006 Meon at Mislingford**EA Southern**

Station: Flat V weir (breadth: 6.6m, theoretically rated - also gauged to 0.56m) superseded (in 2000) a critical depth flume (breadth: 3.66m, theoretical rating - flow limit: $5.7 \text{ m}^3\text{s}^{-1}$) u/s of a small five-arch bridge. Some local bypassing during flood flows. Some stage data missing during Dec 2000 flood but $c11 \text{ m}^3\text{s}^{-1}$ gauging completed near peak. Groundwater abstraction has a noticeable impact on the flow regime; small net export of water from the catchment.

Catchment: Predominantly a permeable catchment (Chalk - but considerable outcrops of the less permeable Lower and Middle Chalk); modest Drift cover. Impervious Reading Beds in the south. A rural catchment with some uncultivated downland and scattered settlements.

42007 Alre at Drove Lane Alresford**EA Southern**

Station: Crump profile weir (crest: 2.47m) with second Crump weir (crest: 1.5m, modest bypassing at highest flows) on a side channel. Structure limit: $4 \text{ m}^3\text{s}^{-1}$. No hifs prior to 1992. Pre-1969 monthly c/m results available - from 1956. Baseflow-dominated regime with narrow flow range but local surface runoff can generate very transitory peaks. From 1989, gw augmentation during drought conditions. Gw catchment (about 114 sq.km.) substantially exceeds topographical catchment.

Catchment: Principally a permeable catchment (Upper Chalk overlain in patches by clay-with-flints). Rural character - rolling downland of mixed farming; some woodland. Very limited urbanisation - but concentrated near to the gauging station. Extensive cress beds (may attenuate flood flows).

42008 Cheriton Stream at Swards Bridge**EA Southern**

Station: Crump profile weir (breadth: 3.0m), very wide approach channel. Rating confirmed by spot gaugings. Good hydrometric performance, all flows contained but drowns at high flows. The Cheriton Stream is ephemeral in its upper reaches. Very stable regime (surface runoff can generate minor hydrograph spikes). Low flows influenced by neighbouring Itchen augmentation scheme (from 1989) - slight reduction in discharge. Pre-1970 monthly series of gaugings available from the measuring authority. Contributing area differs considerably from topographical catchment.

Catchment: A very permeable (Upper Chalk) catchment - isolated patches of Clay-with-Flints occur on high ground. Rural land use with considerable downland and wooded areas (but Alresford is adjacent to the station).

42009 Candover Stream at Borough Bridge**EA Southern**

Station: Crump profile weir (crest: 2.99m broad). Modular throughout the range. All flows contained and no bypassing. Monthly gaugings available from 1956. Runoff reduced by surface gw abstractions but augmentation of low flows is important in notable droughts (e.g. 1976, 1997, 2005). Cress-bed management may produce hydrograph spikes. The gw and topographical divides differ considerably.

Catchment: An unresponsive catchment (Chalk with significant Drift cover). Many perennial springs - often supporting cress beds. Predominantly rural land use with some woodland.

42010 Itchen at Highbridge+Allbrook**EA Southern**

Station: Combined station: Crump weir (Highbridge, 7.75m; rating extended by hydraulic model in 2003 replaced, in 1971, a VA station which suffered from heavy weedgrowth - the latter can drown the present weir) plus thin-plate weir (Allbrook) in old navigation channel; fish pass installed in Nov/Dec 1993. Very rare bypassing, including Dec. 2000 - remarkable peak flow confirmed by gauging. Baseflow-dominated regime. GW augmentation during some droughts. GW catchment > SW. Artificial influences (gw abstractions, cress farms) have moderate but increasing impact on baseflow-dominated regime; small net export of water.

Catchment: Very permeable catchment (90% Chalk, some Clay-with-Flints cover). Land use: mainly arable and grassland, scattered settlements but Winchester is just upstream.

42011 Hamble at Frogmill**EA Southern**

Station: Crump profile weir (crest: 3.03m broad). Local bypassing during floods; peak flows truncated at $c8 \text{ m}^3\text{s}^{-1}$. New calibration derived (2003) - low confidence in flows > $9.6 \text{ m}^3\text{s}^{-1}$ (relatively rare). Flows significantly reduced by gw abstraction. Substantial baseflow but lower catchment is very responsive.

Catchment: A predominantly permeable (Chalk) catchment - the upper reaches of the Hamble are ephemeral - with some areas of Reading Beds. Land use: mainly rural - significant urban development in the lower catchment.

42012 Anton at Fullerton**EA Southern**

Station: Crump profile weir (crest: 4.75m broad, possible slight non-modularity at highest flows) with a complementary Crump profile weir (crest: 1m broad, commonly drowned - but carries small proportion of total flow) on a bypass channel. Full range. Water levels influenced by local mill sluice operation. Baseflow-dominated regime but surface runoff can generate short-lived events. Cress beds in headwaters. The gw catchment exceeds the topographical catchment area. Significant gw abstraction.

Catchment: An unresponsive (Chalk) catchment of rolling downland - the upper reaches of the Anton are ephemeral. Land use: rural with some expanding urban centres - Andover is 5km u/s.

42014 Blackwater at Ower**EA Southern**

Station: Crump profile weir (crest: 6.16m broad, slight variation in height across the crest), sharp bend d/s. Weir drowns at approx. 0.4m. Crest-tapping non-functional; velocity-area calibration used for medium and high flows up to 1.85m (approx. $10 \text{ m}^3\text{s}^{-1}$) includes allowance for floodplain discharge. Low confidence in flows > $6.1 \text{ m}^3\text{s}^{-1}$. Negligible net impact of artificial influences (cress beds and very minor amount of spray irrigation) on the responsive flow regime.

Catchment: A catchment of meadows, woodland and heath - with many small towns - underlain by Tertiary sands, gravels and clays (mainly impervious in the lower catchment).

42015 Dever at Weston Colley**EA Southern**

Station: Compound thin-plate V notch within Cipoletti weir (crest 3.6m), no divide piers; the thin-plate used to be removed during the winter. Notable high flows in early 1990 and 1995 unrecorded. Very stable, baseflow-dominated flow regime. Low flows influenced by gw augmentation scheme. Significant cress-bed development. Record ceased in December 1995.

Catchment: Principally a Chalk catchment with limited superficial deposits. Predominantly rural with some woodland.

42016 Itchen at Easton**EA Southern**

Station: Electromagnetic gauging station with insulated bed. Installed 1983 - calibration confirmed by c/m. Limited stage and velocity range makes for effective operation. Superseded a velocity-area station heavily affected by weed-growth. Largely natural, baseflow dominated, regime but gw augmentation during severe droughts.

Catchment: A predominantly Chalk catchment with significant patches of superficial deposits. Largely rural with some woodland and scattered settlements.

42017 Hermitage at Havant**EA Southern**

Station: Velocity-area station, trapezoidal section in formalised reach (grass berms). Well rated by c/m. All but exceptional flows contained. Station capacity around $14 \text{ m}^3\text{s}^{-1}$ but some truncation of peaks (at $c8 \text{ m}^3\text{s}^{-1}$, e.g. 2000). Chart stage record extends back to 1953. Jun-Aug 2000 flows under review. Responsive regime. Post-spring 2003, augmentation of high flows by diverted runoff from the adjacent Lavant Stream - when flows in latter > $0.28 \text{ m}^3\text{s}^{-1}$.

Catchment: A mainly impervious catchment - principally Reading Beds and London Clay. Intensive suburban development since the early 1960s, lower catchment now heavily urbanised.

42018 Monks Brook at Stoneham Lane**EA Southern**

Station: Flat V weir (1:10 cross-slope) with c/m calibration for high flows. High flow gauging at footbridge and ford about 200m u/s; trapezoidal concrete channel between ford and gauging station. Responsive regime. With the exception of 1995 and 1996, most peak flows truncated ($c2.7 \text{ m}^3\text{s}^{-1}$). Previously a velocity-area station (with piling stabilised banks).

Catchment: A mostly low-lying catchment developed on impervious Tertiary formations. Mixed land use: rural headwaters with considerable woodland, substantial urban development near the station (Chandler's Ford/Eastleigh).

42019 Tanners Brook at Millbrook**EA Southern**

Station: Velocity-area station in a trapezoidal concrete section. Initially a level only station but stage-discharge relation now established for all but the highest flows. Pre-1992 (and some later) peaks truncated at around $1 \text{ m}^3\text{s}^{-1}$. Responsive regime.

Catchment: A largely urban (Southampton) catchment developed on impervious Tertiary formations.

42020 Tadburn Lake at Romsey**EA Southern**

Station: Velocity-area station. Concrete channel. Calibration ongoing - treat high flows with caution. Hydrological research (mostly in the headwaters) undertaken initially by Southampton University.

Catchment: Linear catchment with rural headwaters; considerable woodland, but urbanised in lower reaches (Romsey). A largely impervious catchment developed mostly on Tertiary formations (principally Barton, Bracklesham and Bagshot Beds).

42023 Itchen at Riverside Park**EA Southern**

Station: Ultrasonic gauging station (multi-path with reflector). Tidal effects occasionally evident (dependant on d/s sluice operation). Flows artificially influenced by two 45 Ml/d surface water abstractions at Gaters Mill and Otterbourne and a large STW discharge at Eastleigh. Groundwater augmentation (in headwaters) can be important.

Catchment: Principally a rural, Chalk catchment but with appreciable urban growth near the outfall (where impervious Tertiary formations predominate).

42024 Test at Chilbolton (Total)**EA Southern**

Station: Two Electromagnetic gauging stations (buried coil): Chilbolton Main and Chilbolton Back Carrier; flows are summed. Monthly c/m results substantially extend the overall record. Sensibly natural flow regime.

Catchment: A Chalk catchment (with patches of Drift). Predominantly rural with significant woodland and scattered settlements - Whitchurch is the main town.

42025 Lavant Stream at Leigh Park**EA Southern**

Station: Velocity-area station in trapezoidal section. Rating poorly defined at low flows; gaugings also awaited to confirm rating for highest flows. Bypassed by flood flows above 3 m³s⁻¹. Responsive regime; evident urban influence. Since spring 2003 a proportion of flows >0.28 m³s⁻¹ diverted to the neighbouring hermitage catchment. Topographical CA greatly exceeds gw catchment.

Catchment: A largely impervious catchment, substantially urbanised below the headwaters.

42026 Wallop Brook at Bossington**EA Southern**

Station: Flat V weir. Occasional truncation of peak flows (e.g. Feb 2001). Baseflow dominated regime. Supersedes 42/5; CA increase of around 15%.

Catchment: The Wallop Brook drains a permeable (100% Chalk) catchment - typical open downland of a rural character, the 'Wallops' and Bossington are the only significant settlements.

42027 Dever at Bransbury**EA Southern**

Station: Electromagnetic gauging station. Supersedes 42/15. Baseflow dominated flow regime.

Catchment: Principally a Chalk catchment with limited superficial deposits. Predominately rural with some woodland.

101001 Eastern Yar at Alverstone Mill**EA Southern**

Station: Compound thin-plate weir. The archived 'gauged' flows incorporate an adjustment to allow for an u/s PWS abstraction - the record is thus partially naturalised. Station closed.

Catchment: A largely permeable catchment - the Eastern Yar rises as springs on the Chalk of St. Catherine's Down but Lower Greensand dominates the lower catchment. Very rural.

101002 Medina at Upper Shide**EA Southern**

Station: Ultrasonic station (at road bridge) installed in 1996 (no data Sep-Dec 96). Superseded trapezoidal critical depth flume, width 2.4m (with broad-crested c/m rated overflow weir for stages > 0.6m). Nov. 2000 peak under review. Small abstractions for irrigation. Flow reduced in 1985 by gw pumping tests. From 1989, low flows augmented by loW Conjunctive Use Scheme; also transfers to the Eastern Yar.

Catchment: Entirely rural, arable catchment. Fairly steep slopes in southern headwaters. Predominantly permeable: Chalk and Lower Greensand with some Gault Clay.

101003 Lukely Brook at Newport**EA Southern**

Station: Compound Crump weir. Total crest width 3.2m (upper crest: 2.4m wide; lower crest: 0.8m wide). Minimum in 1986; 1999 minimum under review. Gw abstractions u/s affect flow regime, water mill immediately d/s.

Catchment: The Lukely Brook drains the Bowcombe Valley - mostly Chalk with some impervious Tertiary formations near to the catchment outfall. Rural land use, but increasing urban development around Newport.

101004 Eastern Yar at Burnt House**EA Southern**

Station: Flat V weir, 1:10 cross slope. Limited head for long periods. Peak flows truncated at around 7.9 m³s⁻¹. Runoff reduced by surface and gw abstractions. From 1989, low flows augmented as part of the loW Conjunctive Use Scheme, but also regular abstraction u/s of 70-80 l/s.

Catchment: A largely permeable catchment - the Eastern Yar rises as springs on the Chalk of St. Catherine's Down but Lower Greensand dominates the lower catchment. Very rural.

101005 Eastern Yar at Budbridge**EA Southern**

Station: Flat V weir, cross-slope 1:10, 2.98m wide. Limited head for extended periods. Runoff reduced by surface and groundwater abstractions. From 1988, low flows augmented as part of the Isle of Wight Conjunctive Use Scheme.

Catchment: The Eastern Yar rises on the Chalk of St. Catherine's Down, below the permeable headwaters Upper Greensand and Gault Clay dominate. Very rural, Godshill is the main settlement.

101006 Wroxall Stream at Waightshale**EA Southern**

Station: Flat V weir (2.90m wide, cross-slope 1:10). Limited head for extended periods. Very artificial low flow pattern. Runoff reduced by gw abstractions especially after the commissioning of the loW Conjunctive Use Scheme (in 1989). Extensive periods of missing flows between Jul 92 and Dec 95. Station closed.

Catchment: A rural catchment trending N-S from the Chalk of St. Boniface Down. Some Upper Greensand and Gault Clay below the headwaters.

101007 Scotchells Brook at Burnt House**EA Southern**

Station: Flat V weir, 1:10 cross slope. Peak flows truncated at just below 6 m³s⁻¹. Long periods with negligible head. Runoff reduced by gw abstractions.

Catchment: Chalk headwaters thence Greensand and Gault formations (largely impermeable). Land use: agricultural in upper reaches, more varied below (some runoff from Shanklin/Sandown).

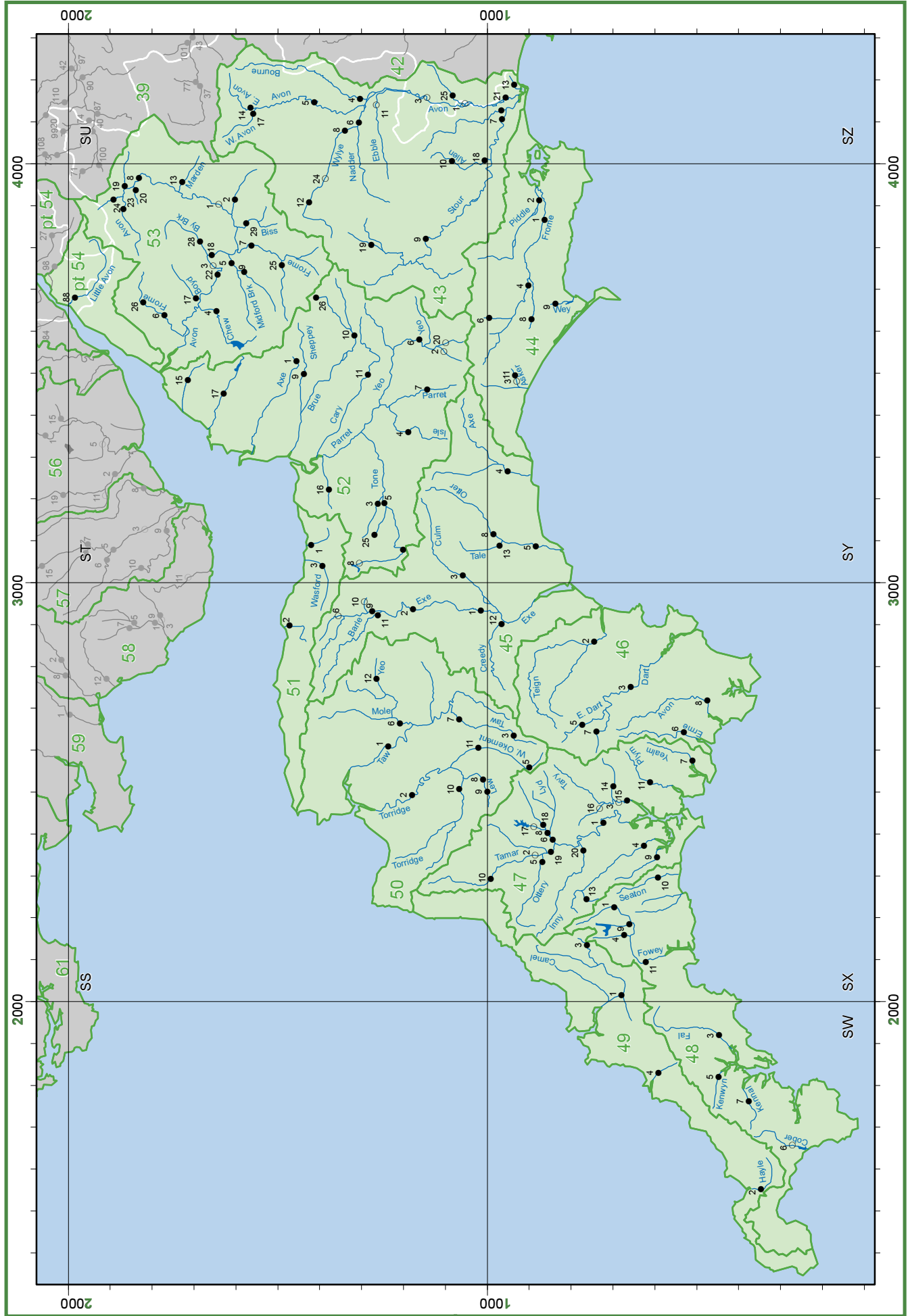
GAUGING STATION REGISTER

Region: EA South West

Area: 20,802 km²

Average rainfall (1971-2000): 1043 mm

Map 9: SOUTH WEST



Gauging Station Register I

Station number	River name	Station name	Grid reference	Catchment area	Station type	SLA	Period of record	Percent complete	Base Flow Index	Mean ann. rain (mm)	Mean ann. runoff (mm)	Mean ann. loss (mm)	Mean flow (m ³ /s)	Q95 (m ³ /s)	Q70 (m ³ /s)	Q50 (m ³ /s)	Q10 (m ³ /s)	Median ann. flood (m ³ /s)	Peak flow (m ³ /s)	Date of peak	7-day min. (m ³ /s)	Date of min.
43001*	Avon	Ringwood	SU143054	1649.8 VA			1960-65	100	.88	813	340	473	20.06	5.86	11.61	15.57	38.2		116.1	09/10/60		
43003*	Avon	East Mills	SU158144	1477.8 MIS			1965-02	97	.91	843	333	510	15.49	5.62	8.79	12.31	29.5	47.0	81.7	11/03/67	2.67	25/08/76
43004	Bourne	Laverstock	SU157304	163.6 C			1965-05	97	.91	792	145	647	0.78	0.20	0.37	0.55	1.5	2.3	8.0	03/01/03	0.05	21/08/76
43005	Avon	Amesbury	SU151413	323.7 C	*		1965-05	100	.91	779	350	429	3.55	1.12	1.92	2.74	6.8	11.1	28.2	03/01/03	0.19	20/08/76
43006	Nadder	Wilton	SU098308	220.6 C	*		1966-05	100	.82	913	417	496	2.90	0.93	1.45	2.14	5.8	16.5	47.9	28/12/79	0.53	25/08/76
43007	Stour	Throop	SZ113958	1073.0 CC	*		1973-05	100	.65	877	408	469	13.81	2.60	4.84	8.01	31.2	113.7	292.5	28/12/79	1.23	24/08/76
43008	Wylfe	South Newton	SU086343	445.4 C	*		1967-05	100	.89	860	290	570	4.07	1.14	1.94	2.90	8.7	13.0	29.8	02/02/95	0.60	25/08/76
43009	Stour	Hammoon	ST820147	523.1 CC	*		1968-05	100	.32	873	460	413	7.57	0.64	1.21	2.34	20.7	119.9	236.6	27/12/79	0.31	23/08/76
43010	Allen	Loverley Mill	SU006085	94.0 C			1970-05	77	.85	890	350	540	1.05	0.17	0.32	0.58	2.6	3.8	7.4	15/12/00	0.10	31/08/95
43011*	Ebble	Bodenham	SU165265	109.0 C VA			1970-76	88	.85	900	246	654	0.76	0.11	0.47	0.56	1.6					
43012	Wylfe	Norton Bavant	ST909428	112.4 C			1971-05	100	.87	949	314	635	1.11	0.46	0.62	0.82	2.1	4.7	7.3	03/02/90	0.25	07/08/76
43013	Mude	Somerford	SZ184936	12.4 C			1971-05	37	.57	815	243	572	0.10	0.01	0.04	0.06	0.2	1.2	2.1	08/12/82	0.00	06/09/76
43014	East Avon	Upavon	SU133559	85.8 C	*		1971-05	100	.89	779	304	489	0.82	0.44	0.58	0.70	1.3	3.8	6.4	30/10/00	0.32	20/08/76
43017	West Avon	Upavon	SU133559	84.6 C	*		1971-05	100	.71	781	258	523	0.69	0.11	0.25	0.41	1.6	5.6	11.0	03/02/90	0.03	25/08/76
43018	Allen	Walford Mill	SU008007	176.5 C	*		1974-05	100	.91	878	344	534	1.93	0.33	0.67	1.21	4.6	7.3	17.3	13/12/00	0.07	23/08/76
43019	Shreen Water	Colesbrook	ST807278	29.1 C			1973-05	100	.68	909	589	320	0.55	0.19	0.29	0.38	1.0	13.5	22.9	30/10/00	0.14	20/08/76
43021	Avon	Knapp Mill	SZ156943	1706.0 US	*		1975-05	97	.90	842	363	479	19.50	6.16	10.25	15.17	40.1				2.51	22/08/76
43022	Moors River	Hurn Court	SZ126969	143.3 C			1992-05	100	.64	900	375	525	1.70	0.39	0.66	1.03	3.6		36.3	25/12/99	0.25	19/08/95
43024*	Wylfe	Stockton Park	ST975393	254.8 EM			1994-97	100	.89	953	277	676	2.20	0.70	0.91	1.36	4.3		16.7	01/02/95		
43025	Dockens Water	Moyles Court	SU161083	17.2 FV			2001-05	100	.39	818	413	405	0.22	0.04	0.07	0.11	0.5					
44001	Frome	East Stoke Total	SY866867	414.4 MIS	*		1965-05	95	.84	1020	487	533	6.38	2.16	3.51	5.11	12.2	23.9	29.7	30/12/93	1.05	26/08/76
44002	Piddle	Baggs Mill	SY913876	183.1 FL	*		1963-05	100	.89	979	421	558	2.43	0.78	1.24	1.87	4.9	8.3	11.9	08/01/68	0.40	20/08/76
44003*	Asker	Bridport	SY470928	49.1 CC			1966-97	100	.65	975	372	603	0.58	0.20	0.30	0.40	1.1	12.4	35.3	05/11/00	0.12	25/08/76
44004	Frome	Dorchester Total	SY708903	206.0 C			1971-05	94	.83	1072	474	598	3.09	0.86	1.54	2.36	6.2	16.0	23.1	27/12/79	0.30	26/08/76
44006	Sydling Water	Sydling St Nicholas	SY632997	12.4 C	*		1969-05	100	.87	1096	487	609	0.19	0.06	0.10	0.15	0.4	0.9	1.7	31/12/00	0.04	21/08/76
44008	Sth Winterbourne	W'bourne Steepleton	SY629897	19.9 FV			1974-05	66	.88	1022	152	870	0.10	0.01	0.03	0.05	0.2	0.3	2.0	01/01/03		
44009	Wey	Broadway	SY666839	7.0 FV	*		1975-05	100	.94	920	1463		0.32	0.09	0.16	0.23	0.7	1.7	5.5	30/12/93	0.06	07/10/90
44011	Asker	East Bridge Bridport	SY470928	48.5 FV	*		1996-05	100	.65	972	456	516	0.69	0.23	0.35	0.48	1.3				0.17	04/09/05
45001	Exe	Thorventon	SS936016	600.9 FVVA	*		1965-05	100	.51	1295	844	451	15.98	1.98	5.04	9.05	38.6	166.4	492.6	04/12/60	0.47	24/08/76
45002	Exe	Stoodleigh	SS943178	421.7 VA			1960-05	98	.51	1404	928	476	12.36	1.69	4.16	7.50	29.0	144.9	331.3	04/12/60	0.43	25/08/76
45003	Culm	Wood Mill	ST021058	226.1 FVVA	*		1962-05	100	.54	985	527	458	3.74	1.02	1.62	2.31	7.7	71.8	201.2	11/07/68	0.47	25/08/76
45004	Axe	Whitford	SY262953	288.5 CC	*		1964-05	100	.48	1034	583	451	5.30	1.24	1.99	2.86	11.2	103.2	251.8	11/07/68	0.48	24/08/76
45005	Otter	Dotton	SY087885	202.5 FVVA	*		1962-05	100	.53	991	488	503	3.12	0.93	1.36	1.82	6.3	70.9	346.7	11/07/68	0.46	24/08/76
45006*	Quarrie	Enterwell	SS919356	20.4 CB			1964-67	100	.56	1504	1107	397	0.69	0.13	0.27	0.43	1.5					
45008	Otter	Fenny Bridges	SY115986	104.2 VA			1974-05	100	.49	1063	641	422	2.13	0.53	0.82	1.16	4.5	53.3	184.3	07/12/00	0.22	24/08/76
45009	Exe	Pixton	SS935260	159.7 VA	*		1966-05	100	.51	1446	900	546	4.52	0.66	1.38	2.44	11.3	46.3	70.2	30/10/00	0.11	24/08/76
45010*	Haddeo	Hartford	SS952294	50.0 VA			1973-79	100	.56	1323	699	624	1.10	0.08	0.39	0.69	2.5				0.02	22/08/76
45011	Barle	Brushford	SS927258	128.0 VA			1968-05	29	.53	1632	1164	468	4.65	0.61	1.80	3.08	10.8				0.22	24/08/76
45012	Creedy	Cowley	SX901967	261.6 VA	*		1964-05	99	.46	920	441	479	3.66	0.32	0.78	1.63	8.8	78.4	196.0	08/12/00	0.09	25/08/76
45013	Tale	Fairmile	SY088972	34.4 VA			1978-05	90	.53	932	393	539	0.43	0.12	0.19	0.24	0.9	9.6	25.9	07/07/97	0.07	25/08/94
46002	Teign	Preston	SX856746	381.0 VA	*		1956-05	98	.55	1282	762	520	9.13	1.10	2.77	5.01	22.0	122.3	312.8	30/09/60	0.34	18/09/03
46003	Dart	Austins Bridge	SX751659	247.6 VA	*		1958-05	98	.52	1852	1420	432	11.02	1.50	4.05	6.90	24.8	234.4	496.6	27/12/79	0.61	25/08/76
46005	East Dart	Believer	SX657775	21.5 VA	*		1964-05	100	.44	2091	1830	261	1.24	0.19	0.43	0.69	2.7	37.6	60.7	27/12/79	0.10	25/08/76
46006	Erme	Ermington	SX642532	43.5 VA			1973-05	100	.48	1783	1374	409	1.89	0.25	0.63	1.06	4.4	50.2	93.5	23/06/91	0.09	23/08/76
46007	West Dart	Dunnabridge	SX643742	47.9 VA			1972-05	70	.45	2081	1666	415	2.56	0.37	0.88	1.41	5.8	70.3	131.9	27/12/79	0.15	22/08/76
46008	Avon	Loddiswell	SX719476	102.3 VA	*		1971-05	74	.51	1613	1128	485	3.51	0.46	1.09	2.04	8.2	66.5	89.0	27/12/79	0.17	25/08/76
47001	Tamar	Grunnislake	SX426725	916.9 VA	*		1956-05	100	.46	1251	773	478	22.38	2.12	6.08	11.68	55.4	266.0	714.2	28/12/79	0.61	25/08/76
47002*	Tamar	Werrington	SX343886	232.1 VA			1956-61	100	.34	1105	869	236	5.84	0.11	1.05	2.79	14.5		220.9	27/10/60		
47003*	Tavy	Lowell	SX475652	205.9 MIS			1957-80	31	.46	1555	984	571	5.80	0.52	1.53	3.40	13.7		141.8	27/09/74		
47004	Lynher	Pillaton Mill	SX369626	135.5 VA	*		1963-05	100	.59	1466	1036	430	4.47	0.70	1.63	2.82	10.1	48.2	107.0	28/12/79	0.26	25/08/76
47005	Ottery	Werrington Park	SX337866	120.7 VA	*		1963-05	76	.39	1231	791	440	2.98	0.16	0.61	1.30	7.5	64.7	109.8	27/12/79	>0.00	19/08/95
47006	Lyd	Lifton Park	SX389842	222.9 FLVA			1963-05	73	.51	1276	724	552	5.00	0.62	1.67	2.93	11.7	78.5	274.7	04/11/67	0.16	25/08/76
47007	Yealm	Puslinch	SX574511	54.9 FLVA			1963-05	97	.56	1461	954	507	1.67	0.20	0.58	1.05	3.9	22.3	50.9	31/12/00	0.04	25/08/76
47008	Thrushel	Tinhay	SX398856	112.7 CC	*		1969-05	100	.43	1185	650	535	2.31	0.12	0.60	1.17	5.8	41.8	125.3	27/12/79	0.01	15/08/76
47009	Tiddy	Tideford	SX344596	37.2 C	*		1969-05	100	.61	1319	800	519	0.94	0.14	0.32	0.59	2.3	6.2	10.5	20/01/99	0.07	24/08/76
47010	Tamar	Crowford Bridge	SX290991	76.7 CC			1972-05	100	.30	1210	885	325	2.15	0.09	0.31	0.73	4.8	16.5	22.7	19/12/99	0.01	02/08/75
47011	Plym	Carn Wood	SX522613	79.2 CC	*		1971-05	44	.48	1637	911	726	2.25	0.31	0.66	1.24	5.3	47.7	117.0	27/12/79	0.13	25/08/76
47013	Withey Brook	Bastreet	SX244764	16.2 CC			1972-05	100	.54	1728	1156	572	0.60	0.09	0.19	0.35	1.3	12.0	24.2	18/12/99	0.04	21/09/01
47014	Walkham	Horrabridge	SX513699	44																		

Gauging Station Register I cont'd

Station number	River name	Station name	Grid reference	Catchment area	Station type	SLA	Period of record	Percent complete	Base Flow Index	Mean ann. rain (mm)	Mean ann. runoff (mm)	Mean ann. loss (mm)	Mean flow (m ³ /s)	Q95 (m ³ /s)	Q70 (m ³ /s)	Q50 (m ³ /s)	Q10 (m ³ /s)	Median ann. flood (m ³ /s)	Peak flow (m ³ /s)	Date of peak	7-day min. (m ³ /s)	Date of min.
50003	Taw	Sticklepath	SX634938	15.6	TPVA		1980-05	11	.52	1780	1216	564	0.59	0.09	0.22	0.39	1.3					
50005	West Okement	Vellake	SX557903	13.3	MIS		1975-05	98	.31	2058	1661	397	0.69	0.08	0.15	0.32	1.6	21.3	47.1	23/08/04		
50006	Mole	Woodleigh	SS660211	327.5	VA	*	1965-05	100	.47	1348	848	500	8.81	0.86	2.56	4.90	21.6	119.7	189.9	31/10/98	0.21	25/08/76
50007	Taw	Taw Bridge	SS673068	71.4	VA	*	1973-05	96	.47	1267	876	391	1.97	0.16	0.50	0.97	5.0	29.7	50.5	30/10/00	0.02	24/08/76
50008	Lew	Gribbleford Bridge	SS528014	71.1	VA	*	1988-05	98	.32	1221	675	546	1.55	0.03	0.24	0.58	4.1	56.0	110.3	18/12/99	0.00	03/09/95
50009	Lew	Norley Bridge	SX501999	20.2	VA		1988-05	100	.36	1230	770	460	0.50	0.02	0.09	0.21	1.3	18.3	24.7	18/12/99	>0.00	19/08/95
50010	Torridge	Rockhay Bridge	SS507070	257.8	VA		1988-05	100	.35	1263	891	372	7.29	0.35	1.37	2.95	18.9	101.5	124.7	19/12/99	0.10	02/09/95
50011	Okement	Jacobstowe	SS592019	82.1	MIS	*	1973-05	69	.48	1518	978	540	2.52	0.33	0.75	1.36	6.0	59.2	170.0	27/12/79	0.10	24/08/76
50012	Yeo	Veraby	SS775267	53.7	VA		1968-05	91	.43	1351	982	369	1.66	0.18	0.44	0.83	3.7	19.1	30.3	20/08/76		
51001	Doniford Stream	Swill Bridge	ST088428	75.8	FV	*	1967-05	98	.67	950	444	506	1.06	0.20	0.39	0.67	2.4	12.3	56.9	10/07/68	0.09	17/08/76
51002	Horner Water	West Luccombe	SS898458	20.8	C		1973-05	83	.60	1530	715	815	0.46	0.07	0.17	0.29	1.1	11.0	40.8	30/10/00	0.02	23/08/76
51003	Washford	Beggearn Huish	ST040395	36.3	FV		1966-05	92	.62	1202	761	441	0.84	0.11	0.30	0.51	2.0	6.8	11.6	07/12/00	0.08	15/09/90
52001	Axe	Wookey	ST527458	18.2	FL		1956-05	31	.70	1024	950	74	0.54	0.12	0.29	0.42	1.1	4.2	6.3	01/01/03	0.07	05/11/59
52002*	Yeo	Sutton Bingham Res.	ST555116	30.3	MIS		1956-68	100	.19	997	419	578	0.40	0.03	0.03	0.04	1.3		35.8	10/07/68		
52003	Halsewater	Halsewater	ST206253	87.8	FV		1961-05	100	.72	890	405	485	1.13	0.28	0.51	0.75	2.3	12.2			0.15	21/08/76
52004	Isle	Ashford Mill	ST361188	90.1	C VA	*	1962-05	100	.48	913	476	437	1.35	0.28	0.47	0.71	2.9	27.2	39.9	30/10/00	0.13	06/09/76
52005	Tone	Bishops Hull	ST206250	202.0	C VA	*	1961-05	100	.60	1002	474	528	3.01	0.61	1.14	1.82	6.7	43.6	79.7	30/10/00	0.19	20/08/76
52006	Yeo	Pen Mill	ST573161	213.1	C VA	*	1963-05	100	.42	904	374	530	2.52	0.33	0.62	1.10	6.3	50.1	149.8	15/02/63	0.13	18/08/76
52007	Parrett	Chiselborough	ST461144	74.8	C	*	1966-05	100	.41	926	504	422	1.19	0.18	0.32	0.51	2.5	31.3	173.0	30/05/79	0.07	22/08/76
52008*	Tone	Clatworthy Reservoir	ST043312	18.1	MIS		1960-68	100	.45	1190	517	673	0.32	0.06	0.07	0.08	0.9		5.0	27/10/60		
52009	Sheppey	Fenny Castle	ST498439	59.6	C VA	*	1964-05	99	.67	980	574	406	1.08	0.26	0.51	0.80	2.2	7.4	9.3	10/07/68	0.13	02/10/64
52010	Brue	Lovington	ST590318	135.2	C VA	*	1964-05	99	.48	902	447	455	1.93	0.25	0.54	0.98	4.9	36.3	142.0	30/05/79	0.10	22/08/76
52011	Cary	Somerton	ST498291	82.4	CCVA	*	1965-05	100	.38	749	313	436	0.82	0.05	0.12	0.28	2.1	9.6	13.7	01/06/79	>0.00	25/08/76
52014	Tone	Greenham	ST078202	57.2	FVVA		1967-05	89	.58	1153	560	593	1.03	0.14	0.37	0.62	2.4	13.3	26.8	07/12/00		
52015	Land Yeo	Wraxall Bridge	ST483716	23.3	C	*	1971-05	84	.70	953	361	592	0.27	0.06	0.11	0.17	0.6	3.4	7.1	20/01/99	0.01	05/09/76
52016	Currypool Stream	Currypool Farm	ST221382	15.7	C VA	*	1971-05	100	.71	948	431	517	0.21	0.06	0.10	0.15	0.4	2.7	7.7	01/12/76	0.04	24/08/76
52017	Congresbury Yeo	Iwood	ST452631	66.6	C		1973-05	65	.66	994	369	625	0.78	0.22	0.35	0.49	1.6	7.9	12.9	15/10/80	0.15	15/10/89
52020*	Gallica Stream	Gallica Bridge	ST571100	16.4	MIS		1966-78	94	.26	1008	456	552	0.25	0.01	0.04	0.08	0.6				0.00	25/08/76
52025	Hillfarrance	Milverton	ST113270	27.8	FV		1992-05	64	.68	1135	624	511	0.54	0.12	0.22	0.36	1.2	7.6	11.3	07/12/00	0.10	19/08/95
52026	Alham	Higher Alham	ST679411	5.1	FV		1983-05	97	.74	1050	911	139	0.15	0.03	0.06	0.11	0.3	1.3	3.8	10/10/00	0.02	29/09/03
53001*	Avon	Melksham	ST903641	665.6	VA		1953-80	100	.54	781	319	462	6.70	0.99	2.55	4.01	15.1	52.3	195.4	10/07/68	0.33	30/10/55
53002	Semington Brook	Semington	ST907605	157.7	VA		1953-05	100	.58	750	299	451	1.49	0.28	0.61	0.93	2.8	14.2			0.10	11/08/76
53003*	Avon	Bath St James	ST751651	1595.0	VA		1939-69	94	.63	844	393	451	20.47	2.12	8.95	14.16	45.2	134.8	365.7	05/12/60		
53004	Chew	Compton Dando	ST648647	129.5	FL		1958-05	98	.62	1020	289	731	1.17	0.34	0.51	0.69	2.3	18.8	226.0	10/07/68	0.15	24/08/76
53005	Midford Brook	Midford	ST763611	147.4	FL	*	1961-05	100	.62	991	490	501	2.26	0.42	0.88	1.44	5.0	29.6	55.2	10/07/68	0.17	20/08/76
53006	Frome(Bristol)	Frenchay	ST637772	148.9	FL	*	1961-05	100	.39	817	365	452	1.71	0.19	0.44	0.76	4.2	31.6	70.0	10/07/68	0.08	09/08/76
53007	Frome(Somerset)	Tellisford	ST805564	261.6	FL	*	1961-05	100	.52	978	462	516	3.81	0.62	1.32	2.17	8.7	57.8	113.2	11/07/68	0.21	25/08/76
53008	Avon	Great Somerford	ST966832	303.0	CC	*	1964-05	100	.58	830	348	482	3.33	0.35	0.83	1.83	8.1	36.7	108.3	11/07/68	0.12	26/08/76
53009	Wellow Brook	Wellow	ST741581	72.6	FL	*	1966-05	100	.62	1031	567	464	1.30	0.24	0.50	0.87	2.9	13.2	30.1	10/07/68	0.09	13/08/76
53013	Marden	Stanley	ST955729	99.2	FL	*	1970-05	100	.64	769	389	380	1.22	0.26	0.48	0.79	2.6	15.4	43.3	30/10/00	0.11	21/08/76
53017	Boyd	Bitton	ST681698	47.9	FV	*	1973-05	100	.45	827	371	456	0.56	0.05	0.14	0.26	1.4	12.8	27.7	30/05/79	0.01	18/08/76
53018	Avon	Bathford	ST785670	1552.0	VA	*	1969-05	100	.58	848	367	481	18.00	2.73	6.10	10.40	41.0	171.2	272.7	30/10/00		
53019	Woodbridge Brook	Crabb Mill	ST946866	46.6	TP		1969-05	100	.33	762	399	363	0.58	0.03	0.11	0.20	1.1				0.00	20/09/76
53020	Gauze Brook	Rodbourne	ST937840	28.2	TP		1968-05	100	.50	811	306	505	0.28	0.02	0.05	0.13	0.7	3.6	25.1	29/10/00	>0.00	16/08/76
53022	Avon	Bath ultrasonic	ST738651	1605.0	US	*	1976-05	42	.57	863	435	428	21.98	3.55	7.21	12.83	50.5		310.0	28/12/79	2.48	18/10/03
53023	Sherston Avon	Fosseway	ST891870	89.7	FV	*	1976-05	99	.65	868	348	520	0.98	0.12	0.25	0.57	2.4	7.6	13.6	30/10/00	0.08	15/09/80
53024	Tetbury Avon	Brokenborough	ST914893	73.6	FV		1978-05	100	.61	860	295	565	0.69	0.07	0.14	0.35	1.6				0.03	20/10/90
53025	Mells	Vallis	ST757491	119.0	C		1980-05	100	.58	1098	456	642	1.72	0.24	0.57	1.08	4.0	21.5	40.3	07/10/93	0.12	07/09/89
53026	Frome (Bristol)	Frampton Cotterell	ST667822	78.5	C		1978-05	100	.41	838	415	423	1.03	0.10	0.25	0.45	2.5	12.3	22.3	30/10/00	0.03	10/08/90
53028	By Brook	Middlehill	ST813688	102.0	FV	*	1982-05	100	.65	901	501	400	1.62	0.23	0.51	0.96	4.0	10.7	13.8	02/01/03	0.14	18/09/90
53029	Biss	Trowbridge	ST857576	77.6	US		1984-05	100	.50	789	342	447	0.84	0.14	0.27	0.42	1.9	12.1	18.4	30/10/00	0.07	20/08/97
54088	Little Avon	Berkeley Kennels	ST683988	134.0	VA		1978-04	94	.56	836	260	576	1.10	0.22	0.41	0.69	2.2	24.7	76.4	29/10/00	0.13	02/10/97

Gauging Station Register II

Station number	River name	Station name	Catchment area	Sensitivity	Bankfull/structurefull	Factors affecting runoff	Descriptors				Elevation				Bedrock			Superficial			Landuse						
							BFIHOST	FARL	PROPWET	DPSBAR	Station level (mOD)	10 percentile (mOD)	50 percentile (mOD)	90 percentile (mOD)	Maximum level (mOD)	High perm. (%)	Moderate perm. (%)	Very low perm. (%)	Gen. high perm. (%)	Mixed perm. (%)	Gen. low perm. (%)	Woodland (%)	Arable/horticultural (%)	Grassland (%)	Mountain/heath/bog (%)	Urban extent (%)	
43001	* Avon	Ringwood	1649.8		116.0	P	.87	0.977	34	62	14	64	122	182	294	75	14	3	10	3	3	12	38	40	1	H	2
43003	* Avon	East Mills	1477.8			N	.89	0.985	34	64	27	79	127	185	294	80	16	3	8	3	3	10	39	42	<1		2
43004	Bourne	Laverstock	163.6	13	8.6	N	.95	1.000	34	51	46	83	125	185	265	97	3	0	10	1	2	10	40	39	0		2
43005	Avon	Amesbury	323.7	10	1.4	G	.90	1.000	34	51	67	100	129	178	294	74	26	0	8	2	3	9	33	49	0		1
43006	Nadder	Wilton	220.6	19	43.0	N	.76	0.976	35	79	51	92	136	188	275	46	41	13	<1	2	8	16	49	30	<1		1
43007	Stour	Throop	1073.0	4	128.0	PGE	.66	0.988	35	54	4	40	83	155	276	49	13	31	9	5	3	9	46	36	1	H	2
43008	Wyle	South Newton	445.4	7	36.9	N	.94	0.976	35	70	56	98	140	196	284	90	10	<1	5	3	<1	9	31	51	<1		1
43009	Stour	Hammoor	523.1	13	60.0	PG	.44	0.992	36	50	41	59	91	153	273	18	24	58	4	4	<1	7	45	43	1	H	1
43010	Allen	Loverley Mill	94.0	12		PGE	.94	0.985	35	65	37	59	96	189	276	100	<1	0	9	0	9	10	54	29	<1		1
43011	* Ebble	Bodenham	109.0	10		N	.94	0.984	35	95	42	76	127	182	263	97	3	0	4	2	6	6	55	31	<1		1
43012	Wyle	Norton Bavant	112.4	15	13.0	GE	.89	0.975	35	74	97	119	167	216	284	64	34	2	<1	1	0	13	43	34	<1		3
43013	Mude	Somerford	12.4	110	2.8	P	.66	0.978	33	31	6	14	35	62	77	0	0	0	84	0	0	37	32	22	2	H	3
43014	East Avon	Upavon	85.8	9	6.0	N	.84	1.000	32	55	92	110	139	185	292	40	60	0	7	2	9	11	51	32	0		1
43017	West Avon	Upavon	84.6	28	9.2	G	.87	1.000	34	43	92	107	125	191	294	59	41	0	5	7	0	11	55	30	0		1
43018	Allen	Walford Mill	176.5	19	14.1	PG	.91	0.979	35	52	19	37	78	163	276	94	<1	2	8	2	7	9	55	29	<1		1
43019	Shreen Water	Colesbrook	29.1	10	6.8	G	.57	0.993	35	52	72	85	113	179	245	42	20	38	0	0	0	5	43	47	<1		2
43021	Avon	Knapp Mill	1706.0		55.0	P	.86	0.977	34	61	1	55	120	181	294	73	13	3	12	4	3	13	37	40	2	H	2
43022	Moors River	Hurr Court	143.3				.64	0.978	35	32	6	16	36	96	193	22	0	19	11	4	2	25	24	26	9	H	7
43024	* Wyle	Stockton Park	254.8				.93	0.988	35	76	80	109	158	207	284	82	17	<1	4	2	<1	12	30	48	<1		1
43025	Dockens Water	Moyles Court	17.2				.34	0.999	33	57	27	48	76	109	124	0	0	0	25	0	0	48	6	23	21	H	1
44001	Frome	East Stoke Total	414.4	6		N	.78	0.968	37	80	9	39	114	196	265	66	11	2	9	5	9	9	47	37	1	H	1
44002	Piddle	Baggs Mill	183.1	8	16.0	G	.86	0.969	36	80	2	36	102	178	273	82	3	2	2	5	3	9	51	34	2	H	1
44003	* Asker	Bridport	49.1	25		N	.70	0.994	38	138	6	41	94	170	252	44	51	5	0	13	2	13	27	55	<1		2
44004	Frome	Dorchester Total	206.0	15		G	.78	0.971	38	100	52	91	151	214	265	80	20	0	1	1	16	6	48	42	<1		1
44006	Sydling Water	Sydling St Nicholas	12.4	25	1.0	N	.88	0.944	38	129	110	131	190	242	264	100	0	0	0	0	49	7	54	34	<1		1
44008	Sth Winterbourne	W'bourne Steepleton	19.9	60		G	.81	1.000	38	94	90	122	158	204	242	96	0	0	0	15	6	51	40	<1		0	
44009	Wey	Broadway	7.0	20	3.3	G	.78	1.000	38	118	18	43	103	150	187	77	19	3	0	<1	0	4	53	37	0		2
44011	Asker	East Bridge Bridport	48.5				.70	0.994	38	138	9	41	94	170	252	44	51	5	0	13	2	13	27	55	<1		2
45001	Exe	Thorverton	600.9	12	185.0	SRPGEI	.53	0.985	46	138	26	117	235	382	514	0	16	84	1	3	<1	15	13	67	3	H	1
45002	Exe	Stoodleigh	421.7	6	150.0	SRPE	.50	0.979	48	142	75	164	286	399	514	0	6	94	0	1	<1	16	8	70	4	H	0
45003	Culm	Wood Mill	226.1	14	42.0	PGEI	.59	0.993	40	70	44	70	142	249	293	12	66	22	8	7	20	10	29	54	<1		1
45004	Axe	Whitford	288.5	8	75.0	PGEI	.50	0.996	39	90	7	65	133	216	315	12	45	43	7	6	21	9	31	56	<1		1
45005	Otter	Dotton	202.5	10	88.0	PGEI	.55	0.996	40	85	15	65	131	247	302	28	32	41	13	6	19	13	36	43	<1		2
45006	* Quarme	Enterwell	20.4	10	12.5	P	.51	1.000	54	154	188	245	320	434	514	0	0	100	0	0	0	13	5	73	7	H	0
45008	Otter	Fenny Bridges	104.2	14	73.0	P	.49	0.994	40	93	55	103	183	255	302	0	46	54	8	4	35	12	38	44	<1		2
45009	Exe	Pixton	159.7	13	90.0	SRP	.55	0.950	51	154	128	227	309	396	514	0	0	100	0	<1	<1	16	6	73	3	H	0
45010	* Haddeo	Hartford	50.0				.58	0.859	46	110	164	246	309	370	422	0	0	100	0	0	0	12	9	73	2	H	0
45011	Barle	Brushford	128.0				.45	0.999	54	136	128	261	355	431	491	0	0	100	0	<1	2	14	2	74	9	H	0
45012	Creedy	Cowley	261.6	11	110.0	GE	.58	0.993	46	111	14	56	123	194	294	0	29	71	1	6	0	12	39	45	<1		1
45013	Tale	Fairmile	34.4		11.5	N	.51	0.998	40	63	48	76	105	201	283	36	32	32	21	4	7	10	35	45	<1		1
46002	Teign	Preston	381.0	9	86.0	SRPE	.59	0.981	46	131	4	66	205	390	599	0	9	42	<1	7	5	27	16	47	5	H	1
46003	Dart	Austins Bridge	247.6	8	418.0	SR	.52	0.995	47	121	22	125	347	477	601	0	0	25	<1	5	13	17	5	56	18	H	1
46005	East Dart	Believer	21.5	10	50.0	N	.36	1.000	46	95	309	358	458	548	601	0	0	0	0	38	9	0	43	47	B	0	
46006	Erme	Ermington	43.5	17	50.0	PEI	.47	0.995	47	101	8	62	287	450	484	0	0	28	8	13	5	8	5	56	24	H	3
46007	West Dart	Dunnabridge	47.9		69.0	P	.37	1.000	47	87	284	340	420	511	562	0	0	0	0	32	8	2	61	27	HB	0	
46008	Avon	Loddiswell	102.3		67.0	SR	.55	0.986	47	124	6	81	148	424	514	0	0	70	2	9	7	10	16	62	9	B	1
47001	Tamar	Gunnislake	916.9	7	550.0	SRPEI	.48	0.993	49	86	8	91	145	231	580	0	0	98	2	7	<1	11	22	63	<1		1
47002	* Tamar	Werrington	232.1				.40	0.981	50	66	57	98	131	173	226	0	0	100	<1	6	0	10	25	63	<1		0
47003	* Tavy	Lopwell	205.9		207.0	PGEIH	.55	0.999	48	106	3	107	221	486	601	0	0	70	<1	6	12	11	6	65	14	B	1
47004	Lynher	Pillaton Mill	135.5	14	67.0	P	.55	0.996	48	107	9	79	160	292	383	0	0	75	0	9	4	14	20	61	2	H	1
47005	Ottery	Werrington Park	120.7	14	79.0	GE	.45	0.999	49	71	55	100	139	217	294												

Gauging Station Register II cont'd

Station number	River name	Station name	Catchment area	Sensitivity	Bankfull/structurefull Factors affecting runoff	Descriptors				Elevation					Bedrock			Superficial			Landuse					
						BFIHOST	FARL	PROPWET	DPSBAR	Station level (mOD)	10 percentile (mOD)	50 percentile (mOD)	90 percentile (mOD)	Maximum level (mOD)	High perm. (%)	Moderate perm. (%)	Very low perm. (%)	Gen. high perm. (%)	Mixed perm. (%)	Gen. low perm. (%)	Woodland (%)	Arable/horticultural (%)	Grassland (%)	Mountain/heath/bog (%)	Urban extent (%)	
50003	Taw	Sticklepath	15.6		1.4 PG	.49	1.000	46	127	219	325	440	539	603	0	0	17	11	0	42	6	0	40	54	H	0
50005	West Okement	Vellake	13.3	12	9.5 P	.35	0.981	49	161	286	431	513	564	620	0	0	0	0	0	58	3	<1	44	53	B	0
50006	Mole	Woodleigh	327.5	10	90.0 SRPE	.50	0.999	54	125	48	112	200	327	490	0	1	99	4	<1	0	12	14	70	2	H	0
50007	Taw	Taw Bridge	71.4	12	90.0 N	.49	0.994	46	95	85	127	180	454	603	0	9	70	8	1	9	10	27	48	12	H	1
50008	Lew	Gribbleford Bridge	71.1		50.0 N	.41	0.999	50	82	81	122	172	236	286	0	0	100	2	0	0	15	21	62	<1		0
50009	Lew	Norley Bridge	20.2		18.0 N	.45	1.000	50	77	103	134	172	234	278	0	0	100	0	0	0	9	24	66	0		0
50010	Torridge	Rockhay Bridge	257.8	12	74.5 N	.40	0.997	49	65	61	108	153	190	232	0	0	100	0	4	0	13	31	53	<1		0
50011	Okement	Jacobstowe	82.1			.48	0.981	48	130	90	139	294	527	620	0	2	63	4	0	14	13	10	55	18	B	1
50012	Yeo	Veraby	53.7	12	25.0 R	.46	1.000	54	127	110	157	229	341	434	0	<1	100	1	0	0	14	7	72	7	H	0
51001	Doniford Stream	Swill Bridge	75.8	18	68.0 N	.63	0.988	35	130	9	49	126	279	392	10	28	63	15	1	0	15	39	40	1	H	1
51002	Horner Water	West Luccombe	20.8	58	6.4 S	.54	0.978	54	214	61	200	357	455	517	<1	0	100	0	0	0	37	2	37	24	H	0
51003	Washford	Beggearn Huish	36.3	19	N	.59	0.982	38	194	67	129	255	370	422	0	4	96	0	0	0	26	23	48	<1		0
52001	Axe	Wookey	18.2		4.2	.69	1.000	37	95	31	41	156	260	284	0	62	38	0	0	0	10	32	48	0		4
52002	* Yeo	Sutton Bingham Res.	30.3		10.5	.44	0.994	38	86	42	70	105	182	253	88	12	0	0	7	2	12	36	49	<1		0
52003	Halsewater	Halsewater	87.8	13	7.0 N	.63	0.991	35	80	17	39	97	178	392	30	17	53	10	0	0	8	45	41	<1		2
52004	Isle	Ashford Mill	90.1	23	33.0 GE	.50	0.979	40	65	15	30	82	179	278	3	20	77	8	5	2	7	41	44	0		3
52005	Tone	Bishops Hull	202.0	18	130.0 SP	.56	0.977	36	97	17	47	120	280	573	16	18	66	2	7	<1	10	34	50	<1		2
52006	Yeo	Pen Mill	213.1	14	40.0 SPG	.57	0.965	38	64	24	50	88	149	264	71	13	16	1	5	<1	10	46	36	1	H	3
52007	Parrett	Chiselborough	74.8	30	11.6 E	.54	1.000	38	69	21	38	68	116	228	67	31	2	0	4	0	9	39	46	<1		2
52008	* Tone	Clatworthy Reservoir	18.1		S	.57	0.998	35	128	197	253	331	377	406	0	0	100	0	0	0	13	6	77	<1		0
52009	Sheppey	Fenny Castle	59.6	19	12.0 GE	.69	0.999	37	79	6	27	155	238	305	3	20	77	2	1	0	7	28	54	0		5
52010	Brue	Lovington	135.2	22	80.0 N	.53	0.997	37	71	20	40	105	168	263	43	13	44	8	0	0	7	42	47	<1		1
52011	Cary	Somerton	82.4	38	10.0 GE	.53	1.000	37	30	9	18	32	66	152	<1	2	98	6	14	0	5	55	28	2	H	2
52014	Tone	Greenham	57.2	12	19.0 S	.55	0.937	35	145	77	137	236	354	406	0	15	85	0	<1	0	14	18	67	<1		0
52015	Land Yeo	Wraxall Bridge	23.3	52	28.8 S	.67	0.933	35	73	11	27	91	161	241	1	37	61	2	3	0	21	29	38	0		2
52016	Currypool Stream	Currypool Farm	15.7	45	N	.59	1.000	35	134	49	74	174	305	383	0	0	100	20	0	0	46	16	33	2	H	0
52017	Congresbury Yeo	Iwood	66.6	19	14.5 S	.59	0.878	35	86	7	25	79	247	324	0	26	74	0	1	0	14	18	59	2	H	2
52020	* Gallica Stream	Gallica Bridge	16.4	20	36.0 N	.39	0.971	38	86	56	78	112	172	223	76	10	13	0	0	0	26	47	24	<1		0
52025	Hillfarrance	Milverton	27.8			.63	0.996	35	136	65	91	144	265	391	3	41	55	0	7	0	12	33	49	0		1
52026	Alham	Higher Alham	5.1			.61	1.000	37	90	109	137	170	193	213	99	0	1	0	0	0	7	25	65	0		0
53001	* Avon	Melksham	665.6	11	PGE	.55	0.990	34	34	30	58	100	153	263	49	9	43	3	4	0	8	38	46	0		2
53002	Semington Brook	Semington	157.7	21	GE	.56	0.987	34	48	33	50	75	141	230	21	39	41	0	<1	0	9	34	46	0		3
53003	* Avon	Bath St James	1595.0		PGE	.58	0.985	34	51	17	53	104	173	304	47	13	39	2	7	0	11	34	46	<1		3
53004	Chew	Compton Dando	129.5	5	85.0 SP	.59	0.842	35	71	17	55	105	208	300	4	7	77	<1	6	0	10	21	61	0		1
53005	Midford Brook	Midford	147.4	5	56.0 PGE	.63	0.990	36	80	27	81	126	165	222	40	0	54	2	7	0	13	30	46	0		4
53006	Frome(Bristol)	Frenchay	148.9	8	56.0 N	.36	0.993	35	29	20	50	66	106	194	2	12	52	<1	3	0	5	22	48	0		11
53007	Frome(Somerset)	Tellisford	261.6	5	113.0 PG	.56	0.960	36	61	35	80	132	227	304	39	27	29	1	1	0	15	30	47	<1		2
53008	Avon	Great Somerford	303.0	16	G	.62	0.988	34	29	58	82	114	164	220	80	<1	20	0	2	0	8	44	44	0		1
53009	Wellow Brook	Wellow	72.6	7	42.5 N	.64	0.983	37	69	44	92	135	180	222	32	0	64	<1	3	0	11	35	41	0		6
53013	Marden	Stanley	99.2	6	35.5 PE	.56	0.980	34	51	47	78	101	165	263	22	37	41	0	0	0	11	35	45	0		3
53017	Boyd	Bitton	47.9	25	94.0 N	.50	0.998	35	63	16	70	105	178	236	12	4	84	0	2	0	9	28	57	0		2
53018	Avon	Bathford	1552.0	10	RPGE	.58	0.985	34	49	18	53	104	171	304	46	13	39	2	5	0	11	34	46	<1		3
53019	Woodbridge Brook	Crabb Mill	46.6	31	1.4 G	.33	0.982	34	31	66	78	92	112	152	24	1	75	0	<1	0	10	35	53	0		0
53020	Gauze Brook	Rodbourne	28.2	31	0.6 G	.58	1.000	34	25	66	77	101	123	131	77	0	23	0	0	0	7	54	35	0		1
53022	Avon	Bath ultrasonic	1605.0		RPGE	.58	0.985	34	52	21	53	104	173	304	47	13	39	2	7	0	11	33	46	<1		3
53023	Sherston Avon	Fosseway	89.7	20	20.4 G	.72	0.999	34	29	77	110	132	173	203	100	<1	0	0	1	0	8	41	48	0		1
53024	Tetbury Avon	Brokenborough	73.6	25	5.3 GE	.78	0.966	34	30	78	104	139	180	220	100	0	0	0	1	0	9	48	39	0		1
53025	Mells	Vallis	119.0	21	36.4 E	.66	0.943	37	61	68	115	177	242	304	32	38	19	0	0	0	11	31	49	0		2
53026	Frome (Bristol)	Frampton Cotterell	78.5	38	48.0 N	.40	0.991	35	26	43	56	73	119	194	3	22	42	1	4	0	5	26	53	0		6
53028	By Brook	Middlehill	102.0	13	P	.73	0.999	34	76	28	84	137	182	221	97	<1	3	0	13	0	14	35	44	0		1
53029	Biss	Trowbridge	77.6	16	I	.53	0.972	35	43	32	45	68	133	230	24	19	57	0	0	0	12	29	44	0		5
54088	Little Avon	Berkeley Kennels	134.0	18	PGEI	.52	0.985	35	79	7	27	77	191	249	25	18	57	2	10	0	11	29	53	0		2

Gauging Station Register III

EA South West

- 43001 Avon at Ringwood** **EA South West**
Station: Pre-cursor to East Mills (43003). Not considered a primary gauging station. Subject to summer weed growth. Provides a very valuable insight into the 1964-65 drought.
- 43003 Avon at East Mills** **EA South West**
Station: Combined site consisting East Mills Weir and East Mills Flume. Weir is a compound Crump profile Weir with central notch fish pass; flume is a critical depth Rectangular Flume. High flows for both structures gauged until recently (2002) from Fordingbridge bypass road bridge. Bypassing was previously an issue but re-rating has been carried out at both structures. Combined flows produced by summing individual flows less than 40 m³s⁻¹; above this, flows derived by separate relationship that accounts for high flow bypassing. Small irrigation carrier 3km upstream at Burgate bypasses gauge (normally >3% total flow).
Catchment: Predominantly permeable (Chalk) catchment. Land use: rural.
- 43004 Bourne at Laverstock** **EA South West**
Station: Crump weir, crest 3m broad, approximately 1.6 km upstream of confluence with River Avon. Out-of-bank flow may occur just upstream of station when flow exceeds 6 m³s⁻¹. Upstream bypass channel; sluice operates year-round to give flow to the channel. Sluice fully opened at extreme high flows to protect downstream bridge. Heavy summer weed-growth: needs regular maintenance. Runoff natural to within 10% at Q95; Winterbourne Gunner Mill about 4 km upstream affects discharge. Theoretical original rating, recently re-calibrated at low flows.
Catchment: Predominantly permeable (Chalk) catchment. Land use rural with some small settlements. Garrison town of Tidworth has developed in catchment.
- 43005 Avon at Amesbury** **EA South West**
Station: Crump profile weir (crest 9.14m broad) flanked by broad-crested weirs. Small bypass channel approx. 2m u/s of weir - included in rating. Full range station. May go non-modular at low flow in exceptional summers. Re-rated 2001 to include exceptional December 2000 event; good high flow rating based on current meter gaugings. During summer, flows are naturally augmented from gw draining from northern half of R. Bourne catchment. Some gw pumping influences flows.
Catchment: Predominantly permeable (Chalk) catchment with a small inlier of Upper Greensand and Gault. Northern part of catchment consists of a band of Greensand between bands of Lower Chalk. Topographical and gw catchments do not coincide. Land use: rural.
- 43006 Nadder at Wilton** **EA South West**
Station: Crump weir, crest 18.3m broad. Crest tapping abandoned after first few months; modular limit (0.6m) seldom reached, although weir can drown at very high flows. Flows greater than 18.3 m³s⁻¹ measured upstream of weir at Bull Bridge. Rare weed clearance can lead to significant u/s constriction. Minor bypass. Spot gaugings at high and low flows confirm theoretical rating, but rating may underestimate in mid flow range. Natural to within 10% at Q95; some minor groundwater pumping. Sluices and hatches can regulate flow for short periods.
Catchment: Mixed geology - predominantly Chalk; clays in upper catchment. Land use: rural.
- 43007 Stour at Throop** **EA South West**
Station: Compound Crump profile weir, centre crest 5m broad and 2 higher flanking crests 18m broad. Site unapproachable in flood conditions. Some combined gauging of the Stour and Moors River has taken place at Blackwater Bridge (SZ134959). Prior to 1977 high flows measured at Ensbury (3km u/s of station). Rating incorporates flow through two bypass channels just u/s of station: mill channel and Lodden Stour. Extended flow rating derived 1992 and corrected 2002, confirmed by gaugings. Substantial gw and sw abstractions, and effluent returns.
Catchment: Mixed geology - predominantly Chalk (~50%); some clay (~30%), limestone and Upper Greensand. Land use: rural.
- 43008 Wyllye at South Newton** **EA South West**
Station: Crump profile weir, crest 10.7m broad. Full range station. Subject to drowning at high discharges. Heavy weed growth during summer months. Sluice control upstream for river regulation. Minor bypassing. Good data set with check gaugings confirming original rating. Natural to within 10% at Q95; some sw and gw abstractions for irrigation.
Catchment: Predominantly Chalk; Upper Greensand and Gault in upper catchment. Land use: rural.
- 43009 Stour at Hammoo** **EA South West**
Station: Compound Crump profile weir with low flow crest 6.1m broad, total breadth 18.3m. Structure situated under road bridge. High flows calibrated up to 3m. Water meadow system operates - area floods during high discharges and becomes inaccessible. Surcharging occurs at bridge-full; gauge bypassed with flow over the bridge eventually. Gaugings are made d/s at Haywoods Bridge (ST824120). Severe weed growth. Two water mills u/s may affect hydrograph. Substantial gw and sw abstractions for PWS.
Catchment: Geology: mixed, substantial proportion (60%) of impermeable clays, but with outcrops of more permeable substrates. Land use: rural.
- 43010 Allen at Loverley Mill** **EA South West**
Station: Crump weir, 1.84 m wide, situated under old mill house. Hatches just u/s control flow, which bypasses the station, into an old mill pond; calculation of flows only possible under finite hatch settings. Frequent hatch action. Good full-range station. Bypassing in extreme events (less than 10%). Station to be replaced by new ultrasonic gauge 100 m upstream. Runoff affected by public water supply abstraction, g/w abstraction/recharge and effluent returns.
Catchment: Predominantly Chalk catchment. Land use: rural.
- 43011 Ebble at Bodenham** **EA South West**
Station: Velocity-area station at concrete spillway and Crump weir 2.8m broad. Discontinued in 1976.
Catchment: Predominantly Chalk catchment. Rural.
- 43012 Wyllye at Norton Bavant** **EA South West**
Station: Crump profile weir, crest 6.09m broad. Full range station, theoretically rated. Out-of-bank flow may occur just upstream before bankfull at gauging station. Bypassing occurs during very extreme events but is not a major issue. Substantial upstream groundwater abstractions and hatcheries affect flow. Some augmentation from effluent returns.
Catchment: Geology: predominantly Chalk with Upper Greensand and Gault in higher parts of catchment. Land use: rural.
- 43013 Mude at Somerford** **EA South West**
Station: Station reopened with a Flat-V weir in 2003, previously a crump weir. No gauged daily flow data available from December 1983 to January 2005. Runoff reduced by public water supply abstraction.
Catchment: Small, low-relief catchment. Geology adjacent to river mainly comprises alluvial deposits with loam or clayey loam soils, remainder of catchment mainly gravels with well-drained coarse loamy and sandy soils. Land-use: residential urban.
- 43014 East Avon at Upavon** **EA South West**
Station: Crump profile weir, crest 3.05m broad. Station adjacent to West Avon at Upavon (43017); the two weirs gauge the two branches of the Avon immediately u/s of their confluence at Upavon. Full range station, some limited bypassing but no validation. Theoretical, original rating applies; very few spot gaugings available. Natural to within 10% at Q95. Benchmark catchment but agricultural abstractions increasing. Occasional upstream hatch action.
Catchment: Predominantly Upper Greensand and Lower Chalk; river gravel and alluvium in valley bottom some Gault. Upper Chalk and Clay form N and S borders of catchment. Land use: predominantly pastoral and dairy farming.
- 43017 West Avon at Upavon** **EA South West**
Station: Crump profile weir, crest 4.57m broad. Station adjacent to East Avon at Upavon (43014); the two weirs gauge the two branches of the Avon immediately u/s of their confluence at Upavon. Full range station, no drowning but susceptible to algal growth problems. Theoretical, original rating; few spot gaugings to confirm. Minor gw abstractions in catchment, also affected by u/s hatch activity.
Catchment: Predominantly Upper Greensand and Lower Chalk; river gravel and alluvium in valley bottom, some Gault. Upper Chalk and Clay form N and S borders of catchment. Land use: rural.
- 43018 Allen at Walford Mill** **EA South West**
Station: Two Crump profile weirs: main channel weir crest 6.1m broad; secondary weir in mill stream adjacent to main channel - 0.9m broad. Theoretical, original rating. Rating includes mill channel. Very minor bypassing. Weed growth occasionally causes structure to drown out. Hatch activity u/s of station. Minor sw and gw abstractions in catchment. Compensation discharge maintains low flows.
Catchment: Upper catchment - chalk, lower catchment - sands, gravels and clays. Land use: predominantly rural.
- 43019 Shreen Water at Colesbrook** **EA South West**
Station: Crump profile weir, crest 3m broad. Theoretically rated. Structure drowns before bankfull, flow goes out-of-bank, and there is significant bypassing. Therefore flows >10m³s⁻¹ unreliable; considerable uncertainty in rating at high flows and high flow gauging is difficult. Significant gw pumping in catchment. Some augmentation from effluent returns. Runoff figures suggest topographical and hydrological catchment areas do not coincide. Flashy response.
Catchment: Predominantly Kimmeridge Clay, some Chalk, and Upper Greensand and Gault in the north of the catchment. Land use: predominantly agricultural.

43021 Avon at Knapp Mill**EA South West**

Station: Ultrasonic station - dual cross path. The station level refers to mean bed level - 0.875m aOD. Both banks are piled and the bed is dredged to form a rectangular cross-section. Limited number of flow readings logged per day up to Aug 1988. Record improved from 1991 and now very good when in bank. Monthly check gaugings confirm improved performance. Substantial bypassing when flows in excess of 40-45 m³s⁻¹. Some abstraction for PWS in catchment.

Catchment: Mixed geology - predominantly Chalk; lower catchment composed of sands, gravels and clays. Land use: rural.

43022 Moors River at Hurn Court**EA South West**

Station: Large Flat Vee Crump profile weir 10m wide with fish pass batten on the d/s slopes. Low flow measurement OK, backs up from the R Stour at higher flows. Flow records commence in June 1989, but held on Hydrolog from 1/1/92.

Catchment: Trib. of Dorset Stour which it joins 1km d/s. Rises from Chalk spring on Pentridge Hill where river known as the Crane, name changes to Moors River after entering the Tertiary deposits. Low rolling hills supporting pasture, woodland (including coniferous plantations) and heath land on acid soils. Bournemouth (Hurn) Airport lies within the catchment.

43024 Wylie at Stockton Park**EA South West**

Station: Electromagnetic gauge within trapezoidal concrete section. Early record has been reviewed, 1996-8 data awaiting Wiski system to be updated. Predominantly natural catchment.

Catchment: Upper Greensand and Gault Clay in headwaters, otherwise Chalk in this trib. of Hampshire Avon with rural land use.

43025 Dockens Water at Moyles Court**EA South West**

Station: Flat-V weir with 1:10 crest cross slope, width 4.52m.

Catchment: Tributary of the Upper Hampshire Avon, in western part of the New Forest. Catchment comprises extensive mire (Digden Bottom), with bog mosses, small boggy pools and flushes, and various woodland inclosures (e.g. Newlands Plantation).

44001 Frome at East Stoke Total**EA South West**

Station: Combined station of East Stoke Flume, a rectangular critical depth flume, 3.05m wide, bounded by two broad-crested weirs (local no. 445910), and East Stoke Weir, a Crump profile weir on bypass channel, 3.565m wide (local no. 445920). Low floodbank constructed on left bank to confine all flows within designed measuring range of flume, 21.5 m³s⁻¹. Bypassing very small, drowns at high flows and low flows due to downstream weed. Structure limit of weir 4.36 m³s⁻¹. Flows prior to 1966 for flume only. Runoff natural to within 10% at the 95 percentile flow. No direct abstractions from river but substantial gw abstractions from the Chalk. Flows sometimes affected by u/s research activity.

Catchment: Geology: Mainly Chalk; Upper Greensand and Gault, Lias and Oolites in headwaters; sands, gravels and clays in lower catchment. Land use: rural

44002 Piddle at Baggs Mill**EA South West**

Station: Rectangular critical depth 'humped' flume situated in left-hand bend of river. Above 8.1 m³s⁻¹ station is bypassed - estimate of flows made through arches of railway bridge. Theoretical rating. Bypassing not included in rating. Gaugings confirm rating at high flows. Complex water meadow system 2-3km u/s can result in minor short-term fluctuations in the river flow. Major gw abstractions in catchment.

Catchment: Upper catchment - Chalk; lower - sands, gravels and clays. Land use: predominantly agricultural.

44003 Asker at Bridport**EA South West**

Station: Original Crump profile weir on channel dug as part of flood prevention scheme. Old channel bypassed previous weir at stages above 0.5m. Original station (1966-80) was replaced by Jessops Avenue (head control weir and relief weir, not rated, not held on NRFA). New station installed in 1996, archived as 44011, Asker at East Bridge, Bridport. Rapidly responding flow regime makes gauging difficult.

Catchment: Responsive catchment due to steep slopes on Liassic Clay and Marl.

44004 Frome at Dorchester Total**EA South West**

Station: Combined station comprising 3 Crump Weirs at 2 sites: Louds Mill and Stinsford. Louds Mill has two Crump profile weirs, crests 10.66m (side-spilling) and 1.52m broad. Rating includes side channel and is modular to 10 m³s⁻¹. Crump profile weir at Stinsford, crest 3.04m wide, is modular to 4.6 m³s⁻¹ but sometimes drowns due to weed growth downstream. At Stinsford the river can inundate the floodplain, and there is potential for significant floodplain flow to bypass both gauges. Minor gw abstractions in catchment. Flows exist prior to October 1971 for Louds Mill only. Poor site, not rated at high flows.

Catchment: Predominantly Chalk, with Upper Greensand and Gault, Lias and Oolites in headwaters. Land use: rural.

44006 Sydling Water at Sydling St Nicholas**EA South West**

Station: Crump profile weir, stainless steel crest 1.95m broad. Modularity, previously of concern, due to weed growth and d/s channel geometry, improved by recent channel works. These factors may have influenced u/s levels earlier in the record. Straight approach with rocky bed. Gauge is subject to some bypassing; overall effect not thought to be significant but may be appreciable at the most extreme flows. Recurring silt and gravel accumulation problem u/s. Theoretical original rating, applicable to bankfull only. Natural to within 10% at Q95.

Catchment: Predominantly Lower Chalk with small outcrops of Middle and Upper Chalk forming higher ground flanking the catchment. Land use: pastoral with some arable agriculture on flatter ground.

44008 Sth Winterbourne at W'bourne Steepleton**EA South West**

Station: Flat V weir, 2.5m wide, installed for low flow monitoring and year-round enforcement of minimum prescribed flow conditions on public water supply abstraction licence. Bypassing likely. Compensation flow input 1km upstream of weir, gauge virtually measures the extent of stream support.

Catchment: Relatively small chalk catchment. Land use: cattle grazing, rural.

44009 Wey at Broadwey**EA South West**

Station: Flat V Crump profile weir, crest, 4.5m broad, slopes 1:10. Almost a full range station but bypassed along a road 1/2 mile u/s at highest flows. Structure capacity 3.3 m³s⁻¹. Theoretical original rating. No gaugings to confirm at high flows. Sensibly natural regime, although substantial gw abstraction affects headwaters at Upwey. Some hatch activity u/s (unlikely to affect daily flows). Runoff figures suggest topographical and hydrological catchment areas do not coincide.

Catchment: Predominantly a limestone catchment, Kimmeridge Clay, Portland Sand, Purbeck beds. Land use: mainly pastoral agriculture.

44011 Asker at East Bridge Bridport**EA South West**

Station: Flat 'V' Crump profile weir, 6.3m wide (0.618m above weir crest width increases to 7.3m). Records commence in March 1996 at same location as 44003 (Asker at Bridport) but greatly modified channel. Rapidly responding flow regime makes gauging difficult.

Catchment: Responsive catchment due to steep slopes on Liassic clay and marl.

45001 Exe at Thorverton**EA South West**

Station: Velocity-area station with cableway. Flat V Crump profile weir constructed in 1973 due to unstable bed condition. Minor culvert flow through mill upstream of station included in rating. Low flows significantly affected by Wimbleball Reservoir post-1979. Station is control point for operational releases from Wimbleball.

Catchment: Headwaters drain Exmoor. Geology predominantly Devonian sandstones and Carboniferous Culm Measures, with subordinate Permian sandstones in the east. Land use: moorland, forestry and a range of agriculture.

45002 Exe at Stoodleigh**EA South West**

Station: Velocity-area station with cableway sited on a straight, stable length of river. Low flow controlled by a stone ledge 50m d/s of the gauge. Full range, calibrated to above bankfull. Liable to backing up at bridge immediately upstream in highest floods. Flood relief culvert under road on rb. Bypassing included in rating. Significantly affected by Wimbleball Res. regulation at low flows post-1979.

Catchment: Headwaters drain Exmoor. Devonian s'ts and Culm Measures. Relatively impermeable catchment; moorland headwaters, grazing and forestry.

45003 Culm at Wood Mill**EA South West**

Station: Originally a velocity-area station with reliable records from 1962. River regaded and downstream obstructions removed in August 1965. Flat V weir 11.45 m wide built in 1972. Channel forms control when structure drowns. Full range. Widespread upstream inundation during floods. Ratings extended to include modelled out-of-bank flows. Flows affected by moderate surface and groundwater abstractions, effluent returns and groundwater recharge.

Catchment: Rises in the Blackdown Hills. Headwaters drain Greensand and Gault Clay. Predominantly Permo-Triassic sandstones, breccias and marls. Extensive valley gravels and alluvium. Subdued relief. Land use: predominantly agriculture, small areas of woodland in the east.

45004 Axe at Whitford**EA South West**

Station: Compound Crump profile weir, total width 21.3m, low flow section 7.6m broad. Cableway on site. Structure limit 2.1 m stage. Overspill at 1.65m on left bank; in large floods considerable bypassing. Velocity-area station with cableway. In-channel deposition becoming and increasing problem. Rated to above modular limit. Bypassing included in the rating. Flows affected by moderate surface and groundwater abstractions, effluent returns and groundwater recharge.

Catchment: Catchment of moderate relief draining Chalk and Greensand headwaters. Middle and lower reaches Mercia Mudstone; Lias clays and more Greensand. Land use: meadowland, low intensity agriculture, woodland and minor industrial development.

- 45005 Otter at Dotton** **EA South West**
Station: Velocity-area station with cableway. Station rebuilt after 1968 flood. Flat V Crump profile weir installed 1971. Full range station, low embankments at field level extend containment. Gabions stabilise bed and banks. Bypassing occurs during exceptional events. Substantial groundwater and surface water abstractions in catchment; effluent returns.
Catchment: Rises in Greensand and Gault Clay of the Blackdown Hills. Predominantly Keuper sandstones and marls. Extensive alluvium and valley gravels lower down. Land use: some heathland, woodland and pasture, and a wide range of agriculture.
- 45006 Quarne at Enterwell** **EA South West**
Station: Compound broad-crested weir 6m wide with a 2.1m central notch. High stages well contained by high banks each side.
Catchment: Drains area of high moorland (Exmoor) in west Somerset. Tributary of the River Exe. Steep, wooded valley sides in lower catchment.
- 45008 Otter at Fenny Bridges** **EA South West**
Station: Velocity-area station, incorporated in middle section of 3-arch bridge, with Flat V control and cableway. Bridge invert acts as control at high levels. Right bank likely to be over-topped at 2.2m stage when bypassing is likely. Old weir repaired in 1994. Minor surface water abstractions in catchment, for public water supply, but generally natural flow regime.
Catchment: Rises in the Greensand and Gault Clay of the Blackdown Hills. Keuper Marl in the lower reaches. Heathland, pasture and a range of agriculture. Includes town of Honiton.
- 45009 Exe at Pixton** **EA South West**
Station: Full range velocity-area station in natural section immediately d/s of bridge. Shallow rock bar d/s of station is natural low flow control. Influence of bridge soffit upstream of station is unknown, although rating is reliably extrapolated to bankfull. Minor abstractions in catchment; low flows significantly affected by Wimbleball Reservoir post-1979.
Catchment: Headwaters rise on Exmoor. Solid geology, predominantly (95%) Upper Devonian Grit and Shale; transitional group, between Devonian and Carboniferous, to the south. Catchment is virtually drift free. Land use: moorland, rough grazing, forestry.
- 45010 Haddeo at Hartford** **EA South West**
Station: Velocity-area station located in steep wooded valley, approximately 1km downstream of Wimbleball Reservoir. Flows heavily influenced by reservoir regulation.
- 45011 Barle at Brushford** **EA South West**
Station: Velocity-area station at road bridge 800m upstream of confluence with River Exe.
Catchment: Drains high moorland (Exmoor) in west Somerset. Steep, wooded valley sides in lower catchment.
- 45012 Creedy at Cowley** **EA South West**
Station: Velocity-area station in deep cutting. Rock bars form low flow control. Flood flows contained by railway tracks on the left bank and, on the right bank, by rock walls and a newly constructed Crib wall (March 2006) which extends along a large section upstream of the control. Bypassing minimal but occurs on left bank at very high flows. River bed re-profiled (shoal removed) following construction works in 2006, but then naturally changed as a result of high flows in winter 2006/07. Rating under review (2007).
Catchment: A v-shaped catchment draining moderate to high relief valleys to the N and W. Predominantly Culm Measures, sandstones and shales with some Permo-Triassic breccias and sandstones near Crediton. Land use: low-grade agriculture, grazing and forestry.
- 45013 Tale at Fairmile** **EA South West**
Station: EM flow gauge installed in January 1999 (recording since 17/01/99) to overcome problems of unstable bed control at this VA station. Proportionally high summer flows due to groundwater augmentation from regionally important aquifer. DMFs removed from NRFA from Sep 1997 to Jan 1999. EA investigating rating, particularly at high flows. Highest flow on record was in Aug 1997 but magnitude suspect as there is considerable scatter in high flow gaugings.
Catchment: Upper catchment: Greensand and Gault Clay of Blackdown Hills; lower reaches: Keuper Marl. Otter Sandstone (aquifer) to the south provides regionally important groundwater supply. Rural, 80% agricultural land use.
- 46002 Teign at Preston** **EA South West**
Station: Velocity-area station, channel width approximately 15m. Cableway removed but steel footbridge remains. Bypassing on right bank occurring at greater frequency due to bank erosion some distance upstream. Some accommodation of bypass flows in historic rating. Flow measurement effectively ceased in May 2007 but level recording remains. Low flow control is a downstream gravel shoal. Four reservoirs and various water reclamation works have minor affect on low flow regime.
Catchment: Bulk of the river system rises on Dartmoor Granite moorland, and traverses a complex of Devonian and Carboniferous shales, sandstones and cherts before its wide alluvial valley crosses Tertiary sands and clays. Land use: low-grade agriculture and woodland.
- 46003 Dart at Austins Bridge** **EA South West**
Station: Velocity-area station with cableway, main channel approximately 30m wide. Rock step forms downstream control. Channel contains the mean annual flood. Bypassing occurs on right bank above 4.2m. Well rated. Records available from October 1958 but unreliable prior to May 1960. Regulation of surface water and groundwater. Venford Reservoir operation and exports via the Devonport Leat affect low flows. Short period of naturalised flows available.
Catchment: Responsive catchment with upper two thirds draining moorland associated with Dartmoor Granite; lower third is of Carboniferous shales and sandstones. Steep relief in headwaters and at Granite boundary. Land use: low-grade agriculture and woodland.
- 46005 East Dart at Bellever** **EA South West**
Station: Velocity-area station, channel width approximately 11.5m; cableway approximately 26m. Natural rock step provides the control, with a containment berm on the lb. Small bypassing on left bank in highest floods. Velocity-area rating, revised in early 1980s due to shifting natural control. Responsive, natural catchment. Flood warning station.
Catchment: Steep, very wet upland catchment, draining peat-covered Dartmoor Granite. Land use: moorland in the upper catchment, low grade agriculture and woodland in the lower.
- 46006 Erme at Ermington** **EA South West**
Station: Velocity-area station with cableway and low level Flat V control approximately 9.4m wide. Stony river bed. No bypassing. Well rated. Non-modular at 0.3m. Significant flow modifications by abstractions for public water supply and sewage effluent returns from Ivybridge.
Catchment: Narrow, linear, north-south trending catchment draining southern flank of Dartmoor Granite. Headwaters in plateau-like moorland; main river section in steep, deeply incised valley with short tributaries. Off granite, Devonian Slates widely blanketed with river gravel and alluvium. Responsive catchment. Land-use: moorland in the upper catchment; predominantly low-grade agriculture elsewhere. Catchment includes town of Ivybridge.
- 46007 West Dart at Dunnabridge** **EA South West**
Station: Informal Flat V low flow control 13.5m wide between stone batter wing walls. Cableway span 30m. In straight reach between two right hand bends. High possibility of out-of-bank flow; bypassing occurs. Upper 40% of catchment affected by interception from Devonport and Prison leats that feed Burrator Reservoir. Closed between 1981 and 1991.
Catchment: Responsive, upland catchment of subdued relief, high on Dartmoor Granite plateau. Land-use: low grade agriculture, peat moorland.
- 46008 Avon at Loddiswell** **EA South West**
Station: Velocity-area station. Cableway span 25.5m. Natural bed control, re-rated at low flows. No bypassing. Station closed between 6/10/1981 - 11/05/1990. Reservoir in catchment affects runoff. Some regulation from surface water and groundwater abstractions.
Catchment: Drains southwards from Dartmoor Granite. Predominantly Lower Old Red Sandstone in lower reaches, Culm Measures between. Alluvium in valley bottom. Land-use: rural, grazing and woodland in steeply incised valley.
- 47001 Tamar at Gunnislake** **EA South West**
Station: Velocity-area station with a wide, shallow channel and rocky bed, cableway span 47m. Informal Flat V bed control installed in 1989. Access problem at high flows. Theoretical rating. Shifts in rating pre-1989 due to changes in natural bed control. Good range of gaugings, reliable rating especially since 1991. Construction of Roadford Reservoir on the River Wolf may have significant effect on low flows from 1989. Abstraction for PWS, industrial and agricultural uses; some effluent returns.
Catchment: Fairly responsive, rural catchment of moderate relief, draining very disturbed lower Carboniferous slates, shales, grits and volcanics. Significant alluvial flats in middle reaches; Devonian slates low down. Land use: range of agriculture, grazing and forestry.
- 47002 Tamar at Werrington** **EA South West**
Station: Velocity-area station, discontinued in 1961.
Catchment: Rural catchment of moderate relief. Land use: range of agriculture, gazing and forestry.
- 47003 Tavy at Lopwell** **EA South West**
Station: Compound broad-crested weir 75m wide with fish pass and intake for hydroelectricity generation; outlet of Lopwell Dam, which acts at tidal barrage. Over-topping only during very exceptional floods. Gauged daily flows missing October 1959 - July 1974 and August 76. Data patchy in 1979 and up to station closure in 1980. Variety of artificial influences upstream.
- 47004 Lynher at Pillaton Mill** **EA South West**
Station: Velocity-area station, channel approx. 10.6m wide, cableway span 16.9m. D/s shoal as control. Flow in floodplain surrounding gauge not gauged. Generally reasonable rating, well gauged through range but limited confidence in upper range. Rating shift due to mobile bed and control. Imports from Sibleyback Reservoir exceed direct PWS abstraction, moderate net affect at low flows.
Catchment: Headwaters rise on Bodmin peat-covered granite moorland; thence Devonian slates and volcanics; middle reach crosses a Carboniferous shale and sandstone inlier. Drift restricted to alluvium. Land use: low grade agriculture, grazing and forestry.

47005 Ottery at Werrington Park**EA South West**

Station: Informal Flat V low flow control 10m wide with good straight approach; 18m cableway extends over flood banks. Insensitive at low flows given wide section. Revised low flow rating 2002 involves whole record reprocessing. Reaches bankfull on lb in larger floods and then bypassed on rb. Closed 1981-91. Sensibly natural although runoff influenced by gw abstraction/recharge and some effluent returns.

Catchment: Responsive, predominantly natural catchment of moderate relief draining eastwards from coastal hills, comprising mainly Devonian shales and grits and Carboniferous Culm Measures. Land use: rural, grazing and low grade agriculture, minor forestry.

47006 Lyd at Lifton Park**EA South West**

Station: Originally a velocity-area station, superseded in 1968 by a shallow, rectangular, concrete flume to overcome low-flow measurement problems. Flume has side and bed contractions, throat 3.5m wide, 0.38 m deep, and is flanked by broad crested weirs in 7.9 m wide channel. Gentle approach bend. Cableway 5 m upstream of present position prior to 1977. Largest floods may exceed bankfull and bypass station. Station closed 1981-88. Flows significantly affected by Roadford Reservoir after 1988.

Catchment: Moderate to high relief catchment draining Carboniferous Culm Measures (shales and sandstones). Land-use: wholly rural; moorland headwaters, forestry in main valleys, rough grazing, low grade agriculture.

47007 Yealm at Puslinch**EA South West**

Station: Flat V weir installed 2002, with crest tapping and downstream level measurement to calculate drowned flows. Modular at 0.82m. No rating is yet available for the new weir. Prior to 2001 station consisted of a low flow rectangular flume, 4.7m throat width, side and bottom contractions, this, in turn, superseded a velocity-area station in July 1967. Bankfull approx. mean annual flood level; downstream bridge truncates peaks. Prior to 2000 station was bypassed. Entrainment banks rebuilt in 2001, as have overtopped in the past. Closed from Sept 2001 to Dec 2002 for installation of new weir. POR maximum flow of 50.9 m³s⁻¹ in Dec 2000 is an estimate provided by the EA, which is thought to be reasonable. No liability to backwater or tidal influence. Moderate influence from public water supply and industrial/agricultural abstractions and imports.

Catchment: South Dartmoor catchment with rapid response. Headwaters drain Dartmoor Granite and metamorphosed Devonian slates. Most of catchment underlain by Devonian shales and tuffs with subordinate limestone. Land use: meadowland, arable and low grade agriculture.

47008 Thrushel at Tinhas**EA South West**

Station: Three-bay compound Crump profile weir, crests of 3.66m and 10.97m (total) length. Weir modular to structure full (2.74m) but unverified; floodbanks would contain flow for a further 0.96m; such flow extrapolated from theoretical rating. May back up from d/s conditions. Low flows significantly affected after 1988 by Roadford Reservoir (storage, pumped water transfers and HEP). Previously natural catchment.

Catchment: Catchment of moderate relief draining shales and sandstones of Carboniferous Culm Measures. Significant terrace gravels lower down in main valley. Land use: rural; grazing and low grade agriculture.

47009 Tiddy at Tideford**EA South West**

Station: Crump profile weir 5.5m wide, wing walls 2.3m high with subsidiary floodbanks. Weir fully modular when flow within flood banks. High flows gauged at road bridge. No bypassing. Theoretical rating. Good site and record. Natural flow regime.

Catchment: Elongated, linear, natural catchment. Headwaters rise from southernmost outcrop of Bodmin granite. Great bulk of the catchment on Devonian shales and slates interspersed with tuffs and lavas. Moderate relief. Land use: agricultural, dairy and mixed farming rough grazing. Some forestry.

47010 Tamar at Crowford Bridge**EA South West**

Station: Compound Crump profile weir, total crest length 11m. Above 1.65m stage (42 m³s⁻¹) piers submerge. Entrainment banks. Poor site. Flood flows not indicative of upper Tamar conditions; unusual response; reliable only for low flows. Flows substantially modified by impoundment of Tamar Lakes, 15km upstream. Runoff also reduced by public water supply abstraction.

Catchment: River drains coastal hills of West Cornwall; relief is quite subdued, and rocks outcropping are shales and sandstones of Carboniferous Culm Measures. Land-use: wholly rural; moorland and low grade agriculture.

47011 Plym at Carn Wood**EA South West**

Station: Compound Crump weir, fully modular. Centre crest of 3.5m and 2 flank crests of 4.5m. Total crest width 12.5m. Not liable to backwater or tidal effects. Theoretical rating does not apply beyond top of wingwalls. Only ever bypassed once or twice, including event in 2000. Full range station, well built. Closed in 1981, reopened 2001. Burrator Reservoir influences flows. At one time received diversions from the Dart via the Devonport Leat (~0.21 m³s⁻¹), but this has now ceased.

Catchment: The headwaters of Plym and Meavy rise on W Dartmoor granite and pass SW onto Upper Devonian slates. Insignificant areas of alluvium and river gravel exist, particularly between gauging station and Meavy-Plym confluence. Land use: moorland, forestry.

47013 Withey Brook at Bastreet**EA South West**

Station: Three-bay compound Crump profile weir, crest lengths 0.91m and 2.54m (total). Affected by subsidence post-1990 (unquantified). Poor site for high flows: possible only to gauge up to pier height, which is lower than the mean annual flood. Bypassed on right bank when out-of-bank. Theoretical rating, does not account for bypassing, with assessment made manually for each peak. Residual flow gauge for associated major public water supply abstraction. Occasional substantial diversions into the catchment from Sibleyback Reservoir. Associated climate station.

Catchment: Small catchment draining eastwards from Bodmin Moor and northwards from Craddock Moorland. Catchment of moderate relief, entirely upon the granite of Bodmin Moor, with three main tributaries flowing in distinct valleys. Widespread peat; main valley broad and marshy. Nearly 25% of the catchment is now forested.

47014 Walkham at Horrabridge**EA South West**

Station: Three-bay non-standard compound structure with 2.47 m flat V weir (on fish pass), 9.48 m wide triangular profile weir and a 8.53 m wide broad-crested weir (right bank, dry at low flows). Flat V weir on fish pass superseded a previous sharp crested weir in 1976. Good theoretical rating, though limited range calibration, upper end lacks gaugings so high flows may be unreliable. Scatter at low flow. Moderate flow modification by PWS abstraction.

Catchment: Moorland catchment draining western Dartmoor Granite. Steep, afforested valley flanks as the river leaves the granite and drains Devonian slates, limestone and volcanics. Land use: low grade agriculture, moorland and woodland.

47015 Tavy at Denham / Ludbrook**EA South West**

Station: Unconventional control comprising a flume set within shallow (0.3m) wing walls which curve through 90 deg. W to fill the whole channel (20m). Cableway spans 32m. Responsive, well contained. Good rating but greater uncertainty at higher flows due to lack of gaugings. Low flows dominated by abstractions for hydropower station and public water supply for Plymouth and the Morwellham canal.

Catchment: Responsive catchment drains from western flank of Dartmoor Granite plateau; valleys are steeply incised and forested below Tavistock. Land use: moorland, rough grazing and low grade agriculture.

47016 Lumburn at Lumburn Bridge**EA South West**

Station: Velocity-area station poorly sited on a sharp bend u/s of a road bridge. Peak flows likely to be throttled by the bridge but contained by it. Current metering by wading or from the bridge. Natural catchment with very flashy regime. Closed for health and safety reasons in March 2002.

Catchment: Moderate relief rural catchment draining Carboniferous Culm Measures and Devonian Slate. Land use: grazing, low grade agriculture.

47017 Wolf at Combe Park Farm**EA South West**

Station: Flat-V weir measuring compensation from Roadford Reservoir since 31/03/88. Prior to the building of Reservoir immediately upstream, structure was a trapezoidal flume (gauged daily flow data available for 1977-1986) measuring flow from a natural catchment; zero flow in August 1983.

Catchment: Catchment of moderate relief, draining shales and sandstones of the Carboniferous Coal Measures. Land use: grazing and low level agriculture, rural.

47018 Thrushel at Hayne Bridge**EA South West**

Station: Low level bed control between 7m wide, high angle, trapezoidal gabion wing walls, in poor section on meandering stretch with accretion problems. Cableway extends over low lb. Bypassed at high flow. Rating from gaugings, does not account for bypassing. Natural, responsive regime.

Catchment: Moderate relief, natural catchment, responsive to rainfall. Drains w flank of Dartmoor; contains carboniferous Culm measures and Upper Devonian slates. Land use: rural, agriculture and woodland.

47019 Tamar at Polson Bridge**EA South West**

Station: Informal Flat V control 18m wide between high angle trapezoidal gabion wing walls with a reasonably straight approach. Cableway just d/s of Kensey trib. Comes out of lb when Kensey in flood. Stage at bankfull above range of rating table. Significant modification of flow due to Tamar Lake operations.

Catchment: Moderate relief catchment with Carboniferous s'ts in headwaters and remainder Culm Measures (shales, l'sts, grits). Essentially rural, low grade agriculture, some forestry.

47020 Inny at Beals Mill**EA South West**

Station: Velocity area station with a low flow bed control built in 1976. Station closed 01/01/1981 - 11/10/1988 for cost saving, re-opened with new broad crested weir. Channel approximately 9.5m wide. Bankfull at 1.8m. Downstream siltation led to the drowning of the control structure during high flows in Dec 1999. Rating derived from current meter gaugings from cableway. Changes in rating due to shifting bed and shoaling. No major artificial influences.

Catchment: Mixed geology, mostly Upper Devonian, Culm Measures, Carboniferous with some areas of slate and thin limestone. Land-use: rural, low intensity agriculture, beef/sheep and dairy farms in lower reaches. No major urbanisation.

48001 Fowey at Trekeivesteps**EA South West**

Station: Three-bay compound Crump profile weir, with 1.52 m middle crest and two side crests of 2.75m (7.01 m total), superseded a broad-crested weir having central notch (limited accuracy, flow overestimated) on 4/10/68. Flood embankments ensure the full range is gauged. Substantial flow modification from associated public water supply abstraction, Sibleyback Reservoir operation, and exports.

Catchment: Moderate relief, wet moorland catchment on the Bodmin Moor Granite. Extensive hill and valley peat deposits. Kaolinised granite moderates direct runoff response.

48003 Fal at Tregony**EA South West**

Station: Originally a velocity-area station in a formalised trapezoidal channel; augmented by a low flow, side-contracted flume 2.8m wide in Aug 1967. Data available from Jun 1978, earlier data unreliable due to silting of inlet pipes. Full range station with sound high flow measurement. Moderate modification to flows owing to industrial abstractions and returns.

Catchment: Responsive catchment of moderate to low relief, draining Devonian slates, shales and grits. Upper reaches plateau-like alluvial flats. Traverses the kaolinised St Austell Granite. Land use: low grade agriculture and grazing, some woodland.

48004 Warleggan at Trengoffe**EA South West**

Station: Three-bay compound Crump profile weir, with central crest length 1.52m and two side crests of 4.265m (10.05m total). Weir fully modular. Wing walls at 1.67m. Flood banks contain flows up to wing wall height. Well confirmed by gaugings up to 0.5m; no gaugings above this. Shoaling upstream. Some siltation occurs. The only gauged natural catchment on Bodmin Moor.

Catchment: Natural catchment of moderate to steep relief. Upper 70% drains kaolinised granite; lower 30% traverses metamorphosed Devonian slates. Baseflow high for an upland catchment due to storage in the granite. Land use: rural catchment with small scattered villages on moorland. Some china clay works in upper catchment.

48005 Kenwyn at Truro**EA South West**

Station: Three-bay compound Crump profile weir with central crest length 1.22 m and two side crests of 1.52 m and 1.54 m (4.28 m total). Pier and wing wall height 1.98m. Contains all flows; potential for non-modularity at highest flows. Variable shoaling affects low flow precision. Suspect data 28 July - 23 August 2001, resulting from backing up from an informal weir which was installed immediately downstream of the Crump in June 2001. Substantially natural catchment but flood retention ponds (from January 1991) significantly moderate high flow response. High baseflow, given the catchment relief.

Catchment: Catchment of moderate relief on Old Red Sandstone and Devonian grits and shales, with wooded, incised valleys

48006 Cober at Helston**EA South West**

Station: Velocity-area station, originally with formalised rectangular channel 4m wide. Informal broad-crested weir and sluice to power a water wheel, installed in 1975, 3m d/s. May back up from Loe Pool. Moderate influence from PWS, industrial abstractions and mine pumping.

Catchment: 70% of the catchment drains the Carnmenellis Granite, the rest: grits, shales and slates of Devonian age. Subdued response to rainfall.

48007 Kennal at Ponsanooth**EA South West**

Station: Crump profile weir with 4.88m crest length, wing walls and flood banks at height of 2.2m. Modular at all recorded stages. Substantial modification to flows owing to exports from Stithians Reservoir (4 miles upstream). Abstraction for public water supply. Some industrial usage produces unpredictable hydrographs.

Catchment: Moderate to steep catchment draining the Carnmenellis Granite, with small area of metamorphosed shales and grits. Granite well weathered, giving high baseflow. Responsive to heavy rainfall.

48009 St Neot at Craigshill Wood**EA South West**

Station: Three-bay compound Crump profile weir, middle crest lengths 1.75m and side crests 2.75m (total 7.25m). Wing walls at 1.7m. Flood banks contain flows up to wingwall height. Fully modular. Natural flow regime until 1983, when Colliford Reservoir began to fill. Since, river regulation and public water supply exports. Now no bypassing as flows are moderated by the reservoir.

Catchment: Majority (70%) of upper catchment on granite intrusion of Bodmin Moor. Hill tops are rounded with some peat; valleys can be steep. Lower 30% underlain by metamorphosed Devonian slates. Entirely rural before reservoir built; some abandoned china clay pits. Baseflow high from storage in kaolinised granite.

48010 Seaton at Trebrowbridge**EA South West**

Station: Three-bay compound Crump profile weir, middle crest length 3m and side crests 4m each (total 11m). Wing walls and floodbanks at 2.05m. Thought to be fully modular. Upstream subject to siltation. Weed growth problems. Minimal interference to natural flow regime.

Catchment: Elongated, linear catchment springing from southernmost outcrop of Bodmin Granite. Great bulk of the catchment on Devonian slates and shales interspersed with tuffs and lavas. Moderate relief. Land use: low grade agriculture, grazing and forestry.

48011 Fowey at Restormel**EA South West**

Station: Compound Crump profile weir, crest lengths 3.5m and 13m (total). Piers at 1.75m, wing walls at 2.5m. Flood banks contain flows up to wing wall height. Upstream cableway, fish counter. Substantial modifications to flow from associated PWS abstraction, Colliford and Sibleyback reservoirs and other PWS exports. Superseded 48002 (Fowey at Restormel One), from which pre-1975 data is taken.

Catchment: Moderate relief catchment whose headwaters drain the kaolinised granite of Bodmin Moor. Middle and low reaches drain Devonian slates and grits. Some valley storage in gravels. Low grade agriculture, grazing and forestry.

49001 Camel at Denby**EA South West**

Station: Velocity-area station, with a concrete low flow control and a cableway, replaced an unreliable station at Grogley/Polbrook, 1km d/s, in 1954. Flood banks contain flow at the gauging section, but bypassing likely at higher flows. 1993 peak under review. Control rebuilt and structural repairs made to approach channel in 2000; rating checks carried out afterwards. Rating shifts regularly but is generally sound. Crowley Reservoir in NE of catchment affects runoff. Flows further modified by PWS abstraction and sewage effluent returns from Bodmin.

Catchment: Upper catchment drains Devonian slates (variously affected by the granite) and the Bodmin Moor Granite. Lower catchment drains Devonian slates and grits. Land use: moorland and low grade agriculture and grazing.

49002 Hayle at St Erth**EA South West**

Station: Compound Crump profile weir, with 1.22m middle crest and two side crests of 1.675m each. Piers and wing walls at 1.83m; floodbanks at 3.8m. High flows may go out of bank, but a flood channel ensures flow is contained. Superseded an unsatisfactory velocity-area station in 1968 that was seriously affected by weed growth. Weeds now controlled by cutting. Runoff influenced by groundwater abstraction/recharge. Abstraction for industrial/agricultural purposes. Mine drainage may affect the flows moderately. Slow responding catchment; much storage.

Catchment: Headwaters drain two moorland granite outcrops; majority of the catchment is underlain by grits and shales of Devonian age, crossed by dyke swarms. Mining spoil in the floodplain. Land-use: generally low grade agriculture.

49003 De Lank at De Lank**EA South West**

Station: Compound Crump profile weir, with 1.22m middle crest and side crests of 3.2m each. Divide piers 1.01 m high, wing walls 1.62m. Unusually small difference between crest elevations (0.095m). Very seldom drowned or outflanked, however, siltation problems in summer months. Difficult site to spot gauge due to high velocities. Flows substantially modified by public water supply works. Missing data in Feb 2002 due to logger failure during maintenance work.

Catchment: Moderate relief, responsive catchment on Bodmin Moor Granite. The river occupies marshy alluvial flats in the headwaters.

49004 Gannel at Gwills**EA South West**

Station: Crump profile weir, crest length 6m, wing walls 1.9m, modular throughout its range. Flood banks contain flow up to 2.78m; they may be treated as weirs for higher stages. Bypassing unlikely at stages below structure full, although the valley inundates upstream of the road bridge. Insensitive at low flows. Some problems with accretion filling a fish pool downstream of structure. Natural catchment, but mine drainage may affect low flows.

Catchment: Moderately steep catchment having subdued response, draining calcareous slates and thin limestones of the lower Devonian. Land-use: low grade agriculture, pasture.

50001 Taw at Umberleigh**EA South West**

Station: Velocity-area station, main channel 34m wide, cableway span ~40m. Rock step downstream of road bridge forms control. The river goes out of bank by bypassing well upstream. Bypassing begins at about 3.7m on right bank, but the rating accommodates this. Good rating established. Significant modification to flows owing to public water supply abstraction. Historic augmentation from the Exe catchment at low flows is no longer applicable since end 2002. Some naturalised flow data available.

Catchment: Large, rural catchment draining Dartmoor Granite in the south and Devonian shales and sandstones of Exmoor in the north. Central area underlain mainly by Culm shales and sandstones (Carboniferous).

50002 Torridge at Torrington**EA South West**

Station: Velocity-area station on straight reach; main channel 28m wide, cableway span 57m. Overtopping begins on left bank at about 3.3m. Station reconstructed in 1977. Low profile structure installed 2006 to mimic and stabilise natural bed control. Well calibrated throughout range. Records prior to October 1962 unreliable. Moderate modification to flows from Meldon Reservoir. Runoff also affected by abstraction for public water supply and industry/agriculture and effluent returns.

Catchment: Large, rural catchment draining coastal hills in the west and Dartmoor Granite in the south. Geology mostly Carboniferous shales and sandstones of the Culm. Land-use: moorland, rough grazing and low-grade agriculture.

50003 Taw at Sticklepath**EA South West**

Station: Rectangular thin-plate weir/velocity-area station with ratings derived by current metering. Reopened in 2005, previously gauged daily flow data for 1980-81 only. Flows affected by public water supply abstractions and groundwater abstractions/recharge.

Catchment: Small steep catchment draining north Dartmoor. Granite geology with small area of carboniferous slates. Land-use: primarily moorland, some pasture and woodland in lower catchment.

50005 West Okement at Vellake**EA South West**

Station: Rectangular thin plate weir flanked by compound broad-crested weirs under a bridge. Crest length approx 7.5m. Bankfull level at 1.1m; large floods bypass station. Telemetry installed at this remote site using satellite technology. Lack of suitable metering sites renders rating difficult; some has been attempted at a bridge downstream. Low flows dominated by Prewley Water Treatment Works' abstraction upstream.

Catchment: Catchment drains northwards from the highest area of Dartmoor. Wholly on granite. Channel is wide, meandering and rocky. Land-use: moorland.

50006 Mole at Woodleigh**EA South West**

Station: Velocity area station with cableway, rock ledges/gravel shoals as controls. Straight reach. Goes out-of-bank on left bank. Bypassing occurs. Low flows moderately affected by public water supply abstraction and augmentation from Exe-Taw transfers.

Catchment: Fairly responsive catchment of moderate relief descending from Exmoor through incised, forested valleys. Geology of sandstones and shales; Devonian in headwaters, Carboniferous lower down. Land-use: predominantly rural; grazing and low grade agriculture.

50007 Taw at Taw Bridge**EA South West**

Station: Flat V weir constructed in 1998 replaced the original velocity area station that had an unstable bed control. Crest length approximately 15m wide. Daily mean flows missing between 24/08 - 30/11/98 due to construction of weir. Station is bypassed. Shallow at low flows. Re-rated in 1998, following weir construction. Some disagreement between pre- and post-weir rating at high flows causes higher AMAX values in latter part of the record. Water abstractions at Taw Marsh, Dartmoor, ceased around 1999. Before this, low flows would have been affected. Cheese factory at North Taw bridge abstracts from borehole but also compensates into river at low flow.

Catchment: Catchment drains Dartmoor (Granite) in the south and is underlain mainly by Culm shales and sandstones of Carboniferous age centrally. Land-use: mainly rural.

50008 Lew at Gribbleford Bridge**EA South West**

Station: Informal Flat V control, built in 1988, 10.4m wide between high-angle, trapezoidal gabion wing walls, replaced by more formal Flat-V construction in 2002 at or about same location. On gentle bend with reasonably straight approach. Daily mean flows missing between 27/06 - 22/10/2002 due to reconstruction. Cableway. Large floods inundate left bank, and very high flows will bypass station. No backwater effects. Natural catchment but station installed to monitor potential transfer from Roadford Reservoir.

Catchment: Natural catchment of moderate relief draining Carboniferous Culm Measures (shales, limestones, sandstones). Land-use: wholly rural, moorland and rough grazing, minor forestry.

50009 Lew at Norley Bridge**EA South West**

Station: Informal Flat V low flow control, 6.7m wide between high-angle, trapezoidal gabion wing walls. Gauging is by wading at low flows, off the upstream bridge at high flows. Bypassing occurs. Station installed to monitor potential transfer from Roadford Reservoir.

Catchment: Responsive, natural catchment of moderate relief draining Carboniferous Culm Measures (shale, limestone, sandstone). Land-use: wholly rural, rough grazing, low grade agriculture and a little forestry.

50010 Torridge at Rockhay Bridge**EA South West**

Station: Informal Flat V low flow control between high-angle, trapezoidal gabion wing walls. Sited on a bend. Gauging was from an iron footbridge upstream but cableway now installed. Large flows inundate wide flood plain upstream of the bridge. Station installed to monitor potential transfer from Roadford Reservoir.

Catchment: Substantially natural catchment of moderate relief, draining Carboniferous Culm Measures (shales and sandstones). Close to North Devon coast. Land-use: mostly grazing, low-grade agriculture and minor forestry.

50011 Okement at Jacobstowe**EA South West**

Station: Flat V weir with cableway constructed in 1991 (station reopened on 11/9/91), previously natural bed control 2/11/73-6/10/81 (station closed due to national cut-backs). Channel at the station approximately 17m wide. No bypassing. Re-rating carried out for the new weir in 1991. Flows partially controlled since the early 1970s by the influence of Meldon Reservoir upstream.

Catchment: Catchment of mixed geology: mostly Carboniferous (shale, sandstone) with some areas of Permian (Knowle Sandstones) and alluvium. Land-use: mostly rural, moorland in headwaters; some urbanisation, with Okehampton in the catchment.

50012 Yeo at Veraby**EA South West**

Station: Velocity-area station built in 1968 having natural bed control. Some loose stone so susceptible to change. Minimal bypassing occurs. Some out-of-bank flow, especially on right bank upstream of bridge, but all contained at station. Trees alongside the river. Historic augmentation from the Exe catchment at low flows not applicable since end 2002.

Catchment: Catchment drains Devonian shales and sandstones of Exmoor and is underlain by Carboniferous Culm Measures in the centre. Land-use: rural.

51001 Doniford Stream at Swill Bridge**EA South West**

Station: Opened in 1967 as velocity-area station with rock control. Flat V weir installed in August 1983 for low flows. High flows measured from a gauging bridge constructed upstream of the weir. Flow data unavailable 1/08/83-31/3/84. Rating review conducted in 2001. Some minor abstraction upstream for fish farming but flows not affected.

Catchment: Catchment drains Devonian/Triassic sandstones between Quantock and Brendon Hills. Land-use: mostly rural; some urbanisation.

51002 Horner Water at West Luccombe**EA South West**

Station: Triangular profile Crump weir for low flows, 4.5m broad crest, plus rated section at higher flows. Most flows contained, but some underflow may occur. Station closed from September 1979 to April 1985, reopened with telemetry facilities. A small reservoir (Nutscale Reservoir) in headwaters affects runoff, especially with compensation flows in Summer. Seemingly anomalous water balance under review.

Catchment: Upper catchment has steep-sided, wooded valleys draining Exmoor. Geology of Mid Devonian Grits and Lower Devonian Old Red Sandstone. Land-use: rural.

51003 Washford at Beggearn Huish**EA South West**

Station: Opened in 1966 as a velocity-area station. Flat V fibreglass weir, 4.5m crest, installed in 1982. Station closed from 1/07/80 to 6/6/83 for weir construction. Out-of-bank flow before bankfull at station. Fish farm and mill upstream do not significantly affect daily mean flow.

Catchment: Steep catchment with many deeply incised valleys draining Brendon Hills. Geology of Devonian Slates, Siltstones and Sandstones. Land-use: predominantly rural; coniferous woodland on valley sides.

52001 Axe at Wookey**EA South West**

Station: Flume gauge installed to measure medium and low flows. Data from 1956 - 68. Reopened on 1/6/94 at same site.

Catchment: Axe rises as underground river from cave at Wookey Hole. Geology includes measures of Old Red Sandstone, Carboniferous Limestone and Triassic conglomerates. Complex structure with numerous springs and swallows due to fissured limestones with impermeable beds. Catchment area probably underestimated: northern and western limits of topographic catchment approximate to the underground catchment but the eastern limit of the latter likely to lie considerably farther east than the former. Land use: rural.

52002 Yeo at Sutton Bingham Res.

Station: Concrete flume, equipped with ultrasonic level recorder, located immediately downstream of Sutton Bingham Reservoir spillway. Station reopened in 2003, having been closed since September 1968.

52003 Halsewater at Halsewater**EA South West**

Station: Flat V weir, 6m wide of fibreglass construction, located 0.5 km upstream of confluence with River Tone, replaced original velocity-area station in August 1981. Flows in excess of 7 m³s⁻¹ result in out-of-bank flow approximately 180m upstream of station and bypassing occurs. Above 18.7m AOD, flows are affected by backwater from the River Tone. Flood attenuation reservoir constructed at Norton Fitzwarren, approximately 2 km upstream, commissioned December 2007. Station is part of the flood warning system for Taunton.

Catchment: Catchment of mixed geology - predominantly Jurassic limestone, sandstone and marl, with headwaters in Brendon Hills. Impermeable rock and steep sloping upper catchment result in rapid response to rainfall. Land use: mainly rural.

52004 Isle at Ashford Mill**EA South West**

Station: Crump profile weir for low flows, crest 6.71m broad, located approximately 300m upstream of Ashford Mill House. Modular limit of 0.6m. Velocity-area station for higher flows. Downstream weed growth affects the stability of the stage-discharge relationship. Bypassing of station at high flows; extensive floodplain storage occurs next to the station before bankfull reached. Flows influenced by minor groundwater abstraction, but augmented by effluent returns; evidence of mill/factory discharges on charts.

Catchment: Very responsive, impermeable catchment, predominantly comprising of Lower Lias clays. Land use: rural.

52005 Tone at Bishops Hull**EA South West**

Station: Crump profile weir built in 1968 (breadth 12.2m). Original crest tapping now removed. Full range station. Out-of-bank flow occurs before bankfull; during extreme events weir is drowned by backwater from downstream bridge, causing floodplain inundation. As a velocity-area station up to March 1968, flows were unreliable below 1.42 m³s⁻¹. Rating revision (2001) produced significant decrease in peak flows. Compensation flow from Clatworthy and smaller Luxhay Reservoirs in the headwaters maintain low flows but neither reservoir is large enough to influence the catchment's fairly rapid response to rainfall. Minor SW abstractions for PWS and agriculture.

Catchment: Fairly responsive catchment draining from Brendon Hills, predominantly comprises sandstones in the upper- and clays in the lower-catchment. Land use: rural.

52006 Yeo at Pen Mill

EA South West

Station: Crump profile weir for low flows, set within trapezoidal concrete flanks and topped with the natural banks, becomes velocity-area station at high flows. All but highest floods contained. Highest flows can be gauged at upstream bridge. Station moved slightly in 1989, due to stilling-well problems; bank repairs undertaken in 1997/98. Station may be affected by downstream weed growth. Rating reviewed in Jan 2001. Sutton Bingham Reservoir in headwaters. Flows influenced by various abstractions and compensation.

Catchment: Fairly responsive catchment with Oxford Clay and Great Oolite in the upper catchment, Yeovil Sands and Inferior Oolite in the lower catchment. Land use: predominantly rural.

52007 Parrett at Chiselborough

EA South West

Station: Crump weir (breadth: 7.87m) with crest tapping, situated in bridge culvert. Full range station. Throttling of high flows by bridge, cause hydrograph to exhibit a lagged response. Weir drowning more frequent prior to downstream channel improvements in 1966. Flows calculated from crest tapping before April 1967 are erroneous due to leak in float well. Rating has shifted over time due to tree and shrub growth downstream. The POR maximum flood occurred in May 1979 - the exceptional peak flow of 173 m³s⁻¹ is a result of a new rating, which is supported by modelling work (including floodplain flows) undertaken by Mott McDonald. Minor flow augmentation from effluent returns.

Catchment: Fairly responsive catchment predominantly Oxford Clay with small band of Upper Greensand and Gault in headwaters. Land use: rural.

52008 Tone at Clatworthy Reservoir

EA South West

Station: Two thin plate and 1 broad crested weirs located 15m downstream of Clatworthy Reservoir spillway. Flow record discontinued from September 1968.

52009 Sheppey at Fenny Castle

EA South West

Station: Crump profile weir for low flows, crest 5.18m broad. Velocity-area station for flows greater than 1.84 m³s⁻¹. D/S weed growth affects the stability of the stage-discharge relationship. Full range station. All flows contained station but may go out-of-bank u/s before bankfull at site. Minor groundwater abstractions in catchment. Some augmentation from effluent returns.

Catchment: Catchment of mixed geology with carboniferous limestone in the upper- and sandstone in the lower-catchment. Land use: rural.

52010 Brue at Lovington

EA South West

Station: Crump profile weir for low flows, crest 6.71m broad. Velocity-area station for flows above 2.2 m³s⁻¹. Downstream summer weed growth affects the stability of the stage-discharge relationship. Lower section is rating for theoretical weir; reliable extension of rating to bankfull (3.9m stage) but no data to allow extension beyond this, although all but extreme peaks contained in deep section. Station rebuilt in 1998. No daily mean flows between 27/7 and 1/11/98. Rating reviewed in Jan 2001. POR maximum flow of 142 m³s⁻¹ in May 1979 is derived from the latest rating, but subject to considerable uncertainty owing to extrapolation. Sensibly natural regime.

Catchment: Headwaters fed by Mendip and Salisbury Plain springs. Geology comprises Oxford Clay and Great Oolite in the upper- and Yeovil Sands and Inferior Oolite in the lower-catchment. Land use: predominantly rural.

52011 Cary at Somerton

EA South West

Station: Compound Crump profile weir, approximately 330m upstream of Cary Bridge. Centre section 3.05m broad, two side sections 1.22m broad. Velocity-area station for flows greater than 4.4 m³s⁻¹. Downstream summer weed growth affects the stability of the stage-discharge relationship. Full range station. Banks contain all but exceptional floods. Rating reviewed 2001. Minor groundwater abstractions and some augmentation from effluent returns.

Catchment: Catchment predominantly of Lower Lias and Oolitic Limestone. Land use: rural.

52014 Tone at Greenham

EA South West

Station: Compound Flat V Crump profile weir, 8.06m wide, installed in 1979/80. Previously (to August 1979) a velocity-area station with unstable bed. At high flows, estimates made from debris marks as surrounding land floods. Data missing from January 1978 to July 1981. Flows above 9.66 m³s⁻¹ truncated since 1981. Low flows maintained from Clatworthy Reservoir. Some abstractions for public water supply.

Catchment: Catchment predominantly comprising Old Red Sandstone, upper part draining the Brendon Hills. Land use: rural.

52015 Land Yeo at Wraxall Bridge

EA South West

Station: Triangular profile Crump weir, crest 5m wide, then rated section within wing walls. All flows contained. Closed from September 1979 to May 1985. Reopened following installation of telemetry. River weedy but weir cleared regularly. Rating confirmed by gaugings to 0.3 m; validity does not extend beyond 0.4 m, where reasonable extrapolation would end. Uncertain rating at high flows. Barrow Gurney reservoirs in catchment.

Catchment: Drains Dundry Hill. Moderate relief in headwaters, low relief in lower reaches. Mixed geology of lower and middle Coal Measures, carboniferous oolitic limestone and Triassic marls and sandstones. Land use: predominantly rural, some urbanisation.

52016 Currypool Stream at Currypool Farm

EA South West

Station: Crump profile weir, crest 4m broad. Velocity-area station for flows greater than 1.654 m³s⁻¹. Likely to go out-of-bank before bankfull at station. Highest flows exceed bankfull, gaugings needed to confirm rating in this range. Rating is acceptable to 0.4m but needs to be confirmed between 0.4 - 0.8m. Minor surface water abstractions.

Catchment: Catchment, predominantly of Old Red Sandstone and Marl, whose headwaters drain the Quantock Hills. Land use: agricultural.

52017 Congresbury Yeo at Iwood

EA South West

Station: Crump weir, crest 5m broad, installed 1973. Station closed February 1975 to August 1985; reopened with telemetry facilities. Very patchy record before 1975. Bankfull 1.3m. Bypasses at high flows. Extensive out-of-bank flow on surrounding pasture during large events. Flood warning station for Congresbury, approximately 1km d/s. Runoff reduced by PWS abstraction. Blagdon Reservoir (approximately 2 km²) situated in headwaters.

Catchment: River rises from western slopes of the Mendips. Catchment geology comprises carboniferous limestone, Keuper Marl and estuarine alluvium. Land use: predominantly rural with some small settlements.

52020 Gallica Stream at Gallica Bridge

EA South West

Station: Hybrid weir (v-notch/Crump) beneath a bridge, theoretically rated. Considered reliable over whole range.

Catchment: Rural catchment developed on Oolitic limestone.

52025 Hillfarrance at Milverton

EA South West

Station: Flat V weir for low flow, with rated section for high flows, opened in 1991 as part of the flood warning system for Taunton. Wing walls higher than surrounding land. Meanders downstream cause backing-up at high flows, with inundation before structure is full (1.15m) and extensive bypassing. Sewage treatment works upstream of site. Original rating, based on theoretical flat V equation, altered because gaugings show lower than expected flows.

Catchment: Catchment predominantly comprising Permo-Triassic and Carboniferous mudstone, siltstone and sandstone. Land-use: rural

52026 Alham at Higher Alham

EA South West

Station: Standard Flat V weir, 2.5m wide, 1:10 cross-slope. Station opened in June 1982 to investigate the effects on groundwater due to quarrying. Low flow control, structure drowns out at 0.3m. Some flows in 1984 and 1986 suspect due to sticking chart recorder, flows in 1985 missing; replaced at end of 1986. Contributing area may be greater than the topographic catchment area.

Catchment: Predominantly limestone geology. Land use: pasture.

53001 Avon at Melksham

EA South West

Station: VA with cableway. Discontinued in 1980. Gaugings completed in 1975/76 (upon which the recent Flood Studies high flows are based) suggest that archived dmfs appreciably underestimate the true discharge.

53002 Semington Brook at Semington

EA South West

Station: Formalised trapezoidal section with a 6m wide non-standard weir and a cableway located 3km upstream of the confluence with the River Avon. Replaced downstream velocity-area station in 1970 (superseded due to low banks and backwater from the Avon at high flows). Flood records for period prior to Apr 1970 are therefore poor. Station rated to 19.83 m³s⁻¹. High flows still thought to be effected by backwater from the River Avon. Bed-mounted hydro-acoustic gauge installed September 2006. Flows influenced by some GW pumping, SW abstractions and effluent returns, Mill operation upstream.

Catchment: Catchment flat and low lying, mainly clay with steeper Chalk eastern boundaries. Land use: predominantly rural.

53003 Avon at Bath St James

EA South West

Station: Velocity-area station located approximately 180m upstream of Pultney Weir, Bath. Flows affected by abstractions for public water supply, groundwater abstractions/recharge and effluent returns. Gauged daily flow record discontinued October 1969.

Catchment: Geology comprises clays, limestones, sst, conglomerates and other rocks. Land use: mostly rural but with some urban areas.

53004 Chew at Compton Dando

EA South West

Station: US gauge in deeply incised channel superseded (Nov. 2007) trapezoidal flume - flows reprocessed following 2001 rating review. Full range but backing-up causes flow overestimation above 2m. 1968 peak (the POR max. - caused bank collapse; 1968/69 computed flows affected) may be overestimated (sig. extrapolation and debris in the flume). Large storage reservoir of Chew Valley Lake in Headwaters; major impact on regime and water balance. Monthly naturalised series available to 1980.

Catchment: Mixed geology - predominantly clay. Headwaters fed by limestone springs. Steep valleys d/s of reservoir on impermeable Coal Measures. Rural.

53005 Midford Brook at Midford

EA South West

Station: Trapezoidal critical depth flume 2.4km upstream of confluence with the River Avon. Full range station. The channel bed in the vicinity of the station consists of large stones and alluvium and is lined in parts with trees and vegetation. Algal growth affects sensitivity at low flows. Bypassing may occur on left-hand bank above 3m stage. Ultrasonic gauge installed November 2007. Flow affected by some groundwater abstraction/recharge, surface water abstractions for public water supply and effluent returns.

Catchment: Predominantly impermeable catchment of Lias with Coal Measures. Deep steep sided valleys in catchment, responds rapidly to rainfall. Land-use: mainly rural but contains towns of Midsomer Norton and Radstock.

53006 Frome (Bristol) at Frenchay**EA South West**

Station: Trapezoidal critical depth flume. Full range station. Flume designed on basis of pre-urbanisation flow estimates - site swamped in storms of 1965 and 1968. Extra retaining walls have been installed.

Catchment: Catchment of complex geology: eastern and central catchment dominated by sandstones of the Coal Measures and Mercia Mudstone; west less permeable having Mercia Mdst and Liassic clays. Superficial deposits are meltwater gravels and terraces, mainly in west. Land-use: large proportion of urban development (~23%) in catchment, otherwise rural.

53007 Frome(Somerset) at Tellisford**EA South West**

Station: Trapezoidal critical depth flume. Full range station. Deeply incised channel at station; all but extreme floods contained, although some over-bank upstream storage. Ultrasonic gauge installed November 2007. Pumping station upstream of gauging station. Substantial groundwater abstractions in catchment. Detention lakes 5 to 6km upstream may truncate peaks.

Catchment: Responsive catchment predominantly of limestone, with impermeable clays in Frome Gap and Coal Measures in Mells Valley. Land-use: predominantly rural.

53008 Avon at Great Somerford**EA South West**

Station: Compound Crump profile weir having low flow crest between two flanking sections. Situated 90m downstream of Great Somerford road bridge. Full range station. All except extreme flows (e.g. Jul 1968 drowned the structure) contained. River goes out-of-bank upstream before bankfull at station. Flows augmented by groundwater scheme in catchment.

Catchment: Catchment mainly comprises Oolitic Limestone, with left bank tributaries draining off clays. Generally rapid to peak but slow recession. Land use: predominantly rural.

53009 Wellow Brook at Wellow**EA South West**

Station: Trapezoidal critical depth flume on incised channel. Full range station. Slight bypassing on right-hand bank. Backing-up from bridge downstream occurred during Jul 1968 flood (flow ~30 m³s⁻¹). Mean Annual Flood adequately gauged; 100-year flow estimate within modular limit of the flume. Bed-mounted hydro-acoustic gauge installed July 2007. Algal growth affects sensitivity at low flows.

Catchment: Catchment dominated by geology of Lias and Oolitic Limestone. The watercourse lies on a thin band of the Trias and Lias that overlays the coal measures of the Somerset coal field. Steep-sided valleys and rapid rainfall response. Land-use: predominantly rural but contains towns of Midsomer Norton and Radstock.

53013 Marden at Stanley**EA South West**

Station: Trapezoidal critical depth flume. Full range station. Level only station prior to July 1969. Stanley Bridge, 100 - 150m upstream, causes throttling at high flows. The state of the banks suggests backing-up effects. Ultrasonic gauge installed November 2007. The river is lined with trees and vegetation, which encroach on the river and may restrict flow. Minor surface water abstractions and discharges in catchment.

Catchment: Predominantly clay catchment, with Chalk outcrop in headwaters. Land-use: mainly rural; the towns of Calne and Lyneham are the only significant urban areas.

53017 Boyd at Bitton**EA South West**

Station: Flat V Crump profile weir, crest 8m broad, located approximately 1.5 km upstream of confluence with the River Avon (Bristol). Rated section for high flows. Situated in rectangular sheet-piled section, 4m deep. Full range station. Maintenance difficult. Rating determined on installation; no gaugings to confirm high flow rating with confidence.

Catchment: Predominantly clay catchment. Land-use: mainly rural with some urbanisation.

53018 Avon at Bathford**EA South West**

Station: VA station with cableway, next to railway bridge 4km u/s of Bath (replacement for 53003). Widely inundated in flood conditions, but all flows contained through bridge. Deterioration of Bathampton weir, has rendered the stage/discharge relationship inaccurate at flows below 15 m³s⁻¹. Side-looking hydro-acoustic gauge installed to improve the flow measurement. Flows affected by SW and GW abstractions for PWS, and augmented by GW scheme and effluent returns.

Catchment: Catchment Geology: predominantly clays and limestone; eastern tributaries rise from Chalk. Land-use: mainly rural, some urbanisation.

53019 Woodbridge Brook at Crabb Mill**EA South West**

Station: Compound rectangular thin-plate weir, having 1.52m centre section and two 0.76m wings. Measuring capacity of 1.4 m³s⁻¹, above which rating may be unreliable. Substantial groundwater abstractions in catchment.

Catchment: Impermeable clay catchment. Land-use: predominantly rural.

53020 Gauze Brook at Rodbourne**EA South West**

Station: Rectangular thin-plate weir. Measuring capacity of weir is 0.566 m³s⁻¹, above which flows are estimated. Primarily a low flow station; monitors impact of groundwater abstraction/recharge on river flow, which may cause abrupt rises in summer months.

Catchment: Predominantly limestone catchment. Land-use: rural.

53022 Avon at Bath ultrasonic**EA South West**

Station: Multi-path ultrasonic in sheet piled channel, replaced original Harwell single-path instrument in 1996. Data quality considered questionable until refurbishment in 2000, when 10-path equipment, with much better height distribution, was installed. Flows not processed between December 1984 and 2000. Flows affected by abstractions for public water supply and augmentation from groundwater scheme.

Catchment: Catchment of mixed geology: predominantly clays and Oolitic Limestone; eastern tributaries rise from Chalk. Land-use: predominantly rural with some urbanisation.

53023 Sherston Avon at Fosseyway**EA South West**

Station: Flat V Crump profile weir, crest 7m broad. Full range station. Flows heavily influenced by groundwater abstraction/recharge and augmented by groundwater scheme in catchment. Gate activity upstream may also affect flows. Artificial influences contributed to lowest flows on record in November 1978.

Catchment: Catchment predominantly comprising Oolitic Limestone. Land-use: rural.

53024 Tetbury Avon at Brokenborough**EA South West**

Station: Flat V Crump profile weir, crest 7m. Low flow station. Rating not extended above the measuring capacity of the weir and peaks on the hydrograph are truncated. Groundwater abstractions in catchment. Some augmentation from effluent returns.

Catchment: Catchment predominantly comprising Oolitic Limestone. Land-use: rural.

53025 Mells at Vallis**EA South West**

Station: Crump profile weir, crest 6m broad. Full range station. All but highest flows contained within structure. Station opened in 1980 in connection with monitoring of Mendip quarrying impacts. Theoretical rating for the weir, valid until the modular limit, but less certain above. Minor augmentation from effluent returns.

Catchment: Catchment predominantly of Carboniferous Limestone with Coal Measures. Land-use: rural, with numerous old/disused quarries; urbanisation limited to a few small villages.

53026 Frome (Bristol) at Frampton Cotterell**EA South West**

Station: Crump profile weir, crest 7.5m broad. Full range structure, but drowns out at high flows. Theoretical rating used since installation. Gaugings suggest flows may be 5% higher than calculated and rating could be reviewed. Detention lakes 4 to 6km upstream may truncate peaks. Pumping station upstream.

Catchment: Responsive catchment mainly comprising Coal Measures east of the River Frome and Lias to the west. Land-use: mainly rural; contains the town of Yate.

53028 By Brook at Middlehill**EA South West**

Station: Flat V weir, 8m wide, for low flows, then rated section for higher flows. Wing walls at 2m contain most floods. Highest observed flow at bankfull (2.11m), as which level flows become obstructed by a footbridge at the station. Present rating developed in 1996, based on theoretical weir rating and gaugings, applied retrospectively to the beginning of the record, should not be extrapolated beyond bankfull. Minor surface water abstractions in catchment. Gate activity upstream.

Catchment: Catchment predominantly underlain by Great Oolite Limestone and Midford Sands of the Upper Lias in some areas. Land use: mainly rural; limited urban areas at Battiford, Box and Colerne.

53029 Biss at Trowbridge**EA South West**

Station: Crump profile Flat V weir (1:10), 7.13m wide, set in deep culvert with vertical walls. Good approach, large downstream fall. Backing-up may occur from downstream due to debris. Rating reviewed in 2001. Previously two ratings existed: the first, a theoretical rating, was used from 1984-92; the second, fitted to gaugings, was used from 1992. Ultrasonic gauge installed December 2006. Moderate influence on low flows by abstractions and discharges. Data suggest topographical and groundwater catchment areas do not coincide.

Catchment: Moderate relief catchment situated along the Frome gap. Drains Chalk escarpment to the south-east, but is mostly underlain by Jurassic clays. Land-use: predominantly rural but contains towns of Trowbridge and Westbury.

54088 Little Avon at Berkeley Kennels**EA South West**

Station: Velocity-area station replaced, in 2000, earlier gauging station which suffered from afflux from ornamental bridge upstream. New site is 10m upstream, of the bridge, in rectangular concrete channel; gauged from road bridge. Rating is stable for low to medium flows. High flows are influenced by flood gates downstream, which are in place to cope with the large tidal range of the River Severn and extreme events. Moderate influence from public water supply abstractions and spray irrigation. Daily mean flow data missing from June 2002 to January 2004.

Catchment: Responsive catchment with steep headwaters which drain complex sequence of limestones, sandstones and clays of Lower and Middle Jurassic; flat Vale of Berkeley is underlain by Cambrian inlier, Keuper Marl and Lias clays. Land-use: rural.

GAUGING STATION REGISTER

Region: EA North West

Area: 14,445 km²

Average rainfall (1971-2000): 1225 mm

Gauging Station Register I

Station number	River name	Station name	Grid reference	Catchment area	Station type	SLA	Period of record	Percent complete	Base Flow Index	Mean ann. rain (mm)	Mean ann. runoff (mm)	Mean ann. loss (mm)	Mean flow (m ³ /s)	Q95 (m ³ /s)	Q70 (m ³ /s)	Q50 (m ³ /s)	Q10 (m ³ /s)	Median ann. flood (m ³ /s)	Peak flow (m ³ /s)	Date of peak	7-day min. (m ³ /s)	Date of min.
68001	Weaver	Ashbrook	SJ670633	622.0 VA	*	1937-05	99	.52	753	296	457	5.86	1.16	2.27	3.26	13.6	46.5	142.9	08/02/46	0.53	16/08/76	
68002	Gow	Picton	SJ443714	156.2 VA		1949-76	100	.51	743	235	508	1.23	0.26	0.48	0.73	2.7	13.9					
68003	Dane	Rudheath	SJ668718	407.1 FVVA	*	1949-05	98	.52	872	398	474	4.88	0.93	1.89	3.05	10.6	56.7	129.8	13/12/64	0.44	20/07/96	
68004	Wistaston Brook	Marshfield Bridge	SJ674552	92.7 VA	*	1957-05	100	.60	754	312	442	0.94	0.22	0.46	0.66	1.8	11.2	22.9	10/08/04	0.10	19/07/96	
68005	Weaver	Audlem	SJ653431	207.0 TPVA	*	1953-05	98	.52	740	246	494	1.60	0.23	0.49	0.84	3.9	10.8	34.5	06/11/00	0.05	23/08/76	
68006	Dane	Hulme Walfield	SJ845644	150.0 VA		1953-84	81	.48	1041	507	534	2.39	0.41	0.98	1.42	5.4	49.8	113.5	08/09/65			
68007	Wincham Brook	Lostock Gralam	SJ697757	148.0 VA	*	1962-05	99	.50	840	422	418	1.96	0.30	0.73	1.23	4.1	19.7				0.04	20/07/94
68011	Arley Brook	Gore Farm	SJ696799	36.5 FL		1975-82	77	.33	844	333	511	0.46	0.02	0.09	0.19	1.1	6.1	11.4	18/11/81			
68015	Gow	Huxley	SJ497624	49.0 VA		1970-05	90	.46	722	253	469	0.43	0.08	0.16	0.25	0.9	8.0	19.5	06/08/81	0.05	17/09/96	
68020	Gow	Bridge Trafford	SJ448711	156.0 FV	*	1979-04	100	.46	728	232	496	1.16	0.21	0.39	0.59	2.5	15.2	20.8	06/11/00	0.12	27/07/90	
68044	Dane	Hugbridge	SJ931636	72.9 FV		2000-05	100	.52	1250	951	299	2.19	0.46	0.92	1.46	4.8	46.6	177.1	23/10/98	0.31	01/10/03	
69001	Mersey	Irlam Weir	SJ728936	679.0 CB		1921-78	78	.56	1119	657	462	14.18	3.85	7.18	9.85	27.9	151.5				1.04	25/08/55
69002	Inwell	Adelphi Weir	SJ824987	559.4 B	*	1949-05	98	.50	1266	1000	266	17.65	4.96	8.00	11.18	36.8	230.2	540.0	20/09/46	2.46	27/07/51	
69003	Ir	Scotland Weir	SJ841992	72.5 CB		1937-01	74	.53	1046	778	268	1.79	0.41	0.91	1.31	3.5	36.5	73.3	11/06/70			
69004	Etherow	Bottoms Reservoir	SK023971	78.2 TP		1945-81	97	.39	1481	527	954	1.31	0.29	0.53	0.59	2.9	33.4	98.9	09/12/65			
69005	Glaze Brook	Little Woodlen Hall	SJ685939	152.0 US		1954-00	56	.52	967	673	294	3.35	0.77	1.59	2.24	7.1	30.6	41.4	30/10/00			
69006	Bollin	Dunham Massey	SJ727875	256.0 VA		1955-05	98	.57	890	551	339	4.42	1.20	2.11	3.00	9.0	39.2	54.4	13/12/64	0.60	24/08/76	
69007	Mersey	Ashton Weir	SJ772936	660.0 CB	*	1976-05	100	.54	1113	605	508	12.51	3.19	5.58	8.05	25.1	154.7	244.8	04/12/60	2.03	24/08/84	
69008	Dean	Stanneylands	SJ846830	51.8 CC		1976-05	99	.51	959	487	472	0.80	0.12	0.30	0.50	1.8	9.1	20.1	27/10/98	0.05	08/07/76	
69012	Bollin	Wilmslow	SJ850815	72.5 CC	*	1976-05	100	.61	947	552	395	1.27	0.46	0.67	0.91	2.5	15.3	45.6	27/10/98	0.31	23/08/76	
69013	Sinderland Brook	Partington	SJ726905	44.8 CC		1976-05	96	.56	822	373	449	0.53	0.16	0.25	0.35	1.0	7.4	19.4	06/08/81	0.10	22/08/76	
69015	Etherow	Compstall	SJ962908	156.0 C		1971-05	91	.52	1312	634	678	3.09	0.75	1.21	1.77	6.7	43.1	92.5	22/02/02	0.42	10/05/82	
69017	Goyt	Marple Bridge	SJ964898	183.0 CC	*	1969-05	86	.54	1140	644	496	3.70	0.76	1.40	2.28	8.2	48.3	165.5	16/07/73	0.42	24/08/76	
69019	Worsley Brook	Eccles	SJ753980	24.9 FL		1969-01	66	.48	951	381	570	0.30	0.06	0.14	0.20	0.6	5.1	15.0	28/12/78			
69020	Medlock	London Road	SJ849975	57.5 VA		1975-05	100	.53	1050	464	586	0.83	0.23	0.40	0.56	1.6	20.2	53.5	19/10/71	0.13	01/10/03	
69022	Inwell	Inwell Vale	SD791201	101.0 VA		1996-01	100	.41	1385	1015	370	3.27	0.70	1.16	1.74	7.2	221.6	24/10/98	0.56	31/07/01		
69023	Roch	Blackford Bridge	SD807077	186.0 VA		1976-05	100	.51	1261	850	411	4.95	1.48	2.15	2.93	10.2	71.9	152.6	01/02/95	1.14	20/08/95	
69024	Croal	Farnworth Weir	SD743068	145.0 B		1976-05	100	.40	1329	664	665	3.02	0.65	1.10	1.57	6.9	59.5	136.9	18/07/64	0.33	18/09/96	
69027	Tame	Portwood	SJ906918	150.0 MIS	*	1969-05	93	.57	1182	855	327	4.04	1.30	2.08	2.76	7.7	56.8	93.8	19/08/57	0.87	20/08/76	
69030	Sankey Brook	Causey Bridge	SJ588922	154.0 VA	*	1977-05	100	.54	910	530	380	2.59	0.80	1.24	1.70	5.3	18.3	36.0	30/10/00			
69032	Alt	Kirkby	SJ392983	90.1 MIS	*	1977-05	94	.53	880	481	399	1.39	0.50	0.68	0.90	2.8	16.1				0.33	19/09/96
69033	Alt	Sefton	SD359012	100.0 VA		1954-75	31	.66	866	661	205	2.30	0.88	1.42	1.86	4.1	19.3	06/11/54				
69035	Inwell	Bury Bridge	SD797109	155.0 VA		1976-98	99	.33	1344	1025	319	5.10	0.21	1.36	2.50	12.2	206.5	454.1	31/01/95	0.00	02/10/89	
69037	Mersey	Westy	SJ617877	2030.0 US		1986-05	88	.54	1075	567	508	37.09	7.84	18.21	26.47	81.8						
69039	Medlock	New Viaduct Street	SJ863987	55.9 B		1949-76	45	.41	1077	639	438	1.09	0.14	0.43	0.71	2.3					0.09	29/09/59
69041	Tame	Broomstair Bridge	SJ938953	113.0 USVA		1974-05	89	.59	1277	1003	274	3.57	1.11	1.85	2.55	6.9	59.0	127.2	03/11/84			
69042	Ding Brook	Naden Reservoir	SD850175	2.2 MIS	*	1982-03	97	.42	1434	1010	424	0.07	0.01	0.03	0.04	0.2	1.6	3.2	09/09/02	0.01	19/09/95	
69043	Ir	Collyhurst Weir	SJ849997	72.3 B	*	2001-05	80	.57	1036	1007	29	2.29	1.06	1.33	1.56	4.0	35.7	70.9	11/02/01			
69044	Inwell	Bury Ground	SD800140	139.9 FVVA		1992-05	82	.47	1168	648	520	2.70	0.47	0.98	1.62	5.8	116.2				0.31	20/08/95
70001	Douglas	Rivington Reservoirs	SD631119	39.4 MIS		1951-73	100	.67	1279	311	968	0.38	0.13	0.28	0.29	0.4	4.1					
70002	Douglas	Wanes Blades Bridge	SD476126	198.0 US	*	1973-05	93	.52	1046	652	394	4.06	1.10	1.93	2.73	8.2	43.2				0.82	28/07/99
70003	Douglas	Central Park Wigan	SD587061	55.3 US		1977-05	94	.58	1158	666	492	1.15	0.37	0.56	0.76	2.3	16.9	30.2	09/12/83	0.27	20/09/96	
70004	Yarrow	Croston Mill	SD498180	74.4 MIS		1976-05	100	.45	1034	807	227	1.88	0.49	0.71	1.00	4.1	37.0	191.9	22/08/87	0.33	24/08/76	
70005	Lostock	Littlewood Bridge	SD497197	56.0 TP	*	1976-05	99	.47	1029	673	356	1.23	0.33	0.50	0.74	2.6	22.5	41.2	22/08/87	0.21	20/09/78	
71001	Ribble	Sambesbury	SD587314	1145.0 MIS	*	1960-05	100	.33	1345	906	439	32.90	4.40	9.29	16.02	80.4	585.2	995.2	27/10/80	1.93	24/07/84	
71002	Hodder	Stocks Reservoir	SD719546	37.4 B		1963-04	91	.16	1631	372	1259	0.51	0.00	0.00	0.00	0.8						
71003	Croasdale	Croasdale flume	SD706546	10.4 FL		1957-74	100	.35	1894	1199	695	0.40	0.07	0.14	0.20	0.9	13.2	25.2	09/11/72	0.04	08/10/59	
71004	Calder	Whalley Weir	SD729360	316.0 FV	*	1963-05	92	.42	1221	861	360	8.51	1.94	3.13	4.63	19.4	179.6	320.8	27/10/80	1.14	18/07/71	
71005	Bottoms Beck	Bottoms Beck flume	SD745565	10.6 FL	*	1960-74	100	.21	1521	1013	508	0.35	0.03	0.07	0.13	0.9	12.6	22.8	21/11/63	0.02	18/06/70	
71006	Ribble	Henthorn	SD722392	456.0 CB	*	1968-05	100	.30	1359	957	402	13.67	1.07	3.22	6.01	34.3	252.4	494.0	31/10/00	0.46	25/08/76	
71008	Hodder	Hodder Place	SD704399	261.0 FV	*	1976-05	97	.31	1638	1038	600	8.58	1.00	2.10	3.75	21.7	220.0	488.1	23/10/80	0.55	25/08/76	
71009	Ribble	New Jumbles Rock	SD702376	1053.0 VA		1979-05	100	.33	1399	998	401	33.01	4.29	8.85	15.60	81.0	571.9	1022.0	27/10/80	2.79	27/07/84	
71010	Pendle Water	Barden Lane	SD837351	108.0 FV		1971-05	100	.36	1219	866	353	2.93	0.47	0.87	1.39	6.9	74.1	154.3	01/11/00	0.30	20/08/95	
71011	Ribble	Arnford	SD839556	204.0 FV		1966-05	96	.25	1487	1113	374	7.20	0.46	1.49	2.96	19.4	115.6	149.1	01/02/95	0.18	21/08/95	
71013	Darwen	Wood	SD677262	39.5 VA		1976-05	96	.45	1370	973	397	1.20	0.31	0.48	0.69	2.6	30.2	69.7	14/06/02	0.21	15/09/03	
71014	Darwen	Blue Bridge	SD565278	128.0 US	*	1976-04	99	.46	1228	1019	209	4.21	1.29	1.80	2.46	8.6	82.2	148.9	30/10/00	1.02	23/07/84	
71015	Dunsop	Footholme Flume	SD653529	25.0 MIS		1996-05	89	.23	1929	1208	721	0.93	0.13	0.18	0.30	2.5	58.2	26/10/98	0.10	12/09/99		
72002	Wyre	St Michaels	SD463411	275.0 FV	*	1963-05	100	.33	1266	744	522	6.50	0.61	1.65	3.03	16.0	148.9	190.4	09/12/83	0.14	30/08/76	
72004	Lune	Caton	SD529653	983.0 CB	*	1959-05	96	.32	1525	1136	389	35.36	3.17	9.77	17.10	86.0	605.9	1181.8	31/01/95	1.25	25/08/84	
72005	Lune	Killington New Bridge	SD622907	219.0 CB	*	1969-05																

Gauging Station Register I cont'd

Station number	River name	Station name	Grid reference	Catchment area	Station type	SLA	Period of record	Percent complete	Base Flow Index	Mean ann. rain (mm)	Mean ann. runoff (mm)	Mean ann. loss (mm)	Mean flow (m ³ /s)	Q95 (m ³ /s)	Q70 (m ³ /s)	Q50 (m ³ /s)	Q10 (m ³ /s)	Median ann. flood (m ³ /s)	Peak flow (m ³ /s)	Date of peak	7-day min. (m ³ /s)	Date of min.
74003	Ehen	Bleach Green	NY084154	44.2	CC		1973-05	100	.36	2595	1799	796	2.51	0.39	0.61	1.19	6.2	32.9	49.9	24/10/77		
74005	Ehen	Braystones	NY009061	125.5	VA	*	1974-05	100	.43	1779	1288	491	5.12	0.91	1.76	2.95	11.8	73.6	110.7	31/10/77	0.47	25/08/76
74006	Calder	Calder Hall	NY035045	44.8	FV	*	1964-05	95	.41	1778	1289	489	1.83	0.32	0.73	1.11	4.0	42.1	108.1	03/08/98	0.09	25/08/76
74007	Esk	Crople How	SD131978	70.2	VA	*	1976-05	100	.29	2250	2019	231	4.44	0.37	1.26	2.36	10.7	102.6	127.4	14/11/80	0.09	11/08/83
74008	Duddon	Ulpha	SD209947	47.9	CBVA		1976-05	100	.26	2513	2075	438	3.14	0.26	0.76	1.57	8.0	67.9	94.8	06/12/99	0.07	04/09/76
75001	St Johns Beck	Thirlmere Reservoir	NY313195	42.1	CC		1935-05	84	.36	2651	605	2046	0.79	0.15	0.16	0.20	1.6					
75002	Derwent	Camerton	NY038305	663.0	VA	*	1960-05	100	.49	1791	1238	553	26.07	3.31	9.67	16.56	60.1	202.3	294.0	08/01/05	1.31	04/09/76
75003	Derwent	Ouse Bridge	NY199321	363.0	VA	*	1968-05	100	.51	2044	1448	596	16.58	1.89	5.89	10.61	39.2	97.3	146.0	08/01/05	0.47	25/07/84
75004	Cocker	Southwaite Bridge	NY131281	116.6	VA	*	1967-05	100	.44	1975	1438	537	5.31	0.65	1.70	3.13	12.6	46.6	86.7	07/01/05	0.21	03/07/88
75005	Derwent	Portinscale	NY251239	235.0	VA		1972-05	100	.43	2264	1620	644	11.95	1.27	3.93	7.13	28.5	99.0	158.0	07/01/05	0.04	24/07/84
75006*	Newlands Beck	Braithwaite	NY240239	33.9	VA		1968-97	52	.31	2352	1487	865	1.63	0.04	0.43	0.81	3.8	40.8	54.9	31/01/95	0.00	20/09/96
75007	Glenderamackin	Threlkeld	NY323248	64.5	VA		1969-05	75	.42	1722	1760		3.58	0.26	1.03	1.96	8.5	59.8	88.7	01/02/02	0.06	28/08/76
75009*	Greta	Low Briery	NY286242	145.6	VA		1971-03	88	.38	2011	1078	933	5.01	0.62	1.48	2.55	12.1	102.3	197.0	21/12/85	0.38	16/07/89
75010*	Marron	Ullock	NY074238	27.7	FV		1972-77	100	.48	1520	929	591	0.81	0.12	0.29	0.49	1.8		29.7	30/10/77	0.08	04/10/72
75016	Cocker	Scaleshill	NY149214	64.0	MIS		1976-05	96	.38	2335	1831	504	3.72	0.36	1.07	2.09	8.6	44.9			0.08	04/07/88
75017	Ellen	Bullgill	NY096384	96.0	FV	*	1976-05	100	.50	1123	753	370	2.29	0.29	0.75	1.35	5.2	33.7	49.9	07/01/05	0.16	04/09/76
76001	Haweswater Beck	Burnbanks	NY508159	33.0	CC		1953-05	81	.51	2458	535	1923	0.54	0.21	0.26	0.27	0.5	12.3	31.4	04/02/90		
76002*	Eden	Warwick Bridge	NY470567	1366.7	VA		1959-98	100	.50	1292	784	508	34.12	6.85	14.40	21.48	73.3	397.4	860.0	23/03/68	3.04	24/07/89
76003	Eamont	Udford	NY578306	396.2	VA	*	1961-05	97	.52	1830	1222	608	15.32	2.37	5.81	9.70	33.3	173.7	259.5	24/03/68	0.86	28/08/83
76004	Lowther	Eamont Bridge	NY527287	158.5	VA		1962-05	99	.40	1875	721	1154	3.57	0.67	1.15	1.62	7.7	97.9	191.9	23/03/68	0.38	05/09/76
76005	Eden	Temple Sowerby	NY605283	616.4	VA	*	1964-05	100	.37	1164	740	424	14.48	1.89	4.27	7.26	33.7	242.7	391.0	07/01/05	1.02	22/09/96
76007	Eden	Sheepmount	NY390571	2286.5	VA	*	1967-05	100	.49	1199	711	488	51.88	9.67	19.77	31.49	114.7	591.9	1520.0	08/01/05	5.54	22/09/96
76008	Irthing	Greenholme	NY486581	334.6	VA	*	1967-05	100	.33	1071	709	362	7.51	1.03	2.15	3.69	17.5	132.2	278.0	07/01/05	0.72	23/08/76
76009*	Caldew	Holm Hill	NY378469	147.2	VA		1968-99	99	.49	1427	981	446	4.53	0.74	1.64	2.65	10.1	76.8	181.4	25/11/79	0.32	16/08/96
76010	Petteril	Harraby Green	NY412545	160.0	MIS	*	1970-05	99	.46	931	429	502	2.14	0.27	0.56	1.08	5.2	29.1	82.6	07/01/05	0.19	22/08/95
76011	Coal Burn	Coalburn	NY693777	1.5	CB	*	1967-05	97	.18	1281	952	329	0.05	>0.00	0.01	0.02	0.1	1.8	5.9	29/08/75	0.00	24/07/05
76014	Eden	Kirkby Stephen	NY773097	69.4	B VA	*	1971-05	93	.26	1452	1174	278	2.56	0.16	0.52	1.01	6.4	83.1	129.1	07/01/05	0.07	24/08/76
76015	Eamont	Poolley Bridge	NY472249	145.0	CC		1970-05	100	.54	2209	1713	496	7.80	1.03	2.75	4.89	17.8	59.1	108.0	07/01/05	0.41	19/09/95
76017	Eden	Great Corby	NY468554	1373.0	VA		2003-04	100	.49	1293	745	548	32.40	7.01	12.80	20.53	69.4					
77001*	Esk	Netherby	NY390718	841.7	VA		1963-03	94	.37	1457	1016	441	26.23	3.34	8.12	14.05	61.1	628.6	1050.7	06/10/64	1.88	23/07/84
77005*	Lyne	Cliff Bridge	NY412662	191.0	FV		1976-99	88	.27	1162	886	276	5.16	0.47	1.16	2.23	12.9	142.2	292.8	30/10/77	0.28	24/08/84

Gauging Station Register II

Station number	River name	Station name	Catchment area	Sensitivity	Bankfull/structurefull	Factors affecting runoff	Descriptors				Elevation				Bedrock			Superficial			Landuse					
							BFIHOST	FARL	PROPWET	DPSBAR	Station level (mOD)	10 percentile (mOD)	50 percentile (mOD)	90 percentile (mOD)	Maximum level (mOD)	High perm. (%)	Moderate perm. (%)	Very low perm. (%)	Gen. high perm. (%)	Mixed perm. (%)	Gen. low perm. (%)	Woodland (%)	Arable/horticultural (%)	Grassland (%)	Mountain/heath/bog (%)	Urban extent (%)
68001	Weaver	Ashbrook	622.0	12	120.0	PG	.51	0.955	34	30	16	45	75	121	232	7	5	88	23	70	0	5	24	64	<1	3
68002	* Gowy	Picton	156.2		80.0	PGE	.54	0.994	35	34	3	17	41	96	218	79	0	21	10	81	<1	6	29	60	<1	2
68003	Dane	Rudheath	407.1	11	63.0	SPGEI	.46	0.968	40	60	13	43	94	349	557	<1	31	67	24	60	<1	7	16	63	3	H 5
68004	Wistaston Brook	Marshfield Bridge	92.7	13	14.0	PGEI	.55	0.967	35	32	30	51	76	128	232	12	6	82	29	69	0	4	24	53	<1	9
68005	Weaver	Audlem	207.0	12	18.0	PGE	.50	0.950	34	27	45	68	86	111	221	3	0	97	21	77	0	5	25	67	<1	1
68006	* Dane	Hulme Walfield	150.0	17	57.0	SPGI	.41	0.979	50	115	66	125	242	432	557	0	75	20	5	50	<1	8	4	73	7	H 3
68007	Wincham Brook	Lostock Gralam	148.0	10	14.5	PGEI	.51	0.942	39	23	16	39	63	131	184	4	0	96	34	63	2	12	27	48	<1	2
68011	* Arley Brook	Gore Farm	36.5				.44	0.998	37	12	39	52	60	72	82	0	0	100	1	84	6	14	34	32	1	B 2
68015	Gowy	Huxley	49.0	18		PG	.53	0.991	34	38	17	34	60	99	218	46	0	54	10	85	0	6	27	64	0	1
68020	Gowy	Bridge Trafford	156.0	13		PG	.54	0.994	35	34	4	18	41	96	218	79	0	21	10	81	<1	6	29	60	<1	2
68044	Dane	Hugbridge	72.9	15			.37	0.997	52	146	139	224	362	466	557	0	89	0	0	21	0	7	<1	76	14	H 0
69001	* Mersey	Irlam Weir	679.0	17		SPGEI	.42	0.909	51	107	10	36	216	463	636	22	55	1	11	41	16	10	2	42	18	BH 15
69002	Inwell	Adelphi Weir	559.4	10		SPGEI	.43	0.909	54	91	24	91	200	358	476	<1	32	0	13	51	9	11	3	51	6	BH 16
69003	* Irk	Scotland Weir	72.5	22		SPGEI	.51	0.925	57	45	26	71	104	174	245	7	5	0	52	48	0	17	3	21	0	39
69004	* Etherow	Bottoms Reservoir	78.2			S	.31	0.746	54	162	132	241	436	550	631	0	100	0	0	11	61	5	<1	28	60	BH 0
69005	* Glaze Brook	Little Woodden Hall	152.0	7	49.0	PGEI	.39	0.927	41	20	9	19	33	111	164	37	5	0	11	82	7	8	18	37	4	B 15
69006	Bollin	Dunham Massey	256.0	5	76.0	SPGEI	.51	0.946	43	56	13	44	83	279	482	33	16	45	25	62	1	15	9	56	<1	8
69007	Mersey	Ashton Weir	660.0	5	500.0	SPGEI	.41	0.905	53	112	15	56	229	467	636	19	58	<1	8	42	17	10	2	43	19	BH 14
69008	Dean	Stanneylands	51.8	22	50.0	SPGEI	.55	0.960	52	87	57	80	142	358	482	50	33	0	21	42	0	13	2	70	<1	6
69012	Bollin	Wilmslow	72.5	9	48.0	SPGEI	.55	0.951	52	82	59	89	159	313	474	51	32	10	36	51	2	13	3	60	<1	11
69013	Sinderland Brook	Partington	44.8	15	38.0	PGEI	.48	0.989	39	12	13	21	32	63	82	17	0	83	57	35	8	8	9	26	2	B 27
69015	Etherow	Compstall	156.0	24	200.0	SPGEI	.37	0.831	53	154	74	160	341	521	631	0	91	0	1	25	46	9	<1	36	45	B 3
69017	Goyt	Marple Bridge	183.0	11	190.0	SPGEI	.48	0.918	52	151	74	182	297	451	636	0	72	0	0	28	8	10	1	68	13	H 2
69019	* Worsley Brook	Eccles	24.9		46.0	PGEI	.35	0.941	44	22	15	24	59	101	131	4	7	0	6	84	10	8	3	29	1	B 35
69020	Medlock	London Road	57.5	21	32.0	SPGEI	.38	0.973	55	59	31	63	129	255	376	16	13	0	<1	81	0	19	2	23	<1	37
69022	* Irwell	Irwell Vale	101.0	11		SPGEI	.46	0.934	55	119	140	207	303	385	476	0	56	0	6	33	8	6	1	70	5	HB 8
69023	Roch	Blackford Bridge	186.0	10		SPGEI	.50	0.911	57	93	63	107	195	367	475	0	25	0	20	38	10	8	3	49	9	BH 16
69024	Croal	Farnworth Weir	145.0	30	120.0	SPGEI	.33	0.862	51	80	52	100	181	330	456	0	27	0	4	71	15	14	3	46	8	B 17
69027	Tame	Portwood	150.0	14		SPGEI	.37	0.898	54	121	43	98	238	474	580	3	73	0	3	39	20	12	1	34	23	BH 15
69030	Sankey Brook	Causey Bridge	154.0	7		PEI	.47	0.941	38	24	7	29	47	76	177	28	<1	0	34	56	8	9	31	23	2	H 16
69032	Alt	Kirkby	90.1	11	27.7	GEI	.49	0.983	37	13	9	21	34	51	96	79	0	0	38	47	6	10	16	24	1	H 27
69033	* Alt	Sefton	100.0				.50	0.985	37	13	3	18	31	50	96	82	0	0	41	46	5	9	17	24	<1	28
69035	* Irwell	Bury Bridge	155.0	90		SPGEI	.43	0.940	54	113	75	146	273	378	476	0	60	0	5	48	7	10	2	65	5	H 9
69037	Mersey	Westy	2030.0			SPGEI	.44	0.925	46	75	3	25	129	368	636	21	31	11	17	52	10	11	6	43	9	BH 17
69039	* Medlock	New Viaduct Street	55.9				.40	0.967	55	66	42	80	158	265	376	10	11	0	1	78	0	21	3	27	<1	31
69041	Tame	Broomstair Bridge	113.0	11		S	.37	0.887	55	136	77	128	285	485	580	0	84	0	3	24	25	11	<1	35	28	BH 12
69042	* Ding Brook	Naden Reservoir	2.2				.40	1.000	57	140	276	347	428	468	475	0	93	0	0	95	0	0	0	39	55	B 0
69043	Irk	Collyhurst Weir	72.3	17			.51	0.924	57	45	33	73	105	174	245	7	4	0	53	47	0	17	3	21	0	39
69044	Inwell	Bury Ground	139.9	17		SPGEI	.43	0.946	54	121	80	162	285	382	476	0	63	0	6	42	8	9	2	66	5	H 8
70001	* Douglas	Rivington Reservoirs	39.4			S	.40	0.617	51	101	113	138	240	360	456	0	85	0	0	48	33	6	2	60	21	B 1
70002	Douglas	Wanes Blades Bridge	198.0		32.0	SRPEI	.46	0.880	51	49	4	29	80	173	456	6	12	0	17	70	6	9	19	41	3	B 13
70003	Douglas	Central Park Wigan	55.3	22		SRPEI	.42	0.778	51	68	32	75	121	310	456	0	30	0	13	65	13	8	13	52	8	B 7
70004	Yarrow	Croston Mill	74.4	19	129.7	SPGEI	.46	0.939	51	51	7	30	78	165	378	17	36	<1	3	91	3	8	13	56	3	H 10
70005	Lostock	Littlewood Bridge	56.0	13	29.6	N	.47	0.964	51	37	9	18	57	139	220	12	39	50	6	93	<1	7	11	54	0	15
71001	Ribble	Samlesbury	1145.0	8		SE	.37	0.974	57	95	10	91	198	390	688	<1	82	1	3	61	7	9	3	71	9	H 4
71002	Hodder	Stocks Reservoir	37.4			S	.29	0.850	60	114	182	204	297	434	546	0	100	0	0	55	7	19	<1	61	15	H 0
71003	* Croasdale	Croasdale flume	10.4				.28	1.000	60	157	177	225	341	451	542	0	100	0	0	27	27	2	<1	41	55	H 0
71004	Calder	Whalley Weir	316.0	7	9.6	EI	.40	0.945	55	94	40	113	209	346	556	0	42	0	3	67	4	9	3	63	7	H 10
71005	* Bottoms Beck	Bottoms Beck flume	10.6				.28	0.999	60	91	186	234	293	341	405	0	100	0	0	74	0	41	<1	42	14	H 0
71006	Ribble	Henthorn	456.0	10	3.1	N	.37	0.997	61	87	39	113	202	421	688	0	97	3	4	62	8	6	3	80	6	BH 2
71008	Hodder	Hodder Place	261.0	10	544.0	SRP	.33	0.970	60	122	42	113	223	411	546	0	100	0	<1	41	12	10	2	67	18	H 0
71009	Ribble	New Jumbles Rock	1053.0	10	900.0	SRP	.37	0.974	57	97	31	107	207	396	688	0	81	1	2	59	8	8	3	72	9	H 4
71010	Pendle Water	Barden Lane	108.0	12	186.4	SEI	.39	0.948	58	99	92	150	243	362	556	0	74	0	0	65	7	8	2	66	10	H 8
71011	Ribble	Arnford	204.0	14	210.0	N	.38	0.998	61	103	117	158	315	475	688	0	92	8	2	46	17	4	<1	80	11	B 1
71013	Darwen	Ewood	39.5	13		PEI	.42	0.938	51	95	98	146	223	326	401	0	29	0	15	42	6	8	4	54	10	H 14
71014	Darwen	Blue Bridge	128.0	8		PEI	.41	0.946	51	77	8	62	152	281	402	7	65	0	15	64	5	11	4	54	6	B 14
71015	Dunsop	Footholme Flume	25.0	7	14.0		.30	0.999	60	179	155	250	376	461	527	0	100	0	0	0	38	4	<1	47	47	H 0
72002	Wyre	St Michaels	275.0	12	160.0	SPG	.37	0.958	56	71	4	17	113	355	561	28	71	<1	2	72	11	7	11	62	16	H 1
72004	Lune	Caton	983.0	5	329.0	SRP	.40	0.997	64	137	11	88	264	476	734	0	67	30	1	56	8					

Gauging Station Register II cont'd

Station number	River name	Station name	Catchment area	Sensitivity	Bankfull/structurefull Factors affecting runoff	Descriptors				Elevation					Bedrock			Superficial			Landuse					
						BFIHOST	FAPL	PROPWET	DPSBAR	Station level (mOD)	10 percentile (mOD)	50 percentile (mOD)	90 percentile (mOD)	Maximum level (mOD)	High perm. (%)	Moderate perm. (%)	Very low perm. (%)	Gen. high perm. (%)	Mixed perm. (%)	Gen. low perm. (%)	Woodland (%)	Arable/horticultural (%)	Grassland (%)	Mountain/heath/bog (%)	Urban extent (%)	
74003	Ehen	Bleach Green	44.2	10	41.0 SPI	.42	0.740	71	324	110	122	362	628	894	0	0	100	3	10	<1	14	<1	59	18	H	0
74005	Ehen	Braystones	125.5	15	90.0 SP	.50	0.897	69	166	10	75	157	492	894	7	6	55	4	49	2	10	10	66	8	H	1
74006	Calder	Calder Hall	44.8	16	21.0 G	.42	0.999	71	161	26	95	269	469	673	21	0	79	0	37	25	6	6	71	17	B	0
74007	Esk	Crople How	70.2	30	90.0	.42	0.964	71	232	6	78	278	601	966	0	0	100	0	7	4	6	2	86	4	H	0
74008	Duddon	Ulpha	47.9	7	60.0 SP	.33	0.974	71	251	76	168	349	606	794	0	0	100	0	2	2	7	<1	84	7	H	0
75001	St Johns Beck	Thirlmere Reservoir	42.1	13	48.0 SP	.38	0.721	71	285	160	187	463	729	944	0	0	100	0	1	19	14	<1	58	20	H	0
75002	Derwent	Camerton	663.0	7	400.0 SP	.44	0.844	63	209	17	78	216	552	944	0	9	83	<1	43	5	10	4	72	9	H	0
75003	Derwent	Ouse Bridge	363.0	12	140.0 SP	.44	0.789	63	248	68	87	306	608	944	0	<1	99	0	29	7	12	2	71	10	H	0
75004	Cocker	Southwaite Bridge	116.6	20	130.0 SP	.48	0.830	63	290	60	96	272	545	853	0	<1	100	0	26	5	8	2	71	15	H	0
75005	Derwent	Portinscale	235.0	6	100.0 S	.41	0.846	64	246	73	143	343	627	944	0	2	98	0	28	8	11	2	72	11	H	0
75006	* Newlands Beck	Braithwaite	33.9	37	44.0	.46	0.999	64	381	75	151	339	595	838	0	0	100	0	4	<1	5	1	82	11	H	0
75007	Glenderamackin	Threlkeld	64.5	27	75.0	.39	0.999	62	180	136	195	319	570	863	0	6	94	0	58	6	11	2	81	5	H	0
75009	* Greta	Low Briery	145.6	10	S	.40	0.910	63	227	100	177	343	638	944	0	2	98	0	35	10	11	2	74	10	H	0
75010	* Marron	Ullock	27.7	19	4.2	.54	0.964	63	122	94	119	179	347	571	0	20	39	5	59	<1	8	7	76	7	H	0
75016	Cocker	Scalehill	64.0	6	6.7 S	.44	0.713	66	331	95	110	303	558	853	0	0	100	0	14	4	6	1	69	17	H	0
75017	Ellen	Bullgill	96.0	17	2.1	.49	0.982	62	78	27	61	158	284	650	2	56	17	<1	83	<1	4	11	82	1	H	1
76001	Haweswater Beck	Burnbanks	33.0	23	60.0 SP	.35	0.645	71	294	189	245	456	680	827	0	0	100	0	11	30	6	0	69	13	B	0
76002	* Eden	Warwick Bridge	1366.7	8	410.0 SP	.51	0.955	65	125	18	128	241	529	945	14	64	21	3	53	7	6	6	78	5	BH	1
76003	Eamont	Udford	396.2		320.0 S	.45	0.860	66	188	91	150	287	579	945	<1	37	63	<1	44	8	8	3	78	6	HB	1
76004	Lowther	Eamont Bridge	158.5	12	175.0 S	.41	0.901	69	153	113	199	323	568	827	0	31	69	0	42	15	6	1	80	8	B	0
76005	Eden	Temple Sowerby	616.4	9	260.0	.47	0.998	66	99	92	145	249	495	794	5	92	4	<1	60	8	5	5	81	6	B	0
76007	Eden	Sheepmount	2286.5	4	230.0 SP	.49	0.971	64	103	10	85	210	486	945	17	65	17	6	56	10	9	8	73	6	HB	1
76008	Irthing	Greenholme	334.6	15	180.0 SP	.36	0.994	62	76	18	75	219	400	619	14	86	0	13	42	32	19	7	57	16	H	0
76009	* Caldew	Holm Hill	147.2	10	190.0 N	.41	0.998	62	132	60	144	280	567	926	<1	51	40	5	56	11	8	3	81	8	H	0
76010	Petteril	Harraby Green	160.0	25	38.1 N	.59	0.993	64	52	20	76	158	246	361	11	89	0	5	83	<1	9	20	65	2	H	1
76011	Coal Burn	Coalburn	1.5		14.5 N	.20	1.000	62	47	275	291	303	319	330	0	100	0	0	6	94	37	10	16	31	B	0
76014	Eden	Kirkby Stephen	69.4	26	120.0 N	.41	1.000	68	149	158	221	376	597	709	0	100	0	0	41	13	2	2	84	9	B	1
76015	Eamont	Pooley Bridge	145.0	12	46.9 SP	.40	0.743	67	303	144	158	365	656	945	0	6	94	0	22	5	8	<1	79	6	H	0
76017	Eden	Great Corby	1373.0		600.0	.51	0.955	65	125	19	129	241	529	945	14	65	21	2	53	7	6	6	78	5	BH	1
77001	* Esk	Netherby	841.7	7	620.0 N	.37	0.997	61	147	14	118	265	411	692	36	7	56	1	50	18	31	3	55	11	H	0
77005	* Lyne	Cliff Bridge	191.0	13	620.0 N	.32	1.000	62	73	12	69	151	318	516	9	61	0	3	63	15	23	8	60	8	H	0

Gauging Station Register III

EA North West

68001 Weaver at Ashbrook

EA North West

Station: Initially a river section (from 1937). Early gaugings lost; rating accuracy unknown. Mobile control. Data before 1972, particularly low flows, unreliable. Relocated 400m d/s with an informal Flat V control and cableway in Aug 1978. Weir drowns at relatively low flows. Bypassing on right bank above 3.5 m. Prone to weed and algal growth, and sedimentation has required several rating changes. Some bank reprofiling in the 1990s (slippage occurred in 1993) also affected the rating.

Catchment: A generally flat catchment below the headwaters. Developed on mixed geology, comprising Keuper Marl mostly overlain with post-glacial deposits. Lower Lias shales in the south with Coal Measures, Permian Sandstones and Bunter Pebble Beds in the east; mostly low permeability with extensive Drift cover. Land use is largely agricultural but catchment includes Nantwich and parts of Crewe.

68002 Gowy at Picton

EA North West

Station: Natural section V/A station calibrated by gaugings. Severe weed growth problems, variable in intensity from year to year. Station closed in 1979.

68003 Dane at Rudheath

EA North West

Station: Originally a VA section; charts from May 1949. Low flows poor before 6/57 (changing bed levels). Gauged by wading or from u/s bridge. Mobile control gave unreliable results. Informal Flat V weir (14m wide) and cableway installed 10/81. Highest flows inundate lb (3.6m), and variable backwater may affect the flood rating. Responsive regime. Headwater transfers particularly to Rudyard and Bosley reservoirs for canal usage.

Catchment: Headwaters in the southern Pennines but, for most part, river meanders over Cheshire plain with varying depths of post glacial drift overlying Triassic s'st and marl (mostly low permeability). Mixed land use with appreciable urban development in the lower catchment.

68004 Wistaston Brook at Marshfield Bridge

EA North West

Station: Initially a 6m wide section on a bend with chart records from 1955, but early data in particular are poor. Unstable control obliged a move u/s in Sept 1972; low flow control installed 1978 and modified to an informal Flat V piled weir in May 1980. Silt accumulates behind weir in times of low flow. Flows above 0.7m less reliably measured. Bankfull at 2.3m. Responsive regime with artificial influences evident during periods of low flow.

Catchment: Below headwaters geology is generally of low permeability (Mercia mudstone with extensive Drift cover). Land is primarily agricultural but central and southern parts of Crewe dominate lowest portion of the catchment.

68005 Weaver at Audlem

EA North West

Station: Some level measurement at site since 1936 but near-continuous records from 1951 when rectangular thin-plate weir was installed (but accuracy limited due to d/s level measurement). C/m calibration for medium flows. New recorder house in 1969 (u/s level measurement) and modern rating assumed to apply from then. All flows are contained but rating insensitive at very high flows. The weir collects debris and drowning is possible. Flows from 1973 onwards reprocessed in 2002, with substantial reduction in high flows. Only minor gw abstractions and returns.

Catchment: A mostly flat catchment in the Cheshire Plain developed on post glacial deposits over marl, clay and sand; largely impermeable. Mainly mixed farmland with only a few villages.

68006 Dane at Hulme Walfield

EA North West

Station: Original natural river section augmented Jun 1978 with an informal flat V control. Station closed 1984.

68007 Wincham Brook at Lostock Gralam

EA North West

Station: Open channel section from Oct 1960 in straight reach. Informal steel pile control commissioned in early 1982. Siltation problems have led to control being submerged, necessitating multiple ratings. Gauging by wading or cableway. No bypassing reported. Vandal-prone. Bankfull 2.0m. High flow gaugings indicate rating overestimates flood flows.

Catchment: Linear, low relief catchment with mudstones and saliferous beds of the Mercia Mudstone blanketed by Boulder Clay and glacial sands and gravel. Rural, except for SW Knutsford.

68011 Arley Brook at Gore Farm

EA North West

Station: Critical depth flume installed as a component of an experimental catchment scheme. Design capacity 7 m³s⁻¹ in modular range, rated by gaugings above this. Station closed 1982.

Catchment: Low relief catchment between Northwich and Warrington on Boulder Clay covered Keuper Marl. N boundary may be partially formed by the M56. Entirely rural but with M6 and M56 runoff.

68015 Gowy at Huxley

EA North West

Station: Shallow V sheet pile control installed in May 1979; some levels available from EA prior to this but not processed to flow. Some low flow features caused by ponding and release u/s. However, flows above 1.5 m³s⁻¹ should be treated with caution until high flow rating established. Responsive regime.

Catchment: River shares most of its valley with the Shropshire Union Canal. Catchment mostly in Cheshire plain; post glacial Drift overlying Triassic sandstone and marl. Rural in character.

68020 Gowy at Bridge Trafford

EA North West

Station: Flat V Crump profile weir (1:5) with flanking broad-crested weirs and cableway, installed 8/79. Replaced Picton (68002), 1km d/s. Some seasonal weed growth problems; siltation can also cause backwater problems (channel is now dredged). Midsummer flows estimated by gauging from u/s bridge. Rating quite well defined to about 5 m³s⁻¹. Higher flows over-estimated by rating in current use. Responsive regime. Relative primacy of the 1981 and 2000 floods under review. Sluice gates control outflow to Manchester Ship Canal.

Catchment: A largely rural catchment in the Cheshire Plain; low relief, glacial drift over Triassic sandstones and marl.

68044 Dane at Hugbridge

EA North West

Station: Flat V weir (1:20 cross-slopes) constructed in November 1991, continuous records from August 1992. Gravel accretion above the weir and limited-capacity d/s bridge can affect low/high flows. Above bankfull at 0.95m, flow expands out onto a wide flood plain, bypassing the cableway on both banks. Not rated above bankfull. Very responsive regime.

Catchment: A predominantly rural catchment with steep relief, rising to a maximum altitude of 547m. Drains the western flank of the Peak District. Mixed geology including Millstone Grit, Yoredale series, coal measures and sandstone. The area is partly covered with glacial clays, sands and gravels.

69001 Mersey at Irlam Weir

EA North West

Station: Original 1934 calibration of this rather insensitive broad-crested weir was by formula but, in 1938, a model-based rating led to significant increases in estimates of high flows. C/m gaugings 1975-85 suggest that flows above 10 m³s⁻¹ should be higher still. Longendale reservoirs control 10% of the catchment. (1921 data from published source.)

Catchment: Steep tributary streams rise mainly on western slopes of Pennines (Millstone Grit), extensive Drift cover below headwaters. Land use transition from open moorland to the heavily urbanised lower catchment (includes much of south Manchester).

69002 Irwell at Adelphi Weir

EA North West

Station: 40m wide broad-crested weir subject to siltation, weed growth and drowning at high flow. All except extreme events are contained. Some records from 1935; routine data capture began in 1949. Rating established by model test and gauging u/s at the Manchester racecourse gauge (closed 2/86). Station re-rated from 1/2/75 but maintenance problems persist Very responsive regime. Many abstractions and storage reservoirs.

Catchment: Most of the catchment comprises post glacial drift over heavily faulted Carboniferous grit, shale and sandstones. Deeply incised headwaters valleys drain the Pennine moors; lower catchment includes the urban/industrial areas of Bolton, Bury and Rochdale.

69003 Irk at Scotland Weir

EA North West

Station: An old, non-standard, broad-crested weir, diagonal to flow on a bend in a heavily polluted river. No bypassing and very likely to remain modular. Ratings by model (1936) and c/m gauging at Redbank 1km u/s. Siltation, debris and weed growth are recurrent problems and throw particular doubt on low-flow records before 1976, although none are good. Weir damaged by a flood in Dec 1983, subsequent flows under review. Station closed May 2001. Replaced by Collyhurst (69/43) in 1999. Responsive flow regime. Wide range of artificial influences including many industrial abstractions and effluent discharges.

Catchment: Low to moderate relief catchment; moorland headwaters but extensively urbanised (includes north Manchester). Solid geology: Coal Measures and Permo-Triassic sandstones, fully overlain by post-glacial sands and gravel and subordinate Boulder Clay.

69004 Etherow at Bottoms Reservoir

NWW

Station: Rectangular thin-plate weir. Monitors outflows from Bottoms Res.

Catchment: Predominantly Millstone Grit catchment, peat covered moorland in headwaters, steeper slopes drift free.

69005 Glaze Brook at Little Woolden Hall

EA North West

Station: Ultrasonic gauge installed in 1995 which replaced a Velocity-area station. VA record unreliable as very badly affected by weed growth throughout the year and suffered backwater effects from the Ship Canal level. Used for flood warning. Bank full is at 4.43m.

Catchment: Low relief catchment with headwaters in South Wigan with 3 major "flashes" (instream lakes). Solid geology: Coal Measures in the headwaters, otherwise Sherwood Sst with some Marl. Extensively draped with Boulder Clay, some peat and glacial gravels south of Leigh. Many urban centres, much effluent, motorway drainage and potential mine drainage pollution.

69006 Bollin at Dunham Massey**EA North West**

Station: V/A station with cableway a few km u/s of confluence with the Manchester Ship Canal. Level records from 1937. Flows from 1954 but of poor quality. Rating only approximate owing to very unstable bed and weed growth. In 8/71, the Bridgewater Canal (crosses just u/s) burst its banks and disturbed the river bed, affecting the record for at least 18 months. No bypassing reported. Very responsive regime. Reservoirs and many industrial abstractions and discharges affect low flows particularly.

Catchment: Mixed geology but with extensive Drift cover (some Millstone Grit exposed in headwaters). Land use is very mixed - a predominantly rural catchment but with Macclesfield below the headwaters and other urban centres.

69007 Mersey at Ashton Weir**EA North West**

Station: A compound broad-crested weir, 24 m wide overall, with central lower section 12.2 m wide and 0.49 m lower than flanking crests (no divide piers), and cableway - not operational at present. Replaced 69001 (in 1958) but, despite theoretical superiority at low flows, still doubts about rating curve (varying downstream conveyance and differential drowning of the weir crests may be factors). No bypassing. Responsive regime despite substantial reservoir development in the headwaters (Longdendale reservoirs control 10% of the catchment).

Catchment: Steep tributary streams rise mainly on western slopes of Pennines (Millstone Grit), extensive Drift cover below headwaters. Land use transition from open moorland to the heavily urbanised lower catchment (includes much of south Manchester).

69008 Dean at Stanneylands**EA North West**

Station: Compound Crump profile weir, crest widths 3.05m and 6.1m (total) at 0.46m. Crest tapping not used. Low to medium flow range calibrated by c/m. High flows also gauged since a footbridge 200m u/s of the structure was built in 1999. Channel accretes at high flow requiring regular clearance. Significant flow disturbance from reservoir, abstractions and returns.

Catchment: Steep moorland headwaters drain Millstone Grit from W Pennines and contain Lamaload Res. Lower catchment developed on Boulder Clay covered Triassic sandstones and contains Bollington.

69012 Bollin at Wilmslow**EA North West**

Station: Compound Crump profile weir, crest lengths 4.1m and 4.3m (total); divide piers 1.0m (probable drowning stage), wing walls 2.0 m. Crest tappings no longer used. D/s levels recorded, observations indicate drowning above 0.93 m stage. Calibration now by current metering; d/s for low flows, u/s off road bridge for high. Siltation can be a problem. No bypassing reported. Responsive regime. Substantial flow modifications because of headwater reservoirs and major STW u/s of station.

Catchment: Moderate relief catchment with steep, reservoir headwaters. Upper catchment drains Millstone Grit, generally Drift free. Otherwise Boulder Clay and glacial sands and gravel over Permo-Triassic sandstone. Contains Macclesfield.

69013 Sinderland Brook at Partington**EA North West**

Station: Compound Crump profile weir, crest lengths 2.13m and 5.48m (total). Contained to wing wall height (2.0m). Weir much wider than u/s channel; big siltation problem, crest tapping usually blocked. Responsive regime. Storm waters from Wythenshaw, Sale and the M56 are directed to the Mersey.

Catchment: Very flat catchment, heavily urbanised although the bottom end is rural. Solid geology is Keuper Marl (70%) and sandstone (30%); south western portion Boulder Clay covered. Soils fine red loams or clays.

69015 Etherow at Compstall**EA North West**

Station: Crump profile weir 18m wide, wing walls 2.8m high, located 0.5 km u/s of Goyt confluence. Further contained by flood banks. Crest tapping readings were used to establish a non-modular rating; tapping no longer used. High flow gaugings not possible. Half the catchment drains through Longdendale reservoirs, with significant effect upon flows.

Catchment: Predominantly Millstone Grit catchment, peat covered moorland in headwaters, steeper slopes drift free; Boulder Clay in lower catchment. Mixed urban and farmland lower down.

69017 Goyt at Marple Bridge**EA North West**

Station: Compound Crump profile weir, crest lengths 7m and 11m (total). Wing walls 2.9m, divide piers 2.1m. Crest tapping unreliable, subject to siltation, data not used. The weir is fitted with bypass sluices. Several reservoirs in catchment - Kinder, Combs, Todd Brook, Errwood and Fernilee - control approximately 32% of catchment in total. Moderate disturbance to flow regime.

Catchment: Catchment mostly Millstone Grit and Coal Measures. Highest moorland peat covered, steeper slopes drift free. Boulder Clay cover lower down. Mixed farmland, small towns and industry in main valley.

69019 Worsley Brook at Eccles**EA North West**

Station: Critical depth trapezoidal flume in artificial channel; throat width 0.6m, side slopes 1:2. Structure full at 2.43m, flood banks at 3.13m. Flows fully contained. Twin box culvert 110m d/s with grids may block in flood, drowning flume. Data quality poor. Station not operational between December 1985 and June 1993 and closed in April 2001.

Catchment: Generally low relief catchment to the NW of Manchester. Solid geology is 80% Coal Measures with Permo-Triassic S'ts to the South, extensively covered by Boulder Clay. Urban areas cover approximately 60%, otherwise poor pasture and heathland and small area of woodland. Dense motorway network includes the M61, M62, M63, M602.

69020 Medlock at London Road**EA North West**

Station: A non-standard weir 8.99m wide with broad crest, in a rectangular, concrete channel. The weir was designed as an entrance sill to the culvert d/s. Theoretical formula in use to Nov 1976 when superseded by c/m based rating. Two periods of construction of the Mancunian Way (motorway) have significantly altered the river channel downstream of the gauging station. During the second phase, the channel was narrowed and wooden crest blocks were attached to the weir to create a low flow notch. They proved unsuccessful and were removed on October 1992. Access is difficult and gauging hazardous. Greatly affected by effluent discharges with consequent heavy pollution; also problems with debris on weir. Very poor site.

Catchment: The catchment is heavily urbanised. Any natural runoff is generated on soils derived from Boulder Clay deposits overlying, predominantly, Coal Measures.

69022 Irwell at Irwell Vale**EA North West**

Station: VA station with non-standard flat V installed to replace gauge at Stubbins (69040). Reliable gaugings by wading at low flows only; bridge gaugings u/s are unreliable due to the nature of the bridge and inflows from River Ogden. Magnitude of 1998 peak under review. Reservoirs in headwaters have significant effect on low flows.

Catchment: Moderate relief catchment draining the Forest of Rossendale. Solid geology Millstone Grit and Coal Measures; peat on highest moors, intermittent glacial drift otherwise. Urbanised main valley.

69023 Roch at Blackford Bridge**EA North West**

Station: Broad-crested mill-type curved weir with damaged crest; affected by debris. Siltation affected inlet pipe pre-1984. Original theoretical rating unsafe; a c/m rating was applied back to 1949 notwithstanding doubts about state of weir in earlier years. Cableway installed 2001 to improve high range. A dozen small water-supply reservoirs in headwaters control a total of 16% of the catchment area.

Catchment: Geology mostly Coal Measures within Millstone Grit to the Northeast and Northwest. Peat overlays geology in moorland hilltops; mixed glacial drift in the lower catchment. Catchment is highly urbanised and contains the town of Rochdale.

69024 Croal at Farnworth Weir**EA North West**

Station: A non-standard broad-crested mill weir 45m wide in narrower river; insensitive, especially at low flows. Tight meander immediately u/s; flows above 70 m³s⁻¹ will bypass station on the inside of the loop. Some records from 1948, but low and medium flows before 1976 particularly are of doubtful quality, although none are good. Confluence with River Irwell, 600 m downstream, may cause backwater and drowning, though no observations to confirm. A cableway was installed in June 2000. Several reservoirs in headwaters, particularly on the Bradshaw Brook tributary, controlling 27% of the catchment. Many effluent discharges lower down.

Catchment: Geology of Millstone Grit overlain with peat moorland in headwaters, with Boulder Clay and coal measures in the urban lower parts. A highly urbanised and industrialised catchment which includes Bolton.

69027 Tame at Portwood**EA North West**

Station: Over 100 year old curved mill type weir, 21m wide, 5m high, just d/s of 90deg. bend and 2 km upstream of Goyt confluence. Meandering reach but bypassing on rb floodplain prevented by stop banks. An old mill cut was closed in 1967 so that the entire flow passes over the weir. Records from 1943; a model-based calibration was used before being superseded by one based on current metering in 1970. Gaugings carried out from footbridge downstream of weir. Gravel shoaling occurs at the base of the weir, extending 20m downstream. Station is d/s of Broomstair Bridge (69041). Low flows dominated by effluent returns. Many impoundments in the upper reaches control 25% of the catchment in total.

Catchment: For the most part a narrow, steep sided valley network on Millstone Grit with peat moorland in upper reaches (includes Saddleworth Moor); underlying geology of Coal Measures and Permian sandstones and mudstones overlain by Boulder Clay lower down. Sheep grazing in the headwaters; lower catchment heavily urbanised (east Manchester)

69030 Sankey Brook at Causey Bridge**EA North West**

Station: VA gauge, records from 1953. Backwater problems from sluice operation ceased with closure of adjacent canal in 1976. Frequent calibration changes followed continual d/s channel works in 1976/7 (also caused by floods in 1981). New trench-piled bed control and stone pitched lb built 07/1983; acts as a weir up to 0.35m. Bankfull 2.66m. Full re-rating for the structure 2001. At higher flows, gaugings are taken from a bridge 30m upstream of the station. Susceptible to siltation and weed growth. Industrial abstraction and effluent.

Catchment: Geology: Coal Measures within the North overlain by sand and peat; Sherwood Sandstone in the South, overlain by Boulder Clay. Mixed farmland predominates but contains urban areas (~35%) including St Helens in the centre. Possible that there was a small increase in catchment area in late 1980s or very early 1990s with diversion of a ditch crossing Sankey Valley Park to join Sankey Brook upstream of the gauging station.

- 69032 Alt at Kirkby** **EA North West**
Station: Originally a velocity-area station but silt deposition prevented sensible calibration until a Flat V bed control was built in 1977. The weir easily drowns and all flood flows are measured under drowned conditions. Gaugings taken from upstream footbridge. Siltation causes inlet pipe blockage and lag between stilling well and river level. Vandal prone. Industrial abstractions and discharges. Large sewage treatment works upstream at Fazakerley.
Catchment: Very flat catchment; boundary on SW side difficult to define. Geology mostly of blown sand deposits with Boulder Clay over Sherwood Sandstone. Highly urbanised (approx 50%), containing parts of north Liverpool and Kirkby.
- 69033 Alt at Sefton** **EA North West**
Station: V/A station 11.5km u/s of tidal gates at Hightown and unaffected by their operation. Very vandal prone. Low to medium flows dominated by Liverpool effluent (augmentation).
Catchment: Low relief catchment with SW boundary difficult to define. Blown sands and Boulder Clay over Sherwood Sandstone. Heavily urbanised (~60%).
- 69035 Irwell at Bury Bridge** **EA North West**
Station: VA station with an old broad-crested weir, oblique to the river, as its (insensitive) control. A rating, based on d/s gaugings, applicable to about 100 m³s⁻¹ was developed in 1979. However, subsequent gaugings were not consistent; calibration under review. 1995 peak under review. Runoff influenced by storage reservoirs and abstractions. Replaced by Bury Ground (69044) in 1996.
Catchment: Catchment mostly u/s of the urban and industrial areas which dominate at d/s station at Adelphi Weir (69002). Geology mainly Boulder Clay over Lower Coal Measures and Millstone Grit.
- 69037 Mersey at Westy** **EA North West**
Station: Ultrasonic, multipath, cross path station replacing an earlier unsatisfactory site at Howley (1.5km d/s). Flow comprises Ship Canal overflow only; flows need to be combined with Latchford (69038) for the total Mersey Flow. Limited reliability, significant gaps in flow record. Experiences abstraction, augmentation and regulation. Runoff probably substantially modified, at least temporally.
Catchment: Large catchment containing much of Manchester. The main tributaries arise on peat moorlands to W and N of Manchester. High ground mostly Millstone Grit or Coal Measures. The centre and south of the catchment is underlain by Sherwood Sandstones and Mercia mudstones blanketed by Boulder Clay, terrace gravels and lowland peat. Diverse catchment, extensively urbanised.
- 69039 Medlock at New Viaduct Street** **EA North West**
Station: Broad-crested weir. Sporadic flow record (of limited quality). Station closed due to continuing vandalism. Superseded by 69020 (d/s).
- 69041 Tame at Broomstair Bridge** **EA North West**
Station: Ultrasonic multi-path gauge replaced a non-standard short-crested mill weir in February 1995, but performance of the US remains under review in relation to the highest flows. The weir, a control for medium to high flows, was capped with timber that had bowed allowing water to flow beneath it (dev. from rating up to 70%) thus early record poor. Gaugings made from bridge immediately u/s. Bridge arch shape likely to affect high flows as it extends to river level. This station is upstream of Portwood (69027). Reservoir headwater affects low flows.
Catchment: Geology of Millstone Grit and Coal Measures with peat cover on high moors. Steeper valley sides drift free, otherwise mixed glacial drift cover. Heavily urbanised lower catchment.
- 69042 Ding Brook at Naden Reservoir** **EA North West**
Station: Compound rectangular thin plate weir (crest lengths 0.5, 2.48, 7.76m) on an inflow stream to the reservoir. Effective record starts 13/7/82 following fitting of new crest plates. Leaking as of 2002. Steep approach channel with gravel trap; check gauging difficult. All flows contained, fully modular. Theoretical calibration. Natural catchment.
Catchment: High relief moorland catchment on Coal Measures overlain by peat. Rough grass, bracken, scrub and heather; sheep grazing. Disused quarry high up the catchment.
- 69043 Irk at Collyhurst Weir** **EA North West**
Station: Broad-crested industrial bow-shaped weir, 2m high, at the end of a formalised brick-walled reach. Gaugings carried out using a hand-line since 1985; no room for a cableway for high flows. Insensitive, but better than, and replacement for, Scotland Weir (69003). Usable rating established 2001. High runoff suggests large imports to the catchment. Many industrial abstractions and discharges and one small reservoir upstream.
Catchment: The river rises in open moorland before entering the densely populated and urbanised Lower Irk catchment, which includes Oldham and Manchester. Solid geology: Coal Measures in the headwaters with Sherwood Sandstone and Permian marls in the lower catchment. Catchment entirely overlain by Boulder Clay and sands and gravels.
- 69044 Irwell at Bury Ground** **EA North West**
Station: VA station with an old curved broad-crested weir as control. Weir width 28m, river at cableway u/s 22m. Good approach. Replaces Bury Bridge gauge (69035) 3km d/s. Runoff influenced by storage reservoirs (Ogden, Clowbridge), abstractions and effluent returns.
Catchment: Geology is post-glacial deposits over predominantly Millstone Grit, with some Coal Measures. A moderately urbanised catchment with steep moorland headwaters in the south Pennines; includes urban areas of Bury and Rawtenstall.
- 70001 Douglas at Rivington Reservoirs**
Station: Outflow from Rivington reservoirs.
- 70002 Douglas at Wanes Blades Bridge** **EA North West**
Station: Ultrasonic station since 1996, previously a velocity-area station with poorly defined relationship between level and flow (some tidal influence). Installation of a flat v weir in 1984. High flow rating did not improve and tidal influence continued (weir drowns regularly). High flow gaugings are taken from a road bridge upstream or with portable cableway. Pre-US minimum flows unreliable. Flow regime modified by headwater reservoirs (Anglezarke, Yarrow and Upper and Lower Rivington) and STW.
Catchment: Moderate to low relief catchment. Geology: Boulder Clay, peat and blown sand, underlain by Coal Measures in upper parts and Permian-Triassic sandstones lower down. Land-use predominantly rural; urban areas include Wigan and Skelmersdale.
- 70003 Douglas at Central Park Wigan** **EA North West**
Station: Originally a VA station in a culverted section with a 0.45m sewer pipe as a low flow control. Variable bed profile from silt, dumped debris and occasional redistribution (9/1989). Data are poor. Replaced in 1995 by ultrasonic gauge beneath a d/s footbridge. No bypassing reported. Station closed in March 2000 and replaced by another ultrasonic gauge 100 m d/s. Flow regime substantially affected by reservoirs in the headwaters (Anglezarke, Yarrow and Upper and Lower Rivington) which control approx 30% of the effective catchment.
Catchment: Moderate relief catchment. Geology: Coal Measures wholly blanketed by Boulder Clay. Land use mostly rural with some urban development.
- 70004 Yarrow at Croston Mill** **EA North West**
Station: VA station; control is an old, deteriorating, diagonal mill weir, with 3m wide and 10m long crest, susceptible to mud build-up; insensitive at low flows but giving a reasonable medium flow calibration. No cableway but gauged from u/s road bridge; more gaugings needed to define high flow calibration. Bypassed at highest flows. Rivington Reservoirs (feeding mainly the River Douglas) capture part of the original Yarrow headwaters; compensation from inflow to Rivington and from the reservoir total 7.1 Ml/d. Catchment area of 74.4 km² excludes portion now draining to Rivington Reservoirs.
Catchment: Geology: principally Coal Measures with subordinate Millstone Grit and Triassic s'ts. Wholly blanketed with Boulder Clay and glacial sands and gravels. Land use mostly rural with some urban area including Chorley.
- 70005 Lostock at Littlewood Bridge** **EA North West**
Station: Originally a velocity-area station until a flat V sheet-piled control 3 m wide was built in February 1987; a bridge downstream also acts as a partial control. Site is subject to tidal influence, and weed growth during the summer. Cableway installed to improve gauging performance. Natural flow regime.
Catchment: Low relief catchment on Boulder Clay which blankets Mercia Mudstone, Sherwood Sandstone with Millstone Grit in the extreme east. Land use of mixed farming and light urban development with many motorways traversing the catchment.
- 71001 Ribble at Sablesbury** **EA North West**
Station: Two sites, complex history. VA section with gravel shoal control affected by silt and summer weed, just u/s of tidal limit. Good high flow rating from cableway. No bypassing reported. Compound Crump profile Flat V weir, with level flanking crests, built 1970 1km u/s to capture low/medium flows. Station re-rated from 1/1/76. Flood warning site. Small reservoirs u/s have no significant effect.
Catchment: A large catchment of mixed geology with Carboniferous Limestone, Millstone Grit and Coal Measures overlain with Boulder Clay. Predominantly rural, apart from urban areas of Burnley and Nelson.
- 71002 Hodder at Stocks Reservoir** **EA North West**
Station: Overflow weir 91.4 m broad just downstream of Stocks Reservoir. Flow regime highly regulated. Monthly naturalised flow series: 1933-1953 derived from Fylde Water Board data, similarly rainfall 1933-1953 an average of 6 gauges.
Catchment: Geology predominantly Millstone Grit in the headwaters, otherwise Carboniferous Limestone, almost entirely overlain by Boulder Clay.
- 71003 Croasdale at Croasdale flume** **NWW**
Station: Compound trapezoidal flume with stainless steel low flow throat in trapezoidal masonry section, 8.5m wide at flume full, 12.2m at bank full. Two integrating recorders operate from u/s and throat tappings. Inlet pipes block with sediment. Theoretical rating based on model tests and checked by dilution gauging. Natural catchment adjacent to Stocks reservoir.
Catchment: Steep channel in a wet, high relief catchment. Geology: half Carboniferous L'st and half Millstone Grit, blanketed by Boulder Clay. Mostly used for grazing.

71004 Calder at Whalley Weir**EA North West**

Station: Flat V Crump profile weir commissioned in Oct 1970, 24.4m wide, 1:20 cross slopes, structure full at 0.94m. Replaced natural river section, data 1963-1970, sited 30m u/s, unstable ratings from mobile bed. Rating established from current metering from u/s cableway. Severe weed growth problems. Vandal-prone. A few small reservoirs in headwaters. Minor direct abstractions. Many industrial discharges. Much pollution.

Catchment: Geology mainly Coal Measures and Millstone Grit overlain by Boulder Clay. Catchment includes Accrington, Burnley and Nelson (approx 20% urban overall); extensive moorland above the towns.

71005 Bottoms Beck at Bottoms Beck flume**NWW**

Station: Compound trapezoidal flume with stainless steel low flow throat in trapezoidal masonry section, 8.5m wide at flume full, 12.2m at bank full. Two integrating recorders operate from u/s and throat tappings. Inlet pipes block with sediment. Theoretical rating based on model tests and checked by dilution gauging. Natural catchment on inflow stream to Stocks reservoir.

Catchment: Steep channel in a wet, high relief catchment. Geology: half Carboniferous L'st and half Millstone Grit, blanketed by Boulder Clay. 70% of the catchment afforested between 1950 and 1970, with limited felling.

71006 Ribble at Henthorn**EA North West**

Station: Compound broad-crested weir, low notch 3.8m wide, flanking crests 20.6m (total) superseded (in Aug 1968) the original VA section (augmented by bed control May 1965 to improve calibration). Algal build-up and leaks affect low flows. Original cableway damaged and not replaced until Sept 1997. High flows of questionable accuracy. Largely natural runoff pattern. Only minor effluent discharges.

Catchment: Geology mainly Carboniferous Limestone overlain by Boulder Clay in valleys with intermittent Millstone Grit. The northern half of the catchment lies in the Yorkshire Dales National Park. Predominantly rural catchment with mixed farming and several small towns; moorland in the upper catchment.

71008 Hodder at Hodder Place**EA North West**

Station: Compound Crump profile weir, flat V centre section, 24.4m wide, 1:20 cross slopes, level flanking crests each 7.2 m wide and 0.6 m higher than centre of V. Built 9/69 to replace Higher Hodder Bridge (71803 3km u/s; records from 1960 unstable calibration). Cableway removed. Rated by gauging from bridge 200m u/s in support of modified theoretical calibration. Stocks Reservoir controls 15% of the catchment.

Catchment: Geology predominantly Millstone Grit and Carboniferous Limestone. Land use is mixed farming in the lower reaches and peat moorland in headwaters; very lightly populated area.

71009 Ribble at New Jumbles Rock**EA North West**

Station: Velocity area station with a bedrock control (drowns at 1.3m). Level records from 1964. Station re-sited 50m d/s in 1979 using same control and cableway installed. Station just d/s of confluence with R. Calder; monitors dilution of the polluted Calder tributary by the Ribble and Hodder.

Catchment: Geology consists of Carboniferous Limestone and Millstone Grit with Some Coal Measures in the Southeast overlain with Boulder Clay. A predominantly rural catchment with mixed farming in lower reaches and peat moorland in headwaters.

71010 Pendle Water at Barden Lane**EA North West**

Station: Flat V weir constructed in 1971. Calibration by c/m at the site itself and by level correlation with earlier site at Quakers-in-Pendle (71801; 1968-73; tube-mounted recorder; natural channel). Weir has been affected by mining subsidence in the right bank. Rating has been adapted for this and appears to have been stable since 1980. High flow gaugings are carried out from bridge upstream. No bypassing reported. Many polluting discharges and numerous small reservoirs.

Catchment: Geology consists of Carboniferous series - mostly Millstone Grit, with limestone in the north, and Coal Measures to the south-east. Peat moorland tops. A largely rural catchment including Nelson and Colne.

71011 Ribble at Arnford**EA North West**

Station: A Flat V weir with Crump profile, built 1972 to replace earlier station at Halton West (71802) 1km downstream which had an unsatisfactory rating history. The new weir has not fared much better, with problems of structural movement due to a geological fault and weed growth in summer. Rating is assumed valid to 2.88 m when channel geometry changes significantly. Highest station on Ribble; wholly natural flow regime.

Catchment: Long narrow catchment of Carboniferous Limestone with some Millstone Grit overlain by Boulder Clay on the valley floor. Land use mostly moorland.

71013 Darwen at Ewood**EA North West**

Station: Open channel VA station, vertical concrete wall forms the lb with a high natural bank on the right. Bed rough, stony but stable, approach channel silty. Station affected by non-continuous abstractions and releases upstream. Compensation flows are activated automatically.

Catchment: Steep headwater catchment, particularly in W, that drains N to the outskirts of Blackburn. Solid geology of Millstone Grit and Coal Measures, with intermittent Boulder Clay, hill peat and glacial gravel in main valley. Heavily urbanised at Darwen.

71014 Darwen at Blue Bridge**EA North West**

Station: Ultrasonic station since 30/7/97, previously an old mill weir modified (1974) into a V profile forming the main control. Water levels are measured 800m u/s so, at low flows, bed control in the intervening reach probably applies; high flow gauging needed to determine whether channel control takes over. Some small reservoirs in headwaters. Effluent discharges.

Catchment: Upper catchment almost wholly urbanised (Blackburn, Darwen); agricultural in lower half. Glacial clays and gravels blanket Coal Measures and Millstone Grit with Sherwood Sandstone near the gauge.

71015 Dunsop at Footholme Flume**EA North West**

Station: Flume. Earlier data available at station d/s. Low runoff, cause under investigation.

Catchment: Very steep, highly responsive catchment draining rural peat moorland.

72002 Wyre at St Michaels**EA North West**

Station: Natural section. Despite inclusion of artificial bed control, low flow calibration found insensitive and Flat V weir built 400m d/s in 1969. Cableway installed in mid 1990s. The weir drowns at 0.84 m. Inlet pipe gets blocked and has to be flushed. Tidally affected, particularly at spring tides, drowning weir. Abstractions at Garstang but main distortions of flow are the Lune transfer (via Abbeystead) and bankside flood detention ponds.

Catchment: Geology consists of Lower Triassic Bunter sandstones, marl, Millstone Grit and Carboniferous Limestone. A lightly populated catchment having predominantly agricultural land-use.

72004 Lune at Caton**EA North West**

Station: Compound broad-crested weir built to measure low flows, with Halton 3 km downstream measuring high flows. On closure of Halton in 1985, Caton became a full-range station. Records combined. A cableway downstream at Halton is used to gauge higher flows. High flows inundate wide floodplain and do not appear to be accounted for by the rating. Transfers to R. Wyre under Lancashire Conjointive Use Scheme. Major abstractions for PWS. Flood warning site.

Catchment: Headwaters rise from Shap Fell and the Pennines. Mixed geology with Carboniferous Limestone; Silurian shales; Millstone Grit and Coal Measures. Substantial Drift cover. Agriculture in valleys; grassland with peat moss in highest areas.

72005 Lune at Killington New Bridge**EA North West**

Station: Bazin type compound broad-crested weir. Skew flow caused by off-centre notch causes varying head across the section; that and siltation influences the rating. Stilling well leakage until 2/88. Fully contained. Above 1.6m (weir full) extrapolation of theoretical rating to bankfull (4.0m). POR maximum should be considered an estimate (based on the peak stage). Natural catchment.

Catchment: Wet, high relief catchment. Silurian slates to the W, Carboniferous conglomerate and Limestone N and E. Peat moss on high moors to NW, heather moss in N. Lower valleys are Boulder Clay covered. Moorland, grass, arable farming

72007 Brock at U/S A6**EA North West**

Station: Rectangular section broad-crested weir with a central low-flow notch, constructed in 1978 and then reconstructed to original height in 1991 due to erosion problems. A d/s stilling pool with a further broad-crested weir with twin low flow notches next to the banks does not affect the control. High flows rated by current meter from u/s cableway. Coarse gravel shoals above weir on right bank. Natural catchment, flood warning site.

Catchment: Moderate relief, entirely rural, catchment. Steep headwaters drain Millstone Grit in the north and Carboniferous Limestone in the south. Sherwood Sandstone close to the gauge. Peat on high moors, lower catchment overlain by Boulder Clay.

72008 Wyre at Garstang**EA North West**

Station: Initially VA station with gravel control. From 9/69 Flat V weir installed. Rated by gaugings. Flows affected by Garstang intake immediately u/s, Lune transfers via Abbeystead, Garstang flood basin overspill during high flows and possibly by bankside gravel workings u/s.

Catchment: Agricultural catchment with moorland-fed headwaters. Geology almost entirely Millstone Grit with Sherwood Sandstone close to the gauge. Peat on high moors, Boulder Clay covers lower catchment.

72009 Wenning at Wennington**EA North West**

Station: Flat V Crump profile weir. River well contained, stable rating. No permanent cableway; gaugings are carried out from a bridge upstream. Algal growth and u/s siltation need regular attention. Groundwater abstraction for agriculture from the Millstone Grit aquifer.

Catchment: Coal Measures and Millstone Grit faulted against Carboniferous Limestone, small area of impervious Silurian slate in extreme east. Boulder Clay over most of catchment with some alluvium and hill peat. Land-use rural with heather moor in S.

72011 Rawthey at Brigg Flatts**EA North West**

Station: Natural channel, approx 30m wide, well contained within rock banks and a wall, with a rock bed control. Cableway removed 9/75, so no good high range gaugings since. Stilling well siltation problems. Low and high range rating not good. January 2005 peak flow under review. Record contains many gaps. Natural catchment, very flashy.

Catchment: High relief moorland catchment draining Carboniferous Limestone and Millstone Grit. Peat on highest moors, Boulder Clay on lower slopes and in valleys.

- 72014 Conder at Galgate** **EA North West**
Station: Flat V Crump profile weir in confined concrete channel to 1.775m, with concrete wall above as a flood barrier. Weir operates to 0.41m and needs regular cleaning. Weed growth may cause drowning in summer if not controlled. Higher flows are c/m gauged; portable ultrasonic gauge installed to refine calibration.
Catchment: Catchment to E of Lancaster draining steep moors of Littledale. Solid geology Millstone Grit, mostly covered with Boulder Clay with hill peat at highest altitudes.
- 72015 Lune at Lunes Bridge** **EA North West**
Station: Non-standard, compound bed control built into the invert of a road bridge. Erosion renders low flows suspect. Gauging by wading and cableway 150m u/s; difficult to establish a stage-discharge relationship for high flows. Natural catchment, replaces Tebay (72010).
Catchment: High relief, moorland catchment on Carboniferous Limestone and Silurian Shales. About 20% of the catchment covered by Boulder Clay.
- 72016 Wyre at Scorton Weir** **EA North West**
Station: Non-standard weir with small fish pass (flow ignored). Rated by c/m. Original (1967) tube mounted recorder replaced by well in 1987. During high flows gravel and boulders are washed over the weir causing erosion to the crest. This erosion and repairs have led to multiple ratings being applied throughout the station record, all similar at high flows, so a single one is adopted. Scorton data, 8km u/s from Garstang (72008) are used to study Lune transfer (because of major geological fault d/s). Lune transfer (see 72002) and gravel workings (adjacent) affect high flow regime. No data from May 97 - May 98 due to problems at site.
Catchment: Agricultural catchment with moorland-fed headwaters. Geology almost entirely Millstone Grit overlain by extensive Boulder Clay and peat in the headwaters.
- 73002 Crake at Low Nibthwaite** **EA North West**
Station: Open stone-walled channel with informal Flat V triangular weir control. Stable rating, full-range of flows contained. Permanent cableway. Minimal weed growth. Lowest flows unreliable. Headwater abstractions for PWS. Approx. 2km d/s of Coniston Water hence subdued hydrograph.
Catchment: Predominantly impervious Silurian rocks with Volcanic series to the North; band of Boulder Clay over centre of catchment. Mountains in North support rough pasture and moorland; remainder grassland.
- 73003 Kent at Burneside** **EA North West**
Station: Natural channel, no permanent cableway, gauging by wading up to 0.8m, high flows by temporary cableway. Full range of flows contained. Station reconstructed in 1991, which included a 30 inch concrete well, situated on the left bank, and boulders, to act as a control. Station closed (25/1/91-15/4/1991) for reconstruction. High flow gaugings at Bowston (new replacement station) used to develop a single high-flow rating, which is applied throughout the record. There are 10 ratings for low-medium flows. Station closed June 2000.
Catchment: Impervious Lower Palaeozoic slate; flagstone and shale covered in middle reaches of valleys by Boulder Clay which supports permanent grassland, remainder for grazing. Rises in the mountainous Lake District; steep descent to Kendal.
- 73005 Kent at Sedgwick** **EA North West**
Station: Compound broad-crested weir, 27m wide with 9.16m low flow notch (widened from 3m on 22/10/94). Occasional weed growth problems. Permanent cableway for medium to high flows. No bypassing. Flashy, with widely fluctuating flows and high velocities. Predominantly natural.
Catchment: High relief catchment drains impervious Pre-Cambrian to Silurian rocks where heather moorland and peat predominate. Carboniferous Limestone provides good grazing, especially south of Kendal on Drift cover.
- 73006 Cunsey Beck at Eel House Bridge** **EA North West**
Station: VA station in an artificially straightened reach. Wooden sleeper low flow control (not for the early record), no cableway; bridge gauging used for high flows. In November 1998 a tree and part of the right bank collapsed into the channel. Debris collected and scour took place with resultant gravel deposited u/s of control raising the bed in some places as high as the control. The control was modified and raised approximately 0.1 m in August 1999. Further bank collapse in 2000. Suffers from heavily weeded channel. The bulk of the catchment drains through Esthwaite Water.
Catchment: A steep, wet catchment draining Silurian shales, mudstones and sandstones. Minor superficial deposits. Westerly tributary to Windermere. Land-use mostly rural with woodland on valley slopes
- 73008 Bela at Beetham** **EA North West**
Station: Flat V Crump profile weir, 1:20 cross-slope. Top of wing walls 0.917m. Velocity-area for medium/high flows, no permanent cableway but high flows well gauged to beyond QMED. Bankfull 1.188m, no bypassing. Severe, algal and weed problems. Minor impact from Killington Reservoir. Gw abstractions.
Catchment: Predominantly Silurian slate with Carboniferous Limestone in lower reaches. Boulder Clay covers 70% catchment, giving rise to arable farming and permanent grassland. The remainder is rough grazing.
- 73009 Sprint at Sprint Mill** **EA North West**
Station: Flat V Crump profile weir for low and medium flows (up to 0.62m). Cableway for medium to high flows. Weir was repaired in 1990 and 2000. Predominantly natural flow regime, slightly influenced by discharges from Garnett Bridge Straining Plant 4km u/s. Flood warning station for Kendal.
Catchment: High relief, very wet catchment drains an area of peat moss growing on Borrowdale Volcanics in extreme north, through grazing lands on Silurian and Ordovician slate, flags and shales to Boulder Clay covered lower reaches.
- 73010 Leven at Newby Bridge FMS** **EA North West**
Station: Level record since 1939 from four different sites at Newby Bridge. All flow records from 1939 to 1974 combined into a single sequence. Since 5/5/71 Compound Crump profile weir. Full-range. Just d/s of Windermere (for which earlier level data are available): highly regulated, compensation flows (occasional very low flows (e.g. autumn 1972) when u/s fish pass closed); major abstractions for public water supply from Windermere.
Catchment: Predominantly impervious, Borrowdale Volcanics in north and Silurian Slate in south. Boulder Clay along river valleys. Mainly grassland, very wooded in lower reaches. Catchment contains Windermere, Esthwaite Water, Rydal Water and Grasmere, and numerous other small, natural water bodies.
- 73011 Mint at Mint Bridge** **EA North West**
Station: Flat V Crump profile weir. Low flow weir - likely to drown at high flows (weir full at 0.837m stage). No pronounced flood plain; all flows contained. Stable rating derived from gaugings up to 1.76m. Natural catchment, however, flow slightly affected by Meal Bank mill sluice operation from 21/7/67 to 31/1/69 and periodic releases from sludge disposal works. Significant gaps in record: 1978, '80 and '88. Weir repaired summer 2002.
Catchment: Steep, very wet catchment. Predominantly impervious Silurian slate with bands of flags and shale, small patches of Carboniferous L'st and basal conglomerate, patchy Boulder Clay cover in middle and lower reaches. Sheep grazing with peat moorland in extreme north.
- 73013 Rothay at Miller Bridge House** **EA North West**
Station: Velocity area station. Initially a loose boulder control, but rating was unstable because of the mobile bed. Data quality poor. A wooden low flow control was installed 2/91 but deteriorating (2002). New timber control constructed July 2006. Flood berm on lb. High flows not contained (flows down road and across field). Gaugings taken 170m d/s or by wading. Natural catchment, containing Rydal Water and Grasmere.
Catchment: Steep, wet catchment draining Borrowdale Volcanics with intermittent Boulder Clay. Predominantly rural catchment; gauging station immediately d/s of Ambleside.
- 73014 Brathay at Jeffy Knotts** **EA North West**
Station: Velocity area station. Bed dredged between 19-24/7/94 causing water levels to fall by approx. 0.2m. Significant hydrometric problems: No cableway or suitable bridge nearby (EA assessing the future of the site (2007), ultrasonic is a possibility); flows seriously affected by weed growth and heavily vegetated banks. Natural catchment.
Catchment: Steep, very wet moorland catchment, draining Langdale Fell. Solid geology Borrowdale Volcanics, much exposed at outcrop. Some hill peat and Boulder Clay cover.
- 73015 Keer at High Keer Weir** **EA North West**
Station: Crump profile Flat V weir, 3.5m wide, set in vertical wing walls, circa 1m high, constructed in 1971 to supersede original open channel section. Station closed between October 1981 and September 1990. Structure performs well, all flows contained within bank. Rather flashy regime from natural catchment.
Catchment: NE-SW trending catchment formed from series of ridges of moderate relief. Solid geology: Carboniferous Limestone and Millstone Grit overlain by extensive Boulder Clay, glacial sands and gravels. Wholly rural with forest plantations.
- 74001 Duddon at Duddon Hall** **EA North West**
Station: Compound broad-crested weir, 22.9m overall, centre crest 7m, contains all flows. Drowning improbable. High flows theoretically rated. Low flows gauged by wading. Extremely flashy runoff. Abstractions for Barrow PWS from Ulpha pumping station u/s. Variable compensation flow from Seathwaite Tarn.
Catchment: Rises at Wrynose Pass, flows through sparsely populated agricultural land. Geology entirely impervious Ordovician Borrowdale Volcanics, andesitic lavas with small patches of Boulder Clay and peat to the West. Little urbanisation, but flashy runoff.
- 74002 Irt at Galesyke** **EA North West**
Station: Flat V weir constructed in Sept 1990; superseding a natural channel 20m d/s with gabion control (gabion modified in Sep 1968); prior to this an unstable section and control was submerged at high flows. Flows contained to 1.3m, significant out of bank flow thereafter. Station was closed for construction May-Sept 1990. 1km d/s of West Water outlet which is important for PWS and major industrial purposes, greatly affecting low flows. Very wet and steep headwaters; very responsive regime.
Catchment: Entirely impervious Ordovician Borrowdale Volcanics and Andesitic Lavas rocks with Drift cover along river valley. Landuse mainly sheep farming on rough pasture, with heath and moorland.

74003 Ehen at Bleach Green**EA North West**

Station: Compound Crump profile weir, from 1/8/73, replaced narrow flume. All flows contained since wingwalls raised from 1.5m to 2.0m in 1999. Measures flood discharge and compensation water from Ennerdale Water 800m u/s. Cableway on site. Compensation level - 0.157m. Ennerdale Water used for PWS for West Cumbria and industrial supply to Sellafield.

Catchment: Impervious Skiddaw Slates in NW, Borrowdale Volcanics in SE with intrusions in the centre. Mostly rough sheep grazing, forestry on Drift cover along river valley.

74005 Ehen at Braystones**EA North West**

Station: Non-standard Flat-V control installed 1997 superseding original VA station with unstable rating - gravel bar low flow control with significant weed growth problems. Weir lowered summer 2007 for environmental reasons. Bypassed in extreme floods. Low flows dominated by compensation from Ennerdale Water; major exports. Unreliable flow data (due to weir building) 20/2-17/3/97: these removed from NRFA.

Catchment: Upper catchment comprises impervious Borrowdale Volcanics in the east and Skiddaw Slates in the west, the whole overlain in NW by Carboniferous Limestone, Coal Measures and patches of Sherwood Sandstone. Lower reaches overlain by Boulder Clay. Some urban development in lower catchment; middle reaches arable, remainder sheep pasture.

74006 Calder at Calder Hall**EA North West**

Station: Flat V Crump profile weir with 1:20 cross-slope, measures low and medium flows. At very high flows could drown out. Permanent cableway installed in 2002. All flows contained within bank. Stilling well leaked intermittently until repaired in 1989. Station was out of commission in June 1990 for weir repairs. Further repairs to weir in 1995 and 2001. Flashy response. From 1/1/80 low flow augmentation by pumping from the St Bees S't. Abstraction by BNFL ceases below 0.153m.

Catchment: A very steep, flashy catchment. Upper catchment geology comprises impervious Skiddaw Slates and Borrowdale Volcanics; lower catchment Triassic Sandstone. Land use is mostly rough sheep grazing in the upper reaches, with meadow and permanent pasture lower down.

74007 Esk at Cripple How**EA North West**

Station: Velocity-area station. Stone ford forms low/medium control approx. 50m d/s, insensitive at low flows. Rating is poor at extremely high flows (>100 m³/s), and flow comes out of bank u/s, bypassing station. Waded gauging at low/medium flows. For a number of years there was a permanent cableway for high flows but by 2007 it had been removed.

Catchment: A steep rural, flashy, catchment with geology comprising impervious Ordovician andesitic lavas and tuffs with massive granitic intrusion, virtually drift free. Mountainous catchment (maximum altitude 977m at Scafell Pike), with no industry or urbanisation, supports rough pasture and moorland for sheep grazing; grassland in valley.

74008 Duddon at Ulpha**EA North West**

Station: Non-standard compound broad-crested weir, three different crest levels of varying widths, narrowest at 0.31m, second at 0.54m and widest at 0.745m at an angle to channel. No cableway, waded c/m 100m d/s of weir. Contains all flows. Major abstraction 10m u/s for Barrow PWS. Compensation flow from Seathwaite Tarn 8km u/s.

Catchment: Geology: Impervious Ordovician Borrowdale Volcanics, virtually Drift free. Maximum altitude 702m. Steeply sloping, thin soils, supporting sheep pasture.

75001 St Johns Beck at Thirlmere Reservoir**EA North West**

Station: Compound Crump profile weir superseded rectangular thin-plate weir on 1/1/73. Measures compensation and flood spill discharges from Thirlmere reservoir approx. 1km u/s. Modular limit approx. 0.75m. High flows affected by out of bank flow (exceptional flows bypass both wingwalls) and bridge construction d/s. Station building raised above flood level in 2001. Naturalised monthly flows 1964-1966. Natural water level of Thirlmere was raised 17 m by impounding dam at beginning of 20th Century. Abstractions from Thirlmere Reservoir for Manchester, pumped from Dunmail Raise. Catchwater channel diverts streams from Mill Gill to Helvellyn Gill into Thirlmere Reservoir at all but highest flows.

Catchment: Catchment composed entirely of impervious Ordovician Borrowdale Volcanics, runoff from these into the reservoir is rapid. Rock outcrop, rough pasture with heather. Sheep grazing, some forestry.

75002 Derwent at Camerton**EA North West**

Station: Velocity-area station with permanent cableway. Full range calibration, all flows contained. Opened in 1960, reliable record since 1961. Station destroyed by fire 18/05/1986, subsequently replaced. Regulated flow from Crummock Water. Controlled releases from Thirlmere Reservoir. Abstractions for industry d/s of Camerton. Naturalised monthly flows from 1962 to 1967.

Catchment: Upper third of catchment is moorland draining Ordovician rocks; Borrowdale volcanics or Skiddaw group. Drift covered valley floors support grazing and some arable farming. All flows from Derwent Water, Bassenthwaite Lake, Buttermere, Crummock Water, Loweswater and Thirlmere flow through station, giving a slowly changing flow pattern with hydrographs of differing origin superimposed. Towns of Keswick and Cockermouth.

75003 Derwent at Ouse Bridge**EA North West**

Station: Velocity-area station with permanent cableway immediately d/s of Bassenthwaite Lake. Low flow control approx. 120m d/s is a length of pipe at the u/s end of an island (which becomes control at higher flows). Substantial exports. Rarely overtopped. New floodbank, 2006, constructed on rb, raising containment level from 2.3m to 2.8m. Derwent Water, Bassenthwaite Lake and Thirlmere Reservoir moderate flood discharges.

Catchment: Catchment entirely on impervious Ordovician rocks; Borrowdale volcanics or Skiddaw group, Drift confined to valley floor. Contains two large natural water bodies: Derwent Water and Bassenthwaite Lake, also Thirlmere Reservoir. Entirely rural, mainly rough pasture and moorland.

75004 Cocker at Southwaite Bridge**EA North West**

Station: Velocity-area station with cableway. Control is a pipeline d/s, and mill weir 137m d/s at higher flows. Suffers from silt, weed growth and minor bed movements, hence many rating changes. Some high flows bypass on rb. Low and medium flows of limited accuracy. Generally used in conjunction with Scalehill (75016). Crummock Water, Buttermere and Loweswater in catchment. Low flow compensation pumped from Crummock Water. Occasional evidence of low flow regulation (e.g. July 1988).

Catchment: Geology: Ordovician Skiddaw group with granitic intrusions. Land-use mainly grazing, with some arable on mixed drift deposits within the river valley.

75005 Derwent at Portinscale**EA North West**

Station: Velocity-area station with permanent cableway. No stable bed control until trench-piled non-standard shallow V weir was installed in March 1993. Shifting ratings particularly at the low end, whilst high flows are more stable. Station bypassed on rb in extreme floods. Regime affected by controlled releases from Derwent Water and Thirlmere reservoir.

Catchment: Geology mainly Borrowdale Volcanic series with Skiddaw Slates in the north and igneous intrusions east of Keswick. Catchment reaches 949 m AOD at the summit of Helvellyn. Boulder Clay overlies geology within the valleys of the north, with peat within the upland areas. Land-use mainly grasslands along river valley with the remainder heather and moorland.

75006 Newlands Beck at Braithwaite**EA North West**

Station: Velocity-area station. Closed in 1997. Cause of low runoff under review.

Catchment: Small, steep, wet catchment, entirely on impervious Ordovician rocks.

75007 Glenderamackin at Threlkeld**EA North West**

Station: Non-standard shallow V weir constructed 1998, superseding a non-standard 13m weir built in 1986. Station closed Jun 1981-Jan 1986, data quality poor pre-closure. Originally a VA station set in gently curved reach, with basket gabion low flow control which is continually eroded. Cableway. High flows bypass on rb. 1987, 2002 and 2005 (Jan & Oct) peak flows are of comparable magnitude. Large gaps in the NRFA series. Weir due to be lowered in 2008 to facilitate gauging by wading.

Catchment: High relief, natural catchment in northern Lake District; broad main valley below 200m, flanking fells exceed 700m. Geology principally Skiddaw Slates, with Borrowdale volcanics on southern watershed and granite boss in the south. Extensive Boulder Clay overlies the geology with alluvium within the river valley and peat on upland reaches. Land-use rural and moorland.

75009 Greta at Low Briery**EA North West**

Station: Velocity-area station with a berm acting as a control where the channel divides and the gradient steepens. Cableway - but low confidence in high flow gaugings due to high velocities and poor gauging section. All flows contained. Thirlmere Reservoir regulates catchment. Flood warning site for Keswick. Station designated level only from June 1999 (when cableway removed).

Catchment: Entirely rural catchment, rising to 949 m AOD, with sheep farming predominating on the rough pasture. Geology: impervious Ordovician Skiddaw Slates, Borrowdale Volcanics and some igneous intrusions. Boulder Clay cover below 200m with Peat moorland on high ground.

75010 Marron at Ullock**EA North West**

Station: Flat V weir. Closed in 1977.

Catchment: Small, rural catchment. Mostly grassland.

75016 Cocker at Scalehill**EA North West**

Station: Non-standard compound weir with flume centre section. Stable rating to bankfull (1.215m); above this structure completely drowned, flow over both banks (u/s bypassing on lb above 0.8m). Low flows good. Generally used in conjunction with 75004 Southwaite. No permanent cableway. D/s of Crummock Water - flow regulated, mostly compensation at low flows. 29/10 - 7/11/97 data suspect due to vandalism and repair of sluice gates at Crummock. Peak under review - may be significantly overestimated.

Catchment: Entirely rural, heathland, moorland and rough pasture over impervious Ordovician Skiddaw Slates and Borrowdale Volcanics. Substantial outcrop of granitic intrusion. Drift covered to the elevation of Crummock Water.

75017 Ellen at Bullgill**EA North West**

Station: Flat V weir, 11 m wide, installed in 1975. Full range covered with stable rating; drowns above 0.631 m. Some bypassing below road bridge, cutting off bend on lb. Permanent cableway. Suffers from slight accretion. Minor abstractions in headwaters and small discharges of sewage and industrial effluent; very limited net impact on runoff.

Catchment: Steep headwaters drain Uldale Fells and flow westward. Lower reaches follow the E-W trend of the Coal Measures with Carboniferous Limestone to the south. Extensively overlain by Boulder Clay with alluvium within the main river valley.

76001 Haweswater Beck at Burnbanks**EA North West**

Station: Velocity-area station 1951-61; compound thin-plate, 4 stage weir to 1/4/78; compound Crump profile weir thereafter. Unlikely to drown. 500m d/s of Haweswater Res. which imports water from Lowther tributaries. Measures compensation and overspill only. Major exports to Shap aqueduct for PWS. Some monthly naturalised data available. Peak flow in Dec 2006 exceeds all previous peaks in the NRFA series.

Catchment: High relief, very wet catchment draining Ordovician Borrowdale Volcanics with igneous intrusions. Extensively peat covered in W with Boulder Clay and sands and gravels in the main valley. Entirely moorland, heathland and rough pasture.

76002 Eden at Warwick Bridge**EA North West**

Station: VA cableway station subject to bypassing over 3.8m on LB and severe weed growth months 5-12 replaced in 1996 by non-standard triangular profile compound weir sited on a natural rock step at Great Corby. Influenced by major abstractions from Haweswater and Wet Sleddale.

Catchment: Large catchment with mixed geology. Horseshoe shaped outcrop of Carboniferous Limestone forms south and east watersheds in Pennines; lakes drain Ordovician Borrowdale volcanics. Main Vale of Eden is Boulder Clay overlying Sherwood sandstone. Land-use variable; moorland to arable.

76003 Eamont at Udford**EA North West**

Station: Velocity-area station. Permanent cableway 120m u/s of recorder, wading d/s for low flows. All flows contained. High flow data quality good; low flows very poor (especially from 1989); frequent bed shifts and weed growth. 1983 minimum may have been eclipsed in 1984 (data under review). Artificially influenced by Ullswater (controls 37% of the catchment), Haweswater and Wet Sleddale. Naturalised monthly flows 1962-1965.

Catchment: 65% of the catchment drains Ordovician Borrowdale Volcanics of peat moorland headwaters; broad band of Carboniferous L'st in middle reaches; Coal Measures and Permo-Triassic s'st nearer station. Extensive Boulder Clay in valleys and lower reaches. Land-use mostly grazing.

76004 Lowther at Eamont Bridge**EA North West**

Station: Velocity-area station with permanent cableway. All flows contained. Affected by seasonal weed growth. Original station building rebuilt July - October 1973; possible change in datum. Site landscaping caused bed instability (1988). Strongly influenced by Haweswater and Wet Sleddale, which naturally control approx. 26% of the catchment, although the actual proportion may be much higher (approx. 60%) due to diversions from Lowther tributaries. Monthly naturalised flows from Oct 1962 to Sep 1965.

Catchment: Majority of the catchment (approx. 50%) drains Ordovician Borrowdale Volcanics of the peat moorland headwaters. The centre of the catchment is dominated by a broad band of Carboniferous Limestone followed by Millstone Grit and Permian Sandstone close to the gauging station. Extensive Boulder Clay in the valleys and lower third of the catchment. Land-use mostly grazing.

76005 Eden at Temple Sowerby**EA North West**

Station: Velocity-area station with cableway. Non-standard shallow V bed control constructed in 2002 in an attempt to stabilise the gravel bed. Severe summer weed growth requires numerous rating changes. Before May 1995 floods above 3.3m inundated wide floodplain on lb. Banks then raised to 4.2m to contain the previous highest flood. Floods cause considerable scour and erosion. Sewage discharge d/s of Appleby.

Catchment: Rural catchment except for Appleby. Geology mainly Carboniferous Limestone with rough grazing, moorland on highest ground. Boulder Clay covered Permian Sandstones in the main valley supports arable farming.

76007 Eden at Sheepmount**EA North West**

Station: Velocity-area station. Permanent cableway. Full-range. Most floods contained in immediate channel. Pre-1970 (when floodbanks constructed) bypassed via Caldew floodplain. Inlet may block at high flows; gravel movement around d/s bridge and weed growth may affect low flows. Highly influenced by Ullswater, Haweswater and Wet Sleddale especially at low flows. Periodic recalibration.

Catchment: Rural catchment except for Carlisle, Penrith and Appleby. Headwaters in Carboniferous Limestone of Pennines to east, impervious Lower Palaeozoics of Lake District massif to west; moorland. Extensive Boulder Clay covered Permo-Triassic sandstone in Vale of Eden. Land-use: arable and grazing.

76008 Irthing at Greenholme**EA North West**

Station: Velocity-area station. Permanent cableway. Before 1/9/75 gabion control effective over most of flow range. D/s gravel abstractions caused scour, rating changes frequent. Now informal Flat V, insensitive at low flows. Moderately affected by Castle Carrock Reservoir. Medium-high flows can be affected by backing-up from the Eden. Afforestation began in the 1950s, peaked in the 1970s and, by 2000, constituted almost 20% of the catchment.

Catchment: Tributaries rising in the Pennines are short, steep and flashy through heather and moorland cover. Solid geology dominated by Carboniferous L'st - outcrops on steep slopes. Extensive hill peat, Boulder Clay, and glacial sands and gravels. Land-use: moorland to arable.

76009 Caldew at Holm Hill**EA North West**

Station: Natural channel with low flow gabion control, severely affected by gravel deposition. Rating changes due to gabion suffering damage at high velocities. Full range of flows contained. Permanent cableway. Natural catchment. Station closed 10/04/2000.

Catchment: Rises on impervious Skiddaw Slates and flows northward over Carboniferous Limestone and Coal Measures. Hill peat; Boulder Clay extensive below 200m. Rural catchment, heath and moorland in headwaters, arable farming confined to lower reaches.

76010 Petteril at Harraby Green**EA North West**

Station: Velocity-area station with sharp-edged rectangular weir; d/s concrete apron. Weir nearly full width of channel. Rarely overtopped. Permanent cableway. Weed growth affects rating (severely in 1973 and 1974). Natural catchment. Station scheduled to be replaced by new site 4km u/s.

Catchment: Long, thin catchment rising in moorland W of Penrith, flowing N to Carlisle. Carboniferous Limestone in headwaters; remainder: Millstone Grit and Penrith Sandstones covered with Boulder Clay and valley gravel.

76011 Coal Burn at Coalburn**EA North West**

Station: Compound broad-crested weir (with V-notch for low flows); full-range but gaugings suggest that high flows may be underestimated. Replaced Crump profile weir in Aug 1991. Exceptional August 1975 flood (triggered by 70-80 mm rain; runoff approached 70%) was fully contained. Natural, very responsive regime with zero flows common in the summer months. Central climate station and areal rainfall derived by CEH using a small network of within-catchment raingauges. Jointly managed by EA, CEH and the Forestry Commission. Small experimental catchment (with boundary ditches) to show the effects of afforestation from planting to canopy closure. >40-yr record; a time series of major strategic importance.

Catchment: Undulating upland catchment (270-330 m) on Carboniferous L'st with Boulder Clay and blanket peat cover. Usage was entirely moorland before being afforested. Drained summer 1972 in preparation for planting, creating stream density of about 200 km/km² (about 60 times greater than original stream network). Sitka spruce planted 1973. Runoff (especially low and moderate flows) calculated to have increased after drainage; baseflow index also increased.

76014 Eden at Kirkby Stephen**EA North West**

Station: Non-standard compound broad-crested weir, built to stabilise the bed and act as a low flow control (crest corrosion a problem prior to addition of iron crest). Insensitive at low flows. Low flows gauged by wading; cableway measures higher flows. Structure drowns and modest bypassing occurs at highest flows (some gauged evidence of its magnitude). Natural catchment, the highest on the Eden.

Catchment: High relief catchment draining Carboniferous Limestone which forms most of the watershed. Middle reaches floored by Permian Sandstone. Hill peat and moorland, variable Boulder Clay cover.

76015 Eamont at Pooley Bridge**EA North West**

Station: Compound Crump profile weir, 29.3m wide with low crest 9.1m wide, just d/s of Ullswater. Rarely drowns: crest tappings not used. Some bypassing can occur on right bank at high flows. Variable compensation releases from Ullswater and Haweswater. Ullswater is used for public water supply, although not continuously, and pumped to Haweswater at times of higher flow. Temporary weir installed at the outlet of Ullswater to raise lake levels to facilitate abstraction under Drought Orders of 1989 and 1995/6.

Catchment: Geology largely Borrowdale Volcanics with Skiddaw Slates further downstream. Some Boulder Clay cover. Sheep grazing on rough pasture predominates with some arable in lower reaches, moorland on high ground.

76017 Eden at Great Corby**EA North West**

Station: Velocity-area station. Influenced by major abstractions from Haweswater and Wet Sleddale.

Catchment: Large catchment with mixed geology. Horseshoe shaped outcrop of Carboniferous Limestone forms south and east watersheds in Pennines; lakes drain Ordovician Borrowdale volcanics. Main Vale of Eden is Boulder Clay overlying Sherwood sandstone. Land-use variable; moorland to arable.

77001 Esk at Netherby**EA North West**

Station: Velocity-area station. Permanent cableway. Full-range. Re-grading of natural control after high flows and gravel abstractions d/s affect rating. High flow gauging difficult because flashy. Gravel extraction 1.3 km d/s caused drop in levels in 1973, so station rebuilt July-October 1973, causing datum change. New stilling well in 1974 as inlet pipes were dry during low flows. Stepping stones placed in channel in January 1990 have since considerably affected flow. Black Esk Reservoir 47km u/s. Station closed in 2004.

Catchment: Catchment comprises Silurian rocks with igneous intrusions in north, Carboniferous Limestone in centre, and Permo-Triassic succession in the south. Widely blanketed by Boulder Clay. Rural catchment, heavily forested in the north, arable in the south.

77005 Lyne at Cliff Bridge**EA North West**

Station: Flat V weir with a cableway 30m u/s. Subject to severe accretion from gravel shoals which disturb rating and cause weir to drown early. Regular maintenance necessary. POR maximum under review.

Catchment: Moderate relief catchment draining the Bewcastle fells. Carboniferous Limestone solid geology is covered by peat on the moorland and Boulder Clay on the lower slopes. Entirely rural.

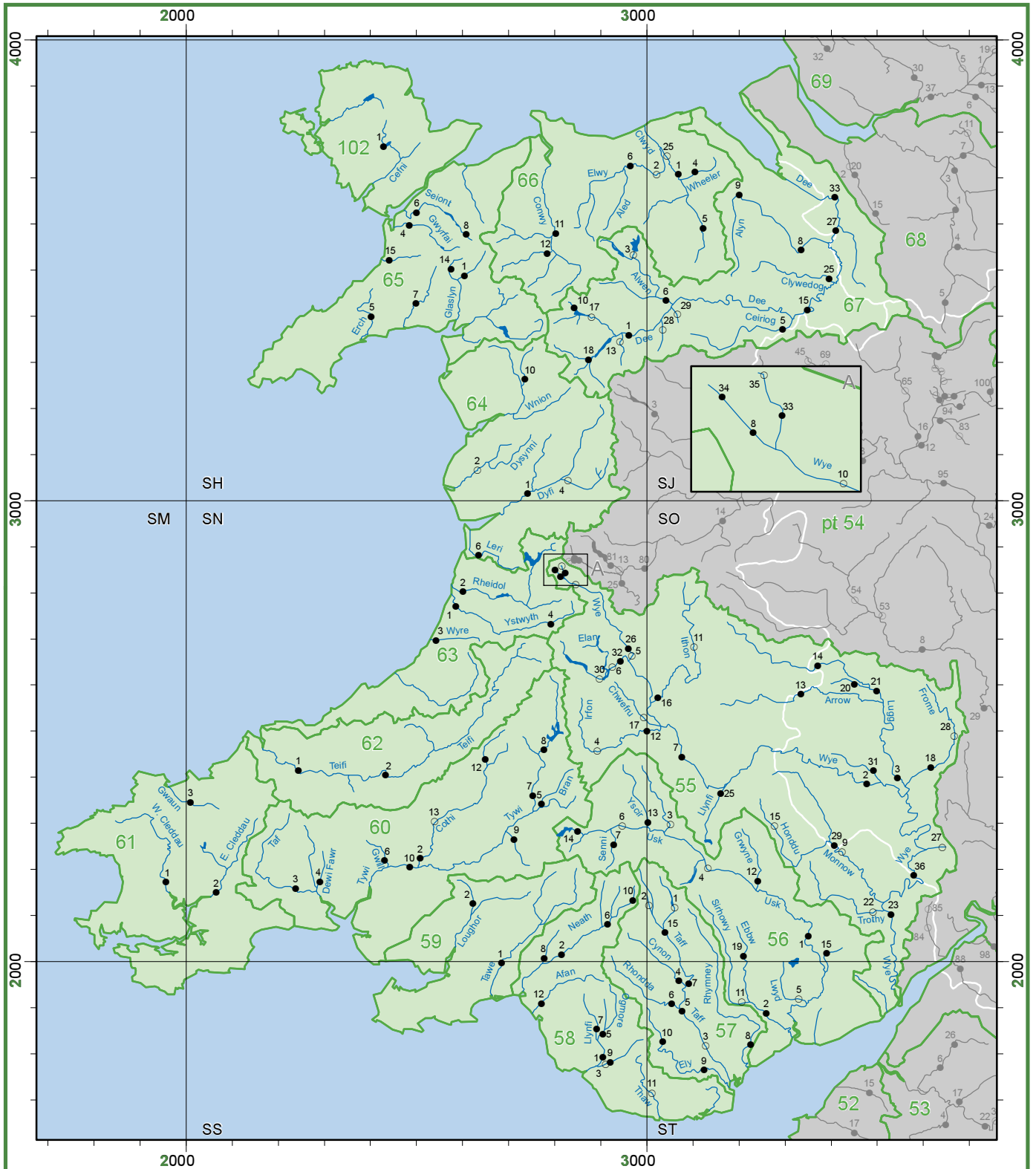
GAUGING STATION REGISTER

***Region: EA Wales/
Asiantaeth yr Amgylchedd Cymru***

Area: 21,262 km²

Average rainfall (1971-2000): 1380 mm

Map 11: WELSH



Gauging Station Register I

Station number	River name	Station name	Grid reference	Catchment area	Station type	SLA	Period of record	Percent complete	Base Flow Index	Mean ann. rain (mm)	Mean ann. runoff (mm)	Mean ann. loss (mm)	Mean flow (m ³ /s)	Q95 (m ³ /s)	Q70 (m ³ /s)	Q50 (m ³ /s)	Q10 (m ³ /s)	Median ann. flood (m ³ /s)	Peak flow (m ³ /s)	Date of peak	7-day min. (m ³ /s)	Date of min.
55002	Wye	Belmont	SO485388	1895.9 VA	*	1935-05	98	.46	1248	790	458	47.33	6.12	15.46	26.87	113.3	380.8	700.0	28/10/98	2.49	26/08/76	
55003	Lugg	Lugwardine	SO548405	885.8 VA		1939-05	90	.62	847	392	455	10.99	1.50	3.90	6.57	26.0				0.45	25/08/76	
55004*	Irfon	Abernant	SN892460	72.8 VA		1937-82	99	.38	1879	1389	490	3.20	0.32	1.03	1.84	7.6	56.5	120.4	06/08/73	0.11	05/10/59	
55005*	Wye	Rhayader	SN969676	166.8 VA		1937-69	100	.37	1678	1174	504	6.19	0.63	1.95	3.37	14.9	114.1			0.23	02/10/59	
55006*	Elan	Caban Coch Reservoir	SN926645	184.0 B		1908-84	100	.34	1823	869	954	5.05	1.42	1.50	1.58	13.7						
55007	Wye	Erwood	SO076445	1282.1 VA	*	1937-05	100	.41	1412	918	494	37.08	4.47	10.59	19.24	92.3	541.1	1228.8	02/12/60	1.84	26/08/76	
55008	Wye	Cefn Brwyn	SN829838	10.6 CC	*	1951-05	96	.31	2487	2105	382	0.70	0.07	0.21	0.36	1.7	16.8	48.9	05/08/73	0.03	27/07/84	
55009*	Monnow	Kentchurch	SO419251	357.4 VA		1948-72	99	.50	999	514	485	5.93	0.77	1.84	3.23	13.2	116.5	192.6	24/01/60	0.49	24/09/61	
55010*	Wye	Pant Mawr	SN843825	27.2 FVVA		1955-82	99	.31	2414	1939	475	1.66	0.16	0.50	0.86	3.9	69.9			0.07	04/09/76	
55011*	Ithon	Llandewi	SO105683	111.4 VA		1959-82	98	.38	1175	739	436	2.63	0.14	0.62	1.41	6.6	53.5	77.8	27/12/79	0.01	25/08/76	
55012	Irfon	Cilmerly	SN995507	244.2 FVVA		1966-05	97	.36	1694	1310	384	10.22	0.67	2.71	5.19	24.7	167.2	397.7	23/10/98	0.16	25/08/76	
55013	Arrow	Titley Mill	SO328585	126.4 VA	*	1966-05	100	.55	1018	590	428	2.37	0.25	0.73	1.44	5.5	27.2	57.7	10/01/86	0.10	25/09/90	
55014	Lugg	Byton	SO364647	203.3 FV	*	1966-05	100	.65	1041	613	428	3.95	0.64	1.45	2.60	8.8	28.7	70.0	28/10/98	0.33	17/10/03	
55015*	Honddu	Tafolog	SO277294	25.1 FVVA		1966-82	99	.52	1374	903	471	0.72	0.10	0.28	0.47	1.5	16.7	68.5	24/10/60	0.05	24/08/76	
55016	Ithon	Disserth	SO024578	358.0 FV	*	1968-05	99	.38	1120	707	413	8.07	0.33	1.76	4.02	20.8	106.3	171.2	27/10/98	0.05	25/08/76	
55017*	Chwefru	Carreg-y-wen	SN998531	29.0 FVVA		1968-82	98	.34	1503	980	523	0.91	0.04	0.19	0.46	2.3		68.3	27/12/79	>0.00	24/08/76	
55018	Frome	Yarkhill	SO615428	144.0 VA	*	1968-05	100	.52	731	256	475	1.17	0.15	0.33	0.62	2.6	20.9	26.3	09/04/98	0.03	25/08/76	
55020	Pinsley Brook	Cholstrey Mill	SO462598	24.2 VA		1939-05	94	.80	784	572	212	0.47	0.19	0.28	0.38	0.9	2.4	3.8	27/10/98			
55021	Lugg	Butts Bridge	SO502589	371.0 VA	*	1969-05	93	.69	926	473	453	5.61	1.02	2.34	3.87	11.9	44.8	64.7	28/01/90	0.46	16/08/76	
55022*	Trothy	Mitchel Troy	SO503112	142.0 FVVA		1969-82	86	.49	907	338	569	1.56	0.14	0.31	0.63	3.6	37.2	49.1	27/12/79	0.02	25/08/76	
55023	Wye	Redbrook	SO528110	4010.0 VA	*	1936-05	100	.54	1035	584	451	74.01	11.41	26.08	44.46	174.4	529.7	904.4	03/02/02	3.54	25/08/76	
55025	Llynfi	Three Cocks	SO166373	132.0 VA	*	1970-05	98	.56	1012	553	459	2.29	0.17	0.60	1.35	5.4	49.9	198.4	27/12/79	0.04	24/08/76	
55026	Wye	Ddol Farm	SN976676	174.0 FVVA	*	1937-05	100	.37	1650	1217	433	6.69	0.53	1.95	3.54	16.0	115.2	215.5	06/08/73	0.11	25/08/76	
55027*	Rudhall Brook	Sandford Bridge	SO641257	13.2 FV		1971-98	56	.74	756	303	453	0.13	0.02	0.04	0.08	0.3				0.01	25/08/76	
55028*	Frome	Bishops Frome	SO667489	77.7 FV		1971-01	99	.47	743	287	456	0.71	0.06	0.18	0.32	1.5				0.01	19/08/95	
55029	Monnow	Grosmont	SO415249	354.0 VA	*	1948-05	98	.51	1003	535	468	5.98	0.66	1.70	3.15	13.8	157.4	221.9	09/04/98	0.28	25/08/76	
55030*	Claerwen	Dol-y-mynach	SN910620	95.3 TP		1926-50	99	.30	1039	1334		4.02	0.33	0.97	1.89	10.1				0.15	17/09/49	
55031	Yazor Brook	Three Elms	SO492415	42.3 FV		1973-05	95	.56	704	180	524	0.22	0.02	0.10	0.16	0.4	2.3	4.8	02/02/02	0.00	23/09/05	
55032	Elan	Elan Village	SN934653	184.0 FV	*	1908-05	100	.33	1841	878	963	5.10	0.82	1.50	1.58	13.9						
55033	Wye	Gwy flume	SN824853	3.9 FL		1973-05	100	.34	2719	2247	472	0.28	0.04	0.09	0.15	0.6	8.5	10.6	07/10/01	0.01	28/08/76	
55034	Cyff	Cyff flume	SN824842	3.1 FL		1973-05	98	.29	2560	2150	410	0.21	0.02	0.06	0.10	0.5	5.6	6.8	07/10/01	0.01	05/09/76	
55035*	Iago	Iago flume	SN826854	1.1 FL		1973-99	98	.32	2572	2008	564	0.07	0.01	0.02	0.03	0.2	1.9	8.9	14/11/91	>0.00	06/09/76	
55036	Garren	Marstow Mill	SO561194	91.0 US		1997-05	94	.67	830	377	453	0.93	0.03	0.26	0.58	2.3				0.02	07/10/02	
56001	Usk	Chain Bridge	SO345056	911.7 VA	*	1957-05	100	.50	1400	972	428	28.03	3.98	9.38	16.19	64.7	380.4	945.0	27/12/79	1.68	26/08/76	
56002	Ebbw	Rhiwderyn	ST259889	216.5 FVVA	*	1957-05	94	.55	1514	1079	435	7.45	1.38	3.02	4.62	16.6	104.5	249.5	07/02/90	0.63	17/10/03	
56003*	Honddu	The Forge Brecon	SO051297	62.1 CC		1963-84	100	.52	1211	753	458	1.48	0.15	0.47	0.97	3.4	23.5	73.0	27/12/79	0.05	24/08/76	
56004*	Usk	Llandetty	SO127203	543.9 VA		1965-80	100	.48	1533	974	559	17.06	2.38	5.55	10.20	39.6	328.6	774.2	27/12/79	0.48	06/09/76	
56005*	Lwyd	Ponhthir	ST330924	98.1 CC	*	1966-98	100	.55	1462	1010	452	3.14	0.64	1.31	2.02	6.9	47.9	129.1	07/02/90	0.35	21/08/76	
56006*	Usk	Trallong	SN947295	183.8 VA		1963-84	100	.45	1732	1127	605	6.58	1.00	2.27	3.80	14.9	154.4	316.2	27/12/79	0.39	25/08/76	
56007	Senni	Pont Hen Hafod	SN928255	19.9 C	*	1967-05	98	.36	1979	1639	340	1.02	0.10	0.30	0.52	2.4	26.8	53.1	22/10/98	0.03	24/08/76	
56011*	Sirhowy	Wattsville	ST206912	76.1 FVVA		1970-83	96	.50	1546	863	683	2.12	0.35	0.74	1.29	4.8	32.1	113.3	27/12/79	0.11	24/08/76	
56012	Grwyne	Millbrook	SO241176	82.2 C	*	1971-05	86	.59	1260	784	476	2.02	0.32	0.78	1.37	4.5	19.3	56.0	27/12/79	0.16	24/08/76	
56013	Yscir	Pontaryscir	SO003304	62.8 C	*	1972-05	100	.45	1416	1005	411	1.98	0.19	0.57	1.13	4.7	35.8	96.0	06/10/85	0.08	25/08/76	
56014	Usk	Usk Reservoir	SN840290	17.0 C		1979-05	85	.50	1752	702	1050	0.38	0.08	0.12	0.16	0.9	5.3	10.2	02/01/88			
56015	Olway Brook	Olway Inn	SO384010	105.1 C		1975-05	100	.45	1020	468	552	1.56	0.11	0.32	0.69	3.8	29.4	40.0	07/02/90	0.03	25/08/76	
56019	Ebbw	Brynithel	SO210015	71.7 VA		1984-05	99	.50	1544	1200	344	2.71	0.46	1.01	1.56	6.1	36.1	70.7	23/10/98	0.26	30/07/99	
57001*	Taf Fechan	Taf Fechan Reservoir	SO060117	33.7 MIS		1938-73	64	.46	2011	720	1291	0.78	0.22	0.25	0.36	2.1						
57002*	Taf Fawr	Llwynon Reservoir	SO012111	43.0 MIS		1931-73	100	.30	2012	945	1067	1.28	0.14	0.33	0.42	3.3						
57003*	Taff	Tongwynlais	ST132818	486.9 VA		1965-72	100	.44	1865	1347	518	21.37	4.10	7.70	11.83	49.6	320.0	481.4	18/12/65	3.17	13/07/67	
57004	Cynon	Abercynon	ST079956	106.0 FVVA	*	1957-05	98	.40	1850	1287	563	4.30	0.54	1.28	2.12	10.6	73.9	181.7	27/12/79	0.29	24/08/76	
57005	Taff	Pontypridd	ST079897	454.8 FVVA	*	1970-05	99	.46	1908	1378	530	19.71	3.59	7.00	10.65	43.7	347.3	612.3	27/12/79	1.72	25/08/76	
57006	Rhondda	Trehafod	ST054909	100.5 VA		1970-05	98	.40	2285	1801	484	5.76	0.74	1.81	3.00	13.6	110.8	197.4	27/12/79	0.32	24/07/84	
57007	Taff	Fiddlers Elbow	ST089951	194.5 FVVA	*	1973-05	100	.46	1778	1103	675	6.71	1.31	2.29	3.35	15.8	129.0	349.4	23/10/98	0.57	22/08/76	
57008	Rhymney	Llanedeyrn	ST225821	178.7 FVVA	*	1973-05	100	.47	1461	993	468	5.61	0.73	1.78	3.10	12.9	99.5	152.4	23/10/98	0.24	14/09/90	
57009	Ely	St Fagans	ST121770	145.0 FVVA	*	1975-05	100	.48	1415	984	431	4.54	0.60	1.50	2.63	10.5	60.5	92.7	30/10/00	0.33	24/08/84	
57010	Ely	Lanelay	ST034827	39.4 VA		1974-05	99	.43	1692	1189	503	1.51	0.17	0.48	0.83	3.7	42.9	95.2	10/01/86	0.06	25/08/76	
57015	Taff	Merthyr Tydfil	SO043068	104.1 FVVA		1978-05	100	.38	1995	1087	908	3.61	0.75	1.11	1.43	8.7	93.6	258.2	22/10/98	0.30	22/08/84	
58001	Ogmore	Bridgend	SS904794	158.0 FVVA	*	1963-05	97	.49	1795	1315	480	6.63	0.98	2.54	4.13	14.8	117.2	178.6	24/10/98	0.37	22/08/84	
58002	Neath	Resolven	SN815017	190.9 FVVA	*	1962-05	77	.35	2000	1521	479	8.91	0.70	2.22	4.00	22.4	197.0	350.1	16/10/98			

Gauging Station Register I cont'd

Station number	River name	Station name	Grid reference	Catchment area	Station type	SLA	Period of record	Percent complete	Base Flow Index	Mean ann. rain (mm)	Mean ann. runoff (mm)	Mean ann. loss (mm)	Mean flow (m ³ /s)	Q95 (m ³ /s)	Q70 (m ³ /s)	Q50 (m ³ /s)	Q10 (m ³ /s)	Median ann. flood (m ³ /s)	Peak flow (m ³ /s)	Date of peak	7-day min. (m ³ /s)	Date of min.	
60013	* Cothi	Pont Ynys Brechfa	SN537301	261.6 VA			1971-76	100	.44	1662	1033	629	8.36	0.72	2.81	5.32	19.6						
61001	Western Cleddau	Prendergast Mill	SM954177	197.6 VA	*		1965-05	100	.63	1305	869	436	5.44	0.76	2.01	3.71	12.2	51.8	127.1	18/10/87	0.31	06/09/76	
61002	Eastern Cleddau	Canaston Bridge	SN072153	183.1 VA	*		1960-05	100	.55	1457	1035	422	6.04	1.06	2.26	3.88	13.3	86.0	205.7	25/08/86	0.67	27/07/84	
61003	Gwaun	Cilrhedyn Bridge	SN005349	31.3 VA			1969-05	92	.59	1573	1185	388	1.15	0.18	0.48	0.80	2.4	20.4	33.8	07/12/00	0.06	25/08/76	
62001	Teifi	Glan Teifi	SN244416	893.6 VA	*		1959-05	99	.54	1377	1010	367	28.76	3.06	9.85	18.34	66.2	203.2	448.8	19/10/87	0.76	26/08/76	
62002	Teifi	Llanfair	SN433406	510.0 VA			1971-05	42	.50	1435	973	462	15.65	1.77	5.31	10.36	36.5	108.6	258.5	08/11/05	0.49	25/08/76	
63001	Ystwyth	Pont Llolwyn	SN591774	169.6 VA	*		1963-05	100	.40	1512	1126	386	6.03	0.58	1.95	3.37	14.2	91.9	153.1	12/12/64	0.13	24/08/76	
63002	Rheidol	Llanbadarn Fawr	SN601804	182.1 VA			1965-05	66	.48	1839	1645	194	9.24	1.77	4.12	6.38	19.2	95.1	195.7	10/09/98			
63003	Wyre	Llanrhystyd	SN542698	40.6 VA			1970-05	44	.40	1210	824	386	1.02	0.05	0.26	0.57	2.5	25.5	77.8	06/08/73	0.02	20/07/05	
63004	Ystwyth	Cwm Ystwyth	SN791737	32.1 FV	*		1984-05	100	.30	2105	1971	134	1.97	0.18	0.54	1.01	4.9	39.4	56.4	21/03/92	0.06	19/08/95	
64001	Dyfi	Dyfi Bridge	SH745019	471.3 VA	*		1962-05	88	.39	1889	1544	345	23.11	2.20	7.19	12.83	54.0	309.0	405.7	06/08/73	0.37	26/08/76	
64002	* Dysynni	Pont-y-Garth	SH632066	75.1 VA	*		1966-01	99	.49	2161	1899	262	4.51	0.63	1.96	3.09	9.6	42.3	67.1	30/10/00	0.20	05/09/76	
64004	* Twymyn	Cemmaes Road	SH825047	111.5 VA			1995-01	100	.37	1588	1239	349	4.20	0.27	1.24	2.27	9.5	172.6	29/08/70	0.13	24/07/96		
64006	Leri	Dolybont	SN635882	47.2 C	*		1960-05	100	.48	1527	876	651	1.31	0.05	0.39	0.79	3.2	16.9	52.4	05/08/73			
64010	Afon Mawddach	Tyddyn Gwladys	SH735264	63.1 VA			1994-04	100	.20	2093	1941	152	3.92	0.18	0.64	1.53	9.7				0.02	03/09/03	
65001	Glaslyn	Beddgelert	SH592478	68.6 VA	*		1961-05	100	.32	3049	2646	403	5.75	0.58	1.89	3.27	13.4	88.7	140.8	19/12/93	0.08	04/09/76	
65004	Gwyrfai	Bontnewydd	SH484599	47.9 C	*		1970-05	98	.42	2206	1490	716	2.26	0.29	0.80	1.44	5.2	20.9	46.5	21/03/81	0.08	22/08/76	
65005	Erch	Pencaenewydd	SH400404	18.1 C	*		1973-05	100	.54	1418	1056	362	0.61	0.10	0.24	0.40	1.3	10.8	63.0	29/08/00	0.05	27/08/76	
65006	Seiont	Peblig Mill	SH493623	74.4 VA	*		1976-05	97	.41	2339	2064	275	4.83	0.64	1.79	3.10	10.9	41.6	67.1	18/10/87	0.17	25/08/95	
65007	Dwyfawr	Garndolbenmaen	SH500429	52.4 CC	*		1975-05	100	.38	2066	1560	506	2.59	0.30	0.92	1.57	5.9	38.8	81.5	18/10/87	0.03	19/08/84	
65008	Nant Peris	Tan-Yr-Alt	SH608579	12.2 VA	*		1982-05	100	.22	3516	3214	302	1.24	0.10	0.28	0.58	3.1	33.6	54.3	12/09/04	0.03	20/08/95	
65014	Colwyn	Hafod Wydr	SH575504	6.6 C			1995-05	100	.23	3063	2708	355	0.55	0.05	0.14	0.26	1.4	18.9	12/09/04	0.03	02/09/03		
65015	Llyfni	Pont Y Cim	SH441523	48.1 C			1995-05	100	.55	1975	1452	523	2.17	0.55	1.06	1.55	4.4	14.1	42.5	11/10/05	0.35	25/08/95	
66001	Clwyd	Pont-y-Cambwll	SJ069709	404.0 VA	*		1959-05	100	.59	935	492	443	6.29	0.96	2.16	3.91	14.4	46.2	90.9	06/11/00	0.41	24/08/76	
66002	* Elwy	Pant yr Onen	SJ021704	220.0 VA			1961-74	93	.46	1139	630	509	4.57	0.45	1.31	2.49	10.8	63.1	152.7	12/12/64	0.27	30/07/62	
66004	Wheeler	Bodfan	SJ105714	62.9 C	*		1970-05	96	.82	877	377	500	0.75	0.25	0.41	0.60	1.4	3.4	6.7	06/11/00	0.18	24/08/76	
66005	Clwyd	Ruthin Weir	SJ122592	95.3 MIS			1971-05	90	.56	988	471	517	1.38	0.08	0.35	0.81	3.4	14.1	21.1	06/11/00	0.01	21/08/76	
66006	Elwy	Pont-y-Gwyddel	SH952718	194.0 VA	*		1973-05	100	.46	1213	689	524	4.23	0.33	1.01	2.25	10.6	65.2	142.3	14/10/76	0.11	20/07/05	
66011	Conwy	Cwm Llanerch	SH802581	344.5 VA	*		1964-05	96	.28	2183	1720	463	18.68	1.35	4.81	9.14	45.3	376.0	500.0	11/02/02	0.37	28/07/84	
66012	Lledr	Gethins Bridge	SH785538	72.8 VA			1995-05	85	.24	2538	2082	456	4.89	0.35	1.15	2.10	12.3		220.0	07/01/05	0.09	21/08/95	
66025	* Clwyd	Pont Dafydd	SJ044749	430.8 FL			1995-00	97	.54	974	497	477	6.42	0.69	2.23	3.63	15.5						
67001	Dee	Bala	SH942357	261.6 C US	*		1957-05	100	.51	1890	1565	325	12.99	2.52	5.58	7.91	29.7	83.0	198.2	04/12/60			
67003	* Brenig	Llyn Brenig outflow	SH974539	20.2 TP			1922-96	100	.42	1333	874	459	0.56	0.06	0.13	0.25	1.4	15.3	28.8	31/07/72	0.02	07/10/59	
67005	Ceiriog	Brynkinallt Weir	SJ295373	113.7 CB	*		1956-05	70	.54	1254	860	394	3.07	0.42	1.15	1.99	6.9	29.8	66.8	06/11/00	0.15	24/08/76	
67006	Alwen	Druid	SJ042436	184.7 VA	*		1960-05	100	.48	1323	854	469	5.02	0.66	1.73	2.98	11.6	72.4	188.0	12/12/64	0.34	04/07/75	
67008	Alyn	Pont-y-Capel	SJ336541	227.1 CC	*		1965-05	100	.57	932	333	599	2.39	0.47	0.82	1.35	5.6	22.2	58.9	07/11/00	0.26	24/08/76	
67009	Alyn	Rhydymwyn	SJ206667	77.8 FL			1968-05	100	.34	1002	249	753	0.62	0.00	0.00	0.02	2.0	8.6	36.3	06/11/00	0.00	09/09/01	
67010	Gelyn	Cynefail	SH843420	13.1 CC	*		1966-05	85	.26	2191	1655	536	0.69	0.07	0.16	0.28	1.8	16.1	30.1	03/07/01	0.03	04/07/75	
67013	* Hirnant	Plas Rhiwedog	SH946349	33.9 VA			1967-76	98	.40	1767	1054	713	1.24	0.11	0.40	0.69	2.8	22.9	37.4	19/10/71	0.03	24/08/76	
67015	Dee	Manley Hall	SJ348415	1019.3 CC	*		1937-05	100	.53	1415	966	449	31.08	5.89	11.33	19.20	70.5	216.1	665.4	14/12/64	2.42	14/10/59	
67017	* Tryweryn	Llyn Celyn outflow	SH880399	59.9 CB			1969-01	100	.42	2134	1929	205	3.66	0.38	0.78	2.91	9.1	11.6	34.4	14/12/00			
67018	Dee	New Inn	SH874308	53.9 VA	*		1969-05	100	.28	1993	1811	182	3.08	0.24	0.75	1.40	7.9	71.3	94.0	03/07/01	0.05	24/08/76	
67025	Clywedog	Bowling Bank	SJ396483	98.6 C	*		1976-05	100	.59	875	429	446	1.34	0.34	0.60	0.85	2.8	19.7	47.8	25/09/76	0.21	25/08/95	
67027	Dee	Ironbridge	SJ418600	1674.1 US			1993-05	100	.58	1213	713	500	38.02	9.96	13.29	21.99	94.2	193.0	268.0	05/02/04			
67028	* Ceidiog	Llandrillo	SJ034371	36.5 VA			1978-01	64	.47	1524	1248	276	1.44	0.12	0.40	0.80	3.5	19.4	49.9	05/11/00	0.05	14/09/90	
67029	* Trystion	Pen-y-felin Fawr	SJ066405	12.3 TP			1977-86	91	.43	1345	860	485	0.31	0.02	0.09	0.20	0.7		5.5	26/12/79			
67033	Dee	Chester Suspension Br	SJ409659	1816.8 US	*		1994-05	100	.49	1177	581	596	33.45	5.21	8.60	17.58	87.6	181.0	332.0	07/11/00			
102001	Cefni	Bodffordd	SH429769	22.3 TP	*		1988-05	94	.46	1066	558	508	0.40	0.02	0.07	0.18	0.9	9.6	25.4	22/10/04	>0.00	15/08/90	

Gauging Station Register II

Station number	River name	Station name	Catchment area	Sensitivity	Bankfull/structurefull Factors affecting runoff	Descriptors				Elevation			Bedrock		Superficial			Landuse								
						BFIHOST	FARL	PROPWET	DPSBAR	Station level (mOD)	10 percentile (mOD)	50 percentile (mOD)	90 percentile (mOD)	Maximum level (mOD)	High perm. (%)	Moderate perm. (%)	Very low perm. (%)	Gen. high perm. (%)	Mixed perm. (%)	Gen. low perm. (%)	Woodland (%)	Arable/horticultural (%)	Grassland (%)	Mountain/heath/bog (%)	Urban extent (%)	
55002	Wye	Belmont	1895.9	3	522.0 S	.47	0.967	50	134	46	114	296	469	749	0	0	100	3	6	<1	13	7	71	7	H	0
55003	Lugg	Lugwardine	885.8	6	36.0	.59	0.990	35	95	45	74	158	360	658	0	0	85	14	9	0	11	26	56	3	H	1
55004	* Irfon	Abemant	72.8	11	96.0 N	.40	1.000	65	189	184	264	430	535	641	0	0	100	0	0	2	40	<1	51	5	H	0
55005	* Wye	Rhayader	166.8	9	80.0 N	.42	0.997	59	183	195	283	390	498	747	0	0	100	0	12	2	14	<1	73	10	H	0
55006	* Elan	Caban Coch Reservoir	184.0		SP	.35	0.760	65	146	251	356	459	527	639	0	0	100	0	0	4	3	<1	85	7	H	0
55007	Wye	Erwood	1282.1	19	650.0 SPE	.43	0.960	53	152	106	204	339	487	747	0	0	100	<1	4	<1	12	1	75	8	H	0
55008	Wye	Cefn Brywn	10.6	16	66.0 N	.38	1.000	66	192	341	396	480	635	735	0	0	100	0	0	6	<1	0	95	2	B	0
55009	* Monnow	Kentchurch	357.4	23	140.0	.58	0.997	41	130	58	94	183	440	714	0	0	100	9	4	0	14	18	56	8	H	0
55010	* Wye	Pant Mawr	27.2	16	5.9	.39	1.000	66	212	310	371	479	612	747	0	0	100	0	5	10	17	0	73	7	B	0
55011	* Ithon	Llandewi	111.4	27	62.0	.40	0.999	48	128	230	297	378	462	581	0	0	100	0	6	0	5	<1	84	6	H	0
55012	Irfon	Cilmerly	244.2	12	185.0 N	.43	0.997	65	159	136	197	315	494	641	0	0	100	<1	0	<1	25	<1	62	9	H	0
55013	Lugg	Titley Mill	126.4	11	27.5 N	.55	0.999	49	130	129	190	293	424	539	0	0	76	0	0	0	11	6	71	9	H	1
55014	Lugg	Byton	203.3	9	46.0 P	.59	0.996	49	159	124	171	286	443	658	0	0	84	<1	8	0	12	6	73	6	H	0
55015	* Honddu	Tafolog	25.1	19	24.0	.57	1.000	54	257	253	343	552	659	714	0	0	100	0	0	0	5	<1	46	45	H	0
55016	Ithon	Disserth	358.0	20	115.0 N	.43	0.998	49	132	150	219	318	441	660	0	0	100	0	4	0	9	1	80	6	H	0
55017	* Chwefru	Carreg-y-wen	29.0	33	48.0	.40	1.000	65	156	151	196	302	494	602	0	0	100	0	0	0	9	1	74	14	H	0
55018	Frome	Yarkhill	144.0	13	20.0 E	.57	0.991	32	68	55	77	142	198	252	0	0	100	5	6	0	8	36	49	<1	1	1
55020	Pinsley Brook	Cholstrey Mill	24.2		3.0	.64	0.964	33	38	77	86	99	190	320	0	0	79	6	46	0	13	48	33	<1	1	1
55021	Lugg	Butts Bridge	371.0	11	85.0 P	.61	0.992	37	126	67	91	207	389	658	0	0	75	11	11	0	12	18	63	3	H	0
55022	* Trothy	Mitchel Troy	142.0	39	26.0	.57	0.998	36	100	16	53	102	190	449	0	0	100	<1	8	0	10	15	72	<1	0	0
55023	Wye	Redbrook	4010.0	2	612.0 SPE	.54	0.979	38	116	9	73	199	430	749	0	<1	96	6	7	<1	13	17	61	4	H	1
55025	Llynfi	Three Cocks	132.0	16	30.0 N	.58	0.950	54	105	88	147	223	345	749	0	0	100	0	5	0	12	9	72	3	H	0
55026	Wye	Ddol Farm	174.0	10	235.0 P	.42	0.997	59	180	193	277	384	496	747	0	0	100	0	12	2	14	<1	74	9	H	0
55027	* Rudhall Brook	Sandford Bridge	13.2	52	4.9 I	.74	0.883	33	102	67	68	101	161	273	0	0	100	0	0	0	16	40	37	0	1	1
55028	* Frome	Bishops Frome	77.7	11	12.0 N	.57	0.997	32	74	76	116	156	204	252	0	0	100	0	3	0	7	30	54	<1	1	1
55029	Monnow	Grosmont	354.0	9	160.0 N	.58	0.997	41	130	58	94	183	440	714	0	0	100	9	4	0	14	18	56	8	H	0
55030	* Claerwen	Dol-y-mynach	95.3			.33	0.850	65	131	256	379	473	540	639	0	0	100	0	0	4	<1	<1	90	5	H	0
55031	Yazor Brook	Three Elms	42.3	18	5.5 I	.55	0.955	32	59	58	70	92	184	287	0	0	100	21	0	0	18	49	28	<1	2	2
55032	Elan	Elan Village	184.0	17	7.0 SRP	.35	0.763	65	147	210	352	458	527	639	0	0	100	0	0	4	3	<1	84	7	H	0
55033	Wye	Gwy flume	3.9		N	.33	1.000	66	200	405	438	549	682	735	0	0	100	0	0	0	0	0	##	0	0	0
55034	Cyff	Cyff flume	3.1		N	.40	1.000	66	183	356	408	480	549	695	0	0	100	0	0	10	0	0	96	2	B	0
55035	* Iago	Iago flume	1.1		N	.34	1.000	66	187	386	411	481	562	699	0	0	100	0	0	0	1	0	98	0	0	0
55036	Garren	Marstow Mill	91.0	27	EI	.74	0.975	33	81	26	65	102	180	352	0	0	100	<1	<1	0	7	39	47	<1	1	1
56001	Usk	Chain Bridge	911.7	6	700.0 SRP	.60	0.980	56	160	23	121	313	496	885	0	2	97	3	12	<1	13	3	65	14	H	1
56002	Ebbw	Rhiwderyn	216.5	8	242.0 SPG	.54	0.975	49	182	31	154	323	472	615	0	82	3	<1	15	<1	17	3	41	21	H	7
56003	* Honddu	The Forge Brecon	62.1	16	122.0	.53	0.999	53	121	144	219	315	400	473	0	0	100	1	2	3	10	2	76	10	H	0
56004	* Usk	Llandetty	543.9	7	720.0 S	.55	0.974	57	149	104	193	324	454	885	0	0	100	3	11	<1	11	2	72	12	H	0
56005	* Lwyd	Planthir	98.1	11	176.0 SPGI	.53	0.980	49	144	15	78	296	462	580	0	53	28	<1	8	0	12	3	46	21	H	9
56006	* Usk	Trallong	183.8	10	320.0 S	.48	0.963	62	136	166	240	337	462	833	0	0	100	4	11	0	10	<1	74	12	H	0
56007	Senni	Pont Hen Hafod	19.9		24.0 N	.50	1.000	62	198	220	252	367	564	652	0	0	100	5	21	0	4	<1	79	15	H	0
56011	* Sirhowy	Wattsville	76.1	12	207.0 S	.52	0.973	49	138	69	172	318	470	615	0	85	<1	1	21	<1	13	4	45	22	H	7
56012	Grwyne	Millbrook	82.2	27	77.0 S	.65	0.984	54	241	83	209	428	651	810	0	0	100	0	0	0	18	<1	48	29	H	0
56013	Yscir	Pontaryscir	62.8		84.0 N	.49	1.000	61	138	161	255	361	428	473	0	0	100	0	1	1	7	<1	72	19	H	0
56014	Usk	Usk Reservoir	17.0	36	2.3 S	.39	0.772	62	96	267	307	361	429	591	0	0	100	0	15	0	14	<1	61	17	H	0
56015	Olway Brook	Olway Inn	105.1	9	15.8	.60	1.000	34	98	15	35	76	203	304	0	0	100	1	21	0	9	15	74	0	0	0
56019	Ebbw	Brynithel	71.7			.49	0.957	54	188	149	258	382	506	580	0	72	0	0	9	<1	9	3	38	33	H	8
57001	* Taf Fechan	Taf Fechan Reservoir	33.7		S	.31	0.753	54	169	298	357	478	624	867	0	7	93	0	13	9	14	<1	55	22	H	0
57002	* Taf Fawr	Llwynon Reservoir	43.0		S	.31	0.826	56	166	236	325	436	642	868	0	7	93	0	28	11	10	<1	62	23	H	0
57003	* Taff	Tongwynlais	486.9	9	290.0 SEI	.42	0.952	50	162	24	140	303	480	868	0	66	17	2	36	8	20	2	51	12	H	6
57004	Cynon	Abercynon	106.0	14	200.0 SE	.42	0.972	54	142	81	143	265	398	516	0	71	2	<1	35	8	22	3	48	12	H	7
57005	Taff	Pontypridd	454.8	6	58.3 SGEI	.41	0.949	50	164	45	160	317	486	868	0	64	19	1	34	8	19	2	51	12	H	6
57006	Rhondda	Trehafoed	100.5	16	330.0 SPGE	.37	0.986	49	210	68	168	323	489	599	0	75	0	2	29	18	24	4	45	10	H	8
57007	Taff	Fiddlers Elbow	194.5	9	76.0 SGEI	.40	0.906	52	153	83	194	361	540	868	0	46	42	2	32	6	14	1	55	16	H	4
57008	Rhymney	Llanedeyrn	178.7	11	65.2 SPGE	.52	0.981	48	126	12	70	213	393	615	0	79	10	6	35	0	17	6	50	10	H	8
57009	Ely	St Fagans	145.0	13	EI	.58	0.984	47	82	11	36	85	201	404	0	65	29	26	47	<1	21	8	58	<1	5	5
57010	Ely	Lanelay	39.4	22	130.0 EI	.46	1.000	47	118	46	90	165	253	404	0	94	0	6	70	0	18	4	64	<1	3	3
57015	Taff	Merthyr Tydfil	104.1	11	10.6 SP	.35	0.850	55	157	171	294	410	598	868	0	23	74	0	26	10	12	<1	58	21	H	1
58001	Ogmore	Bridgend	158.0	11	170.0 PEI	.48	0.998	52	171	14	69	194	380	567	0	80	7	<1	24	<1	22	4	56	5	H	6
58002	Neath	Resolven	190.9	13																						

Gauging Station Register II cont'd

Station number	River name	Station name	Catchment area	Sensitivity	Bankfull/structurefull	Factors affecting runoff	Descriptors				Elevation				Bedrock		Superficial			Landuse								
							BFIHOST	FAPL	PROPWET	DPSBAR	Station level (mOD)	10 percentile (mOD)	50 percentile (mOD)	90 percentile (mOD)	Maximum level (mOD)	High perm. (%)	Moderate perm. (%)	Very low perm. (%)	Gen. high perm. (%)	Mixed perm. (%)	Gen. low perm. (%)	Woodland (%)	Arable/horticultural (%)	Grassland (%)	Mountain/heath/bog (%)	Urban extent (%)		
60013	* Cothi	Pont Ynys Brechfa	261.6	16	83.0		.49	0.997	57	169	55	132	237	354	482	0	0	100	0	2	1	20	1	74	3	H	0	
61001	Western Cleddau	Prendergast Mill	197.6	5	60.0	PEI	.56	0.996	44	68	4	48	98	186	372	0	<1	99	4	8	<1	5	13	78	<1		0	
61002	Eastern Cleddau	Canaston Bridge	183.1	15	85.0	SRPE	.54	0.967	44	96	5	50	135	280	536	0	0	100	4	15	<1	8	10	77	1	H	0	
61003	Gwaun	Cilrhedyn Bridge	31.3	19	25.0	N	.49	1.000	44	119	70	144	229	321	467	0	0	100	0	7	0	10	4	83	1	H	0	
62001	Teifi	Glan Teifi	893.6	9	210.0	SP	.51	0.995	52	110	5	108	195	333	592	0	0	100	2	4	2	12	5	79	2	H	1	
62002	Teifi	Llanfair	510.0	10	140.0	SP	.48	0.993	54	106	66	140	222	394	592	0	0	100	4	2	3	12	3	80	2	H	0	
63001	Ystwyth	Pont Llolwyn	169.6	14	71.0	N	.49	0.990	62	158	12	87	244	488	612	0	0	100	0	16	0	18	2	74	3	H	0	
63002	Rheidol	Llanbadarn Fawr	182.1	10	215.0	SPGH	.44	0.898	66	194	9	93	359	527	750	0	0	100	3	8	14	18	<1	69	9	B	0	
63003	Wyre	Llanrhystyd	40.6	50	110.0		.47	1.000	53	111	19	128	194	283	357	0	0	100	0	5	0	9	2	85	1	H	0	
63004	Ystwyth	Cwm Ystwyth	32.1				.36	0.991	65	186	199	335	473	536	612	0	0	100	0	0	0	23	<1	61	9	H	0	
64001	Dyfi	Dyfi Bridge	471.3	8	500.0	N	.48	0.995	66	270	6	106	261	477	903	0	0	100	0	12	<1	29	<1	62	6	H	0	
64002	* Dyswyni	Pont-y-Garth	75.1	15	170.0	N	.45	0.951	66	323	2	70	315	546	882	0	0	100	<1	11	0	23	<1	65	8	H	0	
64004	* Twymyn	Cemmaes Road	111.5				.44	0.995	66	218	26	140	287	442	539	0	0	100	0	14	1	20	<1	71	7	H	0	
64006	Leri	Dolybont	47.2	51	126.0	S	.50	0.983	66	204	15	111	261	400	519	0	0	100	0	17	5	10	1	84	3	B	0	
64010	Afon Mawddach	Tyddyn Gwladys	63.1			N	.33	0.997	71	161	87	261	390	501	730	0	0	100	0	37	9	26	<1	54	18	H	0	
65001	Glaslyn	Beddgelert	68.6	13	100.0	SH	.41	0.896	62	309	33	103	325	578	1078	0	0	100	0	12	0	18	<1	58	15	H	0	
65004	Gwyrfai	Bontnewydd	47.9	17	126.0	SP	.41	0.862	54	214	31	129	253	535	1050	0	0	100	1	38	0	14	<1	69	8	H	0	
65005	Erch	Pencaenewydd	18.1	26	75.8	N	.44	0.991	56	96	56	105	143	309	550	0	0	100	0	85	0	15	<1	78	4	H	0	
65006	Seiont	Pebblig Mill	74.4	6		H	.50	0.850	49	262	19	104	281	639	1061	0	0	100	5	16	<1	10	<1	65	10	H	1	
65007	Dwyfawr	Garndolbenmaen	52.4	12		SRP	.40	0.968	56	195	86	119	228	472	785	0	0	100	0	47	0	4	<1	83	9	H	0	
65008	Nant Peris	Tan-Yr-Alt	12.2				.55	0.996	71	488	143	248	524	797	1061	0	0	100	0	0	0	1	<1	58	22	H	0	
65014	Colwyn	Hafod Wydr	6.6				.30	0.981	57	229	171	218	419	606	880	0	0	100	0	9	0	3	0	80	8	H	0	
65015	Llyfni	Pont Y Cim	48.1				.45	0.907	56	205	22	98	230	465	730	0	0	100	0	25	0	5	<1	74	9	H	1	
66001	Clwyd	Pont-y-Cambwll	404.0		50.0	RG	.59	0.993	41	118	15	55	201	357	550	20	19	61	10	53	0	19	3	73	2	H	1	
66002	* Elwy	Pant yr Onen	220.0	16			.48	0.979	58	130	36	149	264	398	514	0	4	96	<1	58	2	10	1	81	6	H	0	
66004	Wheeler	Bodfari	62.9	14	8.1	N	.70	0.975	38	109	55	144	199	274	437	0	69	31	22	17	0	19	4	73	1	H	0	
66005	Clwyd	Ruthin Weir	95.3	83	39.0		.52	0.995	51	115	51	111	237	347	501	7	17	76	2	59	0	23	1	71	3	H	1	
66006	Elwy	Pont-y-Gwyddel	194.0	18		SRP	.48	0.980	60	129	88	177	276	402	514	0	0	100	<1	55	3	9	<1	82	7	H	0	
66011	Conwy	Cwm Llanerch	344.5	12	390.0	P	.36	0.976	70	170	12	197	328	490	1040	0	0	100	0	25	2	17	<1	65	15	H	0	
66012	Lledr	Gethins Bridge	72.8				.35	0.979	71	211	38	192	319	522	866	0	0	100	0	6	3	28	<1	57	13	H	0	
66025	* Clwyd	Pont Dafydd	430.8				.58	0.994	40	115	7	49	194	353	550	22	20	58	9	55	0	19	4	73	2	H	1	
67001	Dee	Bala	261.6	10	186.0	SR	.35	0.841	71	154	159	218	376	529	878	0	0	100	1	21	2	14	<1	65	16	H	0	
67003	* Brenig	Llyn Brenig outflow	20.2	16	13.4	SR	.32	0.587	70	72	325	377	415	465	518	0	0	100	0	51	7	42	0	16	24	H	0	
67005	Ceiriog	Brynkinalt Weir	113.7	21	350.0	N	.46	1.000	51	186	64	207	392	536	790	0	6	92	2	8	9	14	<1	65	19	H	0	
67006	Alwen	Druid	184.7	15	100.0	SRPI	.40	0.897	62	120	146	257	365	444	628	0	0	100	0	43	4	18	<1	68	9	H	0	
67008	Alyn	Pont-y-Capel	227.1	16	71.0	SEI	.59	0.990	41	108	37	103	233	354	563	0	53	16	17	31	0	16	5	67	5	H	3	
67009	Alyn	Rhydymwyn	77.8		73.0		.62	0.990	41	143	121	215	292	409	563	0	58	42	10	20	0	21	1	67	8	H	0	
67010	Gelyn	Cynefail	13.1	20	35.5	N	.25	0.969	71	128	306	341	411	522	685	0	0	100	0	21	0	0	0	0	73	25	H	0
67013	* Hirnant	Pias Rhiwedog	33.9	16			.42	1.000	71	223	195	309	434	570	666	0	0	100	0	0	0	46	<1	29	23	H	0	
67015	Dee	Manley Hall	1019.3	5	121.0	SRPI	.43	0.934	55	155	25	157	347	499	878	0	4	89	2	28	2	18	1	63	15	H	0	
67017	* Tryweryn	Llyn Celyn outflow	59.9	35	130.0	SRPH	.26	0.744	71	145	249	329	421	551	850	0	0	100	0	20	3	5	<1	60	27	H	0	
67018	Dee	New Inn	53.9	19	38.0	N	.31	1.000	71	149	164	220	394	526	839	0	0	100	2	12	4	24	<1	58	16	H	0	
67025	Clywedog	Bowling Bank	98.6	13		GE	.53	0.989	51	62	14	48	112	386	554	13	15	3	29	54	0	7	13	50	10	H	10	
67027	Dee	Ironbridge	1674.1				.47	0.956	45	119	5	53	262	462	878	12	12	63	10	40	1	14	7	64	10	H	2	
67028	* Ceidiog	Llandrillo	36.5			N	.36	1.000	51	190	155	253	437	639	825	0	0	100	0	8	0	18	0	61	21	H	0	
67029	* Trystion	Pen-y-felin Fawr	12.3	9		SP	.37	0.971	51	182	255	349	463	559	629	0	0	100	0	0	0	21	0	29	50	H	0	
67033	Dee	Chester Suspension Br	1816.8				.47	0.959	43	113	10	32	242	456	878	17	11	59	9	44	1	14	9	63	9	H	2	
102001	Cefni	Bodffordd	22.3				.45	0.964	45	29	34	55	68	82	104	0	0	100	0	95	0	7	6	85	0		0	

Gauging Station Register III

EA Wales

55002 Wye at Belmont

EA Wales

Station: Channel control velocity-area station, width at bankfull approx. 49m; cableway span 62m. Embankment built on the left extends flood containment. Severe weed growth problems. Extrapolated flows probably under-estimated as rating does not take account of floodplain flow. Originally, stages taken from 1908 at Hereford, 1.2km d/s; flows were measured at current site. Prior to 1932, data unreliable. Highest flood peak believed to have been in Oct 1998 (estimated at c.700 m³s⁻¹ in modelling work by WS Atkins) but this is subject to ongoing investigation. Moderate flow modification, high levels of agricultural abstraction u/s. Naturalised discharges take into account reservoirs in the Elan Valley.

Catchment: Above Erwood (55007) are wet uplands draining impermeable Palaeozoic rocks; the lower third of the catchment is a narrow corridor draining ORS marls and subordinate glacial gravels, which supports arable farming. Upper catchment is predominantly grassland with some forest.

55003 Lugg at Lugwardine

EA Wales

Station: Velocity-area station with cableway. No records pre-1953. Peaks unreliable 1953-1965. Station for flood warning purposes only from Jul 1982 to Dec 1989. Reinstated as flow monitoring station from Jan 1990. Recent peaks truncated at around 38 m³s⁻¹ - rating limit (overbank flows spill onto wide floodplain).

Catchment: Geology: Lower ORS (marl dominated) producing subdued relief - Herefordshire Plain. Fluvio-glacial deposits near main channel worked for sand and gravel production.

55004 Irfon at Abernart

EA Wales

Station: Velocity area station with cableway. Valuable long record but downgraded, in 1982, to flood warning only.

Catchment: Located on edge of upland area, steep valley sides rising to plateau level between 450m and 600m. Underlain by Ordovician strata. Landuse: extensive sheep grazing and forestry.

55005 Wye at Rhayader

EA Wales

Station: Velocity area station. Replaced by Ddol Farm (055026) in Oct 1969.

55006 Elan at Caban Coch Reservoir

Station: Compensation flows gauged by two circular orifices about 36m below the dam. Overspill measured by using the dam cill as a broad-crested weir 172.5m wide. Siphon gauge operates during first 4 months of the year if not overspilling. Direct abstraction to Birmingham. Long naturalised series available. Superseded by Caban gauge (55032).

Catchment: Very wet (>1800mm), high relief catchment draining predominantly Silurian shales and slates. Forestry and moorland.

55007 Wye at Erwood

EA Wales

Station: Velocity-area station with a massive rock bar as a control. Bankfull width approx. 64m, cableway span 81m. All but the highest flows (which spread slightly onto narrow terrace on rb) contained. POR max.(taken from the HiFlows database) in Dec. 1960 is under review - considerable rating extrapolation involved. Substantial flow modification from regulation and abstraction from the Elan, PWS and sewage effluent. Some naturalised sequences available.

Catchment: Large wet upland catchment draining impermeable rocks - metamorphosed Palaeozoic sediments and an igneous complex. Summit levels exceed 600m. Predominantly (70%) grassland catchment with extensive grazing, moorland, and patches of forest.

55008 Wye at Cefn Brwyn

CEHW

Station: 3-bay Crump profile weir (no divide piers), divide plates installed 1962; concrete piers built 1969, low crest 2.43m broad, high crests total 9.13m broad. Very steep channel, u/s accretion needs regular clearing. Treat early record with caution. Operated as an IH (now CEH) experimental basin since 1968 (15 minute flow data plus extensive hydrometeorological database). 1973 flood generated by 100mm storm. 11/9 - 8/10/97 dmfs est. from subcatchment whilst repairs to structure. Natural and very responsive flow regime.

Catchment: Small, high relief, very wet (>2000mm) catchment, grassland on peat overlying weather resistant Silurian slates and shales.

55009 Monnow at Kentchurch

EA Wales

Station: Velocity area station. Replaced by Grosmont (055029) in Apr 1972.

55010 Wye at Pant Mawr

EA Wales

Station: Velocity area station. Informal Flat V weir control from 1973. Flood warning only from Jul 1982. Station in headwaters of Wye catchment.

Catchment: The catchment has underlying Silurian strata which are resistant to weathering. Mostly forestry and grazing.

55011 Ithon at Llandewi

EA Wales

Station: Velocity area station. Flood warning station from 1982.

Catchment: Upper reaches of catchment underlain by Silurian Wenlock beds. Extensive sheep pasture.

55012 Irfon at Cilmerly

EA Wales

Station: Velocity-area station, initially with a gravel shoal control, improved in 1979 by installing a 25m wide Crump profile Flat V weir. Weir rebuilt between 31/8/94 and 7/9/94, no data available. Cableway spans 44m. Above about 3m the rb floodplain is inundated. Natural regime.

Catchment: Headwaters drain the very wet Tywi Forest (underlain by indurated Ordovician sediments). The middle and lower reaches are on relatively more permeable Silurian rocks, but generally a responsive catchment of very low permeability. Predominantly upland pasture (60% grassland) but with 25% forest, mainly in western headwaters.

55013 Arrow at Titley Mill

EA Wales

Station: Velocity-area station. Low flow control is a stable riffle; otherwise a three-bay road bridge 50m d/s is the control. Cableway span is 21m. Gets out of bank but not bypassed. Intake pipes silted up during summer of 1994, treat data with caution. 1995 summer flows suspect and under investigation by EA. Natural catchment.

Catchment: Headwaters of moderate relief, draining durable Silurian slates and shales; otherwise, catchment underlain by ORS marls. Generally low permeability. Predominantly (70%) grassland, with sheep grazing on upland plateau and some patches of arable and forest in lower catchment.

55014 Lugg at Byton

EA Wales

Station: Flat V Crump profile weir, 1:20 cross-slopes, 12.5m wide. Cableway span 21m. Before 1970 a stable riffle was the control. Above 2m left bank overtopped. Right bank is steep cliff. Oct 1998 peak highest on record although subject to considerable uncertainty as extrapolated and out-of-bank. Estimated at 70 m³s⁻¹ by WS Atkins using slope-area method. Flow moderately modified by abstractions for PWS.

Catchment: Headwaters drain Radnor Forest - underlain by Silurian bedrock. Impermeable formations are covered by extensive alluvial gravel deposits in the valleys. This aquifer provides significant baseflow and moderates flood peaks. Predominantly grassland (70%) catchment supporting rough grazing, with 10% forestry.

55015 Honddu at Tafolog

EA Wales

Station: Velocity-area station. Flat V control constructed 1974. Highest flow of 68.5 m³s⁻¹ occurred in Oct 1960, before start of NRFA record (but listed on Hiflows-UK database). Natural flow regime.

Catchment: Located in high upland area of the Monnow catchment, underlain by the Breconian sequence of the Lower ORS strata. Mostly forestry and sheep grazing.

55016 Ithon at Disserth

EA Wales

Station: Flat V Crump profile weir, 1:20 cross-slope, 18m wide, replaced velocity-area station with channel control in 1972. Cableway span 27.5m. Very high floods may inundate the rb. Weir rebuilt Aug/Sep 1995 no data available. High flows under review: flood peak in Oct 1998 is extrapolated and may be an overestimate. An alternative peak in Dec 1979 is listed as the maximum flow on Hiflows-UK. Missing data in 2001 due to access restrictions during Foot and Mouth outbreak. Suspect data arising from drift correction removed (19/07-5/08 2001). Natural flow regime.

Catchment: Catchment drains rocks of very low permeability: Upper and western catchment drains Ordovician and Silurian shales; igneous complex in the SE. Predominantly (80%) grassland, with high moorland and extensive forestry plantations on the higher ground. Noticeably reduced rainfall compared to the u/s Wye and Irfon catchments.

55017 Chwefru at Carreg-y-wen

EA Wales

Station: Natural river section with Flat V weir (date of installation vague - Nov 1972 or Feb 1974). Left bank is high and steep. Extensive floodplain on right above 2.2m. Variable gravel shoals affect the low flow rating. Gabions were installed on each bank to maintain uniform flow, but deposition occurs on rb and main flow on left. Regime thought to be natural. Station discontinued 1982.

Catchment: Upland catchment on low permeability geology. Predominantly rough grassland and moorland.

55018 Frome at Yarkhill

EA Wales

Station: Velocity-area station using a road bridge with a flat, insensitive invert and an adjacent box culvert as low and medium range controls. Broad floodplains operate above 2m when the Lodon tributary may bypass station on rb. Floodplain on lb (above 2.5m) is very wide (0.8 km). No dmfs 15-26/9/98 due to recalibration problems at the station. Natural flow regime.

Catchment: Subdued relief, relatively low rainfall. Catchment consists of bedrock of very low permeability. D/s of 55028 lithology changes from Old Red Sandstone to ORS marls. Rural catchment, mixed farming (50% grassland, 35% arable) with livestock on higher ground.

55020 Pinsley Brook at Cholstrey Mill

EA Wales

Station: Flat V weir width with 1:5 downstream, 1:2 upstream and 1:5 cross stream slopes. The structure is 10m long and 2m wide with 1m high side walls. Estimated bank full discharge is 3 m³s⁻¹. Gauged from adjacent footbridge. The station is located on the left bank of the Pinsley Brook, some 3km u/s from the confluence with the River Lugg.

Catchment: The catchment is of subdued relief as a result of the underlying marl-dominated strata of the Lower Old Red Sandstone and subsequent deposition of superficial deposits.

55021 Lugg at Butts Bridge

EA Wales

Station: Velocity-area station with rough stone control (at low flows). Width at bankfull is 21m. Station rebuilt in 1984.

Catchment: Headwaters drain Radnor Forest (developed on Silurian formations). Subdued relief in the lower valley (mostly Old Red Sandstone). Impervious catchment but extensive valley gravels provide some baseflow. Land use: mainly grassland in upper catchment, rough grazing with some forestry. Mixed farming with higher proportion of arable in the lower catchment.

55022 Trothy at Mitchel Troy

EA Wales

Station: Velocity-area station; informal Flat V weir installed 1975. Natural river section with low flow control. Monitored flow from area to S and W of Monmouth.

55023 Wye at Redbrook

EA Wales

Station: Channel control velocity-area station replacing Cadora (55001, 1937-71; 4040 sq.km. which was tidally affected; flows incorporated in the Redbrook series). Width at bankfull stage approx 69m. All but extreme floods contained. Severe summer weed growth problems. Flow regime moderately modified by exports and regulation. Some naturalised data available. Low flows in Aug & Sept 1990 under review.

Catchment: Very large catchment of mixed Palaeozoic geology, impermeable rocks of Ordovician to Carboniferous age. Wet in upland areas to the west, drier in lower-lying areas in east and south. Catchment is 60% grassland, with moorland, forestry and grazing on higher ground; mixed farming with greater proportion of arable land in lower reaches.

55025 Llynfi at Three Cocks

EA Wales

Station: Velocity-area station with an informal broad-crested, asymmetrical Flat V weir enhancing the natural rock bar control. Cableway section formalised within the abutments of a former railway bridge. Maximum peak flow occurred in Dec 1979 - this was undoubtedly exceptional although uncertainty surrounds the magnitude (198.4 m³s⁻¹ on Hiflows-UK database) as flow was extrapolated. Missing data in Aug - Nov 2003 due to instrument failure. Natural catchment.

Catchment: Impermeable geology: headwaters drain the ORS of the Black Mountains; lower reaches expose ORS marls which have lower relief. Contains Llangorse Lake. Predominantly (75%) grassland with patches of woodland and some arable in lower reaches.

55026 Wye at Ddol Farm

EA Wales

Station: Velocity-area station with rock bar as control. Informal Flat V installed 1972. Initially, gauged nearby at Rhayader (55005, 1937-69). Bankfull width 30m. Cableway span 54m. All but exceptional floods contained. Record peak flow is 215.5 m³s⁻¹ in Aug 1973, but this is subject to an ongoing review of peaks in the Rhayader series. Lowest gauging station on Wye unaffected by large water supply res. (flows from Elan valley complex enter just d/s).

Catchment: Wet, upland catchment draining impermeable, metamorphosed Silurian sediments. High relief, headwaters reach over 600m, and feature steep sided valleys and high gradient streams. Dominant land use is grassland (70%) with, moorland and extensive areas of forest in headwaters.

55027 Rudhall Brook at Sandford Bridge

EA Wales

Station: Flat V Crump profile weir. Station reinstated in October 1991 (very little data for 1978-90 period). Data processing suspended in 1998 due to severe problems with the approach channel.

Catchment: Small catchment on northern edge of the Forest of Dean. Mixed agriculture underlain by Old Red Sandstone.

55028 Frome at Bishops Frome

EA Wales

Station: Flat V Crump profile weir 5m wide, replaced velocity-area station in 1975. Cableway span 10m. Steep banks do not contain flood flows; some throttling by d/s road bridge whose soffit is below bankfull. Natural catchment.

Catchment: Impermeable bedrock geology, headwaters cutting into ORS of Bromyard plateau. In NE area of Wye catchment, which is drier than other areas to W. Superficial deposits confined to valleys. Mixed arable and pasture farming.

55029 Monnow at Grosmont

EA Wales

Station: Velocity-area station with an informal Flat V weir enhancing the natural rock step control. Approx. 30m wide at bankfull. Cableway spans 42m. Replaced Kentchurch, 450m u/s (55009, 1948-72) which suffered from shoaling. Wide (150 m+) floodplain is inundated at high flows. Natural flow regime.

Catchment: Impermeable catchment. Five parallel tributaries drain SE down the deeply dissected ORS plateau of the Black Mountains, the northern-most exposing the ORS marls. Land use: Moorland headwaters, mixed farming (with extensive arable) in lower reaches to E.

55030 Claerwen at Dol-y-mynach

EA Wales

Station: Twin-bay sharp edge weir constructed to monitor runoff from a the partially completed Dol-y-Mynach dam. Construction of the dam was abandoned, but it resulted in a storage of around 0.1 sq km. The discharge was regarded as natural runoff until the construction of Claerwen reservoir in 1948. Discharges above the weir capacity derived by straight-line extrapolation and station may drown, so high flows likely to be suspect (and over-estimated). No hif seris. Station discontinued 1950.

Catchment: Upland catchment on impermeable Lower Silurian slates, grits and conglomerates. Steep terrain with little soil cover and extensive areas of peat bogs.

55031 Yazor Brook at Three Elms

EA Wales

Station: Flat V weir, theoretically rated, replaced, in 1999, non-standard Flat V Crump (1:5 cross-slopes, 2.5m wide) - drowned out due to inappropriate initial specification; flow record unreliable. Gravel accretion causes rating variability, checked by c/m. Floods contained. Affected by industrial abstractions from groundwater, which can dominate flow pattern at low flows.

Catchment: Low relief catchment containing urban development of western Hereford. Some light industry but land use is mostly arable agriculture developed on Old Red Sandstone marls; extensively covered with glacial sands and gravel, which maintain baseflow in the Yazor Brk.

55032 Elan at Elan Village

EA Wales

Station: Flat V Crump profile weir 23m wide, 350m d/s of Caban dam; cableway spans 40m. Entirely regulated apart from overflow. 5 u/s reservoirs. Circa 4 m³s⁻¹ exported to Midlands. Releases for compensation (1.5 m³s⁻¹), regulation and freshets. Monthly naturalised flows available for certain periods from older station.

Catchment: Very wet (>1800mm), high elevation catchment draining impermeable geology, predominantly Silurian shales and slates. Upland pasture and moorland, patches of forest.

55033 Wye at Gwy flume

CEHW

Station: Rectangular, side contracted critical depth flume designed by Hydraulics Research Ltd, suitable for streams with steep gradients, heavy sediment loads and high flood/drought flow ratios. Shoal formation common, requiring prompt removal to avoid drowning. Check gauged by c/m, and volumetrically for lowest flows. Responsive natural regime. Long term IH research catchment (now CEH) nested within 55008. Primary 15 minute dataset available.

Catchment: Very wet (>2500mm) catchment - drains highest area of Plynlimon massif: composed of Ordovician massive grits (unconfined aquifer maintaining baseflow), slates and Silurian mudstones. Land use: heath on peaty plateau; grassland on free draining slopes (supporting sheep grazing) and mires in valley bottoms.

55034 Cyff at Cyff flume

CEHW

Station: Rectangular, side contracted critical depth flume designed by Hydraulics Research Ltd, suitable for streams with steep gradients, heavy sediment loads and high flood/drought flow ratios. Shoal formation common, requiring prompt removal to avoid drowning. Check gauged by c/m, and volumetrically at lowest flows. Responsive, natural flow regime. Long term IH research catchment (now CEH) nested within 55008. Primary 15 minute dataset available.

Catchment: Very wet (>2500mm) catchment - drains Plynlimon massif: composed of Ordovician grits, shales and slates and Silurian mudstones, mostly covered by peaty soils. Land use: mainly natural or partly reseeded grassland, supporting sheep grazing.

55035 Iago at Iago flume

CEHW

Station: Rectangular, side contracted critical depth flume designed by Hydraulics Research Ltd, suitable for streams with steep gradients, heavy sediment loads and high flood/drought flow ratios. Shoal formation common, requiring prompt removal to avoid drowning. Gauged by c/m, and volumetrically at lowest flows. Responsive, natural flow regime. IH research catchment (now CEH) nested within 55008. Primary 15 minute dataset available. Discontinued 06/99.

Catchment: Very wet (>2500mm) catchment - drains Plynlimon massif: composed of Ordovician grits, shales and slates and Silurian mudstones. Vegetation: heath on peaty plateau; grassland on free draining slopes (supporting sheep grazing) and mires in valley bottoms.

55036 Garren at Marstow Mill

EA Wales

Station: Velocity-area station using Ultrasonic flow measurement in natural section primarily for low flow conditions. Located d/s of side overflow weir which operates during high flow conditions. Approx. 0.7km u/s of confluence with R. Wye.

Catchment: Geology: Lower ORS overlain with brown earth soils of Erdiston Association. Mixed agriculture.

56001 Usk at Chain Bridge

EA Wales

Station: Velocity-area station; permanent cableway. Complementary station d/s (56010 - Trostrey, a 27.43m wide Crump weir) for flows <21 m³s⁻¹ (also to infill gaps in Chain Br series). Missing sequence in Autumn 2003 resulting from instrument failure, infill under investigation (Nov 2004). Partial impact on flows resulting from three large existing PWS reservoirs in upper catchment. Intake to canal u/s of gauge. Some naturalised flows available.

Catchment: Impermeable catchment, mainly Old Red Sandstone, some Boulder Clay and alluvium in valleys. Principal land use is grassland (65%), hill farming in upper areas, with dairy or livestock farming below; heathland in highest elevations, ~15% forest. Peaty soils in uplands, seasonally wet.

- 56002 Ebbw at Rhiwderyn** **EA Wales**
Station: Velocity-area station. Originally natural section, low flow Flat V weir (width: 14.5m, cross-slope 1:20) installed in 1976. Weir refurbished, station completely rebuilt so no dmfs 19/07/96 - 05/01/97. Discharges up to MAF contained. Small water supply reservoirs in uplands. Some gw abstractions in valley. Drainage water from old coalmines can also influence flows.
Catchment: Geology: moderate permeability, mainly Coal Measures. Mixed land use: 40% grassland, upland heath at highest elevations in N; 15% forest, mainly in lower valley to S. Significant urban development (>10%) in valleys.
- 56003 Honddu at The Forge Brecon** **EA Wales**
Station: Three-bay compound crump weir (centre crest width is 2.438m, flanking crests are 4.877m) replaced problematic river section. Current meter gaugings were taken to current theoretical rating. Steep high banks on each flank. Good fall in river bed d/s ensures modularity at all stages. Station discontinued 1984.
Catchment: Upland catchment, predominantly impermeable geology of Old Red Sandstone with an inlier of the Ludlow Series. Mainly rough grassland and moorland.
- 56004 Usk at Llandetty** **EA Wales**
Station: Velocity-area station. Natural bankfull stage is 3.5 m. Floods are then contained (5.49 m) and guided by longitudinal spur dyke on left bank and transverse bank on right, where recorder and cable are located. Flood warning station from 1984. Cray and Usk Reservoirs in catchment affect runoff. NRFA records end 1980 but peak flow data to 2002 on Hiflows-UK database.
Catchment: Geology predominantly impermeable Old Red Sandstone. Land use is mainly grazing and some forestry
- 56005 Lwyd at Ponthir** **EA Wales**
Station: Compound Crump weir (three crests, each 6.096m wide). Calibration assumes modularity. Flows <176 m³s⁻¹ contained. Central crest subject to occasional blockage by debris in high flows, middle walls of structure removed Sept 1994 because of this. Problems at site: new weir and work on approach channel needed; no data processed after 10/07/98. Small reservoirs for industrial and PWS in upper reaches. Some gw abstraction in valley where there is augmentation by drainage water from old mines.
Catchment: Geology: mainly Coal Measures. Generally livestock farming with urban development in lower areas. Forest 5%. Peaty soils in uplands, seasonally wet.
- 56006 Usk at Trallong** **EA Wales**
Station: Velocity-area station in a straight reach; gravel bed control associated with a rock exposure. All but very exceptional flows contained within banks. Computation of daily flows ceased in 1984 - now principally a flood warning facility. Responsive flow regime. Catchment includes the Cray and Usk Reservoirs.
Catchment: Impervious catchment - mainly ORS - draining from the Brecon Beacons; land use is mainly grazing, some afforestation.
- 56007 Senni at Pont Hen Hafod** **EA Wales**
Station: Flat V weir replaced Crump weir (width: 7.01m) from December 1997. Concrete side walls form a contained approach to the weir and bridge abutments prevent bypassing. Flows contained up to wingwalls of about 2.27 m. Crump weir was full range, modular, theoretically calibrated and confirmed by gaugings. Fish pass removed in 1973.
Catchment: Natural catchment draining from high rainfall, upland area within Brecon Beacons national park. Impermeable bedrock geology (Old Red Sandstone). Dominant land use is grassland (80%), supporting livestock farming, with mainly peaty soils. Small patches of heathland and forest.
- 56011 Sirhowy at Wattsville** **EA Wales**
Station: Crump profile Flat V weir; crest width approx 12m and cross slope of 1:10. Rhb rises steeply up valley side after narrow berms. Severe accretion problems. Rating fits gaugings very well up to highest at 1.2m. Upper limit raised to slightly below wingwall height (2.0m). Structure is a standard weir; S-D relationship unlikely to change.
Catchment: Narrow, linear catchment trending approx N-S. Predominantly upland, mixed geology of moderate permeability - Pennant and Upper Coal series overlying Lower Coal series. Some Boulder Clay and gravels on valley floor. Predominantly grazing, moorland in N, with some urban development in lower valley.
- 56012 Grwyne at Millbrook** **EA Wales**
Station: Crump weir of reinforced concrete and local stone with phosphor bronze crest 10.67m wide. Fish counter on d/s side of crest. Flows contained up to 2.27m.
Catchment: Geology: impermeable, predominantly ORS conglomerates, s't and marl. Land use: 50% grassland, principally livestock farming, with significant (30%) heathland (on higher ground) and afforestation (15%).
- 56013 Yscir at Pontaryscir** **EA Wales**
Station: Crump weir with aluminium-bronze crest, (width 9m). between old railway abutments, which prevent bypassing. Calibration confirmed by gaugings. Full range, rarely non-modular. No cableway.
Catchment: Geology: Old Red Sandstone, low permeability. Natural catchment draining from upland areas of Cambrian Hills. Land use is 70% grassland, mostly hill farming, upland heath in upper catchment, with peaty soils. Isolated patches of forest.
- 56014 Usk at Usk Reservoir** **EA Wales**
Station: Outflows from Usk Reservoir. Highly artificial regime, and water balance substantially affected by PWS.
- 56015 Olway Brook at Olway Inn** **EA Wales**
Station: Crump weir 4.0m wide. Bypassing occurs above 1.8m into surrounding fields. Problems of backing up at high flows.
Catchment: Geology: Lower Old Red Sandstone, 15% Boulder Clay cover (in NW) and alluvium in valley bottom. 75% grassland, with some arable agriculture and patchy woodland.
- 56019 Ebbw at Brynithel** **EA Wales**
Station: Velocity-Area station with non-standard bed control, immediately upstream of a vertical-drop weir. Rating established by current meter gaugings, taken by wading at low flows and from a bridge 1km upstream at medium to high flows. Although QMED is within bankfull, no gaugings to support ratings to bankfull so high flow performance is uncertain.
Catchment: Mixed geology of varying permeability, predominantly Pennant and Upper Coal Series overlying Lower Coal Series. Upland catchment with moorland and rough grazing, but with significant urban development in the valley.
- 57001 Taf Fechan at Taf Fechan Reservoir**
Station: Reservoir outflows. Artificially affected regime, and water balance substantially affected by exports for PWS.
- 57002 Taf Fawr at Llwynon Reservoir**
Station: Reservoir outflows. Artificial regime, and water balance substantially affected by exports for PWS.
- 57003 Taff at Tongwynlais** **EA Wales**
Station: Natural river section with bed control, rated by current meter. Channel width approx 40m. Well-defined rating to bankfull, estimated thereafter but based on model for Treforest flood protection scheme. Direct water supply reservoirs in upper catchment affect runoff. Abstraction and effluent returns in valley for mining, industry and agriculture. Station closed 1972, main station at 57005 (Pontypridd).
Catchment: Mainly Coal Measures in the south, with Millstone Grit. Carboniferous Limestone and Old Red Sandstone in the north. Some peat on hills, Boulder Clay and Alluvium in valleys. Taff valley, u/s of station, is narrow and steep. Land use is pasture, some forestry and moorland in headwaters, some urban development in lower valley.
- 57004 Cynon at Abercynon** **EA Wales**
Station: Flat V weir (width: 14.24m; cross-slope 1:20) velocity-area station for high flows. Over-topped by extreme floods; no gaugings above bankfull. Small impounding reservoirs for PWS, effluent returns from industrial areas in valley.
Catchment: Geology: Coal Measures with Millstone Grit on northern boundary. 30% Boulder Clay cover and alluvium in valley. Livestock farming and heathland in upland area of peaty soils, seasonally wet. 20% forest, mainly in S half. Extensive urban and industrial development in valley, which is generally steep-sided. Open cast coal abstraction in upper areas.
- 57005 Taff at Pontypridd** **EA Wales**
Station: Flat V weir (width: 32m; cross-slope 1:20) velocity-area station for high flows. Full range. No dmfs 06/07 - 03/08/98 due to collapse of inlet pipes. Small impounding reservoir in upper catchment. Some gw abstractions and effluent returns in valleys.
Catchment: Geology: mainly Coal Measures, some Boulder Clay cover (25%) and alluvial deposits in valleys. Mainly upland area with peaty soils on hills, seasonally wet. Catchment is 50% grassland with livestock farming on hills, heathland at highest elevations and 20% forest cover. Extensive urban and industrial development in valleys.
- 57006 Rhondda at Trehafod** **EA Wales**
Station: Velocity-area station; concrete trapezoidal channel formalised in 1980, bed width 18m, bankfull width approx 28m. Full range. Flows affected by mine-water discharge above station, and Trehafod Flood Alleviation Scheme. Impounding reservoir for PWS in upper catchment.
Catchment: Geology: Coal Measures with alluvial deposits and Boulder Clay in valleys, peat in upper catchment. Upland area with livestock farming and heathland on hills, 25% forest cover (mainly on high ground to NW). Extensive urban and industrial development in valleys.
- 57007 Taff at Fiddlers Elbow** **EA Wales**
Station: Flat V weir (width: 23m; cross-slope 1:20), velocity-area station for high flows. Full range. Flows affected by mine-water discharges u/s, also impounding reservoirs and industrial abstractions in valley.
Catchment: Geology: Coal Measures with Millstone Grit and Carboniferous L'st in northern area. Boulder Clay and Alluvial deposits in valleys. Mainly upland area with peaty soils, seasonally wet. Land use is 55% grassland, heathland at highest elevations and >10% forest. Considerable urban development in valley bottom.

57008 Rhymney at Llanedeyrn EA Wales

Station: Flat V weir (width: 15m, cross-slope 1:20); velocity-area station for high flows. Full range. May-Sept 1990 low flows under review. Extensive floodplains on both banks; bypass (200m d/s) keeps flow on floodplain. Impounding reservoirs, for PWS, in upper catchment. Some groundwater abstraction and effluent returns.

Catchment: Geology: mainly Coal Measures (moderate permeability). Peaty soils on hills, seasonally wet. Land Use: 50% grassland with upland heath at highest elevations in N, 15% forest (in lower valley to S), and significant urban and industrial development in the valleys.

57009 Ely at St Fagans EA Wales

Station: Flat V weir (width: 10.6m; cross-slope 1:20); velocity-area station for high flows. Full range. Some early - poorer quality - data available (station 57805; 1957-60). Flows affected by sewage works discharges u/s. Some industrial abstractions.

Catchment: Geology: mainly Coal Measures with some Millstone Grit in northern area; mixture of Trias, Lias, l'st and ORS to the S. Extensive (75%) superficial deposits, Boulder Clay in N and sands and gravels in S. Land use: mainly pasture, with patches of forest and some built-up areas.

57010 Ely at Lanelay EA Wales

Station: Velocity-area station with non-standard Flat V bed control (width: 7.94m; cross-slope 1:20). Now primarily a flood warning station.

Catchment: Geology: Coal Measures. Lowland catchment. Dairy and livestock farming with urban and industrial development in the valley. Forest 8%. Soils have permeable substrate.

57015 Taff at Merthyr Tydfil EA Wales

Station: Flat V weir; velocity-area station for high flows. From 1998, structure is 14 m wide, 1:20 cross slope. Full range. POR max. of 258.2 m³s⁻¹ in Oct 1998 should be treated with caution as extrapolated, may have been overestimated. Dec 1979 flood (which destroyed the weir) may have been higher but considerable uncertainty surrounds magnitude. Flows affected by large direct PWS reservoirs.

Catchment: Upland catchment in Brecon Beacons National Park. Geology: Millstone Grit and Carboniferous L'st. Old Red S'st in upper areas; some Boulder Clay in valleys. Mainly peaty soils, seasonally wet. Land use: 60% grassland supporting livestock farming, significant upland heath and some forest. Minor urban development just u/s of station.

58001 Ogmere at Bridgend EA Wales

Station: Velocity-area station with Flat V weir (1:20 cross-slope; installed in Jul 1975). Channel width: 20m. Flows up to 170 m³s⁻¹ contained.

Catchment: Geology: mainly Coal Measures, some Boulder Clay and alluvium in valleys. Peaty soils on hills, seasonally wet. Forest 16%. Land use: 55% grassland supporting livestock farming in uplands to N, dairy farming in S, with 20% forest cover. Heavy urban and industrial development in valleys, including significant development just u/s of station.

58002 Neath at Resolven EA Wales

Station: Flat V weir (installed in 1978); velocity-area station for high flows; channel width: 28m. Some u/s right-bank spillage during floods; water stored on floodplain and does not bypass. Some records from 1961 available, but channel considered unstable. Hiflows-UK lists the POR max. as Oct 1967, but the NRFA does not hold these early peaks; they may not be homogeneous. PWS reservoir in upper catchment. Industrial abstractions and effluent returns.

Catchment: A mainly upland catchment with mixed geology, from S to N: Coal Measures; Millstone Grit; Carboniferous L'st and ORS. Extensive Boulder Clay cover in mid-catchment. Land use: livestock farming predominates; some areas of upland heath; >20% forest cover; minor urban development in valley.

58003 Ewenny at Ewenny Priory EA Wales

Station: Velocity-area station. Water level records from Jul 1960. Discharge records (Oct 1962-1965) take account of mine water. Bed erosion and weed growth rendered S/D relationship inaccurate, especially at low flows, so no data published after 1965. Station abandoned. Superseded by Flat V weir at Keeper's Lodge (58009) d/s in 1971.

Catchment: Geology: north - Coal Measures; S - mixture of Millstone Grit, Carboniferous L'st, Trias, Lias and alluvial deposits. Lowland area with urban/industrial development and dairy/livestock farming. Soils have permeable substrate.

58005 Ogmere at Brynmenyn EA Wales

Station: Flat V weir; velocity-area station for high flows. Channel width is 13.7m. All flows contained. Effluent discharge to river u/s.

Catchment: Geology: Coal Measures. Land use: 60% grassland with livestock farming, some heathland in upland area, urban development in the valleys. Forest 20%. Peaty soils in upper areas, seasonally wet.

58006 Mellte at Pontneddfechan EA Wales

Station: Flat V weir and velocity-area station; channel width 15m. Steep section with heavy bed load. Station in steep valley and flows well contained. Flashy river so high flow gaugings are problematic. PWS reservoir in catchment has partial effect on flows.

Catchment: Rural upland catchment. Geology: from S to N - Millstone Grit; Carboniferous L'st and ORS, with 50% Boulder Clay cover in S half of catchment. Predominantly grassland (65%) with significant areas of upland heath and some forestry.

58007 Llynfi at Coytrahen EA Wales

Station: Flat V weir and velocity-area station. Bankfull channel width 9.1m. Full range. Station in steep valley where flows fairly well contained. Flashy response so obtaining high flow gaugings problematic. Industrial abstractions and effluent returns.

Catchment: Geology: Coal Measures, some Boulder Clay and alluvium in valley. Upland area with livestock farming (>50% grassland), significant (25%) forest cover and urban development in valleys. Mainly peaty soils, seasonally wet.

58008 Dulais at Cilfrew EA Wales

Station: Compound Crump weir and Flat V weir from Aug 1991. Formerly Flat V weir (1:10 cross slope) flanked by horizontal side section - no divide piers; velocity-area calibration for high flows. D/s of single arch railway bridge of limited discharge capacity. Modular throughout range as sited on top of natural rock fall. Steep valley, flows fairly well contained. Sewage discharges affect runoff.

Catchment: Geology: Coal Measures, with 35% Boulder Clay Cover. Upland area with livestock farming, some heathland and 25% forest cover. Some urban development in valley, and open cast coal mining.

58009 Ewenny at Keepers Lodge EA Wales

Station: Flat V weir (1:15 cross-slope terminating in a 1:2 sloping revetment); velocity-area calibration for high flows. All flows contained. Channel width 12.25m. Rating changed due to drowning caused by EA not being able to regularly clear d/s channel since early 1990s. Data 21/06/95 - end 2002 reprocessed. Poorer quality data (1962-1965) available for d/s station Ewenny Priory (58003). Regime influenced by abstractions and effluent returns.

Catchment: Geology: north - Coal Measures. South - mixture of Millstone Grit, Carboniferous Limestone, Triassic and Lias sediments. 35% superficial deposits with Boulder Clay and alluvium. Mainly lowland area with dairy and livestock farming, some forest and urban development (including just u/s of station).

58010 Hepste at Esgair Carnau EA Wales

Station: Velocity-area station with Flat V weir (1:10 cross slope; 1:2 u/s; 1:5 d/s). Channel width 7m. Modular up to wingwall height, QMED at approx. bankfull, but lack of high flow gaugings. Low flow data believed to be of very good quality. Record maximum flow in Oct 2000 was extrapolated and may be an overestimate. No artificial influences.

Catchment: Upland catchment within the Brecon Beacons National Park. Mostly impermeable ORS with carboniferous outcrops at southern limits, some Boulder Clay cover in SW. Land use is upland pasture.

58011 Thaw at Gigman Bridge EA Wales

Station: Flat V weir for low and medium flows, US for high flows, commissioned April 1999. Replaced non-standard bed control weir; velocity-area calibration based on gaugings from bridge u/s. Experienced problems with leakage under bed control in early record. Out-of-bank flow can occur on rb. Station was taken off-line in Sept 1998 for complete rebuild. Flows affected by effluent discharges and gw abstractions.

Catchment: Lowland catchment in the Vale of Glamorgan. Mixed geology: Lias; Trias; Carboniferous Limestone and ORS. Significant areas of low permeability substrate. 40% Drift cover, mainly glacial sands and gravels. Mainly grass pasture, some patches of arable and forest; minor urban development.

58012 Afan at Marcroft Weir EA Wales

Station: Non-standard compound Crump profile weir. No divide walls between centre and side weirs. Channel width: 17.2m. Modular limit not known but unlikely to exceed bankfull flow. High velocities due to steep gradients. Runoff reduced by PWS abstraction. Minewater discharges in upper catchment affect flows and have severely affected water quality.

Catchment: Geology: Coal Measures, 40% superficial deposits with peat in uplands and Boulder Clay in valleys. 50% forested, remainder rough grazing. Some urban development, including just u/s of station. Past mining activity evident.

59001 Tawe at Ynystanglws EA Wales

Station: Velocity-area station. Gravel bed - unstable control. All but extreme floods contained since construction of floodbanks (1959). Flood banks raised following Dec 1979 flood. Flood storage area d/s built early 1980's, controlled by side weir (water returns through valve d/s with no effect on flow at station). At low flows, the intake pipe may be exposed due to bed erosion - levels are adjusted but flow repetitions may occur (e.g. Aug 2006), although these are realistic. L'st outcrop at north of catchment has partial effect on baseflow. Gw and industrial abstractions also.

Catchment: Geology: principally Coal Measures. Mostly mixed permeability, with impermeable strata in headwaters. 30% Boulder Clay cover. Mainly upland area with livestock farming (>60% grassland). Forest and some Urban and industrial development at lower levels. 30% in Brecon Beacons National Park.

59002 Loughor at Tir-y-dail EA Wales

Station: Velocity-area station with bed control (crude oblique Crump weir) built over sewer crossing. Right bank overtopped on rare occasions. PWS abstraction from main spring source. Gw and industrial abstractions and effluent returns.

Catchment: Geology: Southern half is mainly Coal Measures; Millstone Grit, Carboniferous L'st and ORS in northern half. Extensive Boulder Clay cover at lower elevations. Mainly dairy farming (>75% grassland) and some patches of forest.

- 60002 Cothi at Felin Mynachdy** **EA Wales**
Station: Velocity-area station. Straight reach and natural rock control. Channel width: 20m. Stable section. All but very extreme flows contained. POR max. is believed to be Oct 1987. Magnitude subject to uncertainty owing to rating extrapolation, estimated to be c.430 m³s⁻¹. Effectively a natural flow regime.
Catchment: Geology: impermeable strata, mainly Silurian with Ordovician along SE boundary. Land use: 75% grassland, upland pastures, livestock and dairy farming below. Significant forest cover (20%).
- 60003 Taf at Clog-y-Fran** **EA Wales**
Station: Velocity-area station. Lb steep with berm for recorder. Right flood bank at approx 3.2 - 3.4m; overflows during flood events. Channel width 13.9m. Natural catchment.
Catchment: Geology: Mainly impermeable strata, Ordovician with some narrow bands of igneous rock. ORS in S. Alluvium in valleys. Land use: >80% grassland, mainly dairy farming. Very small patches of arable and woodland.
- 60004 Dewi Fawr at Glasfryn Ford** **EA Wales**
Station: Velocity-area station. Concrete ford d/s acts as a bed control. Station constructed in opening of railway embankments where railway bridge crosses river. Channel width 7m. At approx 2m water spreads out along road meaning no POTs measured above 2m. Discontinued in 1982, reinstated in Apr 1990.
Catchment: Geology: impermeable Ordovician strata. Rural catchment, 80% grassland (mainly dairy farming), minor patches of woodland.
- 60005 Bran at Llandovery** **EA Wales**
Station: Ultrasonic installed, record from Dec 1995, Flat V weir for low flows. Replaced velocity-area station with records from 1968, bed control installed 1972. Channel width: 7.5m. Flood Alleviation Scheme u/s of Llandovery stops any bypass flow. Ultrasonic is prone to dropping out. Low flows in Aug - Sep 1995 and Jul - Aug 2006 are suspect, under investigation (Dec 2007). Peak flood flow of 63.5 m³s⁻¹ in Oct 1985 was extrapolated, subject to some uncertainty. Agricultural abstractions have a minor impact on flow records.
Catchment: Geology: impermeable Ordovician substrate, with alluvium on valley floor. Peaty soils, seasonally wet, in hill area. Soils have permeable substrate in lower areas. Land use: 50% grassland, with hill farming in uplands, dairy in valleys. 35% forest cover.
- 60006 Gwili at Glangwili** **EA Wales**
Station: Velocity-area station; stable section except period 1973-85 where section affected by land drainage scheme. Channel width: 15.5m. Station is 750 metres u/s of tidal limit - no backwater effects suspected. PWS and agricultural abstractions and effluent returns have minimal impact on flow records.
Catchment: Geology: impermeable Ordovician and Silurian strata. Rural catchment, mostly grassland supporting dairy farming, but with extensive (20%) forest cover.
- 60007 Tywi at Dolau Hirion** **EA Wales**
Station: Velocity-area station. Stable section with natural control and fairly steep and high banks. Channel width: 38m. River regulated - Llyn Brienne Reservoir in upper catchment. Suspect flows Mar 95 - Oct 96, removed from NRFA pending investigation.
Catchment: Upland area of Cambrian Hills. Geology: principally impermeable Ordovician strata. Mainly peaty soils, seasonally wet. Land use: 60% grassland (mostly hill farming with some livestock at lower levels); extensive forest cover (35%), very dense in NE.
- 60008 Tywi at Ystradffyn** **EA Wales**
Station: Crump weir, single crest. Site owned by Welsh Water. Artificial flow regime - station used principally to monitor compensation and regulated flows from Llyn Brienne Res.
Catchment: Geology: impermeable Ordovician and Silurian formations. Land use is 50% forest, 40% rough grazing.
- 60009 Sawdde at Felin-y-cwm** **EA Wales**
Station: Flat V. Channel width: 13.7m. Station re-rated 1991-93. Llyn Y Fan Fach reservoir in headwaters.
Catchment: Geology: predominantly impermeable; ORS at source, Silurian in middle section, Ordovician in lower reaches. Predominantly (85%) grassland, some forest at lower elevations. Mostly within Brecon Beacons National Park.
- 60010 Tywi at Nantgaredig** **EA Wales**
Station: Flat V weir (1:20) set in Crump profile flanking section. Shoaling d/s influences modular range; calibration based on gaugings. Channel width: 43m. Lb contains high flows, rb allows flows to spill and bypass station. High flows measured u/s at 60001 (Ty Castell), from which all pre-74 flows derive. POR max. occurred in Oct 1987, a well documented event which caused substantial damage in the catchment. A contemporary report estimated the peak at Ty Castell to be 1200 m³s⁻¹. Llyn Brienne in headwaters regulates flow down to major abstraction u/s of station (but d/s of 60001) and may be detected in hydrograph.
Catchment: Geology: predominantly impermeable, Ordovician and Silurian with ORS on southern boundary. Peaty soils in headwaters. Alluvium in valleys. Catchment is 70% grassland with hill farming in upper catchment, some livestock and dairying at lower levels. 20% forest cover, significant concentration along NE margin.
- 60012 Twrch at Ddol Las** **EA Wales**
Station: Velocity-area station. Channel width 4.65m. Subject to bypassing on rb. Low flows in July - Aug 2006 are suspect as intake pipe was not completely submerged, under investigation (Dec 2007). Natural regime.
Catchment: Upland catchment in S Cambrian mountains. Geology: impermeable formations; lower Silurian shales, grits and mudstones. Catchment is 85% grassland, with some patches of woodland.
- 60013 Cothi at Pont Ynys Brechfa** **EA Wales**
Station: River section with gravel bed (shoaling occurs d/s near bridge). Steep sides above bankfull, station on RHB. Station was a subsidiary to 60002 (Felin Mynachdy). Station closed after damage from Dec 1979 flood when station floor level was exceeded. NRFA only holds 1971 - 1976 data but peak flow data up to 1981 available on Hiflows-UK database.
Catchment: Geology is mainly impermeable Silurian with Ordovician along south-eastern boundary. Predominantly grassland, hill farming in upper areas, dairy farming in lower areas with extensive patches of woodland.
- 61001 Western Cleddau at Prendergast Mill** **EA Wales**
Station: Velocity-area station, channel width 10.5m. Tidally affected but this is edited out. Occasional overtopping on rb. Flow data was merged with 61004 (Redhill) to produce a continuous record, held as 61001 (Jan 74 - May 90 data is from 61004). Generally natural, some effects of abstractions and effluent returns.
Catchment: Mostly lowland catchment. Geology: impermeable, Ordovician formations with igneous intrusions. Land use: predominantly (75%) grassland with mainly dairy farming, patchy arable in lower areas.
- 61002 Eastern Cleddau at Canaston Bridge** **EA Wales**
Station: Velocity-area station; artificial control installed in 1974. Channel width: 17.4m. 1986 POR max. triggered by 80-100mm storm but considerable uncertainty attends the magnitude of the peak flow (significant rating extrapolation was needed). Impounding reservoir for PWS in upper catchment regulates the river down to the gauging station.
Catchment: Mainly lowland with hills to N. Geology: impermeable formations, mainly Ordovician with bands of igneous rock in N. Land use: 75% grassland with some forest and patches of arable in low-lying areas to W.
- 61003 Gwaun at Cilrhedyn Bridge** **EA Wales**
Station: Velocity-area station in straight reach (width: 7.0m). Natural steep-sided catchment - very responsive. Treat data with caution; station designated as flood warning only from 2000 due to bed movements. Natural regime.
Catchment: Small catchment within Pembrokeshire Coast National Park. Geology: impermeable Ordovician formations with intrusions of igneous rock. Land use: 80% grassland, dairy farming in lower areas and livestock on hills. Small patches of woodland and arable.
- 62001 Teifi at Glan Teifi** **EA Wales**
Station: Velocity-area station. Straight reach (width: 35m), natural control. Flood flows (> c3m) spill over right bank. Well gauged - recent gaugings include floodplain flows. PWS impounding reservoirs in upland and minor agricultural abstractions; Tregaron bog (10 sq.km.) has partial effect on flows. Nonetheless, a sensibly natural regime.
Catchment: Geology: mainly impermeable Ordovician and Silurian deposits. Land use: 80% grassland, Dairy farming predominates in south; hill farming in upper catchment. 10% forest, mainly on E margin. Peaty soils on hills, seasonally wet. Apart from Tregaron bog, most of the lower areas have soils with permeable substrate.
- 62002 Teifi at Llanfair** **EA Wales**
Station: Natural river section with cableway in straight reach of river. Channel width is approx 22.6m. Bed material is alluvium deposits. Steep left bank, right bank more gentle. Lack of high flow gaugings to calibrate upper end of rating, but low flow performance is believed to be very good. Sensibly natural flow regime.
Catchment: Mainly impermeable Ordovician and Silurian geology. Predominantly (80%) grassland. Hill farming in uplands, dairy farming in southern area.
- 63001 Ystwyth at Pont Llwlwyn** **EA Wales**
Station: Velocity-area station (channel width: 16m). Records from 1963, with bed control installed in 1973. Floods spill over right bank. Discharges from lead mines. Post-1985 flows below 3 m³s⁻¹ are unreliable due to blockage of lower inlet pipe. Channel re-graded and weir refurbished 21 - 27/09/98 (dmts estimated by NRFA), new rating produced. POR max.in Dec 1964 is listed as 153 m³s⁻¹ on Hiflows-UK database; this may be an underestimate due to bypassing.
Catchment: Geology: impermeable silurian deposits. Peaty soils in eastern hills, seasonally wet. Most of western catchment has soils with permeable substrata. Land use: 75% grassland, hill farming in uplands, livestock at lower levels. 20% forest.
- 63002 Rheidol at Llanbadarn Fawr** **EA Wales**
Station: Velocity-area station. Shoaling affects gauged section (channel width: 20m). Public water supply abstractions from river gravels. Impounding reservoir for hydro-electric station at Cwm Rheidol have major effects on flows. Drainage water from old mineral mines in upper catchment. Station closed in 1984; reopened on 31/10/95.
Catchment: Geology: mainly Silurian with some Ordovician on the northern catchment boundary. Mostly hill farming in upland areas. Forest: 20%. Soils mainly have permeable substrate.

63003 Wyre at Llanrhystyd**EA Wales**

Station: Velocity area station. Ford (10m d/s) acts as bed control. Coarse gravel bed. Bypassing at high flows down a mill stream and along a road. Lack of high flow gaugings to calibrate upper end of rating, but low flow performance is thought to be good. POR max.in Aug 1973 triggered by a >100mm storm; peak flow (77.8 m³s⁻¹ on Hiflows-UK database) is suspect - station was bypassed. Gap in NRFA record from 1979 to 1999; earlier record has some anomalous sequences. No known artificial influences on regime.

Catchment: Small Cardigan bay catchment, mostly lowland. Impermeable Silurian geology. Rural land use, predominantly grassland supporting dairy farming, with small patches of woodland.

63004 Ystwyth at Cwm Ystwyth**EA Wales**

Station: Flat V weir with vertical side walls, channel width 13m.

Catchment: Geology: mainly impermeable Silurian shales and grits. Catchment is 60% grassland (mainly used for sheep farming) and 20% forestry. There are numerous disused lead and zinc mines within the catchment.

64001 Dyfi at Dyfi Bridge**EA Wales**

Station: A 40m wide river section controlled by the invert and arches of the historical Dyfi road bridge d/s. A good stable section although records in early years are marred by substantial engineering works carried out on the bridge. Natural regime.

Catchment: Geology: impermeable Silurian formations, minor Boulder Clay and alluvium deposits. Catchment is 60% grassland and 30% forested, with patches of upland heath.

64002 Dysynni at Pont-y-Garth**EA Wales**

Station: Weir constructed in 1997; station re-rated from Oct 1997. Following reconstruction (involved removing sheet-piling) station is more vulnerable to tidal influence, allowed for in stage-discharge conversion, but recent flows should be treated with caution, tidal influence is under investigation. Insensitive at low flows. Difficult to gauge at high flows due to flashy response. Before April 1997: 40m wide section (between floodbanks) controlled by sheet piling d/s in straight channel. Natural flow regime.

Catchment: Impermeable Ordovician sediments with volcanic rocks outcropping. Tal-y-Llyn (southernmost ribbon lake in Britain) lies within catchment. Land use: 65% grassland, with areas of upland heath; 20% forest (in S of catchment).

64004 Twymyn at Cemmaes Road**EA Wales**

Station: Velocity-Area site with an extremely mobile bed. Attempts were made to stabilise the section with engineering works and the inclusion of a gravel trap. The gravel trap failed to perform (requiring far more emptying than envisaged) and the situation of the trap also spoiled hydraulic conditions in the cableway section. Site was therefore considered uneconomical to maintain and was closed in 2001.

64006 Leri at Dolybont**EA Wales**

Station: A 10m wide single crest Crump profile weir in a straight floodbanked reach. Wing walls contain flows to high levels although rating has not been checked beyond medium flows. Small abstraction from Craig-y-Pistyll reservoir.

Catchment: Geology: predominantly impervious Silurian rocks. 80% grassland, 10% forest.

64010 Afon Mawddach at Tyddyn Gwladys**EA Wales**

Station: VA station with pitching strip 100m downstream of cableway that is used to stabilise rating curve at low flow. Problems with scouring of bed - boulders and shale move in flood. New rating created after gravel clearance in July 2004, which followed significant accretion since 2001. Bed has since thought to have remained relatively stable. Site responds quickly and is therefore difficult to gauge.

Catchment: Steep mountainous catchment with much bare rock. Predominantly forested.

65001 Glaslyn at Beddgelert**EA Wales**

Station: A 20m wide river section rated by c/m and, in the past, by dilution gauging. Rating tends to be insensitive at low flows due to subtle movements in the natural bed control. Gravel removal may have produced abrupt level changes in the past. High flow gauging restricted to peaks and troughs because of rapid water level changes. Station bypassed at high flows. Lakes (Dinas and Gwynant) and HEP discharge from the higher Llyn Llydaw marginally affect records.

Catchment: Very wet, upland catchment draining southern flanks of Snowdonia with much bare rock exposure (impermeable Silurian volcanics). Otherwise, land use is 60% grassland, mainly rough moorland grazing, 20% forest.

65004 Gwyrfaai at Bontnewydd**EA Wales**

Station: A 10m wide single crest Crump profile weir containing flows to high levels. Weir is thought to remain modular. Check gauging suggests some (constant) loss due to inadequate cutoffs; hence low flows affected. Significant abstraction from Llyn Cwellyn reservoir u/s.

Catchment: A steep and typically Snowdonian upland catchment. Geology: impermeable Lower Palaeozoic and volcanics. 70% grassland (rough moorland), >10% forest.

65005 Erch at Pencaenewydd**EA Wales**

Station: A 6m wide Crump profile weir with high wing walls containing the full flow range. Check gauged up to medium flows. The outstanding flood in August 2000 resulted from a localised but very intense thunderstorm. It was contained within the structure (and confirmed by wrack marks) but the peak flow is an estimate.

Catchment: Mostly lowland catchment on the Lleyn peninsula, with hills in N. Impermeable bedrock geology, covered with 85% Boulder Clay. Land use: 75% grassland (rough grazing), 15% woodland.

65006 Seiont at Peblig Mill**EA Wales**

Station: A rated river section in a straight reach which has not yet been bypassed (possible on the left bank floodplain). Control provided by a roughly Crump profile shaped structure originally built as part of investigations prior to construction of the Dinorwic pumped storage scheme, which very marginally affects the record. Treat data with caution.

Catchment: A steep, wet catchment on impermeable formations, with much bare rock surface - Snowdon and Glyder Fawr are both in the catchment. Contains two large ribbon lakes, Padarn and Peris, the latter acting as the lower reservoir of the Dinorwic scheme. Land use is 65% grassland (rough upland grazing), 10% forest.

65007 Dwyfawr at Garndolbenmaen**EA Wales**

Station: A compound Crump profile weir with divide piers separating the 6.5m wide lower crest from two flanking crests each 5m wide. Station built as the control point for the Cwmystardlyn Reservoir/Afon Dwyfawr regulation scheme. Consequently not intended for high flow gauging; bypassed at flows >10 year return period.

Catchment: The catchment is mainly steep, developed on impermeable Lower Palaeozoic formations; 45% Boulder Clay cover. Land use: 80% grassland (rough grazing), much bare rock.

65008 Nant Peris at Tan-Yr-Alt**EA Wales**

Station: Velocity-Area station in almost straight reach. 5m wide river channel, substantial problems with maintaining an accurate rating due to non-standard concrete control d/s and extensive gravel accumulation problems u/s and d/s. Bankfull about 2 metres. High flow rating possible due to cableway on site. All data since 2000 should be treated with caution due to problems with gravel movement. Very responsive natural flow regime.

Catchment: The Nant Peris follows the Llanberis Pass and drains a rugged, steep and exceptionally wet (annual av. c3500 mm) catchment to the north-east of Snowdon. Impermeable geology, land use is rough grazing, with much bare rock exposure.

65014 Colwyn at Hafod Wydr**EA Wales**

Station: A 5m wide Crump weir (u/s approach depth 1m). Located in a steep section of the River Colwyn. Modular through to high flows. Some problems with gravel accumulation, this is removed annually. No cableway present at this site.

65015 Llyfni at Pont Y Cim**EA Wales**

Station: A 9m wide Crump weir (u/s approach depth 0.5m). Data quality thought to be of acceptable quality at low-medium flows, but poor approach flow conditions cause significant problems when attempting to calibrate weir in high flow conditions. Gravel accumulation a serious issue at this site.

66001 Clwyd at Pont-y-Cambwll**EA Wales**

Station: VA station. Station refitted June-Aug 1997, with gabions added to stabilise the section: no dmfs during this work. Rating is relatively stable although known to be affected by weed growth and sediment movement. A bend 100 m downstream causes variation in velocities across the section, which results in greater uncertainty in the rating, particularly at low flows. New rating created following Feb 2004 flood. Low flows augmented using gw (approx. 12% of Q95 flow). Flood discharges affected by floodplain storage in Vale of Clwyd u/s.

Catchment: Headwaters rise in Silurian shales and grits of Denbigh Moors and Clwydian Hills, then flow across generally confined Triassic Sandstone aquifer (with artesian heads over large areas). 60% superficial deposits; mostly Boulder Clay. Rural catchment with mixed land use: grouse moors to lowland dairy farming, 20% forested (mainly in SW).

66002 Elwy at Pant yr Onen**EA Wales**

Station: Rated section formed just u/s of a small tributary; thought to be far enough to avoid backwater affects. During a flood the peak on the tributary has probably passed before the main peak occurs. In extreme floods (>2.9m) the stations begins to be bypassed u/s on the left bank over a distance of 75m. No gaugings available above QMED. High flows may have been substantially underestimated.

Catchment: The Elwy catchment lies on impermeable Silurian Shales and Mudstones, with a small amount of Carboniferous Limestone and an extensive Boulder Clay cover. Land use is predominantly grassland, with some forestry in lower valley.

66004 Wheeler at Bodfari**EA Wales**

Station: Crump weir 3.034m wide, between vertical side walls. Immediately d/s of rectangular channel beneath disused railway bridge. Station refitted in June 1997. Station was bypassed during the 2000 flood event. Bridge u/s obstructed at high flows. Station refitted in June 1997, and new rating derived. Natural catchment.

Catchment: Geology: moderate permeability carboniferous limestone to N of river; impermeable Silurian to S. Extensive cover of patchy sand and gravel deposits and Boulder Clay. 70% grassland, with 20% forest.

66005 Clwyd at Ruthin Weir**EA Wales**

Station: Non-standard 14m wide concrete weir with central low flow notch (short trapezoidal flume) leading to fish passes. Levels recorded 14m u/s in float well against left bank. Large modular range (extending well beyond the 2000 flood). Leakage around the weir, not quantified. Data was reprocessed from 2001 -2006, using three separate ratings for the period. High flows increased, and the 2005 and 2006 low flows were reduced. Hydraulic continuity between g/w and streamflow along part of Afons Clywd and Hesbin. **Catchment:** Upper Clwyd rises in area of impermeable Palaeozoic rocks, with more permeable strata in lower catchment. Patchy Boulder Clay cover (60%). Most grassland, with 20% forest cover.

66006 Elwy at Pont-y-Gwyddel**EA Wales**

Station: Twin arch bridge provides control at medium flow. 1m wide Crump weir blocks set in castellated manner within 10m wide archway to achieve low flow sensitivity. New rating from 01/08/97, data revised. Some bypassing at levels > 2.0m. Site rebuilt during summer 2007, instrument hut moved from lh to rh bank with bank works designed to contain more extreme events. Low flows affected (>10%) by residual flow of 0.2 m³s⁻¹ in Afon Aled (from reservoirs which drain 6% of catchment).

Catchment: Impermeable Silurian strata with patchy Boulder Clay cover (50%). Land use: 80% grassland, mainly sheep pastures; patchy woodland and some upland heath.

66011 Conwy at Cwm Llanerch**EA Wales**

Station: A 50m wide river section requiring frequent recalibration due to shifting bed control. Record is very important in Conwy valley flood forecasting so much effort is spent to ensure rating is kept accurate. Some bypassing and u/s overbank storage at very high flows - channel contains 400 - 450 m³s⁻¹ before bypassing occurs. At such times water is diverted by means of leats into Llyn Conwy. POR max.in December 2006 is under review, treat with caution. Largely natural flow regime.

Catchment: Very wet upland catchment - mainly mountainous, developed mostly impermeable Palaeozoic formations and volcanics. 65% grassland, most upland hill farming, with exposures of bare rock and heath. 15% forested, mainly in lower catchment.

66012 Lledr at Gethins Bridge**EA Wales**

Station: A 17.2m pitching strip acts as a low flow control at this site. Some problems with low flow calibration due to subtle bed movements, but higher flow calibration observed to be stable at the present time.

66025 Clwyd at Pont Dafydd**EA Wales**

Station: Combined EM and rated section, data sets merged to give dmf. Substantial bypassing above mean annual flood level. Nearby 66001 remains the primary gauging station.

67001 Dee at Bala**EA Wales**

Station: From June 2004, hybrid site consisting of crump weir and cross-path US for flows >40 m³s⁻¹. Some missing data due to rebuild. Previously a triangular profile weir, 1:1 u/s and 1:3.5 d/s, calibrated by wading and cableway gaugings (with some hydraulic model tests also). Thought to drown at about bankfull flows. This structure replaced an original broad-crested weir in 1968. Low flows controlled by Bala sluices about 750m u/s. Llyn Celyn also in catchment.

Catchment: Thin soil cover over mostly impermeable Lower Ordovician rocks. The rapid response to rainfall is modified by the natural storage of Llyn Tegid. Mainly open moorland and sheep pastures with 15% forest.

67003 Brenig at Llyn Brenig outflow**EA Wales**

Station: Sharp-edged weir built 1923, unchanged except extension of wing walls in 1975. Fully checked calibration to 30 m³s⁻¹. Natural flow until Aug 1975, when impounding started: monthly naturalised flows since. Llyn Brenig holds nearly four times annual average runoff. Before Aug 1975 flows above 15 m³s⁻¹ estimated by rating curve extrapolation and hydrograph estimation because vertical drum level recorder truncated peaks. Owned and operated by Welsh Water Plc; dmfs sent to EA, may be patchy and not up to date.

Catchment: Open moorland.

67005 Ceiriog at Brynkinalt Weir**EA Wales**

Station: Compound broad-crested weir modified from original velocity-area site in 1969. Discharges > 15 m³s⁻¹ are estimated. Data prior to 1969 is suspect. Station refitted between June-Sept 1997; no flows, new rating thereafter.

Catchment: Geology: 90% of catchment is impermeable, with more permeable rocks in lower catchment to E. River valleys are deeply incised. Soils are thin and peaty, supporting pasture for sheep grazing and 15% woodland.

67006 Alwen at Druid**EA Wales**

Station: Natural river section about 20m wide. Stable since last major flood in 1964. Some minor revisions of rating from time to time. Flows greater than 60 m³s⁻¹ are estimated. Bypassed during floods on lb. Reservoirs (Llyn Brenig and Alwen) control 15% of catchment.

Catchment: Geology: impermeable Palaeozoic rocks, with some patchy Boulder Clay in valleys. Land use: 65% grassland, mostly upland pasture. Significant (20%) forest cover, mainly in N of catchment. Catchment area changed in 1976 to exclude Llyn Bran (0.8 sq.km).

67008 Alyn at Pont-y-Capel**EA Wales**

Station: Asymmetrical compound crump weir (two crests). Divide wall was lowered in 1986 as debris regularly blocked the lower part. Current meter calibration took place before and after. Weir drowned above 1m. Structure not thought to have been bypassed. Small reservoirs in catchment, also affected by abstractions/returns.

Catchment: Ill-defined catchment boundary to NE and SE. Mixed geology, generally of moderate permeability; 30% is Carboniferous Limestone. Extensive glacial deposits. Major loss of water from upper 70 sq.km. in limestone and mine drainage tunnels. Land use: 60% grassland pasture, 15% woodland with some urban development in low-lying areas to W.

67009 Alyn at Rhydymwyn**EA Wales**

Station: Trapezoidal flume in concrete trapezoidal channel. Discharge frequently zero due to flow entering swallow holes in limestone u/s of site. Pre-1968 data is very suspect, not held on the NRFA.

Catchment: Geology: impermeable Silurian rocks in W half, Carboniferous Limestone escarpment to E. Swallow holes frequent between Maeshafn and Rhydymwyn, substantial losses of river flow through percolation to mine discharge tunnels. Land use: 65% grass pasture, 20% forest.

67010 Gelyn at Cynefall**EA Wales**

Station: Compound Crump profile weir. No cableway at the site. Station closed 1981 to 1987 inclusive. Fully operational since 1988. Very responsive regime.

Catchment: Geology: impermeable Ordovician formations and volcanics. Boulder Clay in valley. Upland pasture, rural.

67013 Hirnant at Plas Rhiwedog**EA Wales**

Station: Rated section on a small steep stream that enters the Dee d/s of Bala Sluices. The control consists of a number of very large boulders. Gravel movements during large floods affect the rating. Bypassing of station at high flood flows.

Catchment: Upland catchment, developed on impermeable Silurian geology. The catchment is very heavily wooded (c.45%), with rough pasture.

67015 Dee at Manley Hall**EA Wales**

Station: Asymmetrical compound Crump profile weir, checked by current metering. Drowns at flows above 200 m³s⁻¹ but not bypassed. Data prior to Feb 1970 is poorer quality - based on d/s Erbistock (67002, area: 1040 sq.km.) record. Low flows maintained by releases from major river regulating reservoirs: Celyn and Brenig. Flood attenuation on the lower Dee flood plain is notable.

Catchment: Geology: predominantly impermeable Palaeozoic rocks and volcanics. Land use: 60% grassland (upland pasture to lowland livestock farming). 15% forestry, significant upland heath.

67017 Tryweryn at Llyn Celyn outflow**EA Wales**

Station: Compound broad-crested weir measuring controlled outflow and overspill from Llyn Celyn regulating reservoir.

Catchment: Geology: impermeable catchment, predominantly Ordovician with Upper Cambrian shales, slates and mudstones in the SW. Rural, upland catchment supporting sheep grazing.

67018 Dee at New Inn**EA Wales**

Station: Original control based on a rough stone paved ford with stepping stones u/s to provide sensitivity at low flows. Formalised (between 04/98 and 04/99 - data infilled using 67/10) into a shallow V concrete ford with square blocks cast on the u/s base to mimic the adjusted configuration. Calibration by current meter. Station is by-passed (possibly substantially) at extreme flood flows - in excess of Qmed. Data is used operationally for flood alleviation, flood warning and a daily naturalization indicator for upper Dee flows. Natural flow regime.

Catchment: Rapidly responding upland catchment. Geology: mainly impermeable Ordovician rocks, with minor superficial deposits. Land use is mostly rough upland pasture and 25% forest.

67025 Clywedog at Bowling Bank**EA Wales**

Station: Simple Crump profile weir 6m wide which drowns at 8 m³s⁻¹. Bypassed by flood flows of >10 year return period. 50% of low flow was treated effluent from Wrexham until 7/10/92 when this discharge was piped directly to the R. Dee. Mine drainage and abstraction in upper catchment.

Catchment: Mainly Carboniferous strata, mostly of moderate permeability, with > 80% superficial deposits with Boulder Clay and sands and gravels. Land use: mixed farming (pasture predominates), substantially urbanised (>15% built-up). Much mining in the catchment.

67027 Dee at Ironbridge**EA Wales**

Station: Originally a 45 metre rated section. Converted to cross-path US during 1994. Good throughout the range up to approximately 6.8m (200 m³s⁻¹). Above 6.8m goes out of bank on right bank; in extreme events site can be bypassed on both banks (on left bank via serpentine). Data missing during Oct 2000 event, which was the highest on record at Chester (67033). Site is tidally influenced.

Catchment: Geology: upper catchment impermeable Lower Palaeozoic rocks with intermittent Drift cover. Below Llangollen, R. Dee crosses Carboniferous L'st escarpment and outcrops of Cefn-y-Fewd S'st, Coal Measures and Sherwood S'st, providing many artesian areas in lower catchment. Land use: principally grassland (upland pasture to lowland livestock farming). 15% forestry, significant upland heath.

67028 Ceidiog at Llandrillo**EA Wales**

Station: Velocity-area station utilising a series of gravel traps as a control for low and medium flows only. Station converted to a level-only site in 2001.

Catchment: Geology: impermeable Ordovician mudstones and shales with volcanics which provide rapid runoff rates and low baseflows. Mostly rough grazing, with 15% woodland.

67029 Trystion at Pen-y-felin Fawr**EA Wales**

Station: Site measures flows from small Cynwyd reservoir just upstream.

67033 Dee at Chester Suspension Bridge**EA Wales**

Station: Ultrasonic gauge, 6 path (paths 5 and 6 used for high flows) installed in 1994. River channel approx. 40m wide. High flow performance under review. Superseded 67020 (non-standard weir, tidally affected) approx. 300m d/s; some data (1974-86) also available for nearby station 67026.

Catchment: Geology: upper catchment impermeable Lower Palaeozoic rocks with intermittent superficial deposits. Below Llangollen, river crosses Carboniferous Limestone escarpment and outcrops of S'sts; many artesian areas in the lower catchment. Upper catchment is rough grazing, with some patches of forest; Lower catchment is mixed farming.

102001 Cefni at Bodffordd**EA Wales**

Station: Rectangular thin-plate weir rated at medium to high flows by current meter. Full range station - accumulation of debris may affect the intake in the summer/autumn.

Catchment: Typical low-lying Angelsey catchment of impermeable rocks overlain by thick Boulder Clay. Land use: 85% grassland, minor patches of forest and arable.

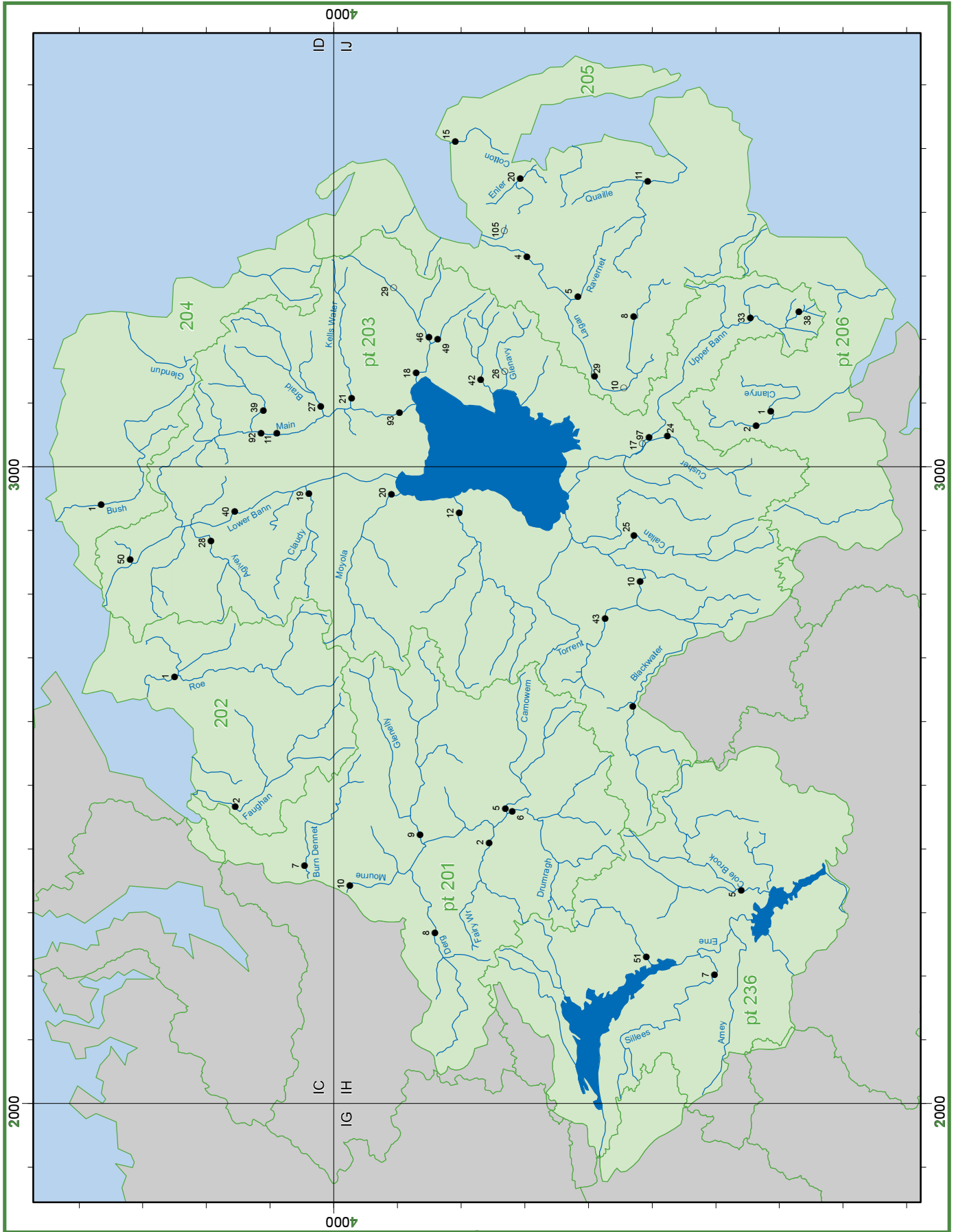
GAUGING STATION REGISTER

Region: Northern Ireland

Area: 14,133 km²

Average rainfall (1971-2000): 1112 mm

Map 12: NORTHERN IRELAND



Gauging Station Register I

Station number	River name	Station name	Grid reference	Catchment area	Station type	SLA	Period of record	Percent complete	Base Flow Index	Mean ann. rain (mm)	Mean ann. runoff (mm)	Mean ann. loss (mm)	Mean flow (m ³ s ⁻¹)	Q95 (m ³ s ⁻¹)	Q70 (m ³ s ⁻¹)	Q50 (m ³ s ⁻¹)	Q10 (m ³ s ⁻¹)	Median ann. flood (m ³ s ⁻¹)	Peak flow (m ³ s ⁻¹)	Date of peak	7-day min. (m ³ s ⁻¹)	Date of min.
201002	Fairywater	Dudgeon Bridge	IH405757	158.4 VA	*	1971-05	100	.31	1332	1040	292	5.22	0.41	1.24	2.48	13.2	66.6	120.8	19/01/88	0.13	06/07/84	
201005	Camowen	Camowen Terrace	IH460730	276.6 VA	*	1972-05	100	.47	1144	776	368	6.69	1.05	2.39	4.06	14.9	87.6	192.9	22/10/87	0.42	07/08/75	
201006	Drumragh	Campsie Bridge	IH459722	320.0 VA	*	1972-05	100	.35	1167	821	346	8.30	0.67	1.95	3.96	21.3	106.8	246.1	22/10/87	0.21	14/07/77	
201007	Burn Dennet	Burmdennet	IC372047	148.3 VA	*	1975-05	96	.51	1178	858	320	3.95	0.83	1.64	2.52	8.5	76.6	153.0	22/10/87	0.42	28/08/76	
201008	Derg	Castlederg	IH265842	335.4 VA	*	1975-05	100	.31	1702	1330	372	14.13	0.85	3.63	7.51	35.1	200.6	244.9	21/09/85	0.12	21/07/89	
201009	Owenkillew	Crosh	IH419866	440.1 VA	*	1980-05	100	.42	1390	1113	277	15.52	2.79	5.48	8.98	35.7	286.3	508.1	21/10/87	1.62	12/08/83	
201010	Mourne	Drumnabuoy House	IH348961	1843.8 VA	*	1982-05	100	.39	1308	973	335	56.89	6.30	17.25	32.15	139.8	593.4	1063.9	22/10/87	2.46	23/08/95	
202001	Roe	Ardnagle	IC674246	364.4 VA	*	1975-05	94	.34	1253	843	410	9.62	1.11	2.70	4.72	23.8	145.5	181.8	03/10/81	0.44	09/08/05	
202002	Faughan	Drumahoe	IC464151	273.1 VA	*	1976-05	100	.48	1237	921	316	7.97	1.34	3.09	5.03	17.8	140.7	253.4	21/10/87	0.78	02/09/03	
203010	Blackwater	Maydown Bridge	IH821519	970.2 VA	*	1970-05	100	.43	997	566	431	17.40	1.34	4.83	9.59	44.8	109.2	157.0	23/10/87	0.33	12/08/75	
203011	Maine	Dromona	ID049090	243.5 VA	*	1970-05	51	.46	1208	708	500	5.53	0.76	1.94	3.27	12.9	59.6	85.9	15/11/02	0.41	05/09/76	
203012	Ballinderry	Ballinderry Bridge	IH926798	430.2 VA	*	1970-04	100	.52	1082	696	386	9.47	1.62	4.03	6.22	19.9	131.8	208.3	22/10/87	0.71	14/08/75	
203017*	Upper Bann	Dynes Bridge	IJ043511	316.3 VA	*	1970-91	100	.41	1023	534	489	5.37	0.51	1.57	2.80	11.9	75.9	105.2	29/12/78	0.15	27/06/75	
203018	Six-Mile Water	Antrim	IJ145867	277.6 VA	*	1970-05	100	.53	1087	681	406	6.00	0.85	2.42	3.95	12.6	81.0	163.5	21/10/87	0.29	14/07/78	
203019	Claudy	Glenone Bridge	IC961037	126.3 VA	*	1972-05	100	.45	1105	818	287	3.24	0.38	1.10	1.88	7.7	34.7	59.9	23/10/80	0.07	16/08/77	
203020	Moyola	Moyola New Bridge	IH956905	304.4 VA	*	1971-05	100	.43	1218	866	352	8.30	1.32	2.90	4.86	19.2	113.6	155.7	19/01/88	0.46	11/07/77	
203021	Kellswater	Curry's Bridge	IJ107971	126.3 VA	*	1971-05	99	.33	1187	777	410	3.09	0.28	0.81	1.50	7.2	82.0	144.5	26/08/86	0.11	12/08/83	
203022	Blackwater	Derrymeen Bridge	IH625530	182.9 VA	*	1998-05	88	.44	1127	825	302	4.78	0.69	1.71	2.71	10.6	50.8	90.1	22/10/87	0.42	23/07/00	
203024	Cusher	Gamble's Bridge	IJ047471	170.7 VA	*	1971-05	100	.41	960	587	373	3.15	0.16	0.76	1.62	7.7	47.0	73.5	21/10/87	0.02	26/06/92	
203025	Callan	Martin's Bridge	IH892525	166.9 VA	*	1971-05	100	.41	921	516	405	2.71	0.22	0.78	1.39	6.5	37.4	42.2	08/12/00	0.02	01/09/03	
203026*	Glenavy	Glenavy	IJ149725	44.6 TPVA		1971-98	72	.46	997	527	470	0.78	0.08	0.18	0.40	1.6	16.3	28.7	21/10/87	0.03	24/07/84	
203027	Braid	Ballee	ID098015	177.2 VA	*	1972-05	100	.54	1174	845	329	4.76	0.84	2.20	3.23	9.4	90.7	162.1	16/11/95	0.33	15/08/75	
203028	Agivey	Whitehill	IC882193	100.5 VA	*	1972-05	97	.36	1237	879	358	2.80	0.36	0.85	1.50	6.5	63.0	144.1	21/10/87	0.06	26/07/01	
203029*	Six Mile Water	Ballyclare	IJ282902	58.4 VA	*	1973-90	100	.50	1175	874	301	1.60	0.16	0.53	1.02	3.3	42.6	80.1	26/08/86	0.05	15/07/89	
203033	Upper Bann	Bannfield	IJ234341	101.7 VA	*	1975-05	99	.34	1286	844	442	2.66	0.27	0.67	1.22	6.3	64.8	89.1	14/11/02	0.18	30/06/76	
203038	Rocky	Rocky Mountain	IJ243265	7.7 FV		1986-04	84	.29	1580	1221	359	0.30	0.04	0.08	0.14	0.7	10.8	17.3	23/10/98	0.02	12/08/95	
203039	Clogh	Tullynewey	ID088111	98.7 VA	*	1983-04	99	.42	1299	866	433	2.73	0.28	0.95	1.72	6.1	37.5	43.3	15/11/95	0.11	07/07/84	
203040	Lower Bann	Movanagher	IC931154	5209.8 VA	*	1980-05	100	.67	1001	558	443	92.05	13.04	21.93	46.56	214.2	265.0	360.9	24/12/99			
203042	Crumlin	Cidercourt Bridge	IJ134765	55.3 VA	*	1981-05	100	.34	995	612	383	1.08	0.09	0.29	0.52	2.5	37.7	79.5	21/10/87	0.03	24/07/84	
203043	Oonawater	Shanmoy	IH780557	94.1 FVVA	*	1986-05	100	.36	1009	567	442	1.70	0.09	0.41	0.86	4.3	28.3	43.5	25/12/99	0.01	28/08/95	
203046	Rathmore Burn	Rathmore Bridge	IJ197855	22.5 VA	*	1983-05	100	.49	1046	550	496	0.39	0.05	0.14	0.25	0.9	11.0	15.6	24/12/99	0.02	19/09/96	
203049	Clady	Clady Bridge	IJ200837	29.4 VA	*	1983-05	100	.43	1076	650	426	0.61	0.08	0.21	0.35	1.3	22.7	39.3	24/10/05	0.04	11/09/91	
203050	Ballysally Blagh	University of Ulster	IC847340	14.2 VN	*	1993-05	92	.49	994	474	520	0.21	0.03	0.08	0.12	0.5				0.01	20/08/95	
203092	Maine	Dunminning	ID051110	221.5 VA	*	1983-04	90	.50	1222	806	416	5.58	0.87	2.16	3.61	12.2	58.2	98.6	15/11/02	0.41	25/07/84	
203093	Maine	Shane's Viaduct	IJ087897	707.4 VA	*	1983-05	100	.49	1156	877	279	19.45	2.41	7.51	12.71	42.2	211.5	298.2	22/10/87	0.66	25/07/84	
203097	Upper Bann	Moyallen	IJ045504	304.9 VA	*	1990-04	86	.45	1033	575	458	5.56	0.71	1.70	3.03	12.4				0.39	18/09/95	
204001	Bush	Seneirf Bridge	IC942362	299.2 VA	*	1972-05	99	.50	1128	705	423	6.64	1.03	2.64	4.19	14.7	62.2	94.0	03/10/81	0.27	30/08/83	
205004	Lagan	Newforge	IJ328693	491.6 VA	*	1972-05	100	.44	921	547	374	8.51	1.02	2.56	4.49	20.9	74.4	159.2	29/12/78	0.42	10/09/91	
205005	Ravernet	Ravernet	IJ268613	73.5 FVVA	*	1978-05	96	.43	925	511	414	1.19	0.04	0.24	0.59	3.0	14.5	32.5	26/11/97	0.01	28/07/84	
205008	Lagan	Drumiller	IJ236525	84.6 VA	*	1974-05	99	.36	1035	560	475	1.50	0.08	0.36	0.74	3.4	29.4	45.7	28/12/78	0.01	22/08/95	
205010*	Lagan	Banoge	IJ123540	189.8 VA	*	1974-94	97	.28	945	434	511	2.63	0.05	0.38	1.02	5.9	89.7	212.2	28/12/78	0.02	26/07/84	
205011	Annacloy	Kilmore Bridge	IJ448507	186.6 VA	*	1979-05	100	.36	990	583	407	3.45	0.16	0.73	1.63	8.7	35.3	61.5	08/11/00	0.03	27/07/84	
205015	Cotton	Grandmere	IJ524818	19.2 VA	*	1990-04	93	.45	905	403	502	0.24	0.02	0.07	0.13	0.6	2.8	5.6	03/01/94	0.01	10/09/91	
205020	Enler	Comber	IJ459697	61.8 FVVA	*	1983-05	100	.44	935	390	545	0.76	0.10	0.24	0.41	1.7	16.8	34.4	08/12/00	0.04	24/07/84	
205029	Lagan	Feeny	IJ142591	202.8 VA	*	1993-04	80	.39	940	427	513	2.73	0.38	0.91	1.34	5.6				0.05	18/08/95	
205105*	Knock	Orangefield	IJ371732	12.9 VA	*	1983-00	99	.51	939	373	566	0.16	0.03	0.07	0.10	0.3				0.01	21/10/91	
206001	Clanrye	Mountmill Bridge	IJ086310	120.3 VA	*	1974-05	100	.49	988	535	453	2.04	0.23	0.66	1.12	4.7	20.8	30.3	23/10/76	0.10	13/08/83	
206002	Jerretspass	Jerretspass	IJ065331	107.8 VA	*	1972-05	97	.42	886	238	648	0.83	0.04	0.22	0.39	2.0	10.3	18.5	22/10/87	>0.00	06/10/72	
236005	Colebrooke	Ballindarragh Bridge	IH332358	313.6 VA	*	1975-05	85	.38	1162	797	365	7.82	0.72	1.96	3.82	19.3	105.3	155.3	22/10/87	0.33	28/08/95	
236007	Sillees	Drumrainey Bridge	IH205400	166.3 VA	*	1981-05	100	.51	1414	1046	368	5.53	0.39	1.87	3.83	13.2	24.1	37.3	21/12/91	0.06	06/08/89	
236051	Ballinamallard	Ballycassidy	IH230509	159.4 VA	*	1991-05	73	.40	1189	817	372	4.04	0.48	1.13	2.08	9.7				0.21	25/08/95	

Gauging Station Register III

Northern Ireland

- 201002 Fairywater at Dudgeon Bridge** **Rivers Agency**
Station: Velocity-area station with cableway. Flows from 1977 reprocessed in 2002. Natural regime - no water abstractions or significant returns.
Catchment: Catchment geology is 50% Carboniferous L'st some exposed, with extensive areas of till and alluvium drift deposits on both banks of the river. Predominantly grassland with some shrub heath, bog and coniferous woodland. No significant urban development.
- 201005 Camowen at Camowen Terrace** **Rivers Agency**
Station: Velocity-area station with cableway, informal broad-crested weir (for mill use) acts as control. Well rated and full flow range contained. Flows from 1975 onwards reprocessed in 2002. Sensibly natural regime. The net effect of abstractions for PWS and augmentations from effluent returns is minor.
Catchment: Catchment geology: mixed impermeable rocks (granite, schist and gneiss, and sandstone) overlain by substantial deposits of till, sand and gravel; peat on high ground. Largely upland - improved grassland is predominant, some bog and upland heath. No significant urban development.
- 201006 Drumragh at Campsie Bridge** **Rivers Agency**
Station: Velocity-area station with cableway. Flows for entire period of record reprocessed in 2002. Flow is out of bank above 100m³/s, however the station is not bypassed. Well rated at high and low flows. No significant water abstractions or returns.
Catchment: Catchment geology is approx 70% lower Old Red Sandstone with some conglomerates overlain with alluvium till, sand and gravel in valleys. Peat is present on high ground. Predominantly (>80%) improved grassland, some bog and upland heath. No significant urban development.
- 201007 Burn Dennet at Burndennet** **Rivers Agency**
Station: Velocity-area station with cableway and natural control; discharge through the underlying gravels may be significant. Adequate gauging up to QMED, more high flow measurements would be advantageous as simple extrapolation of the rating curve is used beyond 65m³/s. No water abstractions or significant returns.
Catchment: Geology: schist, limestone and quartzite curtailed at Burndennet Bridge by a major fault drop. Substantial sand and gravel deposits either side of the river, remainder till and limited peat. Predominantly improved grassland, some bog and heath rising to above 500 m aOD. No significant urban development.
- 201008 Derg at Castlederg** **Rivers Agency**
Station: Velocity-area station with cableway. Rating adequate; has been calibrated at high flows, although more high flow measurements would be advantageous. Simple extrapolation of the rating curve is used beyond approx 195m³/s. Headwaters contain Lough Derg and Lough Mourne, aside from the latter (supplies water to Co. Donegal) there are no significant water abstractions or effluent returns u/s of the station. Highest gauged mean catchment runoff in NI. Flows from 1975 onwards reprocessed in 2002.
Catchment: Heavily faulted strata in Upper and Middle Dalradian Quartzite series. Erratic overburden of till, peat and alluvium, considerable rock dominance. Predominantly grassland, some coniferous woodland, some bog and marsh. Contains Castlederg (pop. 2,758, 2001 census).
- 201009 Owenkillew at Crosk** **Rivers Agency**
Station: Velocity-area station with cableway. Flows for full period of record reprocessed in 2002. No water abstractions or significant returns.
Catchment: Complicated faulted mixture of Upper Dalradian Green Beds and schists, basalts and igneous complexes, with small area of l'st; overlain by sands, gravels, peat and till, alluvium near water courses. Predominantly grassland with significant bog, some shrub heath and coniferous woodland; no significant urban development.
- 201010 Mourne at Drumnabuoy House** **Rivers Agency**
Station: Velocity-area station with cableway and natural control. Flows for full period of record reprocessed in 2002.
Catchment: Geology: mixed impermeable (granite, schist and gneiss, and s'st) with some Carboniferous L'st W of Omagh; overlain with extensive glacial till. A mainly rural catchment (predominantly grassland with some shrub, bog and coniferous woodland) but with urban development at Omagh (pop. 17,3000 - no major industry) and Castlederg (2,600).
- 202001 Roe at Ardnargle** **Rivers Agency**
Station: Velocity-area station with cableway. Rough profiled stone and concrete weir immediately d/s, at u/s limit of backwaters created by tides. Flows for POR reprocessed in 2002. 1982 and 2000 flows removed from NRFA pending further validation. Headwaters contain Altnaheglish reservoir, yielding some 32 MI/d. Rating is derived from gaugings and is of good quality; simple extrapolation above approx 138m³/s. Last high flow gauging carried out in October 2002, highest gauging carried out in 1996.
Catchment: High upland headwater area sloping fairly steeply onto an intensively cultivated alluvial plain. Geology very varied with metamorphic, sedimentary and contemporaneous igneous rocks. Predominantly grassland headwaters with some shrub heath, bog and coniferous woodland. Intensively cultivated alluvial plain. Contains towns of Limavady (pop. 12,075, 2001 census) and Dungiven (pop. 2,988, 2001 census).
- 202002 Faughan at Drumahoe** **Rivers Agency**
Station: Velocity-area station with cableway and natural control altered in 1985. Flows for full period of record reprocessed in 2002. Rating is good, derived from current meter gaugings; simple extrapolation is used above approx 113m³/s. High flows contained; floodwall/bank constructed on left bank (c1995).
Catchment: Geology is layered Upper Dalradian with some quartzite. Drift - till, peat and alluvium with some glacial outwash near the river. Predominantly grassland with some shrub heath and bog. Suburban development near coast - some light industry; otherwise agricultural, upland basin. Important game angling river.
- 203010 Blackwater at Maydown Bridge** **Rivers Agency**
Station: Velocity-area station with cableway and natural control. Flows for full POR reprocessed in 2002. Flows influenced by major arterial drainage scheme - started in 1983 and finished in 1995. Substantial portion of catchment is in the Irish Republic where some groundwater may be abstracted but its hydrological significance is uncertain. Rating derived from current meter gaugings, recalibrated after construction of raised flood bank in mid 1990s. Contained at high flows. Simple extrapolation above approx 150m³/s.
Catchment: Geology: Carboniferous Limestone and Millstone Grit with sandstones overlain by substantial amounts of till. A predominantly rural catchment - largely improved grassland with limited afforestation. Monaghan Town (pop. 6,000, 2001 census) - in the Irish Republic - is the only significant urban centre.
- 203011 Maine at Dromona** **Rivers Agency**
Station: Velocity-area station without cableway, controlled by a weir of capped sheet piles. Station was re-sited at ID 049 090 on 1/11/80, retaining same name. Two rating curves - derived from current meter gaugings. No cableway - high flow gauging from bridge. Simple extrapolation used above approx 51m³/s. High flow gauging in 2002 confirmed validity of rating. Water is abstracted from Dungonnell Res. (12.5 MI/d) - the majority is returned d/s of station.
Catchment: Catchment is almost entirely basalt with 70% overlain by till. A rural catchment - predominantly improved grassland. No significant urban development.
- 203012 Ballinderry at Ballinderry Bridge** **Rivers Agency**
Station: Velocity-area station with cableway and natural control. Flows for full period of record reprocessed in 2002. The rating is derived from current meter gaugings. Stable bed. Simple extrapolation is used above approx 71m³/s. More high flow gaugings would be advantageous.
Catchment: Very mixed geology: granite, schist, shale and some Carboniferous Limestone overlain with substantial amounts of till and gravel. Mainly rural catchment (predominantly improved grassland) with significant upland area. Cookstown (pop. 10,566, 2001 census). Cement manufacturing works nearby.
- 203017 Upper Bann at Dynes Bridge** **Rivers Agency**
Station: Velocity-area station with cableway, natural control. Channel capacity is large. Main road bridge 100m d/s gives partial control at medium and high stages. 1978 peak estimated (flood banks overtopped). Flows from 1979 onwards reprocessed in 2002. Upper one third of the drainage area is regulated with a minimum prescribed flow of 18 MI/d at Bannfield (203033).
Catchment: Geology: impermeable (quartzite and granite) overlain by superficial deposits (mainly till). Significant upland, predominantly improved grassland, some horticulture. Urban area at Banbridge (pop. 12,500), no major industry.
- 203018 Six-Mile Water at Antrim** **Rivers Agency**
Station: Velocity-area station with cableway and natural control. Flows from 1975 onwards reprocessed in 2002. The net effect of industrial abstractions and effluent returns is minor. Rating curve has changed over time. Rating derived from current meter gaugings. Simple extrapolation used above approx 108m³/s.
Catchment: The geology is almost entirely basalt with considerable superficial deposits (till). Significant proportion of upland - predominantly improved grassland. Urban and suburban development: Antrim (pop. 19,986, 2001 census) has substantial light industry and Ballyclare (pop. 8,772, 2001 census) is a small market town.

203019 Claudy at Glenone Bridge**Rivers Agency**

Station: Velocity-area station with cableway and natural control. Rock bar with boulders 8m d/s of gauge gives insensitive low flow control. Three arch-road bridge 50m d/s gives medium and high flow control. Flows from 1980 onwards reprocessed in 2002.

Catchment: Geology: basalt overlain with till and some peat. Catchment is predominantly improved grassland with some shrub heath; no significant urban areas or major industry.

203020 Moyola at Moyola New Bridge**Rivers Agency**

Station: Velocity-area station with cableway. Multi-arched bridge just d/s of station, between the piers, the inverts act as informal, horizontal controls. Flows for full period of record reprocessed in 2002. Suspect flows in July 2002, resulting from works on bridge d/s; flows awaiting appraisal and reprocessing. Rating derived from current meter gaugings. Simple extrapolation occurs above approx 67.7m³/s (maximum gauged level). Last high flow gauging carried out in 1987. Kilverry Reservoir provides some storage in catchment, however minimal impact at gauging station.

Catchment: Mixed geology: some basalt, Carboniferous Limestone, schist and shale plus some thin Chalk outcrops; overlain with till, sand and gravel. Predominantly grassland with some shrub heath and bog. Urban areas at Magherafelt (pop. 8,289, 2001 census) and Maghera (pop. 3,648, 2001 census) but no major industry.

203021 Kellswater at Curry's Bridge**Rivers Agency**

Station: Velocity-area station with cableway and natural control. Gauging station is 1.5km u/s of confluence with R. Main and there is some backing-up at high flows. Flows from 1974 onwards were reprocessed in 2002. Reservoir storage in catchment and abstractions for PWS but net effect is minor. Simple extrapolation occurs above approx 47m³/s. Last high flow gauging carried out in 1986. No gaugings above QMED.

Catchment: Catchment geology: basalt overlain by till, alluvium along lower reaches of river. Mostly upland - predominantly grassland with some shrub heath and coniferous woodland. No urban development.

203022 Blackwater at Derrymeen Bridge**Rivers Agency**

Station: Velocity-area station. Originally opened 1970, but closed after a few months due to the political climate in Northern Ireland. Re-opened early 1980s. Fisheries boulders may cause blockage and affect low-flow rating. Rating derived from current meter gaugings. Simple extrapolation occurs above 50m³/s. Last high flow gauging carried out in 1986. Major arterial drainage scheme completed 1985-89; substantial impact on channel and calibration.

Catchment: Predominantly Carboniferous Limestone with some Lower Old Red Sandstone. Extensive rock near surface, some sands and gravels along river reaches, and peat in upland areas. Catchment contains town of Coalisland (pop 4,872, 2001 census). Currently brickmaking and agricultural land use, formerly mining area.

203024 Cusher at Gamble's Bridge**Rivers Agency**

Station: Velocity-area station with cableway. Informal concrete-block weir, installed in 1980, immediately d/s has stabilised the measuring section. Effect of augmentations is minor. Flows for full period of record reprocessed in 2002. Rating derived from current meter gaugings from cableway. Simple extrapolation occurs above approx 66m³/s. All gauged flows are contained in bank.

Catchment: Geology predominantly quartzite with basalt overlain by till. Rural catchment, mostly improved grassland with some horticulture. Small urban area, Tandragee (pop. 3,018, 2001 census).

203025 Callan at Martin's Bridge**Rivers Agency**

Station: Velocity-area station with cableway; natural control. U/s bridge surcharged in high flow. Flows from 1975 onwards reprocessed in 2002. Reservoir storage in catchment (Seagahan 13.64 Ml/d) with abstractions for PWS and industrial use; minor net effect. Rating derived from current meter gaugings from cableway. Simple extrapolation occurs above approx 40m³/s.

Catchment: Geology: mixed shales (Carboniferous) and quartzite (Ordovician), overlain by till. Predominantly improved grassland. Urban areas; Armagh (pop. 14,517, 2001 census) with some light industry, and Keady (pop. 2,937, 2001 census).

203026 Glenavy at Glenavy**Rivers Agency**

Station: Velocity-area station, no cableway, thin-plate weir control. Reservoir storage (Stoneyford) in catchment with abstractions for public water supply - minor net effect.

Catchment: Geology: mainly basalt overlain with till. Catchment is largely upland, predominantly grassland (significant area of rough grassland) with shrub heath and bare rock outcrops. No significant urban development.

203027 Braid at Ballee**Rivers Agency**

Station: Velocity-area station with cableway. Flows from 1980 onwards reprocessed in 2002. Two small impounding reservoirs (capacity 409 Ml combined) for a public water extraction of 5 Ml/d. Town effluent returned to river; heavy weed growth in river at Ballee due to effluent discharges.

Catchment: Geology entirely Upper and Lower Basalt extensively exposed with thin covering of till. Some alluvium, sand and gravel near to the river. Predominantly improved grassland with some coniferous woodland, rising to 400m; some intensive pig and poultry units. Ballymena is the major settlement (pop. 28,700).

203028 Agivey at Whitehill**Rivers Agency**

Station: Velocity-area station with cableway. Flows from 1975 onwards reprocessed in 2002.

Catchment: Geology: mainly basalt overlain by till with some peat. Significant proportion of upland, predominantly grassland with significant bog and some shrub heath and coniferous woodland. No urban areas or major industry.

203029 Six Mile Water at Ballyclare**Rivers Agency**

Station: Velocity-area station without cableway (closed 1990). Headwaters contain Dungonnell reservoir.

Catchment: Catchment is almost entirely basalt with considerable superficial deposits of till. Except for the the catchment is predominantly improved grassland. Some urban/suburban development - includes the small market town of Ballyclare (pop. 7,800).

203033 Upper Bann at Bannfield**Rivers Agency**

Station: Velocity-area station with cableway and Flat V control (installed in 1989), natural control previously. Flows for full POR reprocessed in 2002. Reservoir storage (Spelga and Lough Island Reavy) in catchment with abstractions for PWS the net effect of which is minor. The station is used to monitor a prescribed flow of 18 Ml/d. Rating is derived from current meter gaugings. Simple extrapolation occurs above approx 46m³/s. More high flow gaugings would be useful.

Catchment: The Upper Bann drains the Mourne Mountains. Geology: impermeable (granite and quartzite) overlain with substantial amounts of superficial deposits (till). The catchment is predominantly grassland with some shrub heath; no significant urban fraction.

203038 Rocky at Rocky Mountain**Rivers Agency**

Station: Flat V weir, approx. 6.1 metres wide in steep mountain stream - pebble/cobble bed, large boulders may settle in measuring reach during floods. Theoretical calibration - some confirmatory gaugings (by wading) completed. All but notable floods contained. Flows for full POR reprocessed in 2002; pre-1986 flows removed from NRFA. Natural and responsive regime. Catchment rainfall may be underestimated.

Catchment: A rugged, impervious catchment - with some thin peat cover - in the Mourne Mountains. 51% shrub heath and 49% rough grass cover (both maxima for NI gauged catchments).

203039 Clogh at Tullynewey**Rivers Agency**

Station: Velocity-area station with cableway. Flows for full period of record reprocessed in 2002. Headwaters contain Dungonnell reservoir, yielding some 12.5 Ml/d. Out of bank at flows below QMED. Rating derived from current meter gaugings from cableway. Simple extrapolation occurs beyond 35m³/s. High flow gaugings carried out in October 2002 have confirmed rating.

Catchment: Geology is Lower Basalt stratum with drift deposits, mainly till in upper areas with alluvium and sand and gravels in lower valleys. Agricultural area, sparsely populated - predominantly grassland with some shrub heath.

203040 Lower Bann at Movaghan**Rivers Agency**

Station: Velocity-area station, no cableway, control is masonry weir 800m d/s (built for angling). Flows for full POR reprocessed in 2002. Very artificial flow pattern - regulated by sluices u/s at Portna and Toome. Station measures outflow from 37% of NI. Lough Neagh (385 sq.km) is within catchment, containing 3636 Mm³ of water. Total net export of water from catchment is approx. 200 Ml/d.

Catchment: Catchment contains all solid and drift deposits present in N.Ireland. Numerous minor aquifers developed for PWS. Catchment is agricultural - predominantly improved grassland but with pop. approx. 50,000 concentrated in 8 urban centres.

203042 Crumlin at Cidercourt Bridge**Rivers Agency**

Station: Velocity-area station with cableway and natural control. Flows from 1983 onwards reprocessed in 2002.

Catchment: Catchment geology is impermeable (mainly basalt) overlain by till. Mostly upland - predominantly improved grassland. No major urban areas, but contains Crumlin (pop. 2,700), some scattered light industry.

203043 Onowater at Shanmoy**Rivers Agency**

Station: Velocity-area station with cableway; Flat V weir constructed in 1986. Flows for full period of record reprocessed in 2002. Rating is derived from current meter gaugings. Simple extrapolation occurs above 34.71m³/s (highest gauged level). More high flow ratings are required.

Catchment: Geology predominantly Carboniferous Limestone with some Devonian Conglomerate overlain by till. Predominantly improved grassland with no significant centres of habitation. Highest total grass cover (92%) of gauged NI catchments.

203046 Rathmore Burn at Rathmore Bridge**Rivers Agency**

Station: Velocity-area station. Flows for full period of record reprocessed in 2002.

Catchment: Predominantly improved grassland, but rock outcrops also; some horticulture (mainly potatoes). No significant urban centres.

203049 Clady at Clady Bridge**Rivers Agency**

Station: Velocity-area station. Flows for full period of record reprocessed in 2002. The rating is derived from current meter gaugings. Simple extrapolation occurs beyond approx 14m³/s. More high flow gaugings would be useful.

Catchment: Geology predominantly basal overlain by glacial till. Landuse mainly improved grassland with no significant urban development.

- 203050 Ballysally Blagh at University of Ulster** **Rivers Agency**
Station: V-notch weir. Flows for full POR reprocessed in 2002.
Catchment: Flows from low hills across agricultural land and then through suburban area. Soils outside the urban area are water gleys.
- 203092 Maine at Dunminning** **Rivers Agency**
Station: Velocity-area station with cableway located immediately d/s of a radial-gated flood control structure. Flows for full POR reprocessed in 2002. U/s reservoir effectively transfers 12 Ml/d to points d/s of the station.
Catchment: Geology predominantly basalt overlain by till with alluvium in valleys. Landuse mainly improved grassland but catchment contains Glarryford bog.
- 203093 Maine at Shane's Viaduct** **Rivers Agency**
Station: Velocity-area station with cableway and natural control. Flows for full period of record reprocessed in 2002. The rating is derived from current meter gaugings. Simple extrapolation occurs above approx 226 m³/s. Gaugings cover wide range and rating is good. Net effect of abstractions and returns is minor. Major arterial drainage scheme, channel deepening and bridge replacement, was implemented in the 1980s.
Catchment: Geology almost entirely basalt overlain by till (covering over 50% of the catchment) with alluvium and sands and gravels along valleys. Significant upland areas, predominantly improved grassland. Extensive bogland in the north. Contains Ballymena (pop. 28,704, 2001 census, - substantial light industry), and Randalstown (pop. 4,944, 2001 census).
- 203097 Upper Bann at Moyallen** **Rivers Agency**
Station: Velocity-area station with cableway and natural control. Flows for full period of record reprocessed in 2002. Replaced 203017 in 1990.
Catchment: Predominantly improved grassland, some horticulture (mainly potatoes). Urban areas: Banbridge (pop. 12,500) and Rathfriland (2,100).
- 204001 Bush at Seneirl Bridge** **Rivers Agency**
Station: Velocity-area station with cableway and natural control; some weedgrowth problems in the measuring reach. Well gauged to QMED; some out-of-bank flow above. Full period of record reprocessed in 2002 (but existing data retained for 1974 and Oct/Nov 1973). The rating is derived from current meter gaugings. Simple extrapolation occurs above approx 63m³/s (highest gauged level). Re-calibrated at high end recently. Altnahinch Reservoir at the head of the river has a minor impact.
Catchment: Geology predominantly basalts with a major fault bisecting the catchment. Some schists in upper reaches with a little greensand. Extensive Drift cover, peat on high ground. Predominantly grassland with some horticulture (mainly potatoes), coniferous woodland and shrub heath. No significant urban centres apart from Ballymoney (pop. 9,009, 2001 census).
- 205004 Lagan at Newforge** **Rivers Agency**
Station: Velocity-area station with cableway. Flows from start of 1980 onwards reprocessed in 2002. Gets out of bank on RH bank, some bypassing on LH bank but this is not measured. The rating is derived from current meter gaugings from cableway. Simple extrapolation occurs above approx 128 m³/s. Nov. 2000 peak comparable with 1978 maxima. Numerous PWS boreholes - pumping capacity total nearly 30 Ml/d. All effluent returns to the river.
Catchment: Geology is 60% Silurian sedimentary rocks; remainder - Sherwood Sandstone with some breccia, Chalk, Hibernian Greensand and Lower Basalts. Overlain with till; substantial sand and gravel deposits in lower valley. Predominantly improved grassland, some horticulture (mainly potatoes). Contains dense urban areas of south Belfast, Lisburn also (pop. 71,403, 2001 census).
- 205005 Ravernet at Ravernet** **Rivers Agency**
Station: Flat V weir installed autumn 1977, width 8.64m. Height of wing walls 2.1m. Theoretical rating applies up to bankfull; exceedence very unlikely. High flow rating from current meter gaugings; simple extrapolation above 19.4 m³/s. Previously a VA station - flow data of lesser accuracy, data removed in 2002. Flows from start of 1980 reprocessed in 2002. Natural flow regime; significant storage in headwater loughs.
Catchment: Geology mainly Silurian sedimentary rocks overlain by till. Predominantly improved grassland with some horticulture (mainly potatoes). No significant urban development.
- 205008 Lagan at Drumiller** **Rivers Agency**
Station: Velocity-area station with calibration by wading. Flat V weir installed in 1991. Gauged to approx. 1.2 QMED. Minor floodplain flow (left bank) during floods. High flow gauging from bridge on d/s side, as u/s flows less uniform. Simple extrapolation used above max gauging of 30.77m³/s. Flows not contained. Prior to weir installation rating based solely on gaugings. Flows from 1978 onwards reprocessed in 2002. Natural regime - no water abstractions or significant effluent returns.
Catchment: Geology: entirely Silurian overlain with limited till. Catchment rises to over 500m. Predominantly improved grassland and upland heath. Catchment contains one large village (Dromora, pop. 597, 2001 census).
- 205010 Lagan at Banoge** **Rivers Agency**
Station: Velocity-area station, once with cableway, but now calibrated by wading. Subject to weed problems at low summer flows and goes out of bank at high flows; station closed in 1994. Flows from start of 1985 onwards reprocessed in 2002. No abstractions, Dromore effluent returns to river.
Catchment: Geology: entirely Silurian overlain with till. 35% upland heath rising to over 500 mOD; remainder agricultural grassland except for the town of Dromore (pop. 3,000).
- 205011 Annacloy at Kilmore Bridge** **Rivers Agency**
Station: Velocity-area station in straight reach (bridge, with piers, 60m upstream). Weed growth can affect low flow levels and bank vegetation can affect high flows. Goes out of bank on RH bank but contained up to more than QMED. Flows for full period of record reprocessed in 2002. Responsive regime. High flow rating derived from current meter gaugings (cableway); low flows gauged by wading, u/s at the bridge. Simple extrapolation beyond 60.4m³/s (max gauging). No significant artificial influences.
Catchment: Silurian solid geology with scattered Tertiary and Caledonian intrusions, overlain by drumlin terrain. Predominantly improved grassland, some urban development (including Ballynahinch, pop. 5,334, 2001 census).
- 205015 Cotton at Grandmere** **Rivers Agency**
Station: Velocity-area station. Flows reprocessed in 2002.
Catchment: Geology is Silurian sedimentary rocks overlain by a limited coverage of peat and alluvium. Mostly flat grassland with some urban development (Bangor). Soil is shallow brown earth with organic alluvium & surface water gleys.
- 205020 Enler at Comber** **Rivers Agency**
Station: Flat V weir in trapezoidal channel containing the full range of flows. Rating revised following high flow gaugings in 2000/01 (up to 23.6 m³s⁻¹), all flows reprocessed (producing substantial reduction in highest flows). High flow rating from current meter gaugings from bridge downstream; simple extrapolation beyond 1.443m (max gauging) Low flows gauged by wading downstream of weir. A limited number of boreholes nearby exist with pumped extraction to water supply.
Catchment: Geology predominantly Silurian sandstones with Permian and Triassic sandstones together with limited coverage of Basalt and Dolerite. This is overlain by glacial sands and gravels along the main river valley. Predominantly grassland but highest proportion (26%) of horticulture (mainly potatoes) for any gauged NI catchment. Some urban/suburban development in the upper reaches, Dundonald.
- 205029 Lagan at Feeny** **Rivers Agency**
Station: Velocity-area station with cableway and natural control. Replaced 205011. Flows for full period of record reprocessed in 2002.
Catchment: Predominantly improved grassland, some horticulture (mainly potatoes).
- 205105 Knock at Orangefield** **Rivers Agency**
Station: Velocity-area station. Flows reprocessed in 2002.
Catchment: Small urban catchment east of Belfast, (approx. 50% urban). Main stream rises 180m to hills on NE. Disturbed soils in urban area, free draining soils elsewhere
- 206001 Clanrye at Mountmill Bridge** **Rivers Agency**
Station: Velocity-area station calibrated by wading and from footbridge. Flows contained apart from extreme events. Gaugings up to 1.2QMED, more needed to define flood range. Flows reprocessed in 2002. Channel works in early 1970's affected station, requiring separate calibration. Pre-1975 data removed from the NRFA due to its poor quality. Natural regime.
Catchment: Entirely Old Red Sandstone; some glacial till, peat and limited river alluvium also. Predominantly improved grassland with some horticulture (mainly potatoes).
- 206002 Jerretspass at Jerretspass** **Rivers Agency**
Station: Velocity-area station calibrated by wading and from footbridge. Flows from start of 1981 onwards reprocessed in 2002. Low catchment runoff - effective catchment area for flows below the mean is 34.8 sq km - a canal intercepts drainage from 73 km from the west (during high flows spillage occurs to the Jerretspass).
Catchment: Geology: Llandoverly in age. Occasional igneous intrusions. Catchment is entirely rural: predominantly improved grassland with some horticulture (mainly potatoes).
- 236005 Colebrooke at Ballindarragh Bridge** **Rivers Agency**
Station: Velocity-area station with cableway and natural control. Flows from start of 1987 reprocessed in 2002. Low flow gauging problem - difficult to wade as it is deep, and low velocities. The rating is derived from current meter gaugings. Simple extrapolation occurs beyond 129.6m³/s. Not contained at QMED.
Catchment: Geology has Old Red Sandstone in headwaters with Carboniferous formations (l'st and s'sts) in lower catchment. Overlain by glacial deposits; sand and gravels along river valleys. Land use is predominantly grassland with significant coniferous woodland, some bog and no significant urban development.
- 236007 Sillees at Drumrainey Bridge** **Rivers Agency**
Station: Velocity-area station with cableway. Throttling occurs at extreme high flows (>3.25m stage, c.30 m³s⁻¹) at downstream bridge soffit. Flows from start of 1984 onwards reprocessed in 2002. Some natural storage provided by small lakes in headwaters. The rating is derived from current meter gaugings. Simple extrapolation occurs beyond 27.6m³/s (highest gauged level). Good range of high flow gaugings. Not gauged over full range of low flows at site.
Catchment: Geology mainly Carboniferous formations (mostly l'st and shales). Predominantly grassland with significant coniferous woodland. No significant urban development.
- 236051 Ballinamallard at Ballycassidy** **Rivers Agency**
Station: Velocity-area station with cableway and natural control. All flows reprocessed in 2002.
Catchment: Predominantly improved grassland.

UK HYDROMETRIC REGISTER – GROUNDWATER

Background

Groundwater is present in the sub-surface almost anywhere in the British Isles. Where rocks are sufficiently permeable for water to flow readily into a well or borehole, the rock is defined as an aquifer. Sedimentary rocks such as sandstones and limestones often form the most productive aquifers, but water is also found in igneous and metamorphic rocks, in smaller quantities.

The most important UK aquifers are listed in Table 1. The Chalk, the Upper Greensand, the Lincolnshire Limestone and the Permo-Triassic sandstones have the highest average yields and are the most important from the viewpoint of public supply, with borehole yields that can reach 3000 to 4500 cubic metres per day. Next in importance are the Lower Greensand and the Magnesian Limestone aquifers where yields to individual wells of 1500 to 3000 cubic metres per day can generally be expected. In the other aquifers listed, while occasional sources sufficient for large supplies may be developed, they tend to be important only locally. The outcrop areas of the major aquifers are shown in Figure 1. This map shows how the major aquifers are concentrated in England; aquifers in Wales, Scotland and Northern Ireland are less extensively developed and tend to be only of relatively local importance. In rocks that are not generally recognised as aquifers, water may still be available, but well yields tend to be small (of the order of only a few cubic metres per day), uncertain as a continuous source (tending to fail in prolonged droughts), often with an indifferent water quality, and the sources are vulnerable to pollution in some areas.

The groundwater resources of an aquifer are naturally replenished from rainfall. The normal recharge of an aquifer takes place during the winter months when the cool and damp weather means that potential evapotranspiration is low and soil moisture deficits are negligible; a substantial proportion of the winter rainfall is therefore available to replenish groundwater resources. Groundwater levels rise in response to the infiltration of rainwater through the soils and any rock above the aquifer. During recharge, the rate of infiltration is affected by the nature of any deposits through which water must pass to reach the aquifer. Where these deposits have low permeabilities there will be a consequential reduction in recharge rates, and a delay between rainfall events and the time when water levels begin to rise. Where the water level in an aquifer is at a considerable depth below ground level, the aquifer will also take longer to respond to recharge than where the unsaturated zone is thinner. During the summer months, when the potential evapotranspiration is high and soil moisture deficits are appreciable, little infiltration normally takes place. Water levels in the aquifer fall as storage is depleted by flow to rivers (baseflow), flow to springs and by pumped abstractions.

The extent of fluctuation of water levels in a given aquifer is a reasonable surrogate for the volume of water that is available within the aquifer to support natural river flows and artificial abstractions. The actual magnitude of the fluctuations will be affected not only by the amount of infiltration but also by the value of the specific yield (which is that proportion of the volume of voids in the rock, which may store useable

groundwater, expressed as a fraction of the total volume of rock). Where the specific yield is small, the addition of a given volume of water will result in a greater rise in water levels than would be the case where the specific yield is larger, and the capacity for storage greater. To fully understand the relationship between levels and available water resources in a given aquifer requires a detailed knowledge of local geological conditions. In aquifers where the natural drainage of groundwater (appearing as springs, seepage lines or 'risings') is rapid, water levels rise more slowly during recharge periods because large quantities are simultaneously being discharged. Other aquifers may respond more rapidly if fewer natural outlets are available.

The (annual) cyclical pattern of recharge is not, however, constant. Changes in weather patterns – rainfall in particular – can significantly influence soil moisture conditions and infiltration rates, producing conditions that vary both spatially and temporally. It is not uncommon for the amount of recharge, and consequently the water level fluctuations, to vary by a factor of four or more between dry years and wet years. This variability is particularly evident in eastern England where, on average, the margin between annual rainfall totals and annual evaporation losses is small.

Groundwater constitutes a major component in the overall water resources of the British Isles, contributing about one third of public water supplies. Groundwater supplies often remain reliable when surface water supplies are stressed. Only the largest artificial reservoirs in the United Kingdom have sufficient capacity to support demands through the driest summers, assuming that they are full at the start of the summer, without some continuous contributions from river intakes. Prolonged summer dry spells lead, in many rivers, to substantially reduced flow, particularly where the natural groundwater contribution (baseflow) is limited. By way of contrast, a groundwater drought is caused by a lack of winter rainfall. Potentially, the most serious droughts occur when, as in 1975/76 or 1995/96, a dry summer succeeds a notably dry winter or, as in 2004/06, recharge is notably below average over two, or more, successive winters. When recharge is exceptionally high, groundwater levels may reach the surface and cause localised, but often protracted, flooding – as occurred in the late winter of 2000/01.

The observation borehole network

Groundwater level observation wells (in this context, a well includes both shafts – constructed by hand digging, and boreholes – constructed by machinery) are generally used for one of two purposes: either to monitor levels regionally within an aquifer and thus to estimate groundwater resource fluctuations, or to monitor the effects locally of groundwater abstractions. Monitoring networks are generally operated by the Environment Agency in England and Wales, by the Scottish Environment Protection Agency in Scotland and by the Department of the Environment, Northern Ireland. In total there are up to 5000 sites where groundwater levels are monitored, with the overwhelming majority of wells concentrated in England and Wales. The wells used within the

National Groundwater Level Archive, for periodical assessments of the national groundwater situation, consist of a small subset of approximately 170 of these sites, selected by the British Geological Survey (then the Institute of Geological Sciences) in 1981¹. The selection was based upon the hydrogeological units identified in an investigation of the groundwater resources of the United Kingdom²; one site was chosen for each aquifer present within each unit. For Scotland and Northern Ireland, this was not possible due to the very limited number of potential observation wells available.

Over the last 25 years a number of changes have been made to the list of selected wells. At some locations observations could no longer be continued and new sites have been added from time to time. Details of the wells currently in this national network are given in the Well Register (pages 181 to 187).

Measurement and recording of groundwater levels

Many of the observation wells in the national network are equipped with continuous water level recorders. These recorders measure level either by a float or with a pressure transducer. Data are recorded, usually digitally but very occasionally on paper charts. Telemetry of groundwater levels is increasingly common; providing more timely data for aquifer management and local flood warning schemes, although rates of groundwater fluctuation are generally low enough to ensure that instant management response is rarely required. Many observation wells are still measured manually, mostly either weekly or monthly. The usual instrument is an electric probe suspended upon a graduated cable or tape, contact being made by the water to complete a circuit that gives either an audible or visual signal at the surface. Measurements are normally made to the nearest 10 millimetres, although instruments may be capable of greater accuracy.

Factors affecting level observations

In addition to responding to recharge from rainfall, some aquifers exhibit short period fluctuations; water levels can be affected by changes in atmospheric pressure, or by the tidal cycle if close to the coast.

The national observation well network was selected, wherever possible, to reflect natural fluctuations in water levels in response to climatic events. While aquifers respond to recharge from rainfall they are also influenced by pumping abstractions. There are few aquifers in Britain that have not had their natural regime altered to some extent by pumping. The water level in the area surrounding a pumping borehole is lowered, and some observation wells are so seriously affected by pumping that no useful estimates of the annual natural fluctuations can be made. In some aquifers the effect of long-term groundwater abstraction patterns has been to totally alter natural levels, to the point that groundwater levels are dominated by changes in abstraction. This has led to long-term declines in levels in some aquifers, or, if pumping has diminished or ceased, steady increases in levels from historical lows.

Where the aquifer is confined by impermeable rocks, and

the site is located at some distance from the outcrop, the seasonal fluctuation may be so small as to be undetectable. These aquifers also tend to be very sensitive to pumping influences, making their monitoring problematic.

For more information and discussion of groundwater level and water resources variability please visit the British Geological Survey's website:

<http://www.bgs.ac.uk/>

Scope of the Well Register

The Well Register provides a register of reference details relating to individual index wells together with details of the recorded extremes and range of variation in groundwater levels.

The sites listed in the Register were selected so as to give a reasonably representative cover for aquifers throughout England and Wales; three sites are featured for Northern Ireland and two for Scotland. The wells are grouped according to the aquifer to which the water level variations are attributed. A generalised list of aquifers (Table 1) provides the conventional names of the major UK aquifers; the aquifers are tabulated in stratigraphical order but the local names for individual strata are mostly omitted, and the intervening aquicludes are not shown. The location of the wells featured in the Register, and the outcrop areas of the main aquifers, are shown in Figure 1.

The Well Register is presented in two parts:

Well Register – Part I provides reference and hydrogeological information relating to the index wells and boreholes in the national network.

Well Register – Part II provides further reference information together with, in most cases, a short commentary relating to the characteristics, hydrogeological behaviour and associated groundwater level series for the featured wells and boreholes.

In both parts of the Register the wells are listed in aquifer groupings following the stratigraphical sequence given in Table 1. Within each aquifer, the wells are listed according to the Well Number (see below).

Explanatory notes

The following explanatory notes are provided to assist in the interpretation of particular items featured in Parts I and II of the Well Register.

Well Register – Part I

Well number

The well numbering system is based upon the National Grid. Each 100 kilometre square is designated by prefix characters, e.g. SE (see Frontispiece I), and is divided into 100 squares of 10

kilometre sides designated by numbers 00 (in the south-west corner) to 99 (in the north-east corner). Thus, the site SE94/5 is the fifth well or borehole recorded in the National Well Record Archive within the 10 kilometre square SE94. A suffix such as A, B, etc., defines the particular well when there are several at the same site. This numbering scheme is used by the BGS for all identified water wells and boreholes. For Northern Ireland, where the Irish Grid is used, the first of the prefix characters is always 'I' (see in Frontispiece I).

Name

The name by which the well is normally referenced. All the monitoring sites featured in the Register are shown on Figure 1.

Grid reference

The eight-figure references given in the Register relate to the 100 kilometre National (or Irish) Grid square designated by the two-letter code appearing as the prefix characters in the Well Number.

Aquifer

The aquifer to which the water level variations in the wells are attributed (see Table 1).

Hydrometric Area

The Hydrometric Area is either an integral river catchment having one or more outlets to the sea or tidal estuary, or, for convenience, it may include several contiguous river catchments having topographical similarity with separate tidal outlets – see page 4.

Measuring Authority – M.A.

The measuring authority refers to the body that is responsible for taking groundwater level readings at the particular site. In England Wales this is normally the appropriate regional office of the Environment Agency. A full list of codes, together with the corresponding names and addresses appears in the Directory of Measuring Authorities (page 191).

First year/Last year

The first and last years (up to and including 2005) for which data are held on the National Groundwater Level Archive.

Depth

The depth of the well or borehole in metres.

Datum level

The altitude of the point from which measurements are taken at a particular site, given in metres above Ordnance Datum.

Mean (annual) range

The increase in the level measured in a well over a given period will be approximately proportional to the recharge over that period. By monitoring levels over a series of recharge seasons – from the end of the summer recession of groundwater levels to the beginning of the summer recession of the following year – an estimate of the mean and the variability in annual recharge can be derived. This method was first introduced in the *Hydrometric Register and Statistics 1981-85* volume. It is most suited to circumstances when a single peak is readily identifiable in each recharge season.

Calculations are made for a standard recharge season, defined as the first day of August to the last day of the following July. The water level at each site is estimated, by extrapolation where necessary, for the last day of each month. The use of end-of-month data is dictated to a large extent by the existence of end-of-month data only for some early groundwater level series. This approach allows the comparison of sites with differing intervals between measurements.

The next stage of the calculation sums the monthly rises over the recharge season. Months during which water levels fall are ignored. The cumulative rise may be the same as the difference between the *trough* and *peak* levels, but only if infiltration has a sensibly uninterrupted impact on groundwater levels throughout the recharge season.

The mean of the annual fluctuations over the period of record is termed the *mean annual range*. This may be proportional to the mean annual recharge at the site over the same period, assuming that the natural discharge (via, for example, springs and seepages) is constant. The cumulative rise has less utility as an index of groundwater replenishment when recharge is particularly episodic.

For some observation sites, levels have been seriously affected by pumping for part of the period of record, and at other sites, data for some years may be suspect or missing. Consequently, assessments of mean, maximum and minimum annual ranges may be omitted for a small minority of sites.

Max (annual) range

The largest annual fluctuation determined for the period of record.

Min (annual) range

The smallest annual fluctuation determined for the period of record.

TABLE 1 GENERALISED LIST OF AQUIFERS IN THE UNITED KINGDOM

Era	System	Subsystem	Age (10 ⁶ yrs)	Aquifer	Importance
CAINOZOIC	Quaternary	Holocene	0.01	Superficial deposits	*
		Pleistocene	1.8	Upper & Middle Pleistocene Crag	**
	Neogene	Pliocene	5	Coralline Crag	**
		Oligocene	38		
	Paleogene	Eocene	65	Bagshot Beds	**
			Lower London Tertiaries	*	
			Blackheath & Oldhaven Beds	*	
			Woolwich & Reading Beds	*	
			Thanet Beds	**	
	MESOZOIC	Cretaceous	Upper Cretaceous	100	Chalk
				Upper Greensand	***
Lower Cretaceous				Lower Greensand	***
			145	Hastings Beds	**
Jurassic		Upper Jurassic		Portland & Purbeck Beds (with Spilsby Sandstone)	* (**)
			160	Corallian	**
		Middle Jurassic	180	Gt and Inferior Oolitic limestones (with Lincolnshire Limestone)	** (****)
			Lower Jurassic		Bridport & Yeovil Sands
				210	Marlstone Rock
PALAEOZOIC		Triassic	Upper Triassic	230	Permo-Triassic sandstones
	Lower Triassic		245		
	Permian		285	Magnesian Limestone	***
	Carboniferous	Upper Carboniferous		Coal Measures	**
			320	Millstone Grit	**
		Lower Carboniferous	360	Carboniferous Limestone	**
Devonian		410	Devonian sandstone	*	

Key to aquifer importance: * aquifer of minor importance only
 ** aquifer producing small, but useful, local supplies
 *** aquifer of local importance, often providing local supplies
 **** aquifer of major importance

Note: There is no formal system for naming aquifers in the UK and some aquifer names reflect common professional usage, and do not represent the latest lithostratigraphic nomenclature. For more information on geological nomenclature, refer to The British Geological Survey Lexicon of Named Rock Units, which can be accessed via the Survey's website at: <http://www.bgs.ac.uk/>.

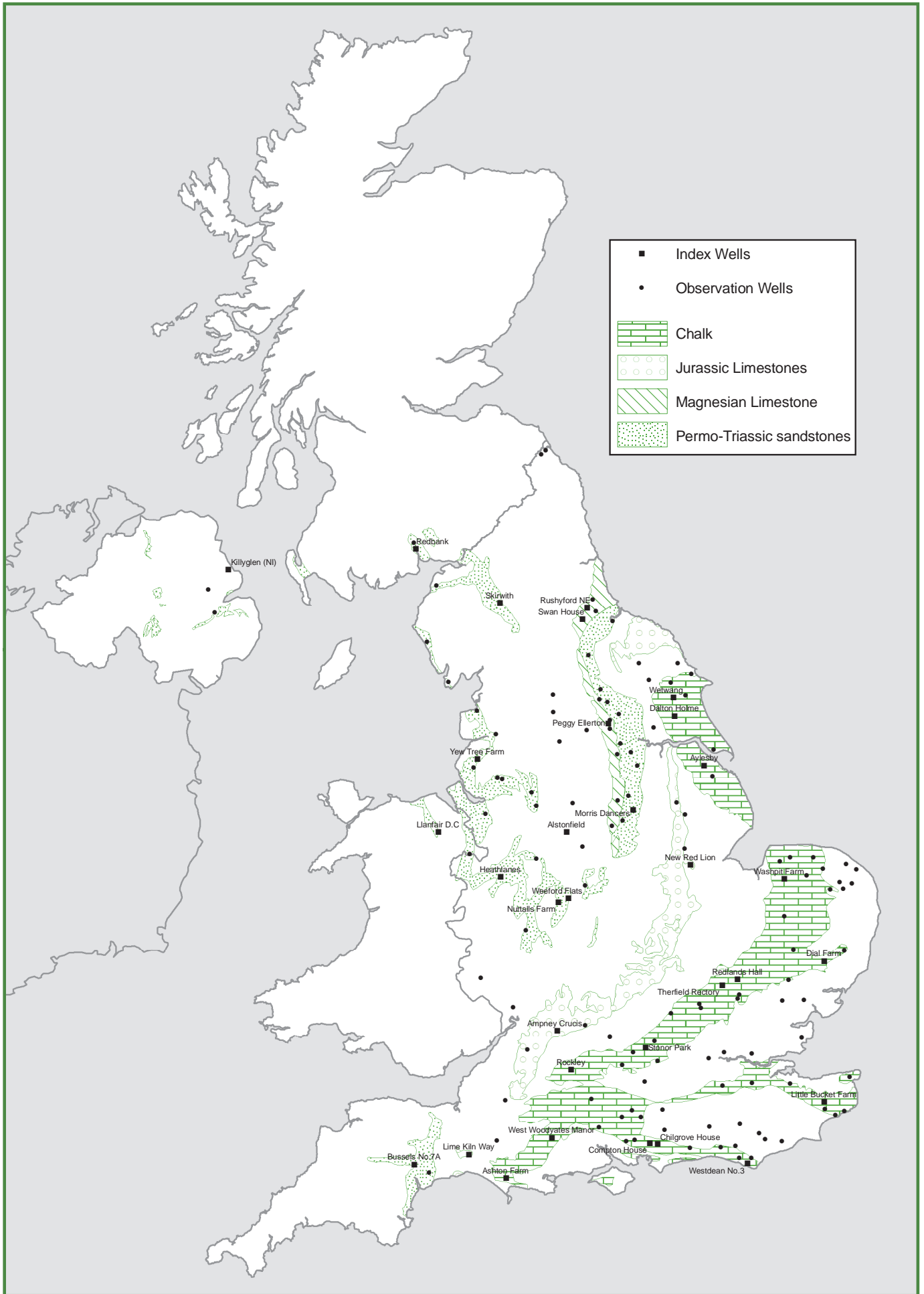


Figure 1 Principal aquifers and observation well locations.

L₉₅ (the 5% percentile level)

The groundwater level, in metres above Ordnance Datum, which was equalled or exceeded for 95% of the record.

L₅ (the 95% percentile level)

The groundwater level, in metres above Ordnance Datum, which was equalled or exceeded for 5% of the record.

Max level/date

The highest recorded level, with corresponding date, in the period of record. Where the maximum value recurs, the most recent occurrence is featured. For a few wells which can overflow in notably wet winters, the maximum level will correspond to the surface level.

Min level/date

The lowest recorded level, with corresponding date, in the period of record. Where the minimum value recurs, the most recent occurrence is featured.

Note: during drought episodes, groundwater levels decline until they reach a natural base level – at which point drainage from the aquifer ceases. Correspondingly, there may be several, or many, occasions when similarly depressed groundwater levels are recorded. The limited range of minimum levels registered during droughts also implies that changes in the methods used to measure levels, or the frequency of recording, may be influential in determining the period-of-record minima. Some additional relevant information may be given in the Well Register Part II.

Well Register – Part II

The well number, name and measuring authority featured in Part I are repeated in Part II where the wells are grouped sequentially in Aquifer order (see page 191). A short commentary is given relating to important characteristics of the well and its associated record of groundwater levels; particular reference may be made to the effect of local or regional pumping on the water levels at the observation site. Levels at a representative selection of sites are updated at relatively frequent intervals, usually monthly. Such sites are used when an immediate assessment of the national groundwater situation is required; wells and boreholes used for this purpose are designated as *index wells*. Also given are details of the geological designation of the aquifer monitored by the well, and the Geological Map Sheet on which the well can be located. Definitions of some of the technical terms used in Part II of the Well Register are given in the Glossary (page 191) and further details relating to the types of superficial deposits or bedrock may be found in the Lexicon of Natural Rock Units which can be accessed via the BGS website:

<http://www.bgs.ac.uk>

References

1. Monkhouse, R. A., and Murti, P. K. 1981. The Rationalisation of Groundwater Observation Well Networks in England and Wales. Institute of Geological Sciences. Unpublished Report No. WD/81/1, 18 pages.
2. Monkhouse, R. A., and Richards, H. J. 1982. Groundwater Resources of the United Kingdom. Commission of the European Communities. Th. Schaeffer Druckerei GmbH, Hannover, 252 pages.

Well Register I

Well number	Name	Grid Reference	Aquifer	Hydrometric Area	Measuring Authority	First Year	Last Year	Depth (mm)	Datum (m aOD)	Mean range (mm)	Max range (mm)	Min range (mm)	L95 (m aOD)	L5 (m aOD)	Max level (m aOD)	Date of max	Min level (m aOD)	Date of min
IJ28/1	Templepatrick	IJ 22488620	Superficial Deposits	203 DOE NI		1984	2002	5.30	43.83	1.65	2.51	0.98	43.09	40.88	44.20	14/01/96	40.23	25/11/97
S044/4	Stretton Sugwas, Roman Road	SO 46834253	Superficial Deposits	55 EA Wales		1973	2005	16.00	68.04	1.55	4.96	0.00	61.53	58.21	63.37	23/03/90	56.95	05/10/76
ID30/1	Killyglen (NI)	ID 36630310	Chalk	205 DOE NI		1985	2005	82.90	139.23	6.46	9.24	4.09	117.26	113.28	119.96	15/12/99	112.60	21/09/95
SE94/5	Dalton Holme	SE 96514530	Chalk	26 EA North East		1889	2005	28.50	34.50	6.24	11.42	0.34	22.35	12.51	23.82	30/03/47	9.64	14/02/92
SE95/6	Wetwang	SE 95785939	Chalk	31 EA North East		1971	2005	45.72	42.28	9.56	17.75	1.43	29.06	17.85	37.37	20/11/00	16.66	07/02/92
SE97/31	Green Lane	SE 93457079	Chalk	26 EA North East		1971	2003	76.20	92.73	11.41	21.00	1.24	73.13	56.21	79.29	06/04/79	54.43	18/03/92
SP91/59	Pitstone Green Farm	SP 93801570	Chalk	33 EA Anglian		1970	2005	4.60	110.14	0.63	2.07	0.01	109.75	109.03	110.04	21/10/87	108.37	09/10/90
SU01/5B	West Woodyates Manor	SU 01601949	Chalk	43 EA South West		1942	2005	45.10	110.88	27.05	40.69	4.72	99.55	69.98	109.40	10/10/60	67.62	01/10/76
SU17/57	Rockley	SU 16557174	Chalk	39 EA Thames		1933	2005	17.60	146.57	9.98	15.96	0.38	141.98	129.26	144.38	03/01/03	128.59	27/10/97
SU32/3	Baileys Down Farm	SU 38172743	Chalk	42 EA Southern		1964	2005	59.10	88.22	14.74	30.07	0.48	51.54	34.19	66.63	20/12/00	32.67	01/10/76
SU34/8D	Clanville Lodge Gate	SU 32224902	Chalk	42 EA Southern		1996	2005		101.55	6.62	10.75	2.43	90.68	75.73	92.04	29/01/03	73.65	03/12/97
SU51/1	Upper Hill Farm	SU 59151685	Chalk	42 EA Southern		1973	2005	49.40	92.81	1.58	4.30	0.16	47.86	44.22	48.90	20/12/00	43.88	22/10/73
SU53/94	Abbotstone	SU 55863498	Chalk	42 EA Southern		1976	2005	85.00	94.82	0.69	1.33	0.19	66.35	65.40	67.79	13/12/00	65.19	07/12/89
SU57/159	Calverleys Farm	SU 56287530	Chalk	39 EA Thames		1974	2005	80.00	123.74	5.65	11.33	0.00	80.60	66.39	82.04	27/02/01	63.59	28/11/76
SU61/32	Chidden Farm	SU 65781775	Chalk	42 EA Southern		1958	2005	41.20	104.79	15.49	23.79	3.90	84.87	65.51	92.44	14/12/00	63.59	21/12/90
SU64/28	Lower Wild Farm	SU 63604049	Chalk	42 EA Southern		1961	2005	76.00	158.95	2.58	10.95	0.20	98.67	93.07	103.65	17/04/01	90.25	08/10/76
SU68/49	Well Place Farm	SU 64428525	Chalk	39 EA Thames		1976	2005	63.50	90.47	7.38	17.59	0.00	76.65	56.68	77.38	26/04/01	54.27	12/04/92
SU71/2B	Compton House	SU 77561491	Chalk	41 EA Southern		1894	2005	53.85	81.37	21.25	38.15	0.39	54.44	30.29	73.37	15/12/00	27.64	14/10/76
SU73/8	Faringdon Station	SU 70483491	Chalk	39 EA Southern		1966	2004	28.30	120.70	14.65	21.87	2.06	113.81	92.42	120.70	04/02/99	92.25	29/10/76
SU76/46	Riseley Mill	SU 73676251	Chalk	39 EA Thames		1975	2005	131.00	52.35	1.76	7.80	3.28	40.28	32.87	41.80	10/02/80	28.71	07/12/90
SU78/45A	Stonor Park	SU 74198924	Chalk	39 EA Thames		1961	2005	87.50	121.29	7.86	18.73	0.00	84.61	63.33	92.14	23/04/01	61.53	05/12/76
SU81/1	Chilgrove House	SU 83521438	Chalk	41 EA Southern		1836	2005	62.48	77.18	25.35	48.00	0.93	67.97	37.00	77.19	23/01/94	33.46	05/01/74
SU87/1	Folly Cottage	SU 83367885	Chalk	39 EA Thames		1950	2005	22.10	50.99	5.96	11.14	0.36	49.80	29.74	41.48	26/02/01	28.89	18/11/91
SU89/7	Piddington	SU 81039417	Chalk	39 EA Thames		1966	2005	45.70	110.11	4.25	11.48	0.00	107.43	94.44	107.65	09/03/01	91.21	22/10/76
SY68/34	Ashton Farm	SY 66168805	Chalk	44 EA South West		1974	2005	11.70	72.16	5.98	7.95	1.18	71.10	64.48	71.52	15/12/00	63.10	02/11/90
TA06/16	Nafferton Pumping Station	TA 04906120	Chalk	26 EA North East		1964	2004	81.10	80.02	5.34	12.40	1.26	24.39	17.03	27.90	26/01/69	16.15	08/12/90
TA07/28	Hunmanby Hall	TA 09407740	Chalk	27 EA North East		1976	2004	85.60	79.73	5.66	13.62	0.00	37.46	24.38	39.69	04/03/77	23.53	11/12/90
TA10/63	Aylesby	TA 19490712	Chalk	29 EA Anglian		2000	2005	101.47	31.25	5.43	11.36	0.15	20.33	6.37	22.12	29/05/81	5.65	13/10/92
TA21/41A	Church Farm (Sunk Island)	TA 26701890	Chalk	26 EA North East		1971	2003	49.00	3.20	0.57	1.09	0.21	1.94	0.82	2.15	26/01/01	0.73	18/08/76
TF29/49	Grainsby	TF 26049823	Chalk	29 EA Anglian		1977	2005	84.00	45.91	5.75	11.41	9.33	19.67	5.47	23.17	12/05/81	4.47	24/09/92
TF73/9	Coe Ltd. Bircham	TF 77903270	Chalk	33 EA Anglian		1971	2005	15.00	55.97	2.44	6.83	0.00	48.81	40.49	50.84	09/05/79	37.97	24/09/92
TF81/2A	Washpit Farm	TF 81381960	Chalk	33 EA Anglian		1950	2005	40.40	80.20	2.98	7.00	0.00	47.59	41.70	49.90	04/05/88	40.30	02/11/92
TF83/1	South Creake	TF 85783606	Chalk	34 EA Anglian		1952	2005	21.34	23.41	1.83	4.82	0.00	22.73	18.66	23.16	25/02/77	10.61	23/03/04
TF92/5	Tower Hills Pumping Station	TF 98692183	Chalk	30 EA Anglian		1974	2005	78.00	45.52	1.36	3.62	0.19	26.38	24.16	27.42	22/02/77	22.25	17/12/01
TG03/25B	Brinton Farm	TG 03823583	Chalk	34 EA Anglian		1952	2005	42.70	43.20	1.27	3.68	0.16	43.27	41.45	44.61	12/04/94	39.30	18/08/95
TG11/5	The Spinney, Costessey	TG 16911101	Chalk	34 EA Anglian		1952	2005	10.00	17.92	1.17	2.48	0.17	10.42	8.62	11.19	27/01/94	8.24	23/10/91
TG12/7	Heydon Pumping Station	TG 11262722	Chalk	34 EA Anglian		1974	2005	61.00	44.98	0.80	1.78	4.87	42.23	40.55	42.62	05/04/01	40.08	15/10/91
TG21/10	Frettenham Depot	TG 24001657	Chalk	34 EA Anglian		1952	2005	44.80	6.73	1.06	2.11	0.23	6.40	4.56	6.88	09/02/61	3.59	08/12/95
TG21/9	Grange Farm	TG 26911139	Chalk	34 EA Anglian		1994	2005	34.10	35.52	0.88	13.14	0.00	19.24	17.45	32.66	02/10/02	17.19	10/12/92
TG23/21	Melbourne House	TG 29323101	Chalk	34 EA Anglian		1994	2005	38.10	17.18	0.70	2.93	6.81	13.81	12.90	16.61	06/11/02	12.72	16/08/96
TG31/20	Woodbastwick Hall	TG 33651606	Chalk	34 EA Anglian		1974	2005	68.00	3.04	0.29	0.90	0.11	0.94	0.54	2.24	02/09/01	-0.18	12/09/02
TG32/16	Brunstead Hall, Stalham	TG 37002682	Chalk	34 EA Anglian		1978	2005	52.10	7.56	0.53	1.22	0.06	2.05	0.72	2.66	06/10/04	0.48	17/09/91
TL11/9	The Holt	TL 16921965	Chalk	38 EA Thames		1964	2005	80.80	138.17	2.42	9.69	0.00	91.31	84.46	93.17	10/04/01	81.11	04/10/02
TL12/122	Lilley Bottom	TL 15702274	Chalk	38 EA Thames		1979	2005	11.20		2.08	5.53	0.02	98.36	92.31	99.91	01/03/01	91.42	01/12/97
TL33/4	Therfield Rectory	TL 33303720	Chalk	38 EA Thames		1883	2005	83.23	154.81	5.82	19.44	0.00	89.88	71.61	99.05	01/07/17	70.69	01/05/99
TL33/67	Hay Farm	TL 33883710	Chalk	38 EA Thames		2001	2005	125.50	157.64	8.04	18.34	0.65	93.67	73.55	96.39	17/05/01	74.18	16/12/99
TL42/6	Hixham Hall	TL 45362676	Chalk	38 EA Thames		1964	2005	74.70	111.34	2.61	7.29	0.00	78.58	69.66	78.67	05/05/01	67.93	05/10/98
TL42/8	Berden Hall	TL 46692955	Chalk	38 EA Thames		1964	2005	37.20	107.89	2.63	6.02	0.00	75.57	67.52	76.80	05/02/03	66.19	01/12/97
TL44/12	Redlands Hall	TL 45224182	Chalk	33 EA Anglian		1963	2005	43.60	76.19	8.51	17.79	0.00	51.03	33.59	56.25	22/02/01	32.29	09/10/92
TL72/54	Rectory Road	TL 79822516	Chalk	37 EA Anglian		1968	2005	103.60	67.63	1.47	6.69	0.00	26.34	10.12	48.48	17/09/01	8.96	28/05/78
TL84/6	Smeetham Hall Cottages	TL 84654106	Chalk	36 EA Anglian		1963	2005	30.10	55.03	1.36	4.92	0.00	27.78	25.40	29.17	14/02/88	25.21	15/10/97
TL86/110	Cattishall Farm	TL 88506470	Chalk	33 EA Anglian		1969	2005	32.50	61.65	2.68	7.35	0.00	36.90	30.80	39.50	09/04/01	29.68	31/01/92
TL89/37	Grimes Graves	TL 81319001	Chalk	33 EA Anglian		1971	2005	26.00	17.22	2.86	5.51	9.52	12.02	6.42	13.96	25/02/03	5.40	06/12/91
TL92/1	Lexden Pumping Station	TL 96572562	Chalk	37 EA Anglian		1961	2005	121.90	15.60	3.01	6.98	0.48	5.18	-3.88	14.83	02/11/01	-39.06	15/09/05
TM15/112	Dial Farm	TM 12015618	Chalk	35 EA Anglian		1968	2005	76.80	64.60	0.46	1.07	5.42	26.12	24.87	26.38	20/06/69	24.61	12/11/97
TM26/95	Strawberry Hill	TM 27866397	Chalk	35 EA Anglian		1974	2005	45.70	48.57	0.37	0.80	3.61	27.24	26.62	27.46	05/05/04	26.51	13/11/97
TQ01/133	Chantry Post Sullington	TQ 08501170	Chalk	41 EA Southern		1977	2005	143.30	166.33	11.96	23.47	6.09	107.66	94.33	117.38	15/02/95	92.75	08/12/89
TQ28/119	Trafalgar Square	TQ 22968051	Chalk	39 EA Thames		1875	2004	116.70	12.60	2.55	12.00	0.69	-35.05	-81.70	-21.64	1845	-87.59	25/03/67
TQ31/50	North Bottom	TQ 32201180	Chalk	41 EA Southern		1979	2005	149.96	120.15	15.42	30.01	4.66	89.80	65.85	100.80	08/11/00	58.59	31/10/83
TQ35/5	Rose and Crown	TQ 33635924	Chalk	39 EA Thames		1876	2005	27.00	87.81	11.05	23.39	0.00	86.71	65.05	87.50	14/02/04	60.81	15/12/34
TQ38/9B	Hackney Public Baths	TQ 35098536	Chalk	38 EA Thames		1953	2005	122.20	16.80	1.99	61.89	0.16	-21.89	-28.52	-21.71	22/02/02	-29.45	13/01/53
TQ40/45B	Blackcap Farm No. 2	TQ 46640387	Chalk	41 EA Southern		1970	2005	66.75	39.85	1.24	3.82	0.21	2.07	0.66	5.28	12/01/94	0.10	06/12/95
TQ50/7	The Old Rectory Ffolkington	TQ 55920380	Chalk	41 EA Southern		1965	2005	35.84	65.71	6.72	13.25	2.25	39.87	30.93	65.71	30/08/05	2	

Well Register I cont'd

Well number	Name	Grid Reference	Aquifer	Hydrometric Area	Measuring Authority	First Year	Last Year	Depth (mm)	Datum (m aOD)	Mean range (mm)	Max rang (mm)	Min range (mm)	L95 (m aOD)	L5 (m aOD)	Max level (m aOD)	Date of max	Min level (m aOD)	Date of min
TQ62/99	Whiteoaks, Heathfield	TQ 61992282	Hastings Beds	40 EA Southern	1978 2005	19.00	155.28	4.09	11.07	1.03	141.14	136.63	145.14	04/01/99	133.48	06/03/84		
TQ71/123	Red House	TQ 79691659	Hastings Beds	40 EA Southern	1974 2005	17.88	40.02	3.72	5.55	1.22	28.57	24.53	30.46	04/12/00	23.53	15/09/82		
SE68/22E	Kirbymoorside	SE 68908590	Upper Jurassic	27 EA North East	1975 2004	24.25	46.04	2.21	3.77	0.92	40.21	37.81	41.34	10/02/80	37.65	20/10/03		
SE77/76	Broughton	SE 76907300	Upper Jurassic	27 EA North East	1975 2004	70.00	33.51	3.41	5.66	1.24	20.10	15.77	22.75	20/11/00	15.46	13/11/96		
SE98/23	Seavegate Gill	SE 98983567	Upper Jurassic	27 EA North East	1980 2004	35.00	38.09	2.30	3.34	0.80	34.98	31.94	37.62	18/11/04	27.00	10/04/03		
SU49/75B	Marcham	SU 46519736	Upper Jurassic	39 EA Thames	1988 2005	9.50	59.65	0.63	1.02	0.28	59.34	58.42	59.50	13/02/01	58.34	24/09/92		
SP00/62	Ampey Crucis	SP 05950190	Middle Jurassic	39 EA Thames	1958 2005	61.00	109.54	3.63	6.45	0.96	102.85	99.74	103.45	19/12/65	97.38	10/12/90		
SP20/113	Alvescot Road Obs.	SP 27210634	Middle Jurassic	39 EA Thames	1983 2005	65.84	86.31	4.08	9.02	1.00	91.19	82.46	91.41	06/02/01	80.73	01/08/88		
ST51/57	Over Compton	ST 59101690	Middle Jurassic	52 EA South West	1971 2005	7.20	67.24	2.73	4.33	0.56	59.24	55.66	59.68	16/02/90	54.22	07/06/04		
ST88/62A	Didmarton 1	ST 82758743	Middle Jurassic	53 EA South West	1977 2005	112.05	113.88	19.06	41.85	8.53	92.03	66.64	96.19	04/01/01	49.07	30/10/03		
SK97/25	Grange De Lings	SK 98007817	Lincolnshire Lst	30 EA Anglian	1975 2005	19.70	48.21	3.32	5.07	2.01	41.92	39.36	43.11	07/01/98	38.09	09/09/76		
TF03/37	New Red Lion	TF 08853034	Lincolnshire Lst	30 EA Anglian	1964 2005	50.00	33.98	8.27	19.22	0.00	20.70	7.76	23.69	14/03/77	3.29	24/08/76		
TF04/14	Silk Willoughby	TF 04294273	Lincolnshire Lst	30 EA Anglian	1972 2005	35.40	34.29	6.04	16.48	0.00	20.28	11.22	23.07	22/02/77	6.07	27/09/76		
TF06/47	Stow No. 2	TF 04726938	Lincolnshire Lst	30 EA Anglian	1972 2005	55.47	7.49	5.93	9.31	1.83	9.32	2.13	11.00	17/02/77	0.44	01/11/84		
IJ26/1	Dunnurly	IJ 29136950	Permo-Triassic Sst	205 DOE NI	1985 2003	109.00	31.31	1.15	2.11	0.33	28.81	27.38	29.45	13/04/89	26.61	14/03/05		
NX97/1	Redbank	NX 96677432	Permo-Triassic Sst	79 Scottish EPA	1981 2005	27.70	13.52	1.10	1.63	0.62	8.57	6.78	9.45	24/03/83	6.56	16/09/05		
NX97/2	Newbridge	NX 95157885	Permo-Triassic Sst	79 Scottish EPA	1993 2005			1.93	2.65	1.32	11.34	9.24	12.01	17/12/00	8.76	04/11/97		
NY00/328	Brownbank Layby	NY 05110247	Permo-Triassic Sst	74 EA North West	1976 2005	76.13	30.49	0.56	1.43	1.88	24.95	23.43	25.55	01/05/88	22.86	03/10/92		
NY14/4	New Cowper	NY 12464555	Permo-Triassic Sst	75 EA North West	1989 2005	72.15	14.05	0.54	1.30	0.16	12.78	11.72	14.13	11/10/00	11.18	11/11/00		
NY63/2	Kirwith	NY 61303250	Permo-Triassic Sst	76 EA North West	1978 2005	89.60	133.25	0.81	1.44	0.20	13.11	129.71	131.80	20/03/03	129.35	28/10/97		
NZ41/34	Northern Dairies	NZ 48611835	Permo-Triassic Sst	25 EA North East	1974 2002	121.90	9.60	0.67	2.63	5.52	0.52	-3.12	1.31	22/09/99	-3.75	28/06/75		
SD27/6B	Furness Abbey	SD 21727171	Permo-Triassic Sst	74 EA North West	1972 2005	91.70	19.31	3.23	5.14	1.54	13.95	9.64	15.35	13/12/00	6.94	30/09/91		
SD40/137	Moor Hall	SD 41280521	Permo-Triassic Sst	69 EA North West	1983 2005	100.00	48.14	0.73	1.20	0.30	25.21	22.23	25.63	03/12/05	20.64	12/03/85		
SD41/32	Yew Tree Farm	SD 44001164	Permo-Triassic Sst	70 EA North West	1973 2005	58.00	23.69	0.48	0.89	0.23	14.41	13.11	14.45	02/03/05	12.67	31/08/95		
SD44/15	Moss Edge Farm	SD 43964928	Permo-Triassic Sst	72 EA North West	1961 2005	44.80	4.99	1.14	4.19	0.26	4.55	2.27	4.99	04/01/83	0.23	01/08/64		
SD53/25	Red Scar Wood	SD 58603133	Permo-Triassic Sst	72 EA North West	1989 2005	38.10	15.77	2.17	7.72	0.42	11.80	6.25	15.52	14/01/00	4.11	26/09/01		
SE36/47	Kelly's Café	SE 39456575	Permo-Triassic Sst	27 EA North East	1981 2004	74.60	24.75	0.30	0.70	0.00	20.42	18.71	20.72	17/05/83	18.41	20/11/97		
SE39/20B	Scruton Village	SE 30049244	Permo-Triassic Sst	27 EA North East	1969 2004	67.10	34.69	0.36	1.01	1.63	28.26	26.65	28.56	08/04/80	26.40	12/08/97		
SE45/3	Cattal Holdings	SE 44705580	Permo-Triassic Sst	27 EA North East	1969 2004	36.60	30.86	0.53	1.59	8.33	27.23	25.24	28.57	25/07/69	24.91	08/10/92		
SE52/4	Southfield Lane	SE 54732363	Permo-Triassic Sst	27 EA North East	1955 2003	43.10	18.10	0.64	3.37	0.00	10.60	8.10	11.20	20/03/03	7.38	01/11/65		
SE54/32A	Bilborough	SE 53324646	Permo-Triassic Sst	27 EA North East	1984 2004	73.50	45.52	0.40	1.20	8.14	12.21	10.35	12.77	11/05/89	9.62	21/04/98		
SE60/76	Woodhouse Grange	SE 67840709	Permo-Triassic Sst	28 EA Midlands	1980 2005	62.48	4.35	0.45	1.21	0.00	1.10	-1.01	1.42	05/03/80	-1.23	08/09/92		
SE61/11	Sykehouse	SE 62701710	Permo-Triassic Sst	27 EA North East	1971 2004	45.72	4.77	0.54	1.05	5.28	1.46	-1.30	2.26	06/02/71	-1.61	22/10/96		
SE83/1	Holme-on-Spalding Moor	SE 80403640	Permo-Triassic Sst	26 EA North East	1974 2003	110.00	5.00	0.44	1.13	0.10	2.20	-0.62	2.69	23/12/01	-1.05	14/11/96		
SJ15/13	Llanfair D.C	SJ 13745556	Permo-Triassic Sst	66 EA Wales	1972 2005	121.90	83.08	0.77	1.32	8.20	80.54	79.21	81.19	15/02/01	78.67	01/11/96		
SJ33/39	Eastwick Farm	SJ 38143831	Permo-Triassic Sst	67 EA Wales	1974 2005	120.00	74.57	0.26	0.64	2.40	68.37	67.27	68.79	01/05/74	67.07	01/02/99		
SJ56/45E	Ashton No 4	SJ 50426953	Permo-Triassic Sst	68 EA North West	1970 2005	73.30	37.26	1.39	4.70	0.17	24.51	19.84	24.66	21/01/03	18.76	31/03/92		
SJ59/147	Sandy Lane	SJ 59509782	Permo-Triassic Sst	69 EA North West	1971 2005	22.87	40.06	1.08	2.36	0.09	36.13	30.83	36.72	24/01/01	25.81	08/11/78		
SJ62/112	Heathlanes	SJ 61952105	Permo-Triassic Sst	54 EA Midlands	1996 2005	8.74	68.61	0.50	1.98	0.00	63.27	60.64	64.49	19/06/01	60.22	09/12/97		
SJ69/138	Kernyon Lane	SJ 61319620	Permo-Triassic Sst	69 EA North West	1968 2005	62.00	40.23	0.39	1.36	0.00	1.64	-8.12	1.10	09/05/68	-8.39	21/01/94		
SJ83/1A	Stone	SJ 89693474	Permo-Triassic Sst	28 EA Midlands	1974 2003	3.91	102.62	0.95	1.81	0.20	91.12	89.62	91.66	26/03/81	89.34	30/10/96		
SJ87/32	Dale Brow	SJ 89697598	Permo-Triassic Sst	68 EA North West	1973 2005	152.40	138.66	1.07	1.88	5.76	98.71	94.71	99.14	05/07/83	94.34	09/09/96		
SJ88/93	Brunwood Hall	SJ 86118645	Permo-Triassic Sst	69 EA North West	1976 2005	139.00	62.56	0.76	2.83	0.24	48.94	48.02	49.38	05/12/84	46.22	05/08/81		
SK00/41	Nuttalls Farm	SK 06700120	Permo-Triassic Sst	28 EA Midlands	1974 2005	14.47	141.79	0.52	1.65	0.00	130.79	128.10	132.30	15/10/01	127.79	02/02/77		
SK10/9	Weeford Flats	SK 14400464	Permo-Triassic Sst	28 EA Midlands	1966 2005	7.60	96.21	0.52	1.79	0.00	91.23	88.61	91.76	24/04/70	88.61	21/11/97		
SK21/111	Grangewood	SK 27311419	Permo-Triassic Sst	28 EA Midlands	1967 2005	14.90	98.03	1.26	2.86	0.00	91.97	88.00	92.93	13/06/69	87.00	19/12/97		
SK24/22	Burtonshuts Farm	SK 25394431	Permo-Triassic Sst	28 EA Midlands	1972 2005	20.40	154.84	0.63	2.09	0.00	137.84	135.44	138.43	06/07/01	134.73	04/01/77		
SK56/53	Peafield Lane	SK 66326440	Permo-Triassic Sst	28 EA Midlands	1969 2005	47.00	112.97	0.37	1.68	0.00	80.96	76.48	81.19	31/12/80	76.06	13/05/98		
SK67/17	Morris Dancers	SK 64487257	Permo-Triassic Sst	28 EA Midlands	1969 2005	36.60	54.83	0.14	0.55	0.00	33.45	31.71	33.58	09/09/70	31.40	19/01/89		
SK68/21	Crossley Hill Wood	SK 61008374	Permo-Triassic Sst	28 EA Midlands	1969 2005	39.60	52.37	0.23	0.94	0.00	28.25	25.13	28.53	02/12/70	24.85	10/09/98		
SO71/18	Stores Cottage	SO 71701970	Permo-Triassic Sst	54 EA Midlands	1973 2005	8.40	66.40	3.39	5.69	1.62	65.27	61.50	65.90	14/03/77	60.62	16/08/76		
SO87/28	Hillfields	SO 81607970	Permo-Triassic Sst	54 EA Midlands	1961 2005	26.60	97.66	0.66	2.18	4.25	74.13	72.49	74.76	19/12/88	72.17	28/03/66		
SX98/37B	Bussels No.7A	SX 95289872	Permo-Triassic Sst	45 EA South West	1971 2005	91.44	27.02	1.06	2.36	0.12	24.73	23.26	25.28	01/03/77	22.90	31/08/76		
SY09/21A	Heathlands	SY 06659235	Permo-Triassic Sst	45 EA South West	1968 2005	12.27	102.81	1.32	2.39	0.30	92.87	91.46	93.54	02/02/70	91.11	15/12/90		
NZ21/29	Swan House	NZ 25211995	Magnesian Lst	25 EA North East	1969 2005	32.00	94.90	4.69	9.74	0.80	88.64	80.53	90.10	06/04/79	80.67	09/10/73		
NZ22/22	Rushyford NE	NZ 28752896	Magnesian Lst	25 EA North East	1968 2005	62.50	92.65	34.22			77.17	67.55	77.90	24/04/01	64.77	01/12/73		
NZ32/19	Heley House	NZ 35752650	Magnesian Lst	25 EA North East	1985 2005	112.70	81.49	4.42	12.72	0.28	44.39	31.20	46.12	02/01/03	27.48	22/08/76		
NZ33/20	Garmondsway	NZ 33493501	Magnesian Lst	24 EA North East	1974 2005	73.20	102.49	6.83	13.86	0.74	87.35	76.05	88.86	13/02/01	67.42	08/01/74		
SE35/4	Castle Farm	SE 38305830	Magnesian Lst	27 EA North East	1970 2004	53.30	44.15	0.59	1.46	4.93	37.21							

Well Register II

Aquifer: Superficial Deposits

IJ28/1 **Templepatrick** **DOENI**
Well: Influenced by artificial drainage which suppresses groundwater peaks. Formerly called Dunadry. Closed.
Geology: Lower Basalt Formation overlain by Glaciofluvial Deposits - Geological Map Sheet 28 Antrim

SO44/4 **Stretton Sugwas, Roman Road** **EA Wales**
Well: Casing to 19.28 metres. No data for 1997, data quality problems and gaps in data 1997-2000.
Geology: Raglan Mudstone Formation overlain by alluvium - Geological Map Sheet 198 Hereford

Aquifer: Chalk

ID30/1 **Killyglen (NI)** **DOENI**
Well: Index well. Good representative site with no known artificial influences.
Geology: Ulster White Limestone Formation overlain by Till - Geological Map Sheet 20 Ballymena

SE94/5 **Dalton Holme** **EA North East**
Well: 28.5 metres deep. Index well. Logger installed.
Geology: Burnham Chalk Formation - Geological Map Sheet 72 Beverley

SE95/6 **Wetwang** **EA North East**
Well: Borehole, 196 mm diameter to 45.72 metres. Index well. Logger installed.
Geology: Flamborough Chalk Formation - Geological Map Sheet 64 Great Driffield

SE97/31 **Green Lane** **EA North East**
Well: Borehole, 196 mm diameter to 76.2 metres. Casing to 7.62 metres. The hydrograph has an annual sinusoidal pattern.
Geology: Welton Chalk Formation and Burnham Chalk Formation - Geological Map Sheet 54 Scarborough

SP91/59 **Pitstone Green Farm** **EA Anglian**
Well: Borehole, 1574 mm diameter to 4.57 metres. Influenced by abstractions from Pitstone Cement Works: levels may be lower than in natural conditions. Infrequent data due to access problems.
Geology: West Melbury Marly Chalk Formation and Zig Zag Chalk Formation - Geological Map Sheet 238 Aylesbury

SU01/5B **West Woodyates Manor** **EA South West**
Well: Shaft, 3 m diameter to 45.72 metres. Index well.
Geology: Seaford Chalk Formation - Geological Map Sheet 314 Ringwood

SU17/57 **Rockley** **EA Thames**
Well: Shaft, 1.5 m diameter to 17.6 metres. Casing to 6 metres. Index well. Telemetry site.
Geology: Holywell Nodular Chalk Formation and New Pit Chalk Formation - Geological Map Sheet 266 Marlborough

SU32/3 **Baileys Down Farm** **EA Southern**
Well: Shaft, 1.2 m diameter to 59.11 metres. The hydrograph has an annual sinusoidal pattern.
Geology: Newhaven Chalk Formation - Geological Map Sheet 299 Winchester

SU34/8D **Clanville Lodge Gate** **EA Southern**
Well: Borehole to 42.5 metres. Cased at surface. Drilled to replace SU34/8A in 1996.
Geology: Lewes Nodular Chalk Formation and Seaford Chalk Formation - Geological Map Sheet 283 Andover

SU51/1 **Upper Hill Farm** **EA Southern**
Well: Borehole, 1.07 m diameter to 49.38 metres. Early data sporadic. The hydrograph has an annual sinusoidal pattern.
Geology: Tarrant Chalk Member overlain by Clay-with-Flints - Geological Map Sheet 316 Fareham

SU53/94 **Abbotstone** **EA Southern**
Well: Borehole, 328 mm diameter to 25.5 metres. Casing to 5 metres. The hydrograph has an annual sinusoidal pattern.
Geology: Seaford Chalk Formation - Geological Map Sheet 300 Alresford

SU57/159 **Calversleys Farm** **EA Thames**
Well: Borehole, 300 mm diameter to 80 metres. Unlined. Casing to 10 metres. No data 1984. The hydrograph has an annual sinusoidal pattern.
Geology: Lambeth Group - Geological Map Sheet 268 Reading

SU61/32 **Chidden Farm** **EA Southern**
Well: Shaft, 0.9 m diameter to 41.15 metres. The hydrograph has an annual sinusoidal pattern.
Geology: Seaford Chalk Formation - Geological Map Sheet 316 Fareham

SU64/28 **Lower Wield Farm** **EA Southern**
Well: Shaft, 1.1 m diameter to 76.05 metres. The hydrograph has an annual sinusoidal pattern.
Geology: Newhaven Chalk Formation overlain by Clay-with-Flints - Geological Map Sheet 300 Alresford

SU68/49 **Well Place Farm** **EA Thames**
Well: Borehole, 200 mm diameter to 63.5 metres. Dipped monthly since 1999.
Geology: Zig Zag Chalk Formation - Geological Map Sheet 254 Henley-on-Thames

SU71/23 **Compton House** **EA Southern**
Well: Shaft, 1.8 m diameter to 54.86 metres. Index well.
Geology: Seaford Chalk Formation - Geological Map Sheet 316 Fareham

SU73/8 **Faringdon Station** **EA Southern**
Well: Shaft, 1.2 m diameter to 28.65 metres. Removed 2004.
Geology: Zig Zag Chalk Formation - Geological Map Sheet 300 Alresford

SU76/46 **Riseley Mill** **EA Thames**
Well: Borehole, 203 mm diameter to 131 metres. Casing to 34.75 metres. The hydrograph has an annual sinusoidal pattern superimposed on periodic rises and falls in water levels.
Geology: Chalk overlain by London Clay Formation overlain by River Terrace Deposits, 3 - Geological Map Sheet 268 Reading

SU78/45A **Stonor Park** **EA Thames**
Well: Shaft, 2.2 m diameter to 60.05 metres. Borehole, 196 mm diameter to 87.48 metres. Index well. Telemetry site.
Geology: Chalk Rock Member - Geological Map Sheet 254 Henley-on-Thames

SU81/1 **Chilgrove House** **EA Southern**
Well: Shaft, 0.9 m diameter to 43.74 metres. Borehole, 147 mm diameter to 62.03 metres. Casing to 43.51 metres. Screen from 43.51 to 44.35 metres. Screen from 41.68 to 42.6 metres. Index well.
Geology: Seaford Chalk Formation - Geological Map Sheet 317 Chichester

SU87/1 **Folly Cottage** **EA Thames**
Well: 22.1 metres deep. No data for April 1998 to March 1999. Dry 29/7/2005 26/8/2005 30/9/2005.
Geology: Seaford Chalk Formation and Newhaven Chalk Formation - Geological Map Sheet 269 Windsor

SU89/7 **Piddington** **EA Thames**
Well: Shaft, 1.2 m diameter to 6.1 metres. Brick-lined. Casing to 25.6 metres. 6 months data missing 2000.
Geology: New Pit Chalk Formation overlain by Head - Geological Map Sheet 254 Henley-on-Thames

SY68/34 **Ashton Farm** **EA South West**
Well: Shaft, 1.4 m diameter to 11.73 metres. Brick-lined. Index well.
Geology: Lewes Nodular Chalk Formation - Geological Map Sheet 328 Dorchester

TA06/16 **Nafferton Pumping Station** **EA North East**
Well: Shaft, 1.8 m diameter to 65.84 metres. Borehole, 328 mm diameter to 73.46 metres. Logger installed.
Geology: Flamborough Chalk Formation - Geological Map Sheet 64 Great Driffield

TA07/28 **Hunmanby Hall** **EA North East**
Well: Borehole, 328 mm diameter to 85.65 metres. Cased. Logger installed.
Geology: Welton Chalk Formation and Burnham Chalk Formation - Geological Map Sheet 54 Scarborough

TA10/63 **Aylesby** **EA Anglian**
Well: 101.5 metres deep. Index well replaced Keelby Grange. Telemetry installed 1997, manual dipped monthly.
Geology: Burnham Chalk Formation - Geological Map Sheet 90 Grimsby

TA21/41A **Church Farm (Sunk Island)** **EA North East**
Well: Borehole, 492 mm diameter to 100.28 metres. Casing to 45.72 metres. Previously numbered TA21/14 No data 1996, 1997.
Geology: Flamborough Chalk Formation - Geological Map Sheet 81 Patrington

TF29/49 **Grainsby** **EA Anglian**
Well: 84.12 metres deep. Telemetry removed 1999. Reliable data.
Geology: Welton Chalk Formation - Geological Map Sheet 90 Grimsby

TF73/9 **Coe Ltd. Bircham** **EA Anglian**
Well: Borehole, 1.57 m diameter to 15.24 metres. Represents naturally occurring conditions. Reliable data.
Geology: Lewes Nodular Chalk Formation and Seaford Chalk Formation overlain by Lowestoft Formation - Geological Map Sheet 146 Fakenham

TF81/2A **Washpit Farm** **EA Anglian**
Well: Shaft, 1.8 m diameter to 45.72 metres. Index well. Previously numbered TF81/2. Represents naturally occurring conditions. Reliable data.
Geology: Lewes Nodular Chalk Formation and Seaford Chalk Formation overlain by Lowestoft Formation - Geological Map Sheet 146 Fakenham

TF83/1	South Creake	EA Anglian	TL42/8	Berden Hall	EA Thames
<i>Well:</i> Borehole, 131 mm diameter to 21.34 metres. Cased. The hydrograph has an annual sinusoidal pattern. <i>Geology:</i> Lewes Nodular Chalk Formation and Seaford Chalk Formation - Geological Map Sheet 130 Wells next the Sea			<i>Well:</i> 37.19 metres deep. The hydrograph has an annual sinusoidal pattern. <i>Geology:</i> Lewes Nodular Chalk Formation and Seaford Chalk Formation overlain by Lowestoft Formation - Geological Map Sheet 222 Great Dunmow		
TF92/5	Tower Hills Pumping Station	EA Anglian	TL44/12	Redlands Hall	EA Anglian
<i>Well:</i> Borehole, 328 mm diameter to 79.25 metres. Casing to 43.66 metres. The hydrograph has an annual sinusoidal pattern. <i>Geology:</i> Lewes Nodular Chalk Formation and Seaford Chalk Formation overlain by Lowestoft Formation - Geological Map Sheet 146 Fakenham			<i>Well:</i> Shaft, 1.4 m diameter to 43.6 metres. Index well. Represents naturally occurring conditions. Reliable data. <i>Geology:</i> New Pit Chalk Formation - Geological Map Sheet 205 Saffron Walden		
TG03/25B	Brinton Farm	EA Anglian	TL72/54	Rectory Road	EA Anglian
<i>Well:</i> Borehole, 131 mm diameter to 42.67 metres. Cased. Spiky erratic hydrograph. <i>Geology:</i> Lewes Nodular Chalk Formation and Seaford Chalk Formation overlain by Lowestoft Formation - Geological Map Sheet 131 Cromer			<i>Well:</i> Borehole, 237 mm diameter to 103.63 metres. Hydrograph shows an approx. 12 metre fall in water levels from 1968 to 1978 followed by a c. 18 metre rise in levels from 1981 to 1985 and a further approx. 18 metre fall in levels in 1993 to 1994. <i>Geology:</i> Chalk overlain by London Clay Formation overlain by Lowestoft Formation - Geological Map Sheet 223 Braintree		
TG11/5	The Spinney, Costessey	EA Anglian	TL84/6	Smeetham Hall Cottages	EA Anglian
<i>Well:</i> Shaft, 1.2 m diameter to 10.06 metres. The hydrograph has an annual sinusoidal pattern. <i>Geology:</i> Lewes Nodular Chalk Formation and Seaford Chalk Formation - Geological Map Sheet 161 Norwich			<i>Well:</i> Shaft, 1.2 m diameter to 30.1 metres. The hydrograph has an annual sinusoidal pattern. <i>Geology:</i> Lewes Nodular Chalk Formation and Seaford Chalk Formation overlain by Lowestoft Formation - Geological Map Sheet 206 Sudbury		
TG12/7	Heydon Pumping Station	EA Anglian	TL86/110	Cattishall Farm	EA Anglian
<i>Well:</i> Borehole, 196 mm diameter to 60.96 metres. Casing to 38.71 metres. Screen from 38.86 to 50.9 metres. The hydrograph has an annual sinusoidal pattern. <i>Geology:</i> Lewes Nodular Chalk Formation and Seaford Chalk Formation overlain by Till - Geological Map Sheet 147 Aylsham			<i>Well:</i> Shaft, 1.2 m diameter to 32.5 metres. Represents naturally occurring conditions. Reliable data. <i>Geology:</i> Lewes Nodular Chalk Formation and Seaford Chalk Formation overlain by Lowestoft Formation - Geological Map Sheet 189 Bury St Edmunds		
TG21/10	Grange Farm	EA Anglian	TL89/37	Grimes Graves	EA Anglian
<i>Well:</i> 44.8 metres deep. Casing to 32.92 metres. No data 1997, 1998. <i>Geology:</i> Chalk overlain by Crag Group - Geological Map Sheet 161 Norwich			<i>Well:</i> Borehole, 120 mm diameter to 7.92 metres. No data June 1995 to February 1996. Represents naturally occurring conditions. Reliable data. <i>Geology:</i> Lewes Nodular Chalk Formation and Seaford Chalk Formation - Geological Map Sheet 174 Thetford		
TG21/9	Frettenham Depot	EA Anglian	TL92/1	Lexden Pumping Station	EA Anglian
<i>Well:</i> Borehole, 196 mm diameter to 34.14 metres. Casing to 24.38 metres. The hydrograph has an annual sinusoidal pattern. <i>Geology:</i> Lewes Nodular Chalk Formation and Seaford Chalk Formation overlain by Alluvium - Geological Map Sheet 147 Aylsham			<i>Well:</i> Borehole, 984 mm diameter to 121.92 metres. Casing to 7.01 metres. Removed 10/10/2005. <i>Geology:</i> Chalk overlain by London Clay Formation - Geological Map Sheet 223 Braintree		
TG23/21	Melbourne House	EA Anglian	TM15/112	Dial Farm	EA Anglian
<i>Well:</i> Borehole, 131 mm diameter to 38.1 metres. Cased. Hydrograph shows minimal seasonal variations. <i>Geology:</i> Chalk overlain by Crag Group overlain by Corton Formation - Geological Map Sheet 148 Mundesley and North Walsham			<i>Well:</i> Borehole, 131 mm diameter to 76.2 metres. Cased. Index well. <i>Geology:</i> Lewes Nodular Chalk Formation and Seaford Chalk Formation overlain by Lowestoft Formation - Geological Map Sheet 207 Ipswich		
TG31/20	Woodbastwick Hall	EA Anglian	TM26/95	Strawberry Hill	EA Anglian
<i>Well:</i> 88.4 metres deep. Casing to 9.14 metres. Removed 13/12/2005. <i>Geology:</i> Chalk overlain by Crag Group - Geological Map Sheet 148 Mundesley and North Walsham			<i>Well:</i> Borehole, 131 mm diameter to 45.72 metres. Cased. Spiky hydrograph, demonstrating rapid response to rainfall events. <i>Geology:</i> Chalk overlain by Crag Group overlain by Lowestoft Formation - Geological Map Sheet 191 Saxmundham		
TG32/16	Brumstead Hall, Stalham	EA Anglian	TQ01/133	Chantry Post Sullington	EA Southern
<i>Well:</i> 52.1 metres deep. The hydrograph has an annual sinusoidal pattern superimposed on periodic rises and falls in water levels. <i>Geology:</i> Chalk overlain by Crag Group overlain by Corton Formation - Geological Map Sheet 148 Mundesley and North Walsham			<i>Well:</i> Borehole, 262 mm diameter to 143.26 metres. Casing to 5.18 metres. The hydrograph has an annual sinusoidal pattern. <i>Geology:</i> Seaford Chalk Formation - Geological Map Sheet 317 Chichester		
TL11/9	The Holt	EA Thames	TQ28/119	Trafalgar Square	EA Thames
<i>Well:</i> Shaft, 1.5 m diameter to 56.39 metres. Borehole, 196 mm diameter to 80.77 metres. Pumping impact in August 2000. Replaced by TL12/122 Lilley Bottom. <i>Geology:</i> Lewes Nodular Chalk Formation and Seaford Chalk Formation overlain by Clay-with-Flints - Geological Map Sheet 221 Hitchin			<i>Well:</i> Shaft, 1.4 m diameter to 51.21 metres. Casing to 76.5 metres. Previously numbered TQ28/119B. Logger installed. Logger data problems 1997 to 2002 and dip data from 11/12/2000 to 08/05/2003 Levels respond to patterns of abstraction in the London Basin. Maximum levels registered in early 19 th century prior to long term decline; recovery began in the 1960s as abstractions declined. <i>Geology:</i> Chalk overlain by London Clay Formation overlain by Langley Silt Formation - Geological Map Sheet 256 North London		
TL12/122	Lilley Bottom	EA Thames	TQ31/50	North Bottom	EA Southern
<i>Well:</i> Borehole, 262 mm diameter to 11.2 metres. Casing to 2.6 metres. Replaced The Holt TL11/9, records since 1979, recorder installed. <i>Geology:</i> Holywell Nodular Chalk Formation and New Pit Chalk Formation - Geological Map Sheet 221 Hitchin			<i>Well:</i> 150 metres deep. Casing to 9.3 metres. The hydrograph has an annual sinusoidal pattern. <i>Geology:</i> Lewes Nodular Chalk Formation - Geological Map Sheet 318 Brighton		
TL33/4	Therfield Rectory	EA Thames	TQ35/5	Rose and Crown	EA Thames
<i>Well:</i> Shaft, 1.5 m diameter to 4.57 metres. Brick-lined. Index well. Replaced by Hay Farm. <i>Geology:</i> Lewes Nodular Chalk Formation and Seaford Chalk Formation overlain by Lowestoft Formation - Geological Map Sheet 221 Hitchin			<i>Well:</i> 26.97 metres deep. No data 1947 to 1962. <i>Geology:</i> Holywell Nodular Chalk Formation and New Pit Chalk Formation - Geological Map Sheet 286 Reigate		
TL33/67	Hay Farm	EA Thames	TQ38/9B	Hackney Public Baths	EA Thames
<i>Well:</i> 125.5 metres deep. Index well. Telemetry site. Proposed replacement for Therfield Rectory. <i>Geology:</i> Lewes Nodular Chalk Formation and Seaford Chalk Formation overlain by Lowestoft Formation - Geological Map Sheet 221 Hitchin			<i>Well:</i> Shaft, 1.8 m diameter to 1.83 metres. Casing to 43.89 metres. Previously numbered TQ38/9 No data 1968 - 1973, 1996. <i>Geology:</i> Chalk overlain by London Clay Formation overlain by Hackney Gravel Formation - Geological Map Sheet 256 North London		
TL42/6	Hixham Hall	EA Thames	TQ40/45B	Blackcap Farm No. 2	EA Southern
<i>Well:</i> Shaft, 1.8 m diameter to 44.2 metres. Borehole, 262 mm diameter to 74.68 metres. The hydrograph has an annual sinusoidal pattern. <i>Geology:</i> Chalk overlain by Thanet Sand Formation and Lambeth Group overlain by Lowestoft Formation - Geological Map Sheet 222 Great Dunmow			<i>Well:</i> Borehole, 590 mm diameter to 77.72 metres. Casing to 10.67 metres. Infrequent level measurements. The hydrograph has an annual sinusoidal pattern. <i>Geology:</i> Seaford Chalk Formation - Geological Map Sheet 319 Lewes		

TQ50/7 **The Old Rectory Folkington** **EA Southern**
Well: Shaft, 0.9 m diameter to 35.84 metres. No data 1973 - 1977.
Geology: Zig Zag Chalk Formation - Geological Map Sheet 319 Lewes

TQ56/19 **West Kingsdown** **EA Southern**
Well: Borehole, 885 mm diameter to 90.53 metres. Cased. Datum raised by 0.12 m from 129.57 c. 1991. Logger installed.
Geology: New Pit Chalk Formation - Geological Map Sheet 271 Dartford

TQ58/2 **Bush Pit Farm** **EA Thames**
Well: Borehole, 393 mm diameter to 182.88 metres. Cased. Previously numbered TQ58/2B. Dipped twice a year from 1998.
Geology: Chalk overlain by London Clay Formation - Geological Map Sheet 257 Romford

TQ86/44 **Little Pett Farm** **EA Southern**
Well: 56.24 metres deep. No data June 1997 to March 1998 as data suspect or borehole dry. Logger installed. Filled in 10/11/2004.
Geology: Seaford Chalk Formation - Geological Map Sheet 272 Chatham

TQ99/11B **Burnham-on-Crouch** **EA Anglian**
Well: Borehole, 410 mm diameter to 117.35 metres. Cased. Screen from 117.35 to 156.97 metres. Previously numbered TQ99/11.
Geology: London Clay Formation overlain by River Terrace Deposits, 3 - Geological Map Sheet 258 259 Southend and Foulness

TR14/50 **Glebe Cottage, Stowing** **EA Southern**
Well: 15.60 metres deep. No data 1997, 1998. Logger installed. No recent data available April 2006.
Geology: West Melbury Marly Chalk Formation - Geological Map Sheet 289 Canterbury

TR14/9 **Little Bucket Farm** **EA Southern**
Well: Shaft, 0.8 m diameter to 31.01 metres. Index well. Logger installed.
Geology: Holywell Nodular Chalk Formation - Geological Map Sheet 289 Canterbury

TR24/36 **Church House** **EA Southern**
Well: 109.7 metres deep. No data 1997, 1998. Logger installed.
Geology: Lewes Nodular Chalk Formation overlain by Clay-with-Flints - Geological Map Sheet 305 306 Folkestone and Dover

TR36/62 **Alland Grange** **EA Southern**
Well: No construction details recorded. No data 1997, 1998. Logger installed.
Geology: Margate Chalk Member - Geological Map Sheet 274 Ramsgate

TV59/7C **Westdean No.3** **EA Southern**
Well: 24.99 metres deep. Index well.
Geology: Seaford Chalk Formation - Geological Map Sheet 334 Eastbourne

Aquifer: Upper Greensand

ST30/7 **Lime Kiln Way** **EA South West**
Well: Shaft, 1.8 m diameter to 7.62 metres. Index well. Datum changed from 129.98 01/12/96.
Geology: Upper Greensand Formation - Geological Map Sheet 312 Yeovil

Aquifer: Lower Greensand

SU82/63 **Madams Farm** **EA Southern**
Well: Borehole, 250 mm diameter to 58.5 metres. No data for 1994.
Geology: Hythe Formation - Geological Map Sheet 301 Haslemere

SU84/8A **Tilford Pumping Station** **EA Thames**
Well: Borehole, 262 mm diameter to 90.22 metres. Casing to 78.33 metres. Long-term rises and falls in water levels due to pumping effects.
Geology: Folkestone Formation - Geological Map Sheet 301 Haslemere

TQ41/82 **Lower Barn Farm** **EA Southern**
Well: No construction details recorded. The hydrograph has an annual sinusoidal pattern.
Geology: Lower Greensand Group - Geological Map Sheet 319 Lewes

TR23/32B **Morehall Depot** **EA Southern**
Well: Borehole, 262 mm diameter to 56.39 metres. Cased. Screened. Previously numbered TR23/32. Logger installed.
Geology: Folkestone Formation - Geological Map Sheet 305/306 Folkestone and Dover

Aquifer: Hastings Beds

TQ22/1 **The Bungalow, Lower Beeding** **EA Southern**
Well: No construction details recorded. The hydrograph has an annual sinusoidal pattern.
Geology: Upper Tunbridge Wells Sand Formation - Geological Map Sheet 302 Horsham

TQ42/80A **Kingstanding** **EA Southern**
Well: Logger installed.
Geology: Ashdown Formation - Geological Map Sheet 303 Tunbridge Wells

TQ61/44 **Dallington Herrings Farm** **EA Southern**
Well: No construction details recorded. No data 1973 to 1978. Site closed.
Geology: Ashdown Formation overlain by Wadhurst Clay Formation - Geological Map Sheet 319 Lewes

TQ62/99 **Whiteoaks, Heathfield** **EA Southern**
Well: 19 metres deep. Logger installed. Renamed Ticehurst Grange by EA.
Geology: Ashdown Formation - Geological Map Sheet 303 Tunbridge Wells

TQ71/123 **Red House** **EA Southern**
Well: 17.9 metres deep. No data June 1994 to Feb 1996. Logger installed.
Geology: Tunbridge Wells Sand Formation - Geological Map Sheet 320/321 Hastings and Dungeness

Aquifer: Upper Jurassic

SE68/22E **Kirbymoorside** **EA North East**
Well: 24.25 metres deep. Previously numbered SE68/16.
Geology: Upper Calcareous Grit Formation - Geological Map Sheet 53 Pickering

SE77/76 **Broughton** **EA North East**
Well: Borehole 34.1 metres deep. Logger installed.
Geology: Coralline Oolite Formation - Geological Map Sheet 53 Pickering

SE98/23 **Seavegate Gill** **EA North East**
Well: Borehole, 150 mm diameter to 35 metres. Replaced SE98/19 1994. Logger installed.
Geology: Malton Oolite Member and Coral Rag Member - Geological Map Sheet 54 Scarborough

SU49/75B **Marcham** **EA Thames**
Well: Borehole, 152 mm diameter to 9.5 metres. The hydrograph has an annual sinusoidal pattern.
Geology: Stanford Formation overlain by Alluvium - Geological Map Sheet 253 Abingdon

Aquifer: Middle Jurassic

SP00/62 **Ampney Crucis** **EA Thames**
Well: Borehole, 492 mm diameter to 60.96 metres. Cased. Index well. Telemetry site.
Geology: Forest Marble Formation - Geological Map Sheet 235 Cirencester

SP20/113 **Alvescot Road Obs.** **EA Thames**
Well: Borehole, 492 mm diameter to 64.01 metres. Casing to 46.33 metres. No data for 1996, 1997.
Geology: Forest Marble Formation - Geological Map Sheet 236 Witney

ST51/57 **Over Compton** **EA South West**
Well: Borehole, 610 mm diameter to 7.2 metres. Good reliable data and representative of natural conditions. Logger installed.
Geology: Bridport Sand Formation - Geological Map Sheet 312 Yeovil

ST88/62A **Didmarton 1** **EA South West**
Well: Borehole, 101 mm diameter to 112.05 metres. Good reliable data and representative of natural conditions. Logger installed.
Geology: Chalfield Oolite Formation - Geological Map Sheet 251 Malmesbury

Aquifer: Lincolnshire Limestone

SK97/25 **Grange De Lings** **EA Anglian**
Well: Borehole, 101 mm diameter to 19.7 metres. Casing to 1.5 metres. Manually dipped. Reliable data.
Geology: Lincolnshire Limestone Formation - Geological Map Sheet 102 Market Rasen

TF03/37 **New Red Lion** **EA Anglian**
Well: Borehole, 164 mm diameter to 50 metres. Borehole, 147 mm diameter to 50 metres. Casing to 4.6 metres. Index well. Telemetry removed in 1998. Reliable data.
Geology: Cornbrash Formation overlain by Kellaways Clay Member - Geological Map Sheet 143 Bourne

TF04/14 **Silk Willoughby** **EA Anglian**
Well: Borehole, 82 mm diameter to 35.36 metres. Casing to 23.16 metres. Screen from 23.16 to 35.36 metres. Manually dipped. Reliable data.
Geology: Cornbrash Formation - Geological Map Sheet 127 Grantham

TF06/47 **Stow No. 2** **EA Anglian**
Well: Borehole, 262 mm diameter to 55.47 metres. Casing to 7.92 metres. Manually dipped. Reliable data.
Geology: Cornbrash Formation - Geological Map Sheet 114 Lincoln

Aquifer: Permo-Triassic Sandstones

IJ26/1	Dunmurry	DOENI
<i>Well:</i> Replaced IJ26/2. Good representative site with no known artificial influences.		
<i>Geology:</i> Sherwood Sandstone Formation overlain by Boulder Caly - Geological Map Sheet 36 Belfast		
NX97/1	Redbank	SEPA WEST
<i>Well:</i> Borehole, 203 mm diameter to 27.7 metres. Casing to 19.6 metres. Replaced by NX97/2, Newbridge.		
<i>Geology:</i> Doweel Breccia Formation - Geological Map Sheet 9E Thornhill		
NX97/2	Newbridge	SEPA WEST
<i>Well:</i> Index well, replaces Redbank NX97/1.		
<i>Geology:</i> Locharbriggs Sandstone Formation - Geological Map Sheet 9E Thornhill		
NY00/328	Brownbank Layby	EA North West
<i>Well:</i> 76.13 metres deep. No data May 2000 to May 2002.		
<i>Geology:</i> Calder Sandstone Formation - Geological Map Sheet 37 Gosforth		
NY14/4	New Cowper	EA North West
<i>Well:</i> Borehole, 200 mm diameter to 81.34 metres. Casing to 32.66 metres. Annual sinusoidal hydrograph. No data November 2000 to April 2002.		
<i>Geology:</i> St Bees Sandstone Formation - Geological Map Sheet 23 Cockermouth		
NY63/2	Skirwith	EA North West
<i>Well:</i> Borehole, 200 mm diameter to 89.62 metres. Casing to 7 metres. Index well. The hydrograph has an annual sinusoidal pattern.		
<i>Geology:</i> St Bees Sandstone Formation - Geological Map Sheet 24 Penrith		
NZ41/34	Northern Dairies	EA North East
<i>Well:</i> 121.9 metres deep. Removed 2002. Generally shows gradual rise in levels but could have been influenced by pumping during 1993.		
<i>Geology:</i> Mercia Mudstone Group - Geological Map Sheet 33 Stockton		
SD27/6B	Furness Abbey	EA North West
<i>Well:</i> Borehole, 688 mm diameter to 91.74 metres. Casing to 19.51 metres. No data October 1994 to July 1996 and December 2000 to April 2002. The hydrograph has an annual sinusoidal pattern.		
<i>Geology:</i> Sherwood Sandstone Group - Geological Map Sheet 58 Barrow-in-Furness		
SD40/137	Moor Hall	EA North West
<i>Well:</i> Borehole, 244 mm diameter to 100 metres. Casing to 41 metres. Data sporadic from Mar 1985 to Mar 1992 and missing from Jan to July 1999 and May 2001 to July 02.		
<i>Geology:</i> Sherwood Sandstone Group overlain by Shirdley Hill Sand Formation - Geological Map Sheet 84 Wigan		
SD41/32	Yew Tree Farm	EA North West
<i>Well:</i> Borehole, 203 mm diameter to 58 metres. Index well. Logger installed. The hydrograph has an annual sinusoidal pattern.		
<i>Geology:</i> Ormskirk Sandstone Formation - Geological Map Sheet 84 Wigan		
SD44/15	Moss Edge Farm	EA North West
<i>Well:</i> 44.8 metres deep. Casing to 29.57 metres. Data missing December 2000 to October 2004. The hydrograph has an annual sinusoidal pattern.		
<i>Geology:</i> Sherwood Sandstone Group - Geological Map Sheet 67 Garstang		
SD53/25	Red Scar Wood	EA North West
<i>Well:</i> 38.1 metres deep. The hydrograph has an annual sinusoidal pattern.		
<i>Geology:</i> Sherwood Sandstone Group - Geological Map Sheet 75 Preston		
SE36/47	Kelly's Café	EA North East
<i>Well:</i> Borehole, 196 mm diameter to 74.68 metres. Cased. The hydrograph has an annual sinusoidal pattern superimposed on periodic rises and falls in water levels.		
<i>Geology:</i> Sherwood Sandstone Group - Geological Map Sheet 62 Harrogate		
SE39/20B	Scruton Village	EA North East
<i>Well:</i> Borehole, 787 mm diameter to 137.16 metres. Cased. The hydrograph has an annual sinusoidal pattern superimposed on periodic rises and falls in water levels.		
<i>Geology:</i> Sherwood Sandstone Group - Geological Map Sheet 42 Northallerton		
SE45/3	Cattal Maltings	EA North East
<i>Well:</i> Borehole, 130 mm diameter to 36.6 metres. Site closed 2004 due to access problems.		
<i>Geology:</i> Sherwood Sandstone Group - Geological Map Sheet 62 Harrogate		
SE52/4	Southfield Lane	EA North East
<i>Well:</i> Borehole, 196 mm diameter to 12.19 metres. Borehole, 147 mm diameter to 246.89 metres. Casing to 12.19 metres. No data December 1995 to February 1998. Logger installed 2002.		
<i>Geology:</i> Sherwood Sandstone Group - Geological Map Sheet 78 Wakefield		
SE54/32A	Bilborough	EA North East
<i>Well:</i> Shaft, 1.8 m diameter to 10.67 metres. Brick-lined. Borehole, 328 mm diameter to 73.15 metres. No data for 1996, 199.7 Logger installed.		
<i>Geology:</i> Sherwood Sandstone Group - Geological Map Sheet 70 Leeds		
SE60/76	Woodhouse Grange	EA Midlands
<i>Well:</i> Borehole, 196 mm diameter to 62.48 metres. Cased. Replaced SE60/24 in 1981. Shows natural seasonal variation in water levels.		
<i>Geology:</i> Nottingham Castle Sandstone Formation - Geological Map Sheet 88 Doncaster		
SE61/11	Sykehouse	EA North East
<i>Well:</i> Borehole, 196 mm diameter to 45.72 metres. Casing to 20.45 metres. Logger installed.		
<i>Geology:</i> Sherwood Sandstone Group - Geological Map Sheet 79 Goole		
SE83/1	Holme-on-Spalding Moor	EA North East
<i>Well:</i> Borehole, 262 mm diameter to 109.73 metres. Cased. No data 1982, 1983, 1984. Previously numbered SE83/9. No access between 19/02/2001 and 02/01/2002.		
<i>Geology:</i> Mercia Mudstone Group - Geological Map Sheet 71 Selby		
SJ15/13	Llanfair D.C	EA Wales
<i>Well:</i> Borehole, 319 mm diameter to 21.92 metres. Index well. Previously numbered SJ15/15. Good reliable data.		
<i>Geology:</i> Kinnerton Sandstone Formation - Geological Map Sheet 121 Wrexham		
SJ33/39	Eastwick Farm	EA Wales
<i>Well:</i> Borehole, 246 mm diameter to 21.95 metres. Borehole, 180 mm diameter to 36.58 metres. Casing to 21.95 metres. Influenced by pumping from abstraction borehole.		
<i>Geology:</i> Chester Pebble Beds Formation - Geological Map Sheet 121 Wrexham		
SJ56/45E	Ashton No 4	EA North West
<i>Well:</i> Borehole, 984 mm diameter to 140.21 metres. No data for Apr 1995 to Nov 1996.		
<i>Geology:</i> Wilmslow Sandstone Formation - Geological Map Sheet 109 Chester		
SJ59/147	Sandy Lane	EA North West
<i>Well:</i> Borehole, 200 mm diameter to 22.87 metres. Casing to 9.15 metres. No data for May 1985 to Apr 1991, June 1999 to July 2000.		
<i>Geology:</i> Chester Pebble Beds Formation - Geological Map Sheet 84 Wigan		
SJ62/112	Heathlanes	EA Midlands
<i>Well:</i> Shaft, 1 m diameter to 8.74 metres. Stone-lined. Index well. Hydrograph shows groundwater system responsive to seasonal recharge and natural seasonal variation.		
<i>Geology:</i> Bridgnorth Sandstone Formation - Geological Map Sheet 138 Wem		
SJ69/138	Kenyon Lane	EA North West
<i>Well:</i> Borehole, 229 mm to 60.96 metres. Casing to 39.57 metres. The hydrograph shows a steady decline in water level from 1968 to 1981: a slower decline from 1988 to 1996 followed by a rise in levels from 1996 to 2004.		
<i>Geology:</i> Wilmslow Sandstone Formation - Geological Map Sheet 84 Wigan		
SJ83/1A	Stone	EA Midlands
<i>Well:</i> Shaft, 2 m diameter to 4.27 metres. Borehole, 229 mm diameter to 110.95 metres. Hydrograph shows an open groundwater system very responsive to seasonal recharge and natural variations. No access, removed from network.		
<i>Geology:</i> Mercia Mudstone Group - Geological Map Sheet 139 Stafford		
SJ87/32	Dale Brow	EA North West
<i>Well:</i> Borehole, 200 mm diameter to 152.4 metres. Casing to 73.8 metres. No data for February 1995 to June 1996.		
<i>Geology:</i> Wilmslow Sandstone Formation - Geological Map Sheet 98 Stockport		
SJ88/93	Bruntwood Hall	EA North West
<i>Well:</i> 134.11 metres deep. Datum changed from 62.56 m aOD to 63.36 m aOD 23 March 2002. Spiky hydrograph showing rapid response to rainfall.		
<i>Geology:</i> Wilmslow Sandstone Formation - Geological Map Sheet 98 Stockport		
SK00/41	Nuttalls Farm	EA Midlands
<i>Well:</i> Shaft, 2.2 m diameter to 14.47 metres. Index well. Groundwater system responsive to seasonal recharge.		
<i>Geology:</i> Kidderminster Formation - Geological Map Sheet 154 Lichfield		
SK10/9	Weeford Flats	EA Midlands
<i>Well:</i> Shaft, 1.2 m diameter to 7.6 metres. Index well. Hydrograph shows an open groundwater system responsive to seasonal recharge. Dry during 1976, 1992 and 1998–1999. Dry at 7.42m 2004.		
<i>Geology:</i> Bromsgrove Sandstone Formation - Geological Map Sheet 154 Lichfield		

SK21/111 **Grangewood** **EA Midlands**
Well: Shaft, 0.9 m diameter to 14.9 metres. Hydrograph shows an open groundwater system responsive to seasonal recharge.
Geology: Bromsgrove Sandstone Formation - Geological Map Sheet 155 Coalville

SK24/22 **Burtonshuts Farm** **EA Midlands**
Well: Shaft, 1.2 m diameter to 20.4 metres. Brick-lined. Hydrograph shows an open groundwater system responsive to seasonal variation.
Geology: Nottingham Castle Sandstone Formation - Geological Map Sheet 125 Derby

SK56/53 **Peafield Lane** **EA Midlands**
Well: Borehole, 254 mm diameter to 47 metres. Hydrograph shows minimal seasonal response to recharge but there are long term cycles of recession and recovery superimposed on a gradual decline; also influenced by abstraction.
Geology: Nottingham Castle Sandstone Formation - Geological Map Sheet 113 Ollerton

SK67/17 **Morris Dancers** **EA Midlands**
Well: Borehole, 262 mm diameter to 36.6 metres. Index well. Possible delayed recharge occurring but hydrograph indicates long term decline in groundwater level. Influenced by abstraction.
Geology: Nottingham Castle Sandstone Formation - Geological Map Sheet 113 Ollerton

SK68/21 **Crossley Hill Wood** **EA Midlands**
Well: Borehole, 203 mm diameter to 40 metres. Hydrograph shows some seasonal response to recharge but dominant trend is long term decline in water level commencing early 1970's. Influenced by abstraction.
Geology: Nottingham Castle Sandstone Formation - Geological Map Sheet 101 East Retford

SO71/18 **Stores Cottage** **EA Midlands**
Well: 8.4 metres deep. Borehole shows natural seasonal variation.
Geology: Mercia Mudstone Group - Geological Map Sheet 234 Gloucester

SO87/28 **Hillfields** **EA Midlands**
Well: Shaft, 1.2 m diameter to 26.59 metres. Borehole responds with natural seasonal variations. Aquifer probably confined by marl horizons within the sandstone.
Geology: Kidderminster Formation - Geological Map Sheet 167 Dudley

SX99/37B **Bussels No.7A** **EA South West**
Well: Borehole, 401 mm diameter to 18.44 metres. Casing to 18.44 metres. Index well. Datum changed from 26.97 20/01/2000.
Geology: Bussell's Member - Geological Map Sheet 325 Exeter

SY09/21A **Heathlands** **EA South West**
Well: Shaft, 1.2 m diameter to 11.58 metres. No data for January 1960 to March 1968, January 1983 to June 1984. Datum changed from 102.76 10/06/02.
Geology: Budleigh Salterton Pebble Beds Formation - Geological Map Sheet 325 Exeter

Aquifer: Magnesian Limestone

NZ21/29 **Swan House** **EA North East**
Well: 59.83 metres deep. Casing to 34.44 metres. Screen from 34.44 to 51.82 metres. Index well, replaced NZ22/22 July 2001. The hydrograph has an annual sinusoidal pattern.
Geology: Ford Formation - Geological Map Sheet 32 Barnard Castle

NZ22/22 **Rushyford NE** **EA North East**
Well: 79.24 metres deep. Replaced as Index Well by NZ21/29. Influenced by mine water pumping.
Geology: Zechstein Group - Geological Map Sheet 27 Durham

NZ32/19 **Heley House** **EA North East**
Well: Borehole, 426 mm diameter to 112.78 metres. Screen from 70.1 to 112.78 metres. No data February 2001 to January 2003. Shows gradual rise in levels from September 1976.
Geology: Ford Formation - Geological Map Sheet 33 Stockton

NZ33/20 **Garmondsway** **EA North East**
Well: Borehole, 98 mm diameter to 73.15 metres. No data 1988 and from December 2001 to January 2005. The hydrograph has an annual sinusoidal pattern. Data up to 25/4/2006. Stopped monitoring due to Health and Safety issue.
Geology: Zechstein Group - Geological Map Sheet 27 Durham

SE35/4 **Castle Farm** **EA North East**
Well: Borehole, 196 mm diameter to 53.34 metres. Casing to 46.94 metres. No data for 1996, 1997. The hydrograph has an annual sinusoidal pattern.
Geology: Brotherton Formation - Geological Map Sheet 62 Harrogate

SE43/14 **Coldhill Farm No. 35** **EA North East**
Well: Borehole, 150 mm diameter to 27 metres. Logger installed. The hydrograph has an annual sinusoidal pattern.
Geology: Edlington Formation - Geological Map Sheet 70 Leeds

SE43/9 **Peggy Ellerton** **EA North East**
Well: Borehole, 196 mm diameter to 55.42 metres. Casing to 10.21 metres. Replaced as Index Well by Brick House Farm SE44/80 in 2002. The hydrograph has an annual sinusoidal pattern superimposed on periodic rises and falls in water levels.
Geology: Brotherton Formation - Geological Map Sheet 70 Leeds

SE44/80 **Brick House Farm** **EA North East**
Well: No construction details recorded. Index well replaced Peggy Ellerton SE43/9.
Geology: Edlington Formation - Geological Map Sheet 70 Leeds

SE51/2 **Westfield Farm** **EA North East**
Well: 21.95 metres deep. No access between 12/02/2001 and 13/02/2002.
Geology: Cadeby Formation - Geological Map Sheet 78 Wakefield

SK46/71 **Stanton Hill** **EA Midlands**
Well: Borehole, 200 mm diameter to 9.9 metres. Responds to natural seasonal variation.
Geology: Cadeby Formation - Geological Map Sheet 112 Chesterfield

SK58/43 **Southards Lane** **EA Midlands**
Well: Borehole, 328 mm diameter to 21.34 metres. Borehole backfilled from 411m so may have connections to deeper groundwater units. Hydrograph shows an open groundwater system responsive to seasonal recharge.
Geology: Cadeby Formation - Geological Map Sheet 100 Sheffield

Aquifer: Coal Measures

SE23/4 **Silver Blades Ice Rink** **EA North East**
Well: Borehole, 262 mm diameter to 45.72 metres. Casing to 19.35 metres. No data December 1995 to January 1998. Hydrograph shows an overall rise in levels from 1971 to 1995 followed by a general decline in level..
Geology: Elland Flags - Geological Map Sheet 70 Leeds

Aquifer: Millstone Grit

SE02/46 **Thrum Farm** **EA North East**
Well: Borehole, 150 mm diameter to 62 metres. Casing to 3 metres. Logger installed. Data missing December 2004 to January 2006.
Geology: Rough Rock - Geological Map Sheet 77 Huddersfield

SE04/7 **Lower Heights Farm** **EA North East**
Well: Borehole, 196 mm diameter to 60.96 metres. Casing to 19.2 metres. Data missing December 1995 to January 1998, December 2000 to February 2002 and April 2004 to September 2005.
Geology: Millstone Grit - Geological Map Sheet 69 Bradford

Aquifer: Carboniferous Limestone

SE06/1 **Jerry Laith Farm** **EA North East**
Well: Borehole, 196 mm diameter to 45.72 metres. Casing to 25.91 metres. Blocked at 29m. Unreliable: shows c. 29m drop in level after 1993. No data 2001. Last visited 8/6/04, dipper stuck in borehole.
Geology: Pendleside Limestone Formation - Geological Map Sheet 61 Pateley Bridge

SK15/16 **Alstonfield** **EA Midlands**
Well: Borehole, 229 mm diameter to 121.92 metres. Index well. Hydrograph shows an open groundwater system very responsive to seasonal recharge.
Geology: Woo Dale Limestone Formation - Geological Map Sheet 111 Buxton

SK17/13 **Hucklow South** **EA Midlands**
Well: 123.63 metres deep. Hydrograph shows an open groundwater system very responsive to seasonal recharge.
Geology: Eyam Limestone Formation - Geological Map Sheet 99 Chapel en le Frith

ST64/33 **Oakhill No. 1** **EA South West**
Well: Borehole, 328 mm diameter to 50.7 metres. Good reliable data and representative of natural conditions.
Geology: Quartzitic Sandstone Formation - Geological Map Sheet 281 Frome

Aquifer: Fell Sandstone

NT94/3B **Royalty Observation** **EA North East**
Well: Borehole, 100 mm diameter to 30 metres. No data December 2001 to January 2004. Spiky hydrograph..
Geology: Fell Sandstone Formation - Geological Map Sheet 1 Norham

NT95/21 **Middle Ord** **EA North East**
Well: No construction details recorded. No data December 2001 to January 2004. Hydrograph shows long term fall and rise of water levels.
Geology: Fell Sandstone Formation - Geological Map Sheet 1 Norham

THE NATIONAL HYDROLOGICAL ARCHIVES – information and data retrieval facilities

The primary gateways for information and data held on the National River Flow Archive (NRFA) and National Groundwater Level Archive (NGLA) are the websites of the Centre for Ecology and Hydrology and the British Geological Survey. General details of the relevant data and information holdings are given below.

The National River Flow Archive website

This currently incorporates five main components:

River Flow Data

Provides a data download facility for daily river flow time series from 200 index gauging stations throughout the UK together with an introduction to the complementary data retrieval facilities of the NRFA.

Water Watch

Provides access to a range of outputs from the National Hydrological Monitoring Programme including monthly and annual summaries of hydrological conditions and water resources variability throughout the UK.

UK Gauging Network

Provides location maps, reference information, hydrographs, flow duration curves and descriptive material relating to all primary gauging stations in the UK.

Publications

Provides details of publications in the Hydrological data UK series and other associated publications and reports (see page 193).

Catchment Spatial Details

Provides spatial characterisations (topography, rainfall, land use and hydrogeology) for more than 1200 catchments in the UK monitoring network

The NRFA website is under continuing development. Further details are provided at: <http://www.ceh.ac.uk/data/nrfa/index>

The NRFA Data Retrieval Service

The National River Flow Archive (NRFA) comprises around 50,000 station years of daily river flows and incorporates data from over 1500 gauging stations throughout the United Kingdom. In addition to gauged flow data, naturalised datasets have been derived for a small number of gauging stations. For most gauging stations, the highest instantaneous flow in each month is also archived on a monthly basis (see note below) together with assessments of areal rainfall over the catchment.

A range of validation procedures is applied to most of the contemporary river flow and rainfall data but the quality control of much of the historical data will have been more rudimentary. As a consequence, significant variation in the precision of archived datasets is to be expected.

In order that the contents of the NRFA may be readily accessible a suite of standard programs has been developed to provide a comprehensive selection of retrieval options. All retrieval programs have been designed to allow flexibility in the presentation of options, particularly those producing graphical output. Most data is now disseminated electronically and a choice of output formats is available to suit user needs. Normally, appropriate reference and descriptive information is provided to help interpret analyses based on the data.

Before finalising a data request it is recommended that the relevant entries in the UK Hydrometric Register be consulted – the Station Descriptions in particular (see Part III of the Gauging Station Registers) – to provide guidance on the suitability of the river flow data for particular applications.

Details of the range of retrieval options, the availability of flow data for individual gauging stations, and latest enhancements to the retrieval suite are given on the NRFA website.

Note: the principal source of nationally archived flood data is the HiFlows database maintained by the Environment Agency in collaboration with the Scottish Environment Protection Agency and the Rivers Agency in Northern Ireland. This database provides updated peak flow information (generally to 2003). Water-year maximum flows and time series of Peaks-Over-Threshold (POT) may be accessed via the HiFlows website:

<http://www.environment-agency.gov.uk/hiflowsuk/>

Cost of service

Data accessed by the NRFA Data Retrieval Service are provided free for academic research. For commercial and non-academic use a minimum charge of £50 (+VAT) applies – covering up to four standard retrievals. For additional retrievals customers have the option of paying an additional £15 per retrieval or an hourly rate of £50 per extra hour (or part thereof). The right to amend or waive charges is reserved.

Requests for data

Requests for data should include: the name and address to which the output should be directed, the sites, or areas, for which data are required together with the period of record of interest (where appropriate) and the title of the required option. Where possible, a daytime telephone number should be given.

Requests for retrieval options should be addressed to:

The National River Flow Archive Office
Centre for Ecology and Hydrology Wallingford
Maclean Building
Crowmarsh Gifford
WALLINGFORD
OXFORDSHIRE OX10 8BB

Tel: +44(0) 1491 838800

Email: nrfa@ceh.ac.uk

The NGLA Data Retrieval Service

The National Groundwater Level Archive (NGLA) holds borehole level data and site details for around 170 representative wells and boreholes throughout the United Kingdom. Some characteristics of individual wells, and their associated well records, are given in the Well Register but it is recommended that data users contact the BGS offices in Wallingford (see below) before finalising any data request.

Detailed time series data may be retrieved for a specific well or for groups of wells by well reference numbers, by area (using National Grid References), by aquifer, by hydrometric area, by measuring authority, or by any combination of these parameters.

At the present time not all the data contained within the NGLA have been validated.

For details of the latest information on accessing or licensing groundwater level data please contact the BGS via, the website or directly (see below).

Website: <http://www.bgs.ac.uk/>

Groundwater Level Data:

The British Geological Survey
Wallingford Office
Maclean Building
Crowmarsh Gifford
WALLINGFORD
OXFORDSHIRE OX10 8BB

Tel: +44(0) 1491 838800

Email: hydroenq@bgs.ac.uk

The National Well Record Archive

The British Geological Survey maintains the National Well Record Archive (NWRA) for England, Wales and Scotland. Currently this archive includes hydrogeological details and reference information for over 109,000 shafts, boreholes and some springs – predominantly constructed or used for water supply or the monitoring of groundwater levels or quality. The archive is organised into files based upon the 10 kilometre

squares of the National Grid. Each file includes a register that details the accession number, the depth, the national grid reference and certain other details. The registers are available for all records via the BGS website, and a digital database, WellMaster, of key hydrogeological parameters is also available for licensed users.

The data for England and Wales are archived at the Wallingford Office of BGS (address above) and all the non-confidential records are open to inspection by the general public. Scottish data are held in the BGS's Edinburgh office. Those wishing to avail themselves of this facility should contact BGS in advance to discuss access procedures and costs.

BGS Enquiry Service

The BGS operates a service to provide advice on any aspect of hydrogeology, groundwater systems and water quality.

Using the information and data resources held within the National Well Record Archive and across BGS a range of standardised and bespoke reports are available.

The Water Borehole Prognosis Report is aimed at users investigating sites for the abstraction of smaller groundwater supplies (less than 20m³/d). Note that reports are also available for larger supplies – please contact BGS for details. The Prognosis Reports contains an evaluation of the potential geological sequence beneath a site, and its aquifer properties, groundwater yields, rest levels and water quality.

A range of other reports and extracts from digital databases are available covering aquifer properties, water chemistry and geological aspects of Ground Source Heat Pump design.

The National Geosciences Information Service

The NWRA is associated with the National Geosciences Information Service (NGIS), one of a number of computer-based data centres established at NERC Institutes. The NGIS is located at the BGS Headquarters, Keyworth, near Nottingham (Telephone: 0602 363100) and provides access to a broad range of geological information (for example, geophysical and hydrogeological logs, core samples and chemical analyses of rocks and soils).

DIRECTORY OF MEASURING AUTHORITIES

	Address	Code
Environment Agency	Rio House Waterside Drive Aztec West, Almondsbury BRISTOL, BS12 4UD	EA
Environment Agency Regional Headquarters¹		
Anglian Region	Kingfisher House, Goldhay Way, Orton Goldhay PETERBOROUGH, PE2 0ZR	
North East Region	Rivers House 21 Park Square South LEEDS, LS1 2QG	
North West Region	Richard Fairclough House , Knutsford Road WARRINGTON, WA4 1HG	
Midlands Region	Sapphire East 550 Streetsbrook Road SOLIHULL, B91 1QT	
Southern Region	Guildbourne House , Chatsworth Road WORTHING, BN11 1LD	
South West Region	Manley House, Kestrel Way Sowton Industrial Estate EXETER, EX2 7LQ	
Thames Region	Kings Meadow House, Kings Meadow Road READING, RG1 8DQ	
Environment Agency Wales	Rivers House/Plas-yr-Afon St Mellons Business Park CARDIFF, CF3 0LT	
Scottish Environment Protection Agency	Erskine Court (Corporate Office) The Castle Business Park STIRLING, FK9 4TF	
Scottish Environment Protection Agency – Regional Offices²		
North Region	Graesser House Fodderty Way DINGWALL, IV15 9XB	SEPA-N
East Region	Clearwater House Heriot Watt Research Park Avenue North, Riccarton EDINBURGH, EH14 4AP	SEPA-E
West Region	5 Redwood Crescent Peel Park EAST KILBRIDE, G74 5PP	SEPA-W

¹ Although the administrative boundaries of some of the EA regions (see Frontispieces) differ appreciably from the hydrological regions featured in this publication, hydrometric data collection is generally organised on a basin or catchment basis. For further details relating to the monitoring sites featured on the Maps 4-11 initial contact should normally be made with the appropriate EA Regional Headquarters.

² Note: The administrative boundaries of the North and West Regions differ from their hydrological boundaries.

Northern Ireland - Rivers Agency	Hydebank, 4 Hospital Road BELFAST, BT8 8JP	RA
 Other measuring authorities		
British Waterways	Willow Grange Church Road WATFORD, WD1 3QA	BW
Dept. of the Environment, Northern Ireland	EHS, Water Management Unit 17 Antrim Road, LISBURN BT28 3AL	DOENI
Dwr Cymru Welsh Water	Pentwyn Road, Nelson TRESHARRIS CF46 6LY	WW
Essex & Suffolk Water	Hall Street CHELMSFORD, CM2 OHH	ESW
Geological Survey of Northern Ireland	20 College Gardens BELFAST, BT9 6BS	GSNI
Scottish Water	Castle House 6 Castle Drive DUMFERMLINE, KY11 8GG	SWA
Centre for Ecology and Hydrology	Maclean Building WALLINGFORD, OX10 8BB	CEHW
North East Water Plc	Northumbria House, Regent Centre NEWCASTLE UPON TYNE, NE3 3PX	NEW
United Utilities Plc	Haweswater House Lingley Green Av. WARRINGTON, WA5 3LP	NWW
Southern Water Plc	Southern House Yeoman Road WORTHING, BN13 3NX	SW
Yorkshire Water	PO Box 52 BRADFORD, BD3 7YD	YW

Websites of the principal data suppliers

Environment Agency	http://www.environment-agency.gov.uk/home
Scottish Environment Protection Agency	http://sepa.org.uk
Rivers Agency (Dept. Agriculture and Rural Development)	http://www.dardni.gov.uk

Note: The measuring authorities listed in this directory provide (or have provided) daily flow data to the national archive for primary flow measurement stations.

PUBLICATIONS – in the Hydrological Data UK series

The *Hydrological data UK series* of reports documents and interprets hydrological conditions and water resource variations throughout the UK. The series embraces a range of publications – details are given below – the majority of which are now released through the NRFA website:

<http://www.ceh.ac.uk/data/nrfa/index.html>

Hydrological Summaries for the UK

These monthly reports are the primary output of the National Hydrological Monitoring Programme. The NHMP was instigated in 1988 and is undertaken jointly by CEH Wallingford and the British Geological Survey. Financial support for the production of the Hydrological Summaries is provided by Defra, the Environment Agency, the Scottish Environment Protection Agency, the Rivers Agency in Northern Ireland, and the Office of Water Services (OFWAT).

The Hydrological Summaries provide an authoritative and impartial overview of water resources and hydrological conditions across the UK. The Summaries capitalise on the National River Flow and National Groundwater Level Archives to provide an historical perspective within which to examine contemporary hydrological variability. Electronic versions of the Hydrological Summaries can be downloaded from the NRFA website (see above). Pre-release versions of the reports are available on subscription; for further details please contact the NRFA Office (see page 189).

Hydrological reviews of the year

The annual Hydrological Reviews focus on variations in hydrological conditions and water resources status across the UK. Post-1995 Reviews can be accessed via the 'Water Watch' component of the NRFA website. Reviews for earlier years, back to 1981 are featured in the Hydrological data UK Yearbooks, copies of which may be purchased from the NRFA office; please note that a few of these Yearbooks are now out of print.

Reports on notable hydrological events and issues

This category includes occasional reports in the Hydrological data UK series (both hard-copy and web-based publications) and articles originally published in Yearbooks (1981-1995). The reports and articles are listed below. Pdf versions of the articles can be downloaded from the NRFA website; please note that because of the scanning process some of the figures and plates reproduce poorly in monochrome.

Occasional reports

Title

Author/s

The 1984 Drought

The 1988-92 Drought

The 2000/01 Floods – a hydrological appraisal

The UK Drought of 2003 – an overview

The 2004-06 Drought

The summer 2007 floods in England & Wales – a hydrological appraisal

T. J. Marsh and M. L. Lees

T. J. Marsh, R.A. Monkhouse, N. W. Arnell,

M. L. Lees and N. S. Reynard

T. J. Marsh

T. J. Marsh

T. J. Marsh, D. Brooker and M. Fry

T. J. Marsh and J. A. Hannaford

Feature Articles

Flow Gauging on the River Thames - The First 100 Years	A.E.Jones
Water Surveying in the United Kingdom - A Short History	M.L.Lees
The McClean Hydrometric Data Collection	A.Werritty
The Acquisition and Archiving of River Flow Data	T.J.Marsh
The October 1987 Flood on the Tywi	J.R. Frost and E.C.Jones
Hydrological Analysis of the Truro Floods	M. C. Acreman
The 1988/89 Drought– A Hydrological Review	M. L. Lees, S. J. Bryant and T. J. Marsh
1990 – A Year of Floods and Drought	T.J. Marsh and S. J. Bryant
The Great Tay Flood of January 1993	A. R. Black and J. L. Anderson
The Chichester Flood, January 1994	S. M. Taylor
Regional Flooding in Strathclyde – December 1994	A. R. Black and A. M. Bennet
The 1995 Drought – a water resources review	T. J. Marsh

Hydrometric Register and Statistics

These precursors to the UK Hydrometric Register serve as handbooks for practising hydrologists and a wider community of users of hydrometric data. Each edition covers a five-year period and provides detailed statistics allowing comparisons to be made between years and with long term average conditions. Comprehensive reference information relating to the gauging station and index wells and boreholes in the national monitoring networks is also provided. Copies of the editions for 1981-85, 1986-90, 1991-95 and 1996-00 may be obtained from the NRFA Office.

This glossary of terms is intended primarily to help explain some of the technical vocabulary used in Part III of the Gauging Station Register. Where possible, the definitions given below are based upon those developed by the International Standards Organisation¹.

Surface Water

Afflux	The rise in water level immediately upstream of, and due to, an obstruction.
Backwater (curve)	The profile of the water surface upstream when its surface slope is generally less than the bed slope. The backwater curve generally occurs upstream of an obstruction or confluence.
Broad-crested	A weir of sufficient breadth (in the direction of the flow) such that critical flow occurs on the crest of the weir. The term long-crested is sometimes also applied to such structures.
Cableway	An assembly of winches and ropes and a carrier for placing the current meter at any desired point in the cross section.
Calibration	The establishment of a discharge relationship (or rating) with the measured stage values. Sometimes used as a synonym for the stage-discharge relation.
Compensation	A minimum flow which a water authority is under an obligation to discharge into a watercourse as a condition of carrying out their undertaking. Commonly the obligation relates to the maintenance of a discharge rate below a reservoir. The term 'residual flow' is preferred by some authorities.
Compound weir	A weir containing two or more sections, which may be of different types, each section normally having a different height.
Control	The physical properties of a channel, natural or artificial, which determine the relationship between stage and discharge at a location in the channel.
Crest-tapping	A means of measuring the pressure head near to the crest of a weir – the ratio of this head to the upstream measured head can be used to determine the reduction factor necessary when flows are non-modular.
Critical flow	The flow in which the total energy head* is a minimum for a given discharge; critical flow conditions are created by the installation of most standard weirs and flumes (as well as by natural obstructions and constrictions).
Depth of approach	The depth of the upstream bed at the tapping point below the lowest point of a weir crest.
Drawdown curve	The profile of the water surface where its surface slope exceeds the bed slope, for instance, immediately upstream of a weir or flume.
Drowned	A circumstance in which the upstream water levels at a gaging structure are affected by the downstream water level (and the 'modular' stage-discharge relation no longer applies).
Flume	An artificial channel with clearly specified shape and dimensions which may be used for the measurement of flow. A standing-wave flume, for instance, contains a constriction which causes the flow to change from sub-critical* to super-critical* and in which the measurement of upstream water level (alone) allows the discharge to be computed.
Freshets	The periodical release of discharge rates over and above the basic compensation flow. These artificial floods are intended to benefit the aquatic environment, particularly fisheries.
Gaugeboard	A device with a graduated scale installed at a gauging station for measuring the level of water relative to a datum. Gaugeboards can be either vertical or inclined.
Hydraulic jump	The sudden change of flow from super-critical flow to sub-critical flow. The transition is marked by a standing-wave.
Hysteresis	The effect on the stage-discharge relation at a gauging station subject to variable water surface slope where, for the same gauge height, the discharge on a rising stage differs from that on a falling stage.
Influent stream	One which flows above the water-table and contributes to it by natural leakage through the bed of the channel (sometimes termed a 'losing' stream; conversely a 'gaining' stream has its flow naturally augmented by inflow through the bed or banks).
Invert	The lowest part of the cross-section of a natural or artificial channel.
Modular limit	The submergence ratio when the flow just begins to be affected by the downstream level.

Nappe	The jet formed by the flow over a weir. A clinging nappe is one held in contact with the downstream face of a weir.
Rhymer weir	A simple form of variable geometry weir consisting of fixed horizontal beams which support vertical timber posts to form a series of rectangular openings; these may be closed by means of timber gates.
Stage	The elevation of the free surface of a stream relative to a datum; sometimes also referred to as the gauge height.
Stage-discharge	An equation, table or formula which expresses the relation between the stage and the discharge in an open channel at a given cross-section.
Stilling well	A well connected with the main stream in such a way as to permit the measurement of stage in relatively still liquid.
Submergence	The ratio of the downstream total head (measured head plus velocity head) to the upstream total head over a weir.
Suppressed weir	A weir whose sides are in the same plane as the open channel thus eliminating (suppressing) side contractions of the stream.
Thin-plate weir	A weir constructed of a vertical thin plate with a thin crest shaped in such a manner that the nappe springs clear of the crest.
Triangular-profile weir	A weir having a triangular profile in a vertical direction in the direction of flow. The 'Crump' and 'Flat V' weirs are examples of such structures.
Unstable channel	Channel in which there are frequent and significant changes in control.
Velocity of approach	The mean velocity in an open channel at a specified distance upstream of a measuring device.
Velocity head	The head obtained by dividing the square of the mean velocity (in the measuring section) by twice the acceleration due to gravity.
Wrack marks	Line of debris (often vegetation) left following a flood; provides a guide to the maximum river level.

* For definitions of these terms see reference 1.

Groundwater

Aquifer	A rock formation containing groundwater that can be abstracted economically in useful quantities.
Artesian well	A shaft, or more commonly a borehole, within which, when the aquifer is penetrated, water rises within the well to a level above the top of the aquifer, i.e. above the base of a confining layer. The term is usually reserved for wells that naturally overflow at the ground surface; where the water level rises, but does not reach the ground surface, the term sub-artesian is sometimes used.
Borehole	A well constructed by machinery, usually less than one metre in diameter. Usually constructed vertically, but inclined boreholes are occasionally constructed.
Casing	See 'Lining'.
Confined aquifer	An aquifer in which groundwater is held under pressure by a confining layer.
Confining layer	An impermeable rock formation that immediately overlies an aquifer, and which may contain water in the latter under pressure.
Groundwater	Sub-surface water contained within the saturated zone.
Lining	Boreholes and wells are normally completed with a lining to protect their structural integrity. The lining may be plain (sometimes referred to as a casing) or slotted (a screen). A plain lining may isolate, or partially isolate, observed water levels from the influence of near-surface aquifers.
Observation well	A shaft or borehole used for observing groundwater head or quality.
Permeability	The ability of a material to allow the passage of a fluid.
Piezometric head	The surface that represents the static head of the groundwater surface in a confined aquifer; in practice, the static head is taken to be the water level measured in a well penetrating a confined aquifer.

Potentiometric	The surface that represents the static head of the groundwater surface in both confined aquifers and water-table aquifers (i.e. where the water or pressure surface is at atmospheric pressure). This term includes piezometric surface and water-table.
Rising	A term used particularly in South West England for a continuous outflow of subterranean water of such dimensions as to be regarded as the emergence of a stream rather than a spring; characteristic of karstic aquifers such as the Carboniferous Limestone in the Mendip Hills.
Saturated zone	That part of an aquifer, normally beneath the deepest water-table, in which ideally all voids are filled with water under pressure greater than atmospheric.
Shaft	A well constructed by hand and generally greater than one metre in diameter.
Screen	See 'Lining'.
Unsaturated zone	That part of an aquifer between the ground surface and the water-table.
Water level	In this context, the altitude (or depth) of the water surface as measured in a well.
Water-table	The surface of a groundwater body at which the water pressure is atmospheric. Unless the water-table is coincident with the ground surface, an unsaturated zone will be present.
Well	A term used to include both shafts and boreholes although occasionally used for shafts only.

ABBREVIATIONS

Note: The following abbreviations do not purport to represent any standardised usage; they have been developed for use in the Hydrological data UK series of publications only. Where space constraints have required alternative forms of these conventional abbreviations to be used, the meaning should be evident from the context.

Adf	Average daily flow	Ho	House
ALF	Alleviation of Low Flows	Hosp	Hospital
AOD	Above Ordnance Datum	IH	Institute of Hydrology
Amax	Annual (or water-year) maximum flow	IoW	Isle of Wight
B-c	Broad-crested	L	Loch or lake
Bk	Beck	Lb	Left hand river bank (looking downstream)
Blk	Black	Ln	Lane
Br	Bridge	LOCAR	Lowland Catchment Research Project
Brk or B	Brook	Lst	Limestone
Brn	Burn	Ltl	Little
BNFL	British Nuclear Fuels Ltd	MAF	Mean annual flood
BS	British Standards	Mkt	Market
CA	Catchment area	MI/d	Megalitres per day
Ch	Channel	Mnr	Manor
C/m	Current meter(ing)	N	North
Com	Common	NERPB	North East River Purification Board
Dk	Dike	NRFA	National River Flow Archive
Dmfs	Daily mean flows	NSHEB	North of Scotland Hydro- Electric Board
Dr or D	Drain	Ntch	Notch
D/s	Downstream	NW	North West
E	East	OD	Ordnance Datum
EM	Electromagnetic gauging station	O/f	Outfall or outflow
F&M	Foot and Mouth disease	ORS	Old Red Sandstone
Frm	Farm	Pk	Park
G/s	Gauging station	Pop	Population
Gw	Groundwater	POR	Period of record
HEP	Hydro-electric power		
Hifs	Highest instantaneous flows		

PS	Pumping station	SE	South East
Pt	Point	SOE	Scottish Office Environment Department
PT	Permo-Triassic (sandstones)	Sl	Sluice
PWS	Public water supply	Sp	Spring
Q95	The flow exceeded 95% of the time	St	Stream
QMED	Median annual flood	STW	Sewage Treatment Works
Rb	Right hand river bank (looking downstream)	SW	South West or Surface Water
R/c	Racecourse	TS	Transfer scheme
RCS	Regional communications system	US	Ultrasonic gauging station
Rd	Road	U/s	Upstream
R&D	Research and Development	VA	Velocity-area gauging station/method
Res	Reservoir	W	West
Rh	Right hand	W'course	Watercourse
RPB	River Purification Board	WBGS	West Berkshire Groundwater Scheme
S	South	Wd	Wood
S'st	Sandstone	Wr	Weir
Sch	School	WRW	Water reclamation works
S-D	Stage-discharge relation	Wtr	Water
SDD	Scottish Development Department (now SOE)	WTW	Water treatment works

For a full explanation of the letter codes used to categorise flow measurement stations, see page 5.

Reference

1. International Standards Organisation, 1978. Liquid flow measurement in open channels. Vocabulary and symbols, ISO 772, 1978.

APPENDIX I - CATCHMENT SPATIAL INFORMATION

This appendix provides an overview of the catchment permeability and land use categories featured in the Gauging Station Register Part II

Catchment permeability

Bedrock

The subdivisions used in Gauging Station Register II are based on the BGS 1:625,000 Bedrock Hydrogeology Map¹

<i>Categories</i>	<i>Types of aquifer/aquicludes</i>
High permeability	Highly productive fissured aquifers Highly productive aquifers with intergranular flow
Moderate permeability	Locally important fissured aquifers Locally important aquifers with intergranular flow
Very low permeability	Areas underlain by impermeable rocks, generally without groundwater except at shallow depths
Mixed permeability	Concealed aquifers; aquifers with limited or local potential

Superficial Deposits

The subdivisions used in Gauging Station Register II are based on the BGS 1:625,000 Superficial Deposits Map

<i>Categories</i>	<i>Types of superficial deposits</i>
Generally high permeability	Blown sand Glacial sand and gravel Raised Beach and marine deposits River Terrace deposits (mainly sand and gravel) Sand and gravel of uncertain age or origin
Generally low permeability	Clay with Flints Lacustrine clays, silts and sands Peat
Mixed permeability	Alluvium (including River Terrace deposits in Scotland) Boulder Clay and morainic drift Brickearth, mainly loess Landslip

For further details please visit: http://www.bgs.ac.uk/products/digitalmaps/data_625k.html

¹ This map does not cover Northern Ireland - here the permeability categories were determined by the characteristics of the bedrock geology (this could only be completed for those catchments which do not extend into the Irish Republic). Consequently, the bedrock permeability information given may not be directly comparable with that for the rest of the UK.

Land use

The subdivisions used in the Gauging Station Register II are based on the Land Cover Map 2000

<i>Categories</i>	<i>Types of land use</i>
Woodland	Broad-leaved/mixed woodland Coniferous woodland
Arable/Horticultural	Arable cereals Arable horticulture Arable non-rotational
Grassland	Improved grassland Setaside grass Neutral grass Calcareous grass Acid grassland Bracken Fen, marsh, swamp
Mountain, heath, bog	Montane habitats (M) Dense dwarf shrub heath (H) Open dwarf shrub heath (H) Bog (deep peat) (B)

(The capitals in parentheses are the designations used in Register II)

Note: only selected LCM2000 categories were used in Register II

For further details please visit: http://www.ceh.ac.uk/sections/seo/lcm2000_home.html

www.ceh.ac.uk

