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Duncannon Fort photo courtesy OPW

CLIMATE CHANGE AND SHORELINE BUILT CULTURAL ASSETS; THE PREPARATION OF A VULNERABILITY ATLAS

Take a county which has a diverse and rich built heritage in marine and riverine locations; examine the threat posed by climate change focusing on sea level change, storm events, and precipitation change, locating these structures in a format which can inform policy formation: example County Wexford

Aims

In association with the ICOMOS Climate Change Committee, using the NIAH and the RPS of the county, existing, locate these sites using GIS data sets. Interface this data with climate change models to predict levels of vulnerability from change in sea level, storm surges, and sudden weather events leading to river and lake flood events over time. The project will concentrate on the location and vulnerability of historic structures.

This project has the potential for immediate use and also for longer term heritage policy formation and strategic planning, by providing key practical data.

County Wexford has no Conservation or Heritage Officer at present, although the role of protection of built and natural heritage comes under the remit of an executive planning officer. County Wexford has a rich inland waterway and marine heritage, so it would appear there is a particular need for this data.

'Kelly and Stack' Climate Section 6.8 Conclusions: notes the need for the research which we plan.

Other Benefits

- Increase awareness of the built heritage and climate change effects on it
- its vulnerability to climate change effects generally such as change in flooding patterns, water table;
- inform the public debate around losses of built heritage to weather patterns.

1. Research phase. List by text and map structures on the NIAH and Record of Protected Structures,

Add historical map data, other primary source material as found useful

2. Change. Research the available flood and other climate change data for the location of each structure.

4. Analyse the data to measure vulnerabilities.

5. Consider whether each structure has particular vulnerabilities such as clay or cob structures, water table, vegetation growth.

6. Prepare a soft copy of the data using GIS data and report on conclusions of study.

Maintenance of project work over next 5 years It is hoped that Catchment Flood Risk Assessment and Management (CFRAM) Studies that will be undertaken nationally to fulfill national policy and meet the requirements of the 'Floods' Directive (Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007) will include a properly resourced assessment of built heritage and cultural assets, of which this may be a pilot study

ACKNOWLEDGMENTS

While the original aims of the study proved over ambitious in the time frame set, the work was hugely enjoyable in its new perspectives and explorations for me. The help of Liam Bowe, Pauline Doyle and the staff of Wexford County Council Planning Department, Peter Cox, and Aighleann O'Shaughnessy of the Office of Public Works as well as many others is acknowledged with thanks. All Ordnance survey maps are reproduced under licence AR0015210 granted by the Government of Ireland Ordnance Survey.

EXECUTIVE SUMMARY

Vulnerability of Wexford.

Direct impacts will include rising sea level, established historically at 1mm over time, on a coastline which has 211km of soft coast of 264 km,100km considered 'at risk', mostly glacial till.

Vegetation- ivy, fungi. Increased CO2 and warmth mean increased growth rates which will aggressively attack vulnerable structures.

Wind events on vulnerable structures. Exposed stone structures such as the 70 plus tower houses and classified castles, and 141 unclassified castles in south Wexford, as well as National Monuments. As sample, Mountgarrett Castle in New Ross, parts of the New Ross town Wall, salt works at Slade, and Fethard Castle are vulnerable to wind and ivy.

Groundwater level fall. Predicted south east at 12% less rain in winter and 30% less in summer, structures generated by water such as sacred wells (178 recorded) and mills are likely to dry out and lose part meaning. Drought: on clay soils such as the Macamore subsidence may occur.

River flooding. Though rainfall likely to fall, more severe and sudden storm events both winds and rain likely; peak flows may exceed historic volumes, potentially harming bridges, quays, and soft margins which protect structures higher over the water or further from shore. The main danger to built heritage is **flood protection or mitigation measures** which will likely erode stone margin features or damage them unless design quality high. Cohort of bridges, fine houses ,churches in Slaney Valley vulnerable.

Coastal flooding. Certain: sea level rise. Very likely: increased wave height more frequent and worse depressions in winter. Direct result, large areas of southern Wexford vulnerable to coastal flooding. Erosion on the soft coasts. Built quays. Wexford, Courtown, and smaller quays such as Cahore, Carnsore, Ardamine, may be endangered. Managed re-alignment may be required. Quays in saltwater inlets and lagoons such as St Kieran's at Saltmills and the Saltmills tidal

mill remnants less vulnerable unless sea bank is breached by winter storm. Features located on sandy coasts such as Baginbun earthworks or Ballyconnigar where a coastguard station has been lost, see map study, are highly vulnerable and decisions need to be made to lose or protect such sites. Studies have shown once a dune system is breached protection is difficult.

Rising sea level, established historically at 1mm over time, on coastline 211km soft of 264 km in total, 100km considered 'at risk', mostly glacial till. In the satellite era sea level rise of 3.5cm per decade ongoing rate. ECOPRO 1996 studies have shown coast recession of 1m per year per 1mm sea rise in glacial till coasts- this could mean 3.5m erosion per year on loose glacial till sites.

Increase in wave heights by 30cm in winter are considered to be of medium likelihood.

Storm Surge: sea level rises 10mm for every 1mb drop in air pressure, more frequent depressions of 900 mb with high spring tide at equinox twice a year predicted to cause surges up to 1.25m on the east coast, up to 0.75 on the south; RPS engineers analysed storm events in winter2006-07 maximum water level at Rosslare just over 1.2m above MSL , peak level Courtown almost 1m above MSL, tallying with predictions. Threats taken together show how vulnerable the soft east coast areas as well as the Slobs and S. Coast lagoons are.

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DIRECT IMPACTS

RISING SEA LEVEL: heightens the risk of

Gradual predictable damage or loss of built heritage close to shore, defined as existing high tide level or historically established river flood level

Impact on: historic landscape, buildings, archaeology

STORM SURGES heighten the risk of

Sudden or catastrophic damage or loss of built heritage close to shore, defined as existing high tide level or historically established river flood level

Impact on: historic landscape, buildings, archaeology

INCREASE IN SEVERE WEATHER EVENTS – FREQUENCY OF SEVERE WINDS heighten the risk of

Decay of historic structures which are structurally frail

Impact on: historic landscape, buildings, archaeology

INCREASED EXTREMES OF WETTING AND DRYING heighten the risk of

Ground subsidence

Accelerated stone decay

Impact on: historic landscape, buildings, archaeology

MORE FREQUENT INTENSE RAINFALL EVENTS heighten the risk of

Erosion of archaeological sites

Damaging flooding in historic settlements

Further impact- difficulty of insurance

Destruction of soft structures

CHANGES IN HYDROLOGY AND WATER TABLE heighten the risk of

Decay and destruction of buried archaeology including well-preserved wetland sites, loss of water landscape context, subsidence

CHANGES IN VEGETATION PATTERNS heighten the risk of

Increase in growth of invasive plant species such as ivy

Increase and change in fungal and lichen growth

Visibility and integrity of archaeology remains

Integrity of historic landscapes

Survival of historically authentic plantings including woods

CHANGES IN DISTRIBUTION OF FLORA INCLUDING FUNGI AND FAUNA SUCH AS INSECT PESTS heighten the risk of

Decay of historic fabric especially organic components such as timber, cloth, some finishes

INDIRECT IMPACTS: ADAPTATION RESPONSE

HARD COASTAL DEFENSE

May change or damage built heritage either through relationship with coast or by physical damage

Untenable on much of undeveloped coast

Example Rosslare, Tacumshin, Courtown

SOFT COASTAL DEFENSE SUCH AS MANAGED REALIGMENT

More likely as affordable- may mean de facto loss of heritage structures, landscapes and artefacts

FLOOD DEFENSE IN HISTORIC TOWNS

Major archaeological damage along historical waterfronts

Impairment of character of historic quaysides

Damage or managed change to waterside buildings, built margins and riverside structures, and designed landscapes

Example Enniscorthy, Wexford town- quays, New Ross

NEW AND MORE EFFECTIVE RAINWATER DISPOSAL AND FLOOD PROTECTION SYSTEMS

Possible loss of historic integrity and visual change to some buildings and landscapes

Detailed survey of RPS New Ross revealed inadequate rainwater goods prevalent for increased flood rainfall events

NEW ENERGY MANAGEMENT SYSTEMS –RENEWABLES

Definite loss of historic integrity and visual change to some buildings and landscapes

Mitigation possible with well designed solutions

NEW ENERGY MANAGEMENT SYSTEMS- CHANGE IN ENERGY EFFICIENCY

Loss of interior features due to poorly informed efforts to prevent heat loss

Demolition or irreversible change of historic structures due to poor information on energy performance of structure and factors such as embedded energy in existing materials, avoidance of new construction energy use and waste

Demolition or irreversible change of historic structures due to poor information on possible upgrade in energy efficiency while retaining character of structure

ALTERATION OF AGRICULTURAL AND FORESTRY PRACTICES

Change from grass cultivation to arable farming may occur in some areas

Could pose a risk to buried archaeology, traditional farm buildings and historic landscapes

MITIGATION RESPONSE

Impact of policies to generate renewable energy to mitigate climate change may have specific impacts.

New renewable energy infrastructure including tidal and wave power and onshore and offshore wind power installations, may directly impact archaeological remains on and off shore.

Siting of wind farms and power transmission lines in particular may-

Affect significant landscapes

Affect buildings where the integrity of the setting is an important part of their significance

Biomass crops such as miscanthus may pose a-

Risk to buried archaeology through deeper disturbance and lowered water tables-

Radically change appearance of historically significant landscapes

Re-use of coppiced woodlands may be positive in restoring historic appearance

Some types of micro-generation equipment such as mini wind turbines or micro combined heat and power plants are unlikely to present problems if sensitively located on historic buildings.

Others may be more intrusive.

All should be reversible

Proposals to replace historic building stock with new stock.

Ostensibly more energy efficient- could result in serious loss of historic character and diversity and may be misguided when considered in lifecycle terms- e.g. softwood joinery may if maintained have a lifecycle in excess of 150 years, -

PVC windows may be past useful life before embedded carbon in them offset against carbon saved by their use - PVC windows may be past useful life before embedded carbon in them offset against carbon saved by their use

Green Space loss

Many heritage structures are surrounded by green space and sustainability studies show the potential importance of these features for tempering hotter summer temperatures heavy rainfall and poorer air quality. Modelling work has shown that a 10% loss of green cover in Manchester could result in an 8.2 deg c increase in ground temperature by the 2080s (CLG 2007 and McEvoy et al 2006)

CURRENT RESEARCH ON THREATS

1. **Rising sea level**
2. **Storm surges**
3. **Increase in severe weather events – frequency of severe winds**
4. **Increased extremes of wetting and drying**
5. **More frequent intense rainfall events**
6. **Changes in hydrology and water table**
7. **Changes in vegetation patterns**
8. **Changes in distribution of flora including fungi and fauna such as insect pests**

When interfaced with local climate change predictions, and site locations, these reveal vulnerabilities.

RISK MATRIX FOR NAMED STRUCTURES-

The matrix below provides a model for detailed assessment of a named structure: an example would be Mount Garrett Castle **WCC0797** outside New Ross: high vulnerability revealed at 25, St Peter's Kilmore Quay, scores a safer 13

Mount Garrett Castle WCC 0797	Inland flood	Coastal erosion	Timber decay	Increase lichen on stone	Soft stone present	Ivy and vegetation increase	Earth structures vulnerable to storm	High, insecure structure: vulnerable to storm	Thatch present
Likely- 2	-	-	-	2	2	2	-	2	-
Unlikely- 1	-	-	1	-	-	-	1	-	-
Very unlikely-0	0	0	-	-	-	-	-	-	0
Effect-severe-3						3		3	
Effect-moderate-2				2	2		2		
Effect – minimal-1	1	1	1						
Score 0-5	**1**	**1**	**2**	**4**	**4**	**5**	**3**	**5**	**0**
Total									**25**

St Peter's Church Kilmore quay WCC001	Inland flood	Coastal erosion	Timber decay	Increase lichen on stone	Soft stone present	Ivy and vegetation increase	Earth structures vulnerable to storm	High, insecure structure: vulnerable to storm	Thatch present
Likely- 2	-	-	2	-	-	-	-	-	-
Unlikely- 1	-	1	-	-	1	1	1	1	-
Very unlikely-0	0	0	-	-	-	-	-	-	0
Effect-severe-3									
Effect-moderate-2								2	
Effect – minimal-1	1	1	1	1	1	1	1		
Score 0-5	1	1	3	1	2	1	1	3	0
Total									**13**

MATERIAL MATRIX FOR NAMED STRUCTURES

Vulnerable to:	Less rainfall	More rainfall	Insects/ fungi/lichen	Increased corrosion and oxidation	Groundwater fall	Coastal flood or erosion
Stone-resistant to decay	no	yes	yes	no	no	yes
Stone-vulnerable	no	yes	yes	yes	no	yes
Clay/cob wall	no	yes	yes	no	yes	yes
timber	no	yes	yes	no	yes	yes
Buried cultural heritage	no	yes	yes	yes	yes	yes
Thatch	no	yes	yes	no	no	yes
Metal	no	yes	no	yes	yes	yes

CATEGORIES OF NAMED STRUCTURES

INCLUDED IN SCOPE

1. MAJOR SITES OF ARCHAEOLOGICAL IMPORTANCE IN STATE OWNERSHIP OR GUARDIANSHIP; number: 20-21
2. NATIONAL MONUMENTS WHICH ARE THE SUBJECT OF PRESERVATION ORDERS IN COUNTY WEXFORD; number; 5-6

3. RECORD OF PROTECTED STRUCTURES IN THE COUNTY DEVELOPMENT PLAN 2009-13 Appendix IV Record of Protected Structures; number 501 but this includes 26 in category 1&2.
4. HOLY WELLS included in Archaeological Survey of Wexford or any of the above

EXCLUDED FROM SCOPE DUE TO TIME CONSTRAINTS

Recorded sites and features of historical and archaeological importance included in the Record of Monuments and Places (RMP) as established under section 12 of the National Monuments (Amendment) Act, 1994; except where included in 1 and 2 above or Wells

Structures included on the National Inventory of Architectural Heritage (NIAH); except where included in 1 -4 above

Archaeological monuments and their settings including town walls, town embankments and ditches, town gates, bastions or ancillary fortifications ; except where included in 1 -4 above

CLIMATE CHANGE UPDATE FOR WEXFORD

It is generally agreed that climate change is occurring in Ireland. Conclusions in this study are based largely on work by the International Panel on Climate Change Fourth Assessment Report, more than 100 years of records by Met Eireann, and the National University of Ireland Maynooth.

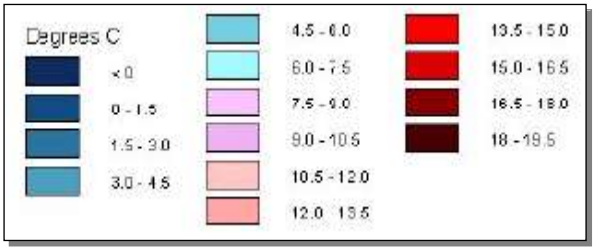
M. Desmond et al (2008-CCRP-2.1A) note the observed and projected changes as follows in summary:

Table 2.1. Observed and projected changes for temperature variables.

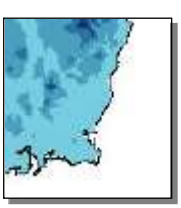
Climate Variable	Observed Changes	Scientific Confidence	Projected Changes	Confidence Projection
Air temperature	Temperatures increased by 0.7°C since 1890, i.e. an average of 0.06°C per decade. The increase was 0.4°C during the period 1980–2008, i.e. equivalent to 0.14°C per decade.	High	1–3°C to 2100, compared to the 1961–2000 average.	Medium (depends on scenario), medium for extremes
	All seasons are warmer but more so in winter.	High	Continued night-time heating.	Medium
Heat waves	Only one station recorded a significant increase in the heat wave duration index.	High	Increased frequency of heat waves.	Medium
Cold snaps/ frost days/ nights	Less frost; trend of decreasing frost nights and decrease in duration. 14 to 88% decrease in number (median of 30–40%).	High	Decreased frequency.	Medium

Mean temperature projection: The maps below are based on historical data and a **HadCM3 model** projection carried out on a 10kmsq grid by NUI Dept Geography Maynooth. Studies were also carried out on precipitation but the reliability was not so good. 'These show a mean January temperature in the range 6–7.5°C by mid-century over much of the southern half of Ireland, and 7.5–9°C along southern coasts. A general increase of approximately 1.5°C is apparent increasing to approximately 2.5°C by 2075. ..Since temperature is a primary meteorological parameter, secondary parameters such as frost frequency and growing season length and efficiency can be expected to undergo considerable changes over this time interval. Signs of earlier springs and lengthening of the growing season over the past three decades have been detected both in the instrumental record and in ecological events such as leaf unfolding and bird migration *Sweeney et al., EPA and NUIM 2003* . These lend credence to the suggested future projections.'

General increases of approximately 2°C are apparent with highest values to be found inland away from north and west facing coasts.



January 1961-90 January 2061-90 July 1961-90 July 2061-9




EPA CLIMATE CHANGE RESEARCH PROGRAMME 2007-13 REPORT SERIES NO 1

The Environmental Protection Agency Ireland has recently published a report cited as M. *Desmond et al (2008-CCRP-2.1A),* into the current state of research into climate change on this island, from which some summary tables follow.

Table 2.9. Observed and projected changes for sea level rise.

Climate Variable	Observed Changes	Scientific Confidence	Projected Changes	Scientific Confidence Projection
Sea-level rise (SLR) < 1 m	During the satellite era, SLR of 3.5 cm per decade has been observed.	Low to medium	Rise of 60 cm to 2100. Changes in sea level predicted to magnify impacts of changing storm surge and wave patterns in coastal areas.	Medium
SLR > 1 m			There is concern about SLR greater than 1 meter if there is a considerable melting of land ice (polar shelves and glaciers). In this case, SLR becomes a cause of concern in its own right.	Low to medium
Waves and surges	Some evidence of significant increase in wave heights during winter months, up to 30 cm. Also an increase in the frequency of extreme wave heights in the north-west.	Medium	Higher waves, more intense surges.	Medium

Table 2.10. Observed and projected changes for cross cutting variables.

Climate Variable	Observed Changes	Projected Changes
River flooding	Linked to precipitation patterns	Increase risk of river flooding.
Coastal flooding	Links to storm patterns and sea-level rise	Increase risk of coastal flooding due to surge/storm.
Inundation of poorly drained land	Linked to precipitation patterns	Increased duration of standing water on poorly drained lands in winter. Greater drying of turlough and rain-fed lakes in summer.

Table 3.3. Sectoral impacts for settlement and society, human health and tourism.

Climate Variable	Settlement Society	Human Health	Tourism
Air temperature	Reduced space heating requirements but with possible need for increased air conditioning.	Increased temperatures will increase potential for diseases. E.g. growth of pathogens in food. Increased sense of well being although confounded by rainfall predictions.	Temperature increases in Ireland are less than those for the rest of Europe; Ireland may become a holiday destination for respite.
Heatwaves	Impacts: heating of urban areas intensified by heat island effects.	Heat stress, particularly amongst the vulnerable. Increased mortality in vulnerable groups.	Outdoor activities will put additional stresses on resources, e.g. water, sewerage, etc. Increased pressure on coastal and amenity areas.
Cold snaps/frost days/nights	Reduce heating needs in winter, less frost damage to water/commercial systems.	Impacts are positive; reduced risk of hypothermia and mortality amongst vulnerable population. Less minor accidents.	Extension of tourism 'shoulder' periods.
Precipitation	**Wetter winters**: increased risk of flooding; problematic on flood plains. Increased energy usage costs due to drying. Higher standards for damp proofing of buildings.	Negative impacts on well being.	Greater demands for winter season breaks abroad.
	Drier summers: domestic water shortages, reduced supply to industry, restricted extraction from river systems.	Positive: well being should improve.	Positive impacts on domestic tourism.

Table 3.3. Sectoral impacts for settlement and society, human health and tourism (*continued*).

Climate Variable	Settlement Society	Human Health	Tourism
Extreme weather	Increased risk of structural and infrastructural damage. Loss of property.	Risk of injury and loss of life.	Loss of amenities for boating, fishing, etc.
Soil temperature	A greater variety of plant species may become viable in gardens. Greater threat of introduction of aggressive invasive species.	Pests and pathogens: increased winter survival.	
Ground- and surface-water runoff	Planning and development impacts on settlement and infrastructure.	Increased in pathogens in drinking water.	
Surface freshwater temperatures	Positive impacts on human well being.	Risk of loss of life in water accidents.	More recreational activities in freshwater increased water-based activities; pressure on coastal tourism infrastructure.
Sea temperatures	None	Increased well being; greater opportunities for sea bathing.	
Sea chemistry (pH, salinity)	Greater demand for sea-front development.	None	Potential impacts for diving, loss of biodiversity.
Waves and surges	Waves and surges may inundate coastal settlements and infrastructure.	Injury and loss of life.	Increased potential for extreme surfing (niche markets).
Sea-level rise < 1 m	Loss of land as a consequence of inundation and increased erosion, and increased risk of flooding both at the coast and inland along major river networks during major storm surge events.	None	Moderate degradation of coastal amenities, especially sandy beaches.
Sea-level rise > 1 m	Loss of land as a consequence of inundation and increased erosion; increased risk of flooding both at the coast and inland along major river networks.		Severe degradation of coastal resources, especially sandy beaches.

CHANGES IN HYDROLOGY AND WATER TABLE

Studies carried out *Sweeney, J. et al EPA-NUIM 2003Department of Geography, National University of Ireland, Maynooth* show the results of simulations based on work by Pilling and Jones used downscaled GCM predictions for 2050 (UKHI) and for 2065 (transient UKTR) to drive a hydrological model of annual and seasonal effective runoff for Britain. The figures below base on a 10km grid result.

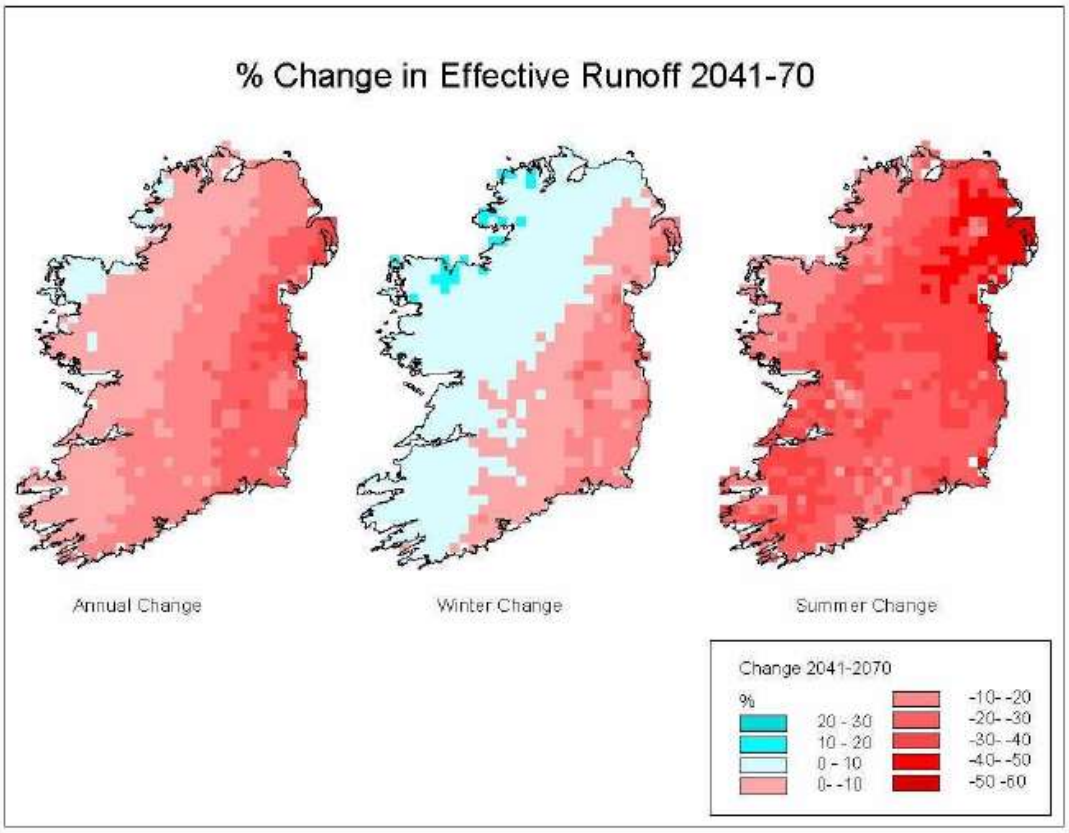


Figure 4.6. Annual and seasonal change for 2041–2070 simulation expressed as the percentage difference with the 1961–1990 baseline.

Table 4.3. Percentage change in effective runoff for the 2041–2070 scenario relative to baseline simulation for catchments selected for validation.

2041–2070	Annual	Winter	Summer
Feale	–7.18	3.49	–31.29
Suir	–15.86	–3.91	–22.59
Slaney	–24.93	–11.37	–31.50
Shannon*	–9.05	4.15	–29.10
Brosna	–17.99	–3.49	–28.05
Bonet*	–4.14	7.28	–19.88

*Catchments for which percentage error exceeds percentage change.

Based on these scenarios the whole of County Wexford is set to experience **significantly drier summers** and also drier winters. This will **affect groundwater levels** at most of the examined sites. The patterns of smaller water courses and water bodies will change significantly.

SPECIES THREAT TO BUILT HERITAGE

'Building mycology' is defined as that branch of mycology dealing with the study of fungi in and around the building environment [1, 2]. This has both direct and indirect effects on the health of building materials, structures and occupants. The commonest fungi which cause damage to building structures are the dry rot fungus (Serpula lacrymans), cellar rot fungus (Coniphora puteana) and wet rot fungi (Antrodia vaillantii, Antrodia xantha, Asterostroma spp., Donkioporia expansa, Paxillus panuoides, Phellinus contiguus, and Tyromyces placentus). Inhalation of airborne micro-organisms and their metabolites may cause a range of respiratory symptoms depending on the species, the circumstances of exposure and immunological reactivity of the subject [3, 4]. Today, the dry rot fungus is generally known as S. lacrymans (Schumach. ex Fr.) Gray in the UK, but also as S. lacrymans (Wulf: Fr.) Schroet, and was previously known as Merulius lacrymans. It is the most important timber decay fungus in buildings in Northern and Central Europe and is also of serious concern in Japan and Australia [5]. Not only does the fungus bring about the dramatic decay of timber, but it is also able to spread through a building from one timber location to another across non-nutritional surfaces. The fungus has a serious impact on the UK housing stock and also causes concern in the conservation and preservation of buildings of historic an architectural merit [6]. Timber decay investigation and eradication is therefore big business in Britain. S. Lacrymans is the most deadly form of fungal attack in building timbers, and buildings of traditional construction in this country are particularly vulnerable to this form of decay [7]. The vast majority of properties in the UK contain a significant amount of wood, ranging in use from structural timbers such as joists to finishings such as room skirtings. It has to be remembered that detecting the type and extent of any fungal decay and taking remedial measures could entail the loss of decorative finishes, extensive exposures and damage to the fabric of the building and consequently may be very expensive. '

Fungi differ in their optimum temperature requirements, but for most the range is from about 20 to 30 ° C. The optimum temperature for dry rot growth in buildings is about 23 ° C, maximum temperatures are about 25 ° C, and the fungus is rapidly killed above 40 ° C. Timber moisture contents in buildings in the 20-30% range are ideal for dry rot attack and other infestations. Singh

BOTANICAL BIOLOGICAL AND MICROBIOLOGICAL CAUSES OF DECAY.

After 'Feilden, B., Conservation of Historic Buildings' and Ridout, B.

BOTANICAL CAUSES OF DECAY

Ivy species most prevalent in Ireland and in Wexford is *hedera helix.*

'Ivy creepers and other forms of plant life can cause damage if allowed to grow freely. Ivy drives a bullet headed root into crumbling masonry and causes disintegration. ..Ivy may in fact be holding up the wall and if removed the wall may fall to pieces.

Fig. Right- Mountgarrett Castle New Ross – collapse ongoing helped by ivy

BIOLOGICAL AND MICROBIOLOGICAL CAUSES OF DECAY

Bacteria and lichens can cause the decay of buildings by producing acids which react chemically with t the structural material. Examples are sulphate producing bacteria which grow on stone and lichens and a mosses that attack lead and also low silica glass algae, moss an lichens all grow on brick and stone masonry and build up humus in which larger and more damaging plants can grow,'

It is a consensus view that sustained temperatures below 20° C will slow the growth of the fungus species which attack timber in the built environment and that temperatures above 42° C will effectively sterilise the fungi (Feilden, Ridout, and Singh). While all scenarios for climate change for Ireland envisage less freeze cycles in the winter months, none envisage temperature rise to 42° C or above in the medium term. and therefore the prevalence of timber decay fungi is liable to increase in severity and extent.

INSECTS AND OTHER PESTS AS CAUSES OF DECAY.

Climate for insect and fungal threats: It is possible that due to the warmer winters and longer growing season, some of the timber decay species will increase in prevalence as temperatures below 15 degrees inhibit growth of known fungi and destructive insects. Temperature rise scenarios show marked decrease in frost free days. Ii is not clear if elevated levels of CO2 which is in fact the main driver of climate change will result in enhanced growth of ivy in Ireland and the UK. Studies by JE Mohan (2006) of poison ivy in Duke University over a six year period showed increased levels of growth particularly in juvenile specimens and in low light environments. Other phenological studies cited in *Sweeney et al., EPA and NUIM 2003*

'In the UK about 80% of the reported attacks are by woodworm of the common furniture beetle*(Anobium punctatum)* About 5-8% of attacks' are by the death-watch beetle *Xestobium Rufovillosum,* 4-5% by wood boring weevils, 2% by the powder post beetle and 0.5% by the house longhorn beetle.' *B Ridout*

In Ireland almost all known attacks are by the woodworm although some isolated attacks by the death-watch (4 according to *Ridout B.: Timber Decay in Buildings the Conservation Approach*-Rathfarnham Castle and Trinity College Dublin known to the author)) and the longhorn beetle was noted once only in a house in Lisburn in imported timber in 1957 (Ridout) .

Woodworm prevalence and climate change. Timbers could come under attack due to bursts of heavy rain followed by periods of dry, warm weather. The larvae of furniture beetle particularly attack the sapwood of our usual structural timbers and it is thought the incidence of attack is increasing (Historic Scotland study, and B Ridout). Becker 1943 found this beetle failed to thrive in low relative humidity- hatching is impaired below 55% R.H. and no eggs hatched below 45% R.H; the moisture content of the timber resulting affects the beetle and a moisture content of timber of 12-15% is dry enough to keep the population down as the beetle life cycle slows down in these dry conditions. Lower temperatures (below 15 deg C) slow growth considerably and temperatures above 26 deg c kill the yeast essential to some phases of growth.

One species of **Powder Post Beetle**, *Lyctus brunneus*, is commonly found in Britain and has begun to make an appearance in Ireland. This, and several rarer species, attacks the sapwood of certain wide-pored hardwood timbers. These timbers are susceptible to attack when partly or recently seasoned. *Lyctus* also attacks wood block floors and joinery, both solid wood and plywood. Oak is a timber commonly attacked, but other hardwoods such as African mahogany, ash, elm, hickory, obeche, ramin, sweet chestnut, sycamore and walnut may also be infested. However, this pest needs high starch content to thrive, and new oak or hardwood flooring are vulnerable whereas heritage quality timber has very low vulnerability. **Termite** is an important source of decay in timber in mainland Europe. One colony is known in the UK. This infestation since 1998 in Saunton in North Devon appears to have resulted not from species creep connected with climate change but from specimens imported in a plant pot from the Canary Islands. Strenuous and expensive efforts have been made to eliminate the small colony by chemical means, so far unsuccessful. No immediate threat to Ireland appears to be present.

Summary threats:

Ivy growth very likely to **increase**

Fungal growth (rots and moulds) will likely **increase** due to temperature but **decrease** due to projected rainfall **decrease** in the southeast.

Present insect threats: woodworm will likely **increase** due to temperature but **decrease** due to projected rainfall **decrease** in the southeast leading to low relative humidity in buildings.

However, better draught sealed and insulated buildings due to incentives to lower carbon footprint may mean **damper colder attic spaces** leading to high relative humidity and **increased risk of mould, fungal decay and woodworm**.

New insect threats to built heritage **not very likely** at present

WEXFORD COAST: VULNERABILITY

GENERAL DESCRIPTION OF COAST: WEXFORD

Much of the east coast of Wexford north of Wexford Harbour is sandstone or sandstone and shale till. The Leinster Chain with a core of granite and margin of mica-schist, bounds this county to the west, enclosing the large river valleys of the Slaney and the Barrow in their higher reaches. From this, Silurian ground stretches to the sea at east and south, like a platform with a hummocky surface. Greenish slates form a broad band trending SE to NW near Wexford town, Old Red Sandstone and Carboniferous limestone overlaid, exposed near Hook Head. A band of hard gneiss stretches parallel from Rosslare to Kilmore Quay. The county has been repeatedly glaciated and the surface overlaid by gravels and clays. From Raven Point north of Wexford Harbour to the Wicklow border, are soft cliffs composed of glacial till, tending toward a higher sand content to the south. Wexford Harbour, into which the River Slaney drains, is composed of mud and sand depositions and is bounded by large areas of land of low elevation some of it reclaimed within the last 100 years for agriculture (The Wexford Slobs). A series of sand and gravel banks the Long Bank, Blackwater Bank, Arklow Bank all running north south, form the seaward side of the coastal cell to the east coast.

To the south, the sand spit of Rosslare gives way to the granite formations of Carnsore Point and the Saltee Islands which form the southeast tip of the land mass of Ireland. The south coast of Wexford is a series of shallow bays many with tidal lagoons. The coast between headlands again is fairly soft. Sand and dune barriers protect the settlements located close to shore. Offshore banks do not occur. Between Carnsore and Kilmore Quay lie Our Lady's Island and Tacumshin; in Ballyteige Bay to the west lie Bannow and Saltmills; Ballyteigue is bounded to the west by the rocks of Baginbun and then the Hook Peninsula. Wexford is bordered to the west by Waterford Harbour deeply indented into which the Suir and the Barrow flow. At Dunbrody some volcanic 'folic volcanic' underlie the soil cover. Each headland is rocky but glacial till overlays the base rock except where exposed.

For notes on the source of building materials for historic building stock within the county, see section on the Geology of South Wexford derived from the GSI (Geological Survey of Ireland) description. *Appendix C*

COASTLINE STABILITY

What are the factors affecting the stability of the coast and how are they affected by climate change? Glacial rebound, tides, nature of coast, waves, and storm surges: causing erosion and inundation.

NATURE OF COAST

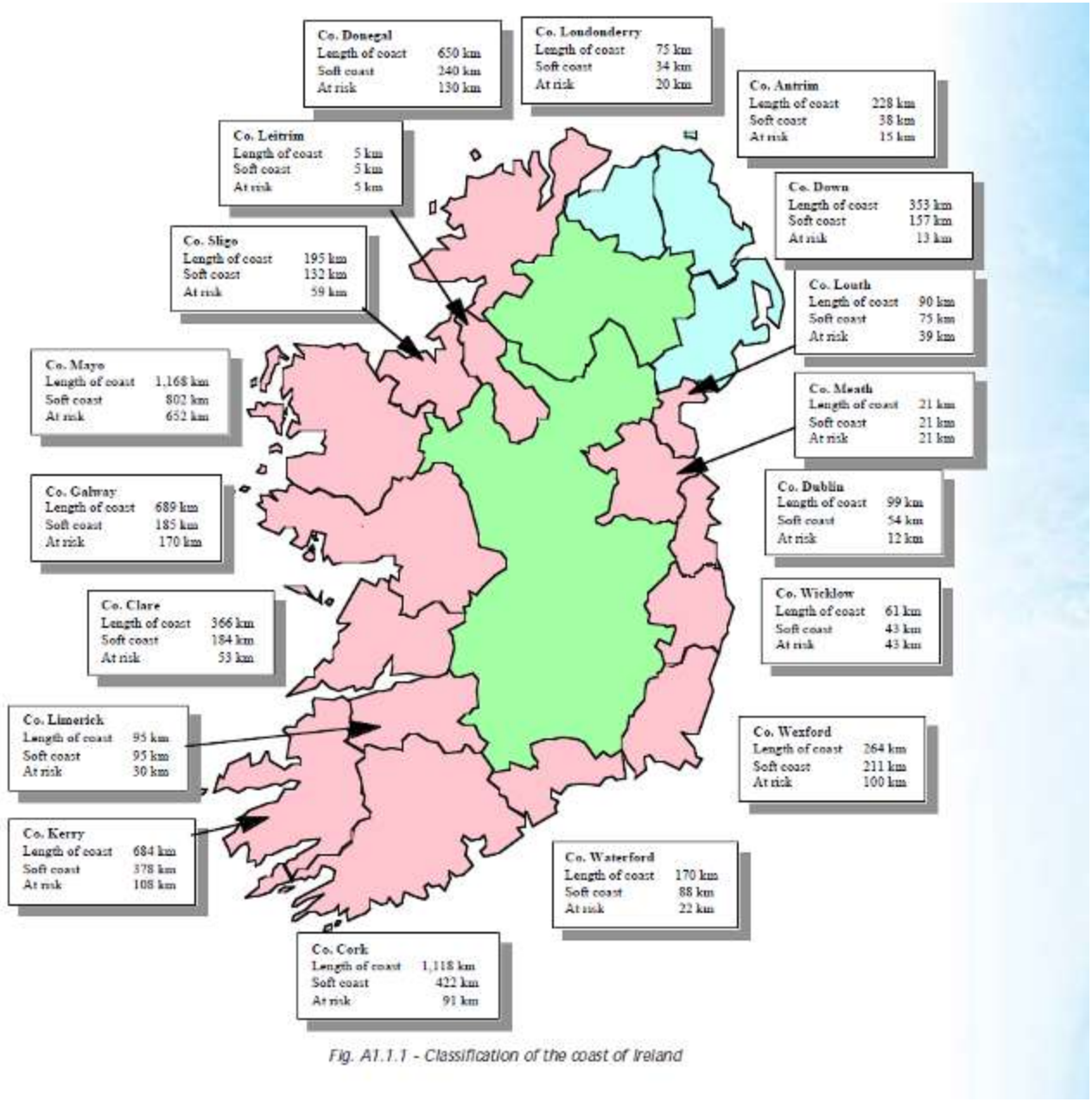


Fig. A1.1.1 - Classification of the coast of Ireland

Diagram from ECOPRO citation below

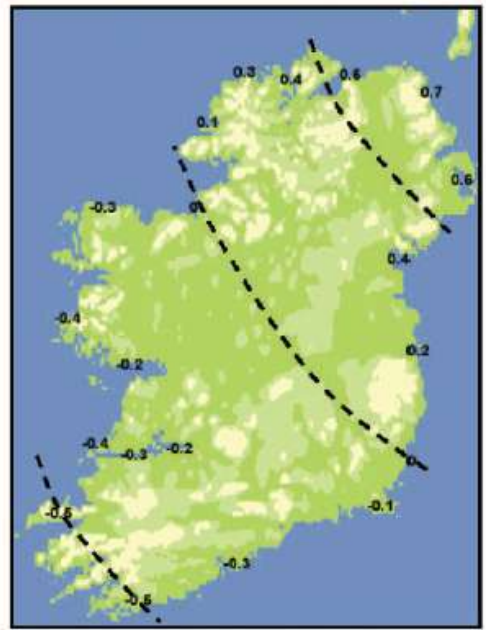
The coast of Wexford is 264km long of which **211k is considered 'soft' and 100 km was considered to be at risk from coastal erosion** ref. P.109 ECOPRO –Environmentally Friendly Coastal Protection- Code of Practice (Government of Ireland 1996);-map above- and unpublished study, Wexford Co Council 1992. Wexford Co Council Development Plan 2008-13 Chapter 9 Heritage Conservation and Landscape Section 9.5.1 states that *'sections of the Wexford coast are eroding at 1m a year'*. This is the main risk to Wexford's shoreline built assets.

Glacial Till/Clay Cliffs: These are characterised by their mixture of boulders, gravel and clay, left by retreating glaciers and are usually fronted by sand, gravel or mud beaches. They are more common on the east coast, in estuaries or on sheltered coasts and are particularly sensitive to changing weather patterns, rising sea level or interference by man. Because they have little intrinsic strength, and have poor drainage, erosion rates can be rapid due to slumping of the waterlogged cliffs and wave action at the base. Often their only form of defence from the sea is the wave energy dissipation ability of the beach.

It is felt that for every 1mm of sea rise, 1000mm of recession of the coast will occur according to its composition- see table below.

Long term (>50 year) erosion rates for various lithologies (ECOPRO 1996)	
Lithology **Rate of recession (m/year)**	
Glacial till	1.0-10.0
Sandstone	0.1-1.0
Shales	0.01-0.1
Limestone	0.001-0.01
Granite	0.001

EARTH MOVEMENTS: GLACIAL REBOUND



'Determining future changes in sea level around the Irish coast is complex due to isostatic rebound, i.e. post-glacial changes in the elevation of the land relative to the sea. During the last glaciation, a large ice dome was centred on the north of the island depressing the Earth's crust. The melting of this large ice mass during the early Holocene caused the land surface to uplift or rebound. Rebound is continuing with the highest rates in those locations where the greatest mass of ice originally lay, approximately north of a line from north Wexford to south Donegal (Edwards & O'Sullivan, 2007). South of this line rebound rates are slight or negative.' Kelly B. and Stack M. 2009

Simulated long-term rates of crustal movement (mm/yr) over the last 4000 years. Positive values indicate uplift, whilst negative values indicate subsidence (submergence). (Edwards & O'Sullivan, 2007)

This factor has complicated the measurement of sea level rise by the use of tidal gauges at various points, but since satellite measurements have been available, it can be allowed for. **For Wexford with reference to the above table rates may be estimated at 0.0mm to -0.1mm per year.**

1. TIDES.

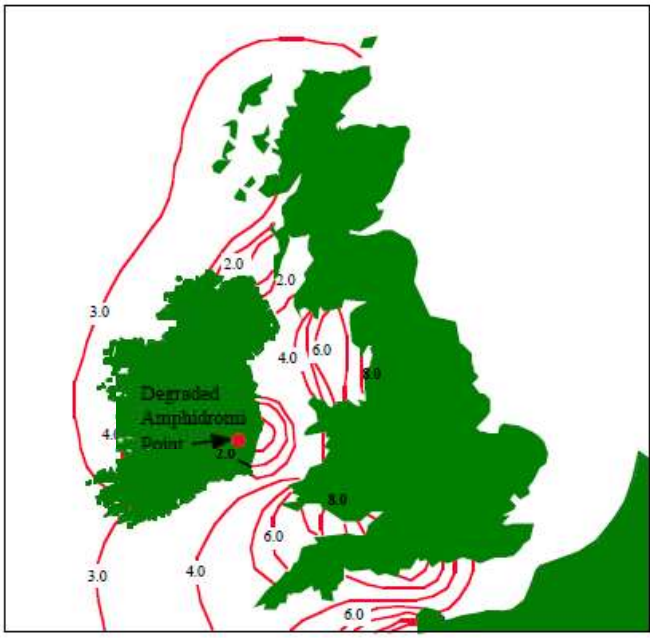


Fig. A1.2.25 - Spring tidal range [33]

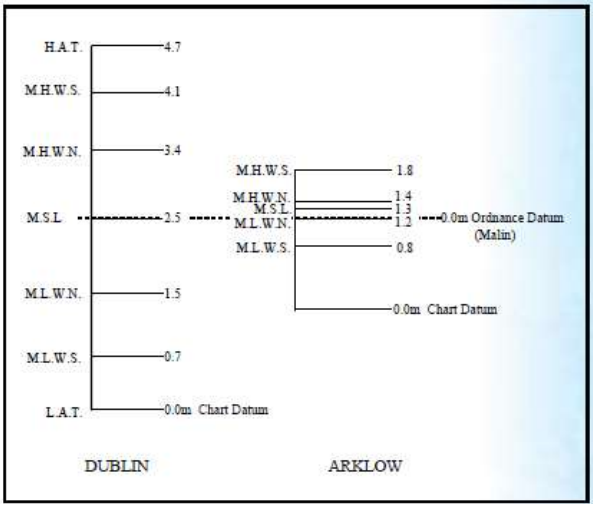
MHWN - Mean High Water Neaps

MSL - Mean Sea Level

MLWN - Mean Low Water Neaps

MLWS - Mean Low Water Springs

Once every 18.6 years the sun and moon are so aligned that their forces result in the highest and lowest astronomical tides possible. These tides are referred to as HAT and LAT.



Tides are low in Wexford compared too much of Ireland due to the way in which the tidal surge in the ocean interacts with the rotation of the earth and the land forms in the sea to form a node known as an amphidromic point where the tide is notionally zero. Tidal range increases moving away from this point but is less than 2m for all of Wexford, less in the Irish Sea. Fig A1.2.2.5 from ECOPRO 1996 shows tide range contours for the Irish sea, and fig to right from the same source shows contrast in tide heights for even the highest tides (HAT) between Dublin and Arklow (July 1993) ;chart datum is different for the two ports though the sea level does not change between them. From this it can be seen the range from MHWN and MLWN –range at neaps which are the lowest tides in a month- is about 1m for Arklow. Wexford land forms and settlements have adapted to this low tidal range. Also note MHWN for Dublin is 3.4m over OD whereas at Arklow it is 1.8m over OD. Land contours (OD Discovery Series etc) relate to OD (Malin).

2. STORM SURGE.*' Variations in tidal height are mainly caused by strong or prolonged winds and by unusually high or low barometric pressures. This combination of wind set-up and barometric pressure is referred to as positive or negative storm surge. The effect of wind on sea level is variable and depends largely on the topography of the area in question. In general it can be said that wind will raise the sea level in the direction towards which it is blowing.' 'A difference from the average barometric pressure of 1mb will result in a difference in sea level of approximately 10mm.'* The surge normally reaches its maximum some time after the pressure is at its lowest, and can also be increased when driven by a prevailing wind. The map below shows the surge will be larger on the east coast and less on the south.

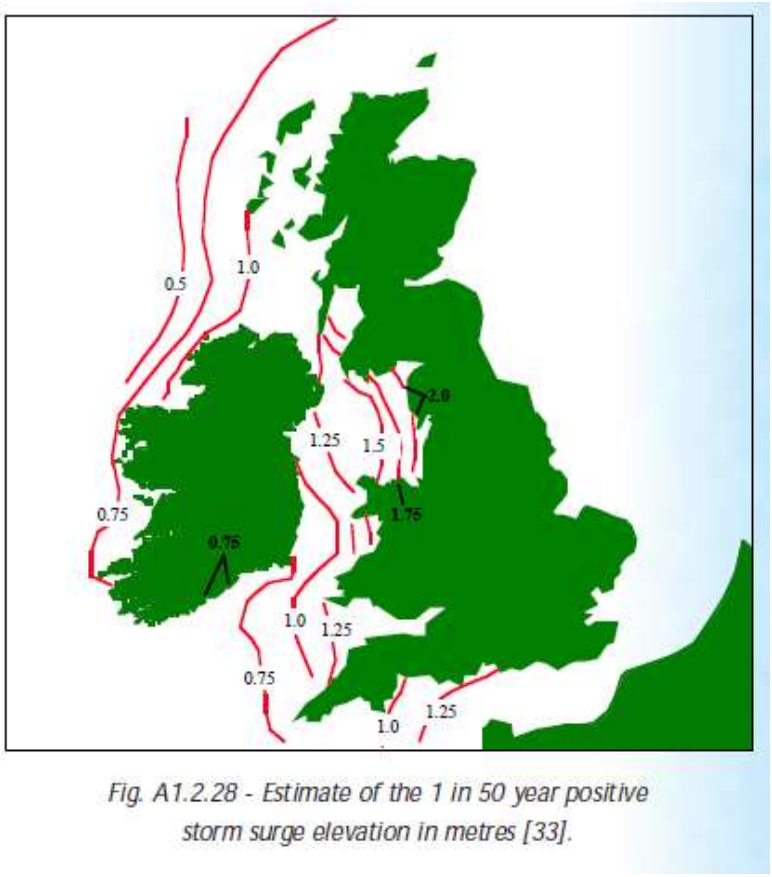
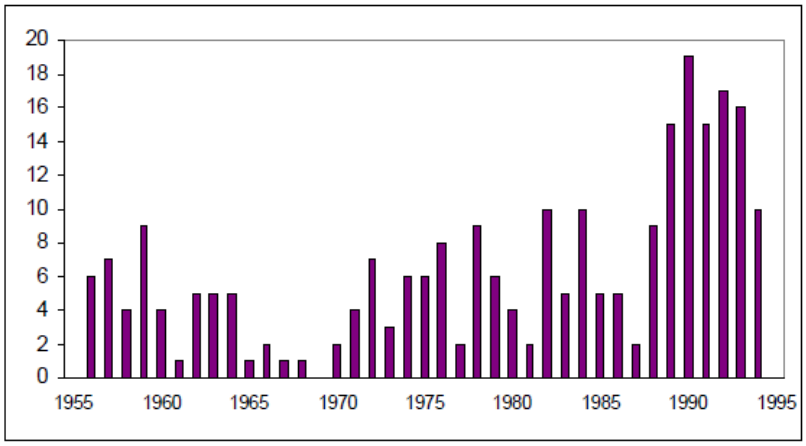


Fig. A1.2.28 - Estimate of the 1 in 50 year positive storm surge elevation in metres [33].

Flooding risk due to storm surge will be at its worst when there is the maximum astronomical tide coinciding with the maximum surge, followed by the high tides at equinoxes in March and September... Shoaling coasts will also drive the water level higher. *'Areas of low pressure and associated strong wind conditions may result in up to 0.75-1.0 metre rise in water level in Irish coastal waters'*

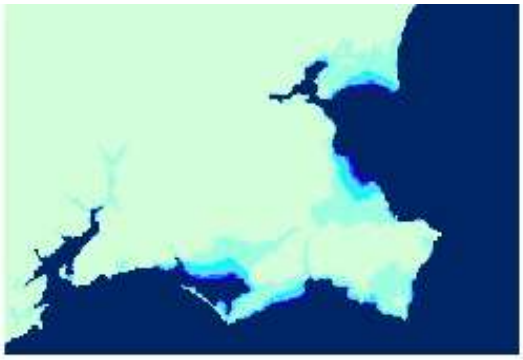


Number of North Atlantic low pressure systems with pressure less than 950hPa. Source: Deutscher Wedderdienst 1994. These storms appear to be causing more powerful waves. A study carried out for Wexford Co Council by *RPS Engineers- entitled Coastal Erosion Winter 2006/7 Wind Wave and Storm surge conditions, IBE0086/AKB/Feb07* notes that in high tide or storm surge conditions, the offshore banks on the East coast fail to diminish wave force as usual. This study revealed that a storm surge of 0.6m was experienced three times in the winter 2006-07 which hitherto had been predicted to occur once every two years; wave intensity was much greater than average winter 1989-2004. Water rose to 1.2m above MSL at Rosslare and 1.0 m at Courtown. None coincided with a spring or astronomical tide this lessened the impact.

1. An example was experienced in February 1994 described below

'4/2/1994 Description of storm; A deepening depression moved eastwards across the Atlantic on the 2nd and was centred off the south-west coast at 0000 hrs on the 3rd. It then moved over Co. Cork in the afternoon and its central pressure dropped to 952 hPa. It became slow moving over Galway and Mayo before it moved into Donegal Bay on the evening of the 4th. The winds at Rosslare were force 5 to 6 and south/south-east in direction. This combination of strong winds blowing from a constant direction built up high sea. For the southern Irish Sea the significant wave height was in excess of 5m from 0200hrs on the 3rd to 1000hrs on the 4th and reached a peak of 6m at 2000hrs on the 3rd. The wave direction was from the south-east.' Sweeney et al., EPA and NUIM 2003

'In order to determine the effects of a sea level rise coupled with a storm surge event, the ensemble mean scenario of 0.48 m is used in conjunction with an extreme water level of 2.6 m ordnance datum (OD) (Fig. 8.26). An extreme water level (surge coupled with tide) of this magnitude represents a surge for the present period with an expected return period of 12 years on the west coast (Carter, 1990a), and a return period of 100 years on the east coast, at Dublin (Carter, 1990a). Under enhanced global warming, the return frequency of a storm surge producing extreme water levels of this order is expected to increase in frequency under all scenarios. The effects of such an extreme water level would tend to be diminished on the more open locations on the west coast while being enhanced on the more enclosed north and east coasts. Localised surge levels may be further enhanced by enclosed bays, which can be found around the Irish coastline (Orford, personal communication). Sweeney et al., EPA and NUIM 2003



Wexford Harbour

The diagram above shows the effect of a 48 cm sea level rise, predicted for 2100, see consensus forecasts above, coupled with a storm surge event of 260cm.

More precise detail of elevations has now been obtained from the LiDAR (Light Detection And Ranging) survey of the east coast and of Wexford Harbour.

'*In the early 1800s, reclamation of Wexford Harbour led to a modification of the wave pattern which, in 1929, resulted in the beheading of over 2 km from the Rosslare Spit (Carter et al., 1989). Similarly, the construction of Courtown Harbour, which commenced in 1828, appears to have resulted in a shoreline recession of 50 m between 1921 and 1991 (Bell et al., 1997). The Wexford shoreline is still adjusting to these and other human activities (Orford, 1988). Thus, human activities can be seen to initiate or enhance the process of erosion.P.207*

Table 8.4. Coastal erosion rates for various shoreline types at various locations (Carter, 1990). *Associated with the commercial removal of material involved.

Site	Type of shoreline	Erosion rate (m year^{-1})	Period of measurement
Ballyness, Co. Donegal	Sand dunes	0.20	1837–1920
Rossapenna, Co. Donegal	Sand dunes	1.50	1974–1983
Lough Foyle, Co. Derry	Low dunes/beach ridge	0.75	1833–1961
Portrush, Co. Antrim	High dunes	0.11	1850–1966
Cushendall, Co. Antrim	Alluviate terrace/dunes	0.79*	1903–1963
Killiney, Co. Dublin	Boulder clay cliff	0.39	1837–1975
		0.47	1971–1972
Greystones, Co. Wicklow	Beach/low earth cliffs	0.18	1838–1937
		0.89	1937–1973
Rosslare Strand, Co. Wexford	Boulder clay	0.30	1840–1925
Ballycotton, Co. Cork	Gravel ridge	1.60	1837–1957

Sand dunes provide a degree of 'natural' protection to the shoreline. They are an integral part of the coastal cell, encompassing the beach and inshore zones.' Sweeney et al., EPA and NUIM 2003

Rosslare Strand and the East Coast of Wexford generally is open to waves from the North-Northeast round to the south-southeast and, with a predominance of wave activity from the southeast resulting from long period swell diffracted into the Irish Sea from the Atlantic, there is a net south to north littoral drift along the shore. Erosion of the marl cliffs at the southern end of Rosslare Bay provide little beach building material as approximately only 16% of the

eroded material is capable of residing on the beach. Adapted from ECOPRO Irish Government 1996, notes in section 4.2 ECOPRO PILOT PROJECT. BEACH NOURISHMENT AT ROSSLARE STRAND.

An example of the loss of built heritage to erosion is Brecaun church: Located in the townland of '***PORTERSGATE*** *OS 54:4:2 (830,600) '**Brecaun** Church (in ruins)' Church Early ecclesiastical origin. Parts of W gable (L 4.55m) with segmental-arched doorway and N wall (L 9.lm) survive. Fragments of an ogham inscription found in 1845 and c. 1930. Excavation by T. Breen found the final missing piece of ogham stone and also revealed that present structure was built on foundations of older church. No burials associated but evidence of enclosing ditch feature confirmed.17-10-88*' citation from the Archaeological Survey of Wexford
According to *Colfer, B, The Hook Peninsula,* the west gable and so almost all the remains as the east gable was closest to the sea, have been lost to erosion since 1988. In 1898 the whole church was intact so the coast may have retreated 25 feet *(8m approx) in the intervening time. '*It is very small, about 25 feet by **10,** and has only one window at the Eastern end, and an entrance at the opposite or Western end. The ruins of Brecaun's Church, a mile northeast of Loftus Hall an ancient ecclesiastical remain of very small size, at present standing within three feet of the edge of the bank. Waterford and South East of Ireland Archaeological society Vol. 1V 1898 printed for the society by Harvey and Co. Waterford*

CO. WEXFORD

Accretion is also occurring in some areas, silting in the lagoon and mud flat areas in Bannow, Saltmills, Wexford Harbour and other areas. These areas have a wealth of built heritage generally. However silting can increase vulnerability to flooding if it impedes water course discharge.

MITIGATION

EU legislation requires that coastal areas designated as NHAs SPAs or SACs must be protected from erosion. As can be seen from the map below much of the coast of Wexford is so designated.

There are ongoing works to many parts of the coast in soft and hard engineering largely as recommended by ECOPRO code of Practice 1996. It is not part of this study to analyse and comment on these but vulnerability will be affected by such works.

Extract, Chapter 9, Wexford County Council Development Plan

THATCHED STRUCTURES

WCC0890. RPS number. This small house located in Allenstown Little represents a typical example of the Wexford house with hipped roof, mixed clay and stone walls, thatch in good order, probably later porch.

I have carried out a study of the cohort of thatched structures in the RPS for Co Wexford, with reference to the *Heritage Council's Report on the Present and Future Protection of Thatched Structures in Ireland Vol. 2 2005.* This notes the OPW survey figure of 232 structures survey 1985-1995. The NIAH survey response in 2002 again had the figure of 232, with none on the RPS at that time. While the word thatch does not appear on the description on the RPS in all cases, there are at least 99 thatched structures on the 2007-13 County Development Plan.

Mayglass farmstead restoration

.The Heritage Council co-sponsored a restoration project at Mayglass Farmstead north of Tomhaggard, small before and after pictures above, a fully documented best practice restoration project in 200-2001. More structures may be included on the local town RPS in some cases. The *Heritage Council report* notes the traditional thatch in the East Coast and Leinster was 'thrust' thatch rather than scallop. The materials listed are water reed, combed wheat reed, and 'long straw' this may be oat or wheat. However modern grain breeds have too short a straw generally. Water reed has been used in recent projects. Survey data carried out for the purpose of the Report noted one example only in Wexford done recently with oat straw, no scraws, scallop thatch style; this house was Ballybeg Small, Allenstown, Enniscorthy, pilot project grant aided. It is noted that 151 Thatched Structures are on the Heritage Council's Buildings at Risk Register (2005).

While it is not part of this study to look at the supports to the existence of these structures in the county, I note the following objective is part of the current Wexford County Development Plan 2009-2013: *Objective RPS6*

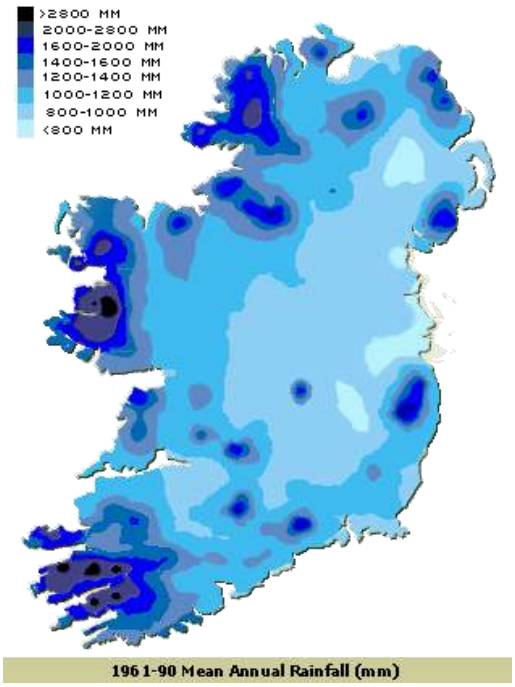
Encourage the retention and development of the County's traditional skill base, including building and thatching methods and use of building materials traditional to County Wexford and compile a list of craftsmen with traditional building skills, and, provide conservation literature, advice and guidance to the public, prospective developers, voluntary bodies and community groups.

There is one structure on the RMP with a thatch roof: the restored windmill in Tacumshane.

Tacumshane Windmill	**Type**: Windmill	**Townland:** Fence	Guardianship	**RMP no.** WX053-006----	**Nat Mon no**.457	restored thatched windmill

Clay/Cob: In many areas of Wexford due to the thick overlay of glacial deposits, building stone was not easily sourced locally. The county had a wealth of clay structures, some with stone wall bases. The Macamore and Redmore soils or 'marls' were particularly suitable for mixing with straw to produce durable structures of one or two stories. These structures which are nearly all dwellings or agricultural buildings are a particular strength of the Wexford tradition. Damp-proofing measures necessary for the stability of the structure include an intact roof and outside coat of lime-wash or light lime render. A local name for these structures would be 'Falla fadeen house' meaning 'walls as long as there is a roof'. The extreme weather events which may occur in some climate change scenarios are the main threat to this category of structure. Other threats are listed below.

It is notable that on the current RPS the distribution of structures noted or surveyed as thatched, appears to correlate well with the driest areas on the Met Eireann 30 year rainfall map reproduced here, apart from the Dublin area.



1961-90 Mean Annual Rainfall (mm)

Vulnerabilities: thatched vernacular structures

1. Erosion of site as many clay soil areas are located on the long soft east coast, especially behind the dune barrier which is under increasing erosion threat.
2. Storm events with higher wind force may damage thatch particularly if in poor condition.
3. In flood events, clay is very vulnerable to being washed away, and becoming saturated with groundwater salts which will break it down and cause it to become hygroscopic retaining damp as per *Sikka, S. and Chaudhry, C. 'Earth Structures Vulnerability'*
4. Increased insect, mould and fungal threat to thatch as less frost days are very likely.
5. Material for thatch such as oat and wheat straw may become less available depending on climatic conditions, thus diluting the historic character of the structure.
6. Extreme drought may lead to subsidence of clay soils where never before experienced.

Improvements.

1. Lower summer rainfall may extend the life of thatch and of 'cob' or clay based walls.

Refer to the RPS, in analysis, for listed structures and perceived vulnerabilities.

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HYDROLOGY; CHANGE IN WATER TABLE AND WATERCOURSE FLOW AFFECTED STRUCTURES

WELLS

A category of built heritage which will be affected is Holy Wells and other wells and groundwater water source built features. The only such structures on the RPS or RMP are the following. St Mogue's being particularly well known. However many ecclesiastical, castle and fortified house sites had wells within the curtilage which are part of the cultural assemblage. Many other humble or vernacular water sources added to the resonance of older settlements.

NAME	DESCRIPTION	TOWNLAND		
WCC0111	Saint Fanre's Well	Rocksborough, Wexford		
WCC0118	Site of St Nicolas Well	Newtown, Wexford		
WCC0182	Brandon Well	Oaklands, New Ross		
WCC0867	Well-St Mogue's	Ferns Upper	AICW 1443,	30225,14978

Holy wells recorded in *Archaeological Inventory of Co Wexford* are much more numerous and noted below: 69 in number. The 6 inch Ordnance Survey shows many more.

EARLY ECCLESIASTICAL REMAINS

NAME	DESCRIPTION	TOWNLAND AND O.S.	SOURCE	GIS	POSITION NOTES
St Duffin's Well			Waterford and SE Ireland Archaeological society 1898		1/2 mile north of hook church close to the cliffs
St Colman's Well	a rectangular drystone structure approached by stone steps, lies c. 150m to SE	Bola Beg OS 14:10:2	AICW 1167	28956,14840	Near Templeshambo church
Holy Well	Near church ruins	Kilcannon OS 20: 10:2	AICW1165	29953,14238	30m SW of church
St Anne's Well	St Anne's Well whose pattern was held on 26th July until 1824 and which is still venerated	Killan OS 18:12:2 '	AICW 1167 fig.20	28491,14190	140m to S of graveyard
St Stephen's Well	At site of St Stephen's chapel: graveyard at New Ross	Morisseyland OS 29:11:5	AICW 1168	27296,12798	SE corner enclosure
St Vogues Well	St Vogue's stone with T-shaped cross **lies on the foreshore** 15-7-88	St Vogue's OS 53:11:2	AICW 1170	31206,10402	St Vogue's chapel in ruins-120m E church
St Abban's Well		Adamstown	AICW 1171	28715,12758(church)	Well c 1km to S
St Eusebius' Well	a drystone-walled and slab-built well,	Ardcandrisk OS 37:10:2	AICW 1173	29951,12312 church, misnamed castle on	100m to N of mound site

	at which patterns were held until c. 1800			O.S	
St Columb's Well	a natural spring at which the pattern was held on 9th June	Ardcolm O.S. 38:1:5	AICW 1175	30684,12572	150m NE of church ruin
St Bridget's well	An oval drystone-walled well still venerated	Artramon O.S. 37:4:1	AICW1177	30362,12636	120m to S of church
Lady's Well		Ballyanne O.S. 29:4:4	AICW 1180	27464,13123	100m to NE
St Cowan's Well	Patterns held on 3rd February in 1920s	Ballybrennan	AICW 1182	29196,13221	100m to SW church ruins
St John's Well	Pattern held 24 June till 1800	Ballyhoge	AICW 1188	29790,13032	30m to n church ruins
St Peter's Well	Now covered	Ballymitty	AICW 1192	28825,11568	100m to W
St Bridget's Well	Now covered with a boulder	Ballymore Demesne	AICW 1194	31019,15070	C 200m to W, motte 300m to W
St David's Well and Bath-house	Patterns still held 1987	Ballynaslaney	AICW 1196	29999,12970	Nearby church ruins
St Peter's Well	Patterns were held 29 June	Ballyvalloo Lower	AICW 1199	31206,13036	100m to E church
WCC0118 St Nicholas' Well	Referred to in RPs as 'site of'	Bolabaun (Newtown)	AICW 1202	29764,12481	300m to SW church ruin
St John's Well	Rectangular masonry structure, pattern 24 June 19th C	Castle Ellis	AICW 1210	30922,13676	150m E of church
St Francis' Well	mortared stone wall surround	Chapel	AICW 1211	28827,13259	500m SSW of church ruin
St Edan's Well		Clongeen	AICW 1221	28414,11684	30m NW graveyard(site of church)
St Imock's Well or Shemogue Well	Patterns held 10 December	Coolhull	AICW 1223	28874,10952	400m to S
St Clomaun's Well	Stone inscribed R.C. 1696 found (Wexford People Aug 1984)	Duncormick	AICW 1232	29200,10934	C 400m to S, adjacent to Motte 944
Kilnenor Well	rectangular drystone-walled structure	Glebe	AICW 1233	31484,16936	30 SW of church site: Parish church Kilnenor
St Moling's Well	a circular drystone-walled and lintelled structure where the pattern was	Glebe	AICW 1234	31197,14627	of church site: Parish church Monomolin

	held on 17th of June				
Kiltrisk Well	Natural spring	Glebe	AICW 1235	31758,14551	100m E of church site: Parish church Kiltrisk
St Kieran's Well	protected by circular masonry wall (diam. 4.7m) built on present site some time after 1841.	Glebe	AICW 1236	29854,13456	700m N of church site: Parish church Edermine
St Bridget's Well	a natural spring where a pattern was held on 1st February until c. 1800	Glebe ED Castle Talbot	AICW 1240	31175,13440	100m N of church site: Parish church Killila
St Cavan's Well	patterns were held on 12th June in nineteenth century	Kilcavan	AICW 1248	28819,11289	C 600m to SW church ruin
St Winifred's Well	A natural spring	Kilcavan Lower	AICW 1249	32057, 16323	C 240m to S parish church Kilcavan Gorey
St Helen's Well	Parish church within graveyard on promontory	Killillane	AICW 1259	31450,10977	75m to W ruins parish church St Helens
St Mochain's Well	Well has modern superstructure	Killincooly Beg	AICW 1260	31670,13956	200m NW graveyard and ruined church
St Laurence's Well	A rock pool with the capital of a column nearby	Killurin	AICW 1262	29719,12643	Rect. graveyard, ch. was removed to build new nearby, well 350m S
Holy Well	A natural spring	Kilmanagh Lower	AICW 1267	31068, 14087	Adjacent church site
Tobermurry Well	A lintelled rectangular well, with modern granite cross (H 0.58m	Kiltilly	AICW 1272	29764, 15879	Just SE of site
St Martin's Well	Still venerated 1988	Kinnagh	AICW 1273	27985,11318	Parish church of Kinnagh, well 600m to E
Our Lady's Well	Part of pilgrimage route Our Lady's Island	Lady's Island	AICW 1274	31061,10744	500m e Church in Ruins graveyard
Dutchman's Well or St Bridget's Well		Rathaspick	AICW 1286	30252,11763	C 250mNE rectang. graveyard
St Mary's Well	an oval drystone-walled structure at which pattern was held on 22nd July until c. 1810	Ryland Lower	AICW 1290	29218, 15410	C 40m W of church Kilmyshall within graveyard

St Margaret's Well		St Margaret's	AICW 1295	31253, 10725	C 400m to SSE church in ruins
St Patrick's Well	circular drystone-walled structure with steps	Saunderscourt	AICW 1297	30231, 11242	100m to E Kilpatrick ch. ruins
St Bridget's Well, site of Lady's Well	St Bridget's still venerated est. 1862	Tellarought	AICW 1299	27565, 12155	100m SW church site
St Patrick's Well	corbelled and lintelled drystone-walled structure with steps,	Templeludigan	AICW 1300	27791, 13505	500m to E St Pater's church site
Trinity Well		Tincurra	AICW 1304	29520, 11671	20m E of enclosure ch. in ruins
Lady's Well		Tintern	AICW1306	27972, 10989	100mW 'capella ante portas' T Abbey
St Anne's Well, St James' Well	See photo survey of well and Mass house	Tomhaggard	AICW 1309	30306, 10812	Church- wells c 60m SW adj. Mass house
Lady's well	Natural spring	Wilkinstown	AICW 1311	29289, 12445	White church graveyard, 250m to S is well

Briefly noted:

WELLS NOTED IN AICW ASSOCIATED WITH THE FOLLOWING CATEGORIES OF REMAINS

MEDIEVAL MONASTIC REMAINS

Glascarrig1319 North Tobermurry,

ESTATE CHURCHES

Mulrankin 1331 St Bridget's Well

POST MEDIEVAL CHURCHES

Burrow 1342 St Broagh's Well

Houseland 1345 St Helen's Well

Kilnew 1349 Tobermogue and Toberrevagh

Longridge 1352 St Mochouan's Well

Loughnageer 1353 St Catherine's Well

Oldcourt 1354 St Catherine's Well

Ballynure 1363 Holy Well

Glenglass 1367 St Anne's Well

Shelbaggan 1375 St Agatha's Well

GRAVEYARDS AND CHILDREN'S BURIAL GROUNDS, MASSROCKS WELLS NOTED IN AICW

Cullenstown 1386 Holy Well

Graigue 1391 Holy Well

Kyle 1397 Wart Well

Mulmontry 1400 St Munna's Well

Ballowen or Ramsfort Park 1405 St Michael's Well a natural spring

Brideswell Big 1410 Bride's Well

Clonough 1412 St Michael's Well a natural spring

- Wells noted as' does not survive' or 'site of' not included as presumed no longer holding water

Wells: May be affected by: lowered water table and groundwater flow: leading to: drying of wells, particularly in summer.

See Appendix Photo survey

WATERMILLS

A second category threatened is water mills. Again, there are many mills not included on the RPS. Wexford was traditionally a grain producing county due to its warm dry climate and this was an important category of industrial archaeology.

List of Mills in Wexford Co Council RPS. Note: since the recently published NIAH for Co Wexford many more mills have been added to the Wexford inventory, 29 in total.

WCC0528	**Corn Mill**	**Cloughmills, Davidstown**	
WCC0605	Edermine Mill	Edermine	Flood possible
WCC0606	Garrylough Mill	Garrylough	Flood possible
WCC0855	Mill Buildings	Castlebridge	Near wetlands, flood threat
WCC0857	Mill Buildings	Castlebridge	Near wetlands, flood threat
WCC0862	Mill Building	Craanford	Flood possible
WCC0868	The Old Mill	Ferns	No flood threat
WCC0871	Mill Building	Foulkesmill	Flood possible
WCC0177c	Farmhouse and Outbuildings	Maudlins, New Ross	Mill has no water currently associated.

May be affected by: The millstreams which provided the motive power for these buildings will most probably see flow diminished due to lower rainfall. Their setting will also be changed and with lower or no water, the heritage values of their setting will be diminished. More sudden and severe weather events in winter may threaten these structures by winter flooding on the other hand.

Mills typically have strong small details in stone and iron such as steps walls and sluices which add greatly to the visual richness of the built assembly and curtilage. As mills relate more closely to rivers and watercourses than any other building type they are particularly vulnerable to aggressive flooding.

LIFEBOAT AND COAST GUARD STATIONS

May be affected by: marine erosion, more severe storms, storm surge tides, flood protection and mitigation works An examination of the coastal map of Wexford of 1840 and comparison with ortho-photography of 2005 and 2005 ordnance survey mapping was carried out. This reveals several coast guard stations whose site is now completely inundated; Kilmichael at northernmost point of the county appears secure but closer to coast than before. Ballymoney is sited to the head of clay cliffs where some erosion is going on; Cahore appears secure for the moment.

Ballyconnigar, see maps in appendix. At the tip of the now eroded Rosslare point, map shows coastguard station, wharf, 'site of tower' and site of Rosslare fort' all now underwater. This erosion may have been caused by works at Rosslare beach *(ECOPRO study)* which transferred the erosive force to the point. to the At Greenore Point watch house and signal staff site now fully eroded; at St Helen's ; former coast guard station at Carne appears intact but close to a receding shore though somewhat protected by rock; Kilmore Quay coastguard station protected by the rocky promontory shows little recession; former c/guard station at Coolseskin 'Bar of Lough', while very close to coast, site is intact but building noted 'in ruins' at Fethard c/guard on main street, non vulnerable, though sea inlet has enlarged here since 1840. Northwest of Loftus Hall on the Hook peninsula a former coastguard building appears intact at 'Harrylock'. The waterguard station at Arthurstown moving into the estuary leading up to New Ross sees little erosion over the time period. Some land reclamation at Ballyhack Castle protects important twin sites from ocean forces.

See Appendix Photo survey

BRIDGES, SAMPLE STUDY OF BRIDGES ON THE RIVER SLANEY FOR ROAD AND RAILWAY

May be affected by: more severe storm events especially in winter: flood protection and mitigation works. John Duffy's 2006 book mentions 23 bridges but some of these are upstream of Bunclody in Co. Carlow and so excluded from this brief sample. Flood protection works in Enniscorthy to mitigate flood risk pose a particular risk to this heritage.

See Appendix Photo survey

NATIONAL MONUMENTS IN STATE CARE: OWNERSHIP & GUARDIANSHIP+ NATIONAL MONUMENTS WHICH ARE THE SUBJECT OF PRESERVATION ORDERS: IN ANALYSIS

NATIONAL MONUMENTS IN STATE CARE:OWNERSHIP & GUARDIANSHIP: WEXFORD: 4 MARCH 2009																			
Noted in Development Plan as of Major Archaeological importance					***O-Ownership; G- guardianship***				***MATERIALS***			***BURIED ARCHAEO-LOGY***	***VULNERABILITIES***						
NAME	DESCRIPTION	TOWNLAND	LEGAL STATUS-	RMP NO.	NAT MON NO.	height over OD	Grid ref: As per archaeology .ie	materials	Timber	Stone	Earth	y	flood	timber rot	incr. lichen stone	soft stone known present	storm on vul. struct structure	ivy + veg incr	earth struct vul to incre storm	Sea storm surge
Ballyhack Castle	Castle	Ballyhack	O	WX044-009001-	516.01	0-10	270577, 110916	dressed stone is conglomerate' A O'S v hard stone	y	y	y	y	2	1	3	1	3	1	0	2
Ballyhack Castle	Castle(surrounding ground)	Ballyhack	G		516.02							y	2	0	0	0				2
Ballymoty Motte	Motte	Ballymoty More	O	WX020-041----	375	60-70	30452-14042	earth	0		y	y	0	0	0	0	0	2	2	0
Ferns Castle	Castle	Castleland	G	WX015-003001-	521	60 -70	30175-14985	stone earth, timber mod	y	y	y	y	0	1	2	2	2	2	2	0
Clone Church	Church	Clone	O	WX015-023001-	665	60 approx	30143-14735	all decorated stones of church in green stone'	0	y	y	y	1	0	2	3	3	2	0	0
Coolhull Castle	Fortified House	Coolhull	O	WX046-028----	644	50-100	28850-10899	stone	0	y	0	0	0	0	2	1	2	2	0	2
Dunbrody Abbey	Abbey (Cistercian)	Dunbrody	O	WX039-030001-	192	10	27104-11509	stone- groin vaults etc	y	y	0	y	3	2	2		2	2	0	1
	Jacobean house	Dunbrody	O	WX039-030001-		10	27104-11509	stone' numerous sq headed windows in limestone'	y	y	1	y	3	2	2	3	2	2	0	1
not nat mon	tidal mill	Dunbrody				0-10	27084-11481	tidal mill whose dam exists as causeway but pond is reclaimed a large millwheel found 1970 and re-buried	timber wheel											3
Duncannon Fort	Artillery Fort	Duncannon	G	WX044-015001-	668	0-15	27276-10816	stone earth brick	y	y	y	y	3	2	2	2	3	2	3	3
Tacumshane Windmill	Windmill	Fence	G	WX053-006----	457			restored thatched windmill	y	y	y	y		3	1	0	3	1	0	1
Ferns (St. Peters) Church	Church	Ferns Upper	O	WX015-003005-	133	60	30235-14998	stone 'green stone lancet window encl	y	y	y	y	0	1	3	2	3	2	0	0
Ferns Abbey	Priory (Augustinian)	Ferns Upper	O	WX015-003004-	133	60	30227-14972	barrell and ribbed vault- stone, earth	y	y	y	y	0	0	3	1	2	2	1	0
St. Mary's Church	Church	New Ross	G	WX029-013002-	443	approx 35m over river	27216-12767	dundry stone , green stone 'liberally used'	timber in church in use	y	0	y	ok re flood study '10	2	3	3	2	2	0	0

NATIONAL MONUMENTS IN STATE CARE:OWNERSHIP & GUARDIANSHIP: WEXFORD: 4 MARCH 2009																			
Noted in Development Plan as of Major Archaeological importance				***O-Ownership; G- guardianship***				***MATERIALS***			***BURIED ARCHAEO-LOGY***	***VULNERABILITIES***							
NAME	DESCRIPTION	TOWNLAND	LEGAL STATUS-	RMP NO.	NAT MON NO.	height over OD	Grid ref: As per archaeology .ie	materials	Timber	Stone	Earth	y	flood	timber rot	incr lichen stone	soft stone known present	storm on vul struct structure	ivy + veg incr	earth struct vul to incre storm	Sea storm surge
Rathmackee Castle	Castle	Rathmackee Great	G	WX042-029001-	434	15	30313-11403	stone	0	y	0	y	1	0	2	2	2	2	0	0
Rathumney Castle	Castle	Rathumney	O	WX040-028001-	229	45	27685-11650	stone 25m y 9, earth bawn 38x 31	0	y	y	y	0	0	2	2	2	2	0	0
Slade Castle	Castle	Slade	G	WX054-008001-	429	0-8	274639-98494	stone	0	y	y	y	3	0	2	2	2	1	0	3
	fortified house not nat mon?	Slade		WX054-008002-		0-8	27464-98490	stone	0	y	y	y	3	0	2	2	2	1	0	3
	salt manufactory-not nat mon- but on RMP			wx-054-012----		0-4	27470-98490		0	y	y	0	3	0	2	2	2	1	0	3
Vinegar Hill Windmill	Windmill	Temple-shannon	G	WX020-032----	392	118	288280-139852	stone		y	0	y	0	0	2	0	2	1	1	0
Tintern Abbey	Abbey (Cistercian)	Tintern	G	WX045-027001-	506	12	279438-110053	stone prob dundry as daughter hse to Wales- timber and wattle partition	y	y	y	y	2	2	2	2	2	2	0	1
Tintern Abbey	Church	Tintern	O	WX045-029001-,		20	27972-10989	round- headed doorway dressed sandstone triple lancet old red sandstone,sandstone and shale- vault now blocked	0	y	y	y	2	0	2	?	2	2	0	1
Tintern Abbey	Bridge	Tintern	O	WX045-028002-		<10	279556-109870	stone- hazel wattling marks centring (old)under	0	y	y	y	3	0	2	2	2	2	0	1
St. Selsker's Priory	Church (Augustinian)	Wexford Town	G	WX037-032009-	445 & 614	<10, prob 9	304607-122143	all dressed stone is dundry stone"quoins fortified tower e end s nave dressed dundry stone'	y	y	y	y	ok re SEA flood study '10	2	2	3	2	1	0	1

- Flood study ’10 = Current Development Plan Flood maps or SEA(Strategic Environmental Assessment)

	NATIONAL MONUMENTS WHICH ARE THE SUBJECT OF PRESERVATION ORDERS																			
	Wexford County Development Plan 2007-2013 Chapter9 HERITAGE,CONSERVATION&LANDSCAPE																			
NAME	DESCRIPTION: number of P.O. and effective date	TOWNLAND	LEGAL STATUS	RMP NO.	NAT MON NO.	height over OD	grid ref: As per archaeology .ie	materials	Timber	Stone	Possible Buried artefacts	Earth		flood	timber rot	incr lichen stone	soft stone known present	storm on vul struct stone	ivy + veg incr	earth struct vul to incre storm	Vulnerability to climate change
Baginbun Earthworks	192-18/07/52	Ramstown		WX050-015002-		0-10	2800000-103160	earth ditch and bank-stone lime kiln	?	y	y	earth	Y	0	0	0	0	0	y	y	Highly vulnerable-marine erosion
Rectilinear (moted site)	7/56-22/02/56	Courtbally-edmond		WX016-022001-		50	313460-146260	earth	?	?not visible	y	earth	Y	0	0	0	0	0	y	y	Low vulnerability
Barrow	3/58-15/10/58	Loftus Hall		WX049-015002-		10	275323-100797	earth	?	?not visible	y	earth	Y	0	0	0	0	0	y	y	Medium vulnerability
		Loftus Hall		WX049-015001-		10	275237-100694	earth	?	?not visible	y	earth	Y	0	0	0	0	0	y	y	Medium vulnerability
Old Ross Motte	2/74-11/10/74	Springpark		WX030-052001-		inland	279488-127646	earth	?	?not visible	y	earth	Y	0	0	0	0	0	y	y	Low vulnerability
Ringfort	1/79-11/01/79	Muchrath		WX048-019----		inland	306540-110351	earth	?	?not visible	y	earth	Y	0	0	0	0	0	y	y	Low vulnerability

RECORD OF PROTECTED STRUCTURES WEXFORD COUNTY DEVELOPMENT PLAN 2007-2013 : IN ANALYSIS (INCOMPLETE)

NAME	DESCRIPTION	TOWNLAND	GRID REF	inspected	materials					threats	threats
	Red type indicates thatched roof property –possibly clay walls				thatch	clay	stone	brick	timber		
RPS Reference	Name or Description of Structure	Location	Coastal zone	y	thatch					coast-erosion	inland flood- as per dev plan or rough estimate
WCC0001	St Peter's Church	Kilmore Quay	y	y	0	0	y	0	y	0 as rock based site	0
WCC0002	Stonie Cottage, two-storey thatched house	Crossfarnoge, Kilmore Quay	y	y	thatch	y	y	0	y	0	0
WCC0003	Three bay, two-storey, thatched house	Crossfarnoge, Kilmore Quay	y	y	thatch	y	y	0	y	0	0
WCC0004	An Teach Ban, single-storey thatched house	Crossfarnoge, Kilmore Quay	y	y	thatch	y	y	0	y	0	0
WCC0005	Five bay, single-storey, thatched house	Crossfarnoge,Kilmore Quay	y	y	thatch	y	y	0	y	0	0
WCC0006	Bag End, single-storey, thatched house	Nemestown, Kilmore Quay	y	y	thatch	y	y	0	y	0	0
WCC0007	Three bay, two-storey, thatched house	Nemestown, Kilmore Quay	y	y	thatch	y	y	0	y	0	0
WCC0008	Four bay, two-storey, thatched house	Crossfarnoge, Kilmore Quay	y	y	thatch	y	y	0	y	0	0
WCC0009	Three bay, two-storey, thatched house	Crossfarnoge,Kilmore Quay	y	y	thatch	y	y	0	y	0	0
WCC0010	Gaotí, Four bay single-storey, thatched house	Nemestown, Kilmore Quay	y	y	thatch	y	y	0	y	0	0
WCC0011	An Teach Oileann, Four bay, thatched housed	Crossfarnoge, Kilmore Quay	y	y	thatch	y	y	0	y	0	0
WCC0012	Aisling, two-storey thatched house	Crossfarnoge, Kilmore Quay	y	y	thatch	y	y	0	y	0	0
WCC0013	Small three bay two storey, thatched house	Crossfarnoge, Kilmore Quay	y	y	thatch	y	y	0	y	0	0
WCC0015	Moylan Cottage, thatched house	Crossfarnoge, Kilmore Quay	y	y	thatch	y	y	0	y	0	0
WCC0016	Four bay, two-storey thatched house	Nemestown, Kilmore Quay	y	y	thatch	y	y	0	y	0	0
WCC0017	19th Century five bay single-storey house	Nemestown, Kilmore Quay	y	y				0	y	0	0
WCC0018	Four bay thatched house	Ballyteige, Kilmore Quay	y	y	thatch	y	y	0	y	0	0
WCC0019	Two Storey, four bay, thatched dwelling	Nemestown, Kilmore Quay	y	y	thatch	y	y	0	y	0	0
WCC0030	Star of the Sea Church	Ballintray Lwr., Courtown	y	y	0	0	y	y	y	y	0
WCC0031-34	No's 1 to 4 , Victorian Cottages	Seamount, Courtown	y	y					y	y	0
WCC0035	Maryville House	Ballintray Lwr.,Courtown	y	y					y	y	
WCC0036	Coast & Cliff Rescue HQ	Riverchapel Rd., Seamount, Courtown	y	y					y	y	0
WCC0037	Lifeboat House, RNLI	Ballintray, Courtown	y	y					y	y	0
WCC0039		Seamount, Courtown	y	y					y	y	
WCC0039	Glen Richards Farmhouse & outbuildings	Ardamine-Pollshore Road, Parknacross, Courtown	y	y					y	y	
WCC0101	Gateway at Avenue de Flanders	Mulgannon Road, Wexford	0						y	0 elevated	0
WCC0102	Park Cottage	Ballyboggan, Wexford	y						y	0 but flood point on R769	0
WCC0103	St John of God	Newtown Road, Townparks, Wexford	y						y	0	0
		Spawell Rd., Townparks, Wexford	y						y		
WCC0107	Paupers Graveyard	Coolcot Lane, Wexford	y						0		
WCC0108	Graveyard	Maudlintown, Wexford	y						0		
WCC0109	Former Hospital	Walnut Grove Park, Carricklawn, Wexford	0						y	0	0
WCC0110	Site of Church and Graveyard	Rocksborough, Wexford	y						0		
WCC0111	Saint Fanres Well	Rocksborough, Wexford	y						0		

NAME	DESCRIPTION	TOWNLAND	GRID REF	inspected	materials					threats	threats
	Red type indicates thatched roof property –possibly clay walls				thatch	clay	stone	brick	timber		
RPS Reference	Name or Description of Structure	Location	Coastal zone	y	thatch					coast-erosion	inland flood- as per dev plan or rough estimate
WCC0112	Site of Castle	Drinagh, Wexford	y		0		y		0	y	0
WCC0113	Drinagh Church and Graveyard	Drinagh, Wexford	y		0		y		0	y	0
WCC0114	Breffini House	Clonard Road, Wexford	0		0				y	0	0
WCC0115	Prospect House	Clonard Road, Wexford	0		0				y	0	0
WCC0116	Ashfield House	Knockcumshin, Wexford	y		0				y	0	0
WCC0117	Glenville House	Glenville, Wexford	y		0				y	0	0
WCC0118	Site of St Nicolas Well	Newtown, Wexford	y		0				0	0	0
WCC0119	Carrick Church and Graveyard	Carrick, Wexford	y		0				y	0	0
WCC0120	Newtown House	Newtown, Wexford	y		0				y	0	0
WCC0121	Alma House	Park, Wexford	y		0				y	0	0
WCC0122	Park House	Ballyboggan, Wexford	y		0				y	0	0
WCC0123	Park Lodge	Ballyboggan, Wexford	y		0				y	0	0
WCC0124	Mount Henry House	Ballyboggan, Wexford	y		0				y	0	0
WCC0125	Brookville House	Ballyboggan, Wexford	y		0				y	0	0
WCC0126	Slaney Hill House	Ballyboggan, Wexford	y		0				y	0	0
WCC0127	Rocklands Cottage	Rocklands, Wexford	y		0				y	0	0
WCC0128	Oaklea	Rocksborough, Wexford	y		0				y	0	0
WCC0129	Rocksborough House	Rocksborough, Wexford	y		0				y	0	0
WCC0130	Kerlogue House & Gate Lodge	Rocksborough, Wexford	y		0				y	y	y
WCC0131	Drinagh House (North)	Drinagh North, Wexford	y		0				y	y	y
WCC0132	Drinagh House (South) & Lodge	Drinagh South, Wexford.	y		0				y	y	y
WCC0133	Chimney Stack	Drinagh South Wexford.	y		0		Concr.		0	y	y
WCC0135	Carcur House	Spawell Rd., Townparks, Wexford	y						y	0	0
WCC0136	Ryans	Spawell Rd., Townparks, Wexford	y						y	0	0
WCC0137-140	1-4 Riverview Tce (1 Rivervew Tce = WCC0137 etc)	Spawell Rd., Townparks, Wexford	y						y	0	0
WCC0141-144	1-4 Farnoge Tce	Stoneybatter, Wexford	y						y	0	0 but close
WCC0145-157	1-13 Carcur cottages	Townparks, Wexford	y						y	0	0
WCC0158	Rocklands House	Rocksborough, Wexford	y						y	0	0
WCC0177a	Workmans Cottage 1	Maudlins, New Ross	**y**							0	0
WCC0177b	Workmans Cottage 2	Maudlins, New Ross	**y**							0	0
WCC0177c	Farmhouse and Outbuildings	Maudlins, New Ross	**y**	NR0177	One bldg				y	0	0
WCC0177d	Two storey, Two bay house (Hearne)	Maudlins, New Ross	**y**							0	0
WCC0178	The Store	Maudlins, New Ross	**y**							0	0
WCC0179	Brandon House	Southknock, New Ross	0	NR0059					y	0	0
WCC0180	Roseville House	Hewlitsland, New Ross	0	NR0144					0	0	0
WCC0181	St. Stephens Cemetery	Morriseysland, New Ross	0	NR0032	4 LISTINGS				0	0	0
WCC0182	Brandon Well	Oaklands, New Ross	0	NR0060					0	0	0
WCC0183	Deserted settlement	Clonmines, Wellingtonbridge	y				Y ruin vul		0	0	0
WCC0201	Church of Ireland	Main Street, Gorey	**0**	y			y		y	0	0
WCC0202	St Patrick's Roman Catholic Church	St. Michael's Road, Gorey	**0**	y			y		y	0	0
WCC0204	Avenue House	The Avenue, Gorey	**0**	y					y	0	0

NAME	DESCRIPTION	TOWNLAND	GRID REF	inspected	materials					threats	threats
	Red type indicates thatched roof property –possibly clay walls				thatch	clay	stone	brick	timber		
RPS Reference	Name or Description of Structure	Location	Coastal zone	y	thatch					coast-erosion	inland flood- as per dev plan or rough estimate
WCC0205	End of Avenue, Corner of Railway Road	The Avenue, Gorey	0	y					y	0	0
WCC0206	7 Church Street Gorey	Gorey	0	y					y	0	0
WCC0207	Late Victorian School	Main Street, Gorey	0	y					y	0	0
WCC0208	Frenches Bar	28 Main Street, Gorey	0	y					y	0	0
WCC0209	Court House	Main Street, Gorey	0	y					y	0	0
WCC0210	Brownes	45 Main Street, Gorey	0	y					y	0	0
WCC0211	Myles Doyle	67 Main Street, Gorey	0	y					y	0	0
WCC0212	Hugie Doyle	68 Main Street, Gorey	0	y					y	0	0
WCC0213	Market House	77 Main Street, Gorey	0	y					y	0	0
WCC0214	Pooles Porterhouse	79 Main Street, Gorey	0	y					y	0	0
WCC0215	Davis	88 Main Street, Gorey	0	y					y	0	0
WCC0216	P.J Conroy	92 Main Street, Gorey	0	y	0				y	0	0
WCC0217	House & outbuildings	Ramstown Lower, Gorey	0	y	0				y	0	y
WCC0218	St Michael's	St Michael's Road, Gorey	0	y	0				y	0	0
WCC0219	St Patrick's	St Michael's Road, Gorey	0	y	0				y	0	0
WCC0220	Loreto Convent	St Michael's Road, Gorey	0	y	0				y	0	0
WCC0221	Late Victorian Water Font	Church Street, Gorey	0	y	0				0	0	0
WCC0222	Clonatin House	Clonatin Upper, Gorey	0	y	0				y	0	0
WCC0223	Fire Hydrant	(outside No. 15) Esmond Street, Gorey	0	y	0				iron	0	y-only vul. in Gorey
WCC0224	St Annes	Fort Road, Gorey	0	y	0				y	0	0
WCC0225	1798 Monument	Mac Curtain Street, Gorey	0	y	0				0	0	0
WCC0226	Merrion Lodge	Mac Curtain Street, Gorey	0	y	0				y	0	0
WCC0227	Lodge House	Mac Curtain Street, Gorey	0	y	0				y	0	0
WCC0228	Coach House	Main Street, Gorey	0	y	0				y	0	0
WCC0230	Funges	17 Main Street, Gorey	0	y	0				y	0	0
WCC0231-232	Maloccas	18/19 Main Street, Gorey	0	y	0				y	0	0
WCC0234	Bob's Lounge	25 Main Street, Gorey	0	y	0				y	0	0
WCC0235	A.D. Quinn Property Specialists	26 Main Street, Gorey	0	y	0				y	0	0
WCC0236	Donal's Superstore	27 Main Street Gorey	0	y	0				y	0	0
WCC0239			0	y	0					0	0
WCC0241	Whytes Newsagents	36 Main Street, Gorey	0	y	0				y	0	0
WCC0242	J.J. Whitmore	37 Main Street, Gorey	0	y	0				y	0	0
WCC0244	Sally West	42 Main Street	0	y	0				y	0	0
WCC0245	Tara Stores	43 Main Street	0	y	0				y	0	0
WCC0246	Golden Dragon	48 Main Street, Gorey	0	y	0				y	0	0
WCC0248	Garda Station	Main Street, Gorey	0	y	0				y	0	0
WCC0249	Gibbons	60 Main Street, Gorey	0	y	0				y	0	0
WCC0252	John OíLoughlin & Co.	71 Main Street, Gorey	0	y	0				y	0	0
WCC0253	McGoverns	72 Main Street, Gorey	0	y	0				y	0	0
WCC0254	M. Leacy & Sons	75 Main Street, Gorey	0	y	0				y	0	0
WCC0255	Wades Pharmacy	76 Main Street, Gorey	0	y	0				y	0	0
WCC0256	Kool Kidz	81 Main Street, Gorey	0	y	0				y	0	0
WCC0257	Alders	86 Main Street, Gorey	0	y	0				y	0	0

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RPS Reference	Name or Description of Structure	Location	Coastal zone	y	thatch					coast-erosion	inland flood- as per dev plan or rough estimate
WCC0258	Loch Garman Arms	90 Main Street, Gorey	0	y	0				y	0	0
WCC0259	Mayfield	North Parade, Gorey	0	y	0				y	0	0
WCC0261	Snowdrop Cottage	Gorey Hill (R725), Gorey	0	y	0				y	0	0
WCC0263	Railway Station	Railway Road, Gorey.	0	y	0				y	0	0
WCC0264	Furlong House	Ramstown Lwr, Gorey	0	y	0				y	0	0
WCC0265	John Boland Carpets	St. Michaels Rd., Gorey	0	y	0				y	0	0
WCC0266		St. Michaels Rd., Gorey.	0	y	0				y	0	0
WCC0267	Station Goods Buildings	St. Michaels Rd., Gorey.	0	y	0				y	0	0
WCC0301	Former Alms House	Old Church Rd., Templeshannon, Enniscorthy	0	y					y	0	Y
WCC0302	Old Rectory	Old Church Rd., Templeshannon, Enniscorthy	0	y					y	0	Y
WCC0303	Clonhasten House	Old Church Rd., Templeshannon, Enniscorthy	0	y					y	0	Y
WCC0304	Windmill Tower	Vinegar Hill, Enniscorthy	0	y		0	y	0	0	0	0
WCC0501	Outbuildings thatched and kitchen garden	Churchtown, Carne.	y		y				y	y	0
WCC0502	Thatched cottage	Bog Road, Coolamain, Oilgate			y				y	0	y
WCC0503	Three bay, single storey with corrugated iron roof	Primestown, Broadway	y							0	0
WCC0504	Pillar House	Courtown Demesne Courtown	y	y	y				y	y	0
WCC0505.	Clougheast Thatched Cottage	Clougheast, Carne, Wexford	y		Y	y	y		y	y	0
WCC0506	Monfin House	Monfin, Enniscorthy	0						y	0	0
WCC0508	Edenvale Cottage	Ballyboggan, Castlebridge	y						y	y	y
WCC0509	Ballymore School House	Ballymore, Ferns	0	y	y	y	y		y	0	0
WCC0510	Monaseed House	Monaseed Demense,Gore	0						y		
WCC0511	Former RIC Barracks	Main Street, Fethard	y		0				y	0	0
WCC0512	Two Storey, five bay, thatched House	Polrane, Kilmore			y	y	y		y		
WCC0513	St. Ruanes Church	Kilrane, Wexford					y		y		
WCC0514	Stone Bridge, St Helens	St.Helens, Rosslare	y				y		0	0	y
WCC0515	Ceann Tu	Lady's Island Wexford	y						y		0 but near
WCC0516	Two story, three bay house	Kilbraney, Gusserane, New Ross		not found					y		
WCC0517	Tintern Church of Ireland Church	Saltmills	y				y		y	y	y
WCC0518	Limekiln	St.Kearns, Saltmills,	y				y		0	y	y
WCC0519	Coal Quay	St Kearns, Saltmills	y	concrete, stone(pier)			y		0	y	y
WCC0520	Styles House	Saltmills	y						y		
WCC0521	Tintern House	Saltmills	y						y	y	y
WCC0522	Waterpump	Saltmills	y						0	y	y

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WCC0523	Colclough Memorial Hall	Saltmills	y						y	y	y
WCC0524	Finn's Shop	Saltmills	y						y	y	y
WCC0525	The Hollow	Cullenstown	0						y		
WCC0526	St. Mary's Church	Cushinstown, New Ross	0	NR0011	graveyard also				y		
WCC0527	Thatched house, Four Bay, Two Storey	Ardnagh Little, Foulkesmills			y				y		
WCC0528	Corn Mill	Cloughmills, Davidstown							y		y
WCC0529	Curracloe House	Curracloe	y						y	y	y
WCC0530	Three bay two storey house, Landscape	Landscape, New Ross,	0	not found					y		
WCC0531	Free standing outbuilding, two storey, gable fronted	Duncormick Village							y		
WCC0532	Castellated stone building	Pollsallagh, Piercestown Village							y	0	0
WCC0533	Star of the Sea Church	Duncannon,	y				y		y	0	0
WCC0534	Duncormick Church	Duncormick,	y						y		
WCC0535	Thatched Cottage, five bay, single storey	Grange, Kilmore	y		y		y		y		
WCC0536	Pair of cottages, three bay two storey cottages	Barrystown, Wellingtonbridge							y		
WCC0537	Salt Bridge	Seafield, Duncormick					y		0	y	y
WCC0538	Redmondstown Church	Rathaspick,					y		y		
WCC0539	St John Of God's Convent	Sarshill, Kilmore,					y	y	y		
WCC0540	Quigleys Bar & Residence	Sarshill, Kilmore,					y		y		
WCC0541	Farmhouse	Ballask, Kilmore,		Y	y				y		
WCC0542	Three bay, two storey house	Mauldlintown, Wellingtonbridge							y		
WCC0543	Crefogue House	Enniscorthy	0		0				y		
WCC0544	Castlebridge Reading Rooms	Castlebridge.	y	y	0				y	0	y
WCC0545	Stewards House	Kilann, Enniscorthy			0				y		
WCC0546	Two storey house, four bay, corrugated iron roof	Stonepark, Davidstown									
WCC0547	Newbay House	Newbay, Wexford	0		0				y		
WCC0548	Three bay, single storey, thatched dwelling	Main Street,Ballask, Kilmore	y		y	y			y		0
WCC0549	Three bay, single storey, thatched dwelling wooden door	Main Street, Ballask, Kilmore	y		y	y			y		0
WCC0560	Sweet Briar thatched Cottage	Curracloe,	y		Y	y			y	y	0
WCC0561	Single storey, thatched cottage	Balinesker, Curracloe,	y		Y	y			y	y	0
WCC0562	Teach Samhran	Ballask, Carne (ED Lady's Island)	y						y	y	0
WCC0563	Three bay, two story thatch with back to road,.	Newtown, Kilmore	y		y	y			y		
WCC0565	Martello Tower	Duncannon	y	y			y			0	0
WCC0566	Martello Tower	Duncannon	y	y			y			0	0
WCC0567	Ramsfort	Ballyteganpark, Gorey	0	y					y		
WCC0568	Bannow House	Grange, Bannow							y		
WCC0569	The Deeps	The Deeps, Crossabeg	y	Regency single storey					y	0	y

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WCC0570	Thatched Public, Real Unyoke	Castle Ellis, Ballyhought	708789-636360		y				y	0	0
WCC0571	Three bay, thatched two story farmhouse	Polmanagh Little	697665-612838		y				y	0	0
WCC0572	Thatched Lodge	Kiltennel Village, Courtown, Wexford	y		y				y	y	0
WCC0573	Rowesmount House	Bogganstown Upr, Drinagh	y						y	0	0
WCC0601	Ballycarney Bridge	Ballycarney	0			0	y	0	0	0	y
WCC0602	Corbally Bridge	Corbally					y		0	0	y
WCC0603	Courtown House	Courtown	y	y					y	0	0
WCC0604	Doran's Bridge	Ferns	0	y			y		0	0	y
WCC0605	Edermine House	Edermine	0				y		y	0	y
WCC0606	Garrylough Mill	Garrylough							y	0	y
WCC0607	Hill Castle	Tagoat					y		y	0	0
WCC0608	Hook Head Lighthouse	Hook Head	y				y		y	Y but strong	0
WCC0609	Kilcarbry Bridge	Kilcarbry			0	0	y	0	0	0	0
WCC0610	Kyle Cross Roads	Kyle Cross					y		y	0	0
WCC0611	The Leap	The Leap					y		y		
WCC0612	Ballinatray Bridge	Ballinatray	0	y		0	y	0	0	0	y
WCC0613	Round Tower	Ferrycarrig	y	y		0	y	0	y	0	Y but strong
WCC0614	House	Ramstown Lower							y		
WCC0615	Bridge and Causeway	Saltmills	y	y		0	y	0	0	y	y
WCC0616	Scarawalsh Bridge	Enniscorthy	0	y		0	y	0	0	0	y
WCC0617	Solsborough- house?	Solsborough							y	0	0
WCC0618	Bridge	Clonegall	0		0				0	0	y
WCC0619	Wellington Bridge	Wellington Bridge	0		0	0	y	0	0	0	y
WCC0620	Bellevue	Bellevue			0				y	0	0
WCC0621	Broadford	Ferns	0		0				y	0	0
WCC0622	Browne Clayton Column	Carrigbyrne	0		0	0	y	0	0	0	0
WCC0623	Camolin Park	Camolin	0		0				y		0
WCC0624	Carrigmannon Bridge	Carrigmannon	0		0	0	y	0	0	0	y
WCC0625	Clohamon Bridge	Clohamon	0	y	0	0	y	0	0	0	y
WCC0626	Coolattin Bridge	Coolattin	0	y	0	0	y	0	0	0	y
WCC0630	Adamstown Church	Adamstown	0	y	0	0	y	y	y	0	0
WCC0631	Clonroche Church	Clonroche	0	y	0				y	0	0
WCC0632	Courtnacuddy Church	Courtnacuddy	0		0				y	0	0
WCC0633	Davidstown Church	Davidstown	0		0				y	0	0
WCC0634	Glenbrien Church	Glenbrien	0		0				y	0	0-nr stream
WCC0635	Glynn Church	Glynn	0		0				y	0	0
WCC0636	Hilltown Church	Hilltown	0		0				y	0	0
WCC0637	Killinierin Church	Killinierin	0		0				y	0	0
WCC0638	Killmyshall Church	Killmyshall	0		0				y	0	0
WCC0639	Lady's Island Church	Lady's Island	y		0				y	y	0 but near
WCC0640	Old Ross Church	Old Ross	0		0				y	0	0
WCC0641	Ballindaggin Church	Ballindaggin	0		0				y	0	0
WCC0642	Oulart Church	Oulart	0		0				y	0	0

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WCC0643	Piercetown Church	Piercetown			0				y	0	0
WCC0644	Ramsgrange Church	Ramsgrange	0	y	0				y	0	0
WCC0645	Rathangan Church	Rathangan	0		0				y	0	0
WCC0646	Rathnure Church	Rathnure	0		0				y	0	0
WCC0647	Tagoat Church	Tagoat	0		0				y	0	0
WCC0648	Taylorstown Church	Taylorstown Bridge	0		0				y	0	0
WCC0649	Ballygarrett Church	Ballygarrett	y	y	0				y	0	0
WCC0650	Ballymore Church	Ballymore	0		0				y	0	0
WCC0651	Ballymurn Church	Ballymurn	0		0				y	0	0
WCC0652	Barntown Church	Barntown	0		0				y	0	0
WCC0653	Bellevue Church	Ballyhogue	0		0				y	0	0
WCC0654	Bree Church	Bree	0		0				y	0	0
WCC0655	Clongeen Church	Clongeen	0		0				y	0	0
WCC0660	Artramon House	Crossabeg	c		0				y	y	0
WCC0661	Ballystraw (Palladian House)	Ballystraw	C but high		0				y	0	0
WCC0662	Neo-classical house	Ballytrent			0				y		
WCC0663	Italianate House	Ballywater	y		0				y		
WCC0664	Bargy Castle	Bargy	0		0				y	0	0
WCC0665	Neo-classical house	Berkeley	0		0				y	0	0
WCC0666	Neo-Tudor House	Bloomfield	0		0				y	0	0
WCC0667	Late Classical House	Borleagh	0		0				y	0	0
WCC0668	Borohill	Borohill	0		0				y	0	
WCC0669	Italianate House	Borrmount	0		0				y	0	y
WCC0670	Italianate House	Ballinkeel	0		0				y	0	0
WCC0671	Brookhill House	Brookhill	0		0				y	0	y
WCC0672	Brownswood House	Brownswood	0		0				y	0	0
WCC0673	Castleboro	Castleboro	0		0		Y;ruin vul		y	0	0
WCC0674	Castle Talbot	Talbot			0				y	0	0
WCC0675	Clobemon Hall	Bunclody	0		0				y	0	0
WCC0676	House	Clohamon	0		0				y	0	y
WCC0677	Palladian House	Clonard Great			0				y	0	0
WCC0678	Ruin of a Tudor-Gothic	Coolbawn			0		Y;Ruin vul.		y	0	0
WCC0679	The Deanery	Ferns	0	y	0				y	0	0
WCC0680	Neo-Classical Entrance	Ballyanne	0		0				y	0	0
WCC0681	Italianate House	Dunbrody	y	y	0				y	0	0
WCC0682	Edermine	Enniscorthy	0		0				y	0	y
WCC0683	House	Horetown	0		0				y	0	0
WCC0684	Neo-Classical House	Hyde Park	0		0		y		y	0	0
WCC0684	Neo-Classical House	Hyde Park	0		0		y		y	0	0
WCC0685	Johnstown Castle	Rathaspick			0	y	y	y	y	0	0
WCC0686	Killiane Castle	Killiane	c		0				y	0	y
WCC0687	House	Killowen	0		0				y	0	0
WCC0688	Kilmannock	Kilmannock	c		0				y	y	0
WCC0689	Kyle House	Kyle	0		0		y		y	0	0

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WCC0690	Ballycarney Cottage	Ballycarney	0	y	0				y	y	0
WCC0691	Litterbeg	Litterbeg	y	y	0				y		
WCC0692	Loftus Hall	Templetown	y		0		Y;Ruin vul.		y		
WCC0693	Macmine Castle	Macmine			0				y		
WCC0694	Neo-Classical House	MacMurrough			0				y		
WCC0695	House	Marlfield		y	0		y		y	0	0
WCC0696	Monart	Enniscorthy	y	y	0		y		y	0	0
WCC0697	Palladian Composition	Monksgrange			0		y		y		
WCC0698	Mount Anna	Crossabeg			0				y		
WCC0699	Nevillescourt	Nevillescourt			0				y		
WCC0700	Newbay House	Carrick	0		0				y	0	0
WCC0701	Ballymore	Camolin	0		0				y	0	0
WCC0702	Italianate House Newtownbarry	Bunclody	0	y	0	y	y	y	y	0	Y some features
WCC0703	Rubble-Stone House	Parknashoge			0		y		y		
WCC0704	Peppard's Castle	Peppard	Behind dunes		0		y		y	0	0
WCC0705	House	Pilltown			0		y		y		
WCC0706	Rathaspick	Rathaspick			0		y		y		
WCC0707	Towerhouse and House	Richfield			0				y		
WCC0708	Lodge	Rockspring			0				y		
WCC0709	House	Rosegarland			0				y		
WCC0710	Ballymore	Screen			0				y		
WCC0711	Rosemount	Rosemount			0				y		
WCC0712	Error (in wex coco file)				0				y		
WCC0713	St. John's	Enniscorthy	0		0				y	0	0
WCC0714	St Waleran's	Gorey	0		0				y	0	0
WCC0715	Saunder's Court	Crossabeg			0				y		
WCC0716	Stokestown?	Stokestown			0				y		
WCC0717	Slaney Lodge	Bunclody	0		0				y	0	y
WCC0718	Stokestown Folly	Stokestown	0		0				y	0	0
WCC0719	Stokestown Castle	Stokestown	0		0				y	0	0
WCC0720	Talbot Hall	Talbot		y	0				y	0	0
WCC0721	Country House	Ballynestragh			0				y		
WCC0722	Verona	Verona			0				y	0	y
WCC0723	Wells	Gorey	0		0				y	0	0
WCC0724	Wilton	Wilton			0				y	0	y
WCC0725	Woodbrook	Woodbrook			0				y	0	0
WCC0726	Woodview	Ferns	0		0				y	0	0
WCC0727	Ballinatray Bridge	Courtown	0	y	0	0	y	0	0	0	Y but high
WCC0728	Lodge	Ballyrankin			0				y	0	y
WCC0740	Ardamine Church	Riverchapel	y	Y	0		0	y	y	y	0
WCC0741	Kilscoran Church	Kilscoran	0		0				y	0	0
WCC0742	Kyle Church	Kyle	0		0				y	0	0
WCC0743	Wells Church	Wells	0		0				y	0	0
WCC0744	Whitechurch Church	Whitechurch	0		0				y	0	0

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WCC0745	Ballyboro Church	Killegney			0				y	0	0
WCC0746	Ballybuckley	Ballybuckley			0				y	0	0
WCC0747	Ballycanew Church	Ballycanew		y	0				y	0	0
WCC0748	Ballycarney Church	Ballycarney		y	0				y	0	y
WCC0749	Carrick Church	Carrick			0				y	0	0
WCC0750	Hollyfort Church	Hollyfort			0				y	0	0
WCC0751	Killann Church	Killann			0				y	0	0
WCC0752	Killurin Church	Killurin			0				0	0	0
WCC0765	Baginbun Earthwork	Ramstown	Nat Mon	y	0	y	0	0	0	Y vul	0
WCC0766	Rectilinear	Courtballyedmond	Nat Mon	y	0	y	0	0	0	0	0
WCC0767	Barrow	Loftus Hall	Nat Mon	y	0	y	0	0	0	y-vul	0
WCC0768	Old Ross Motte	Springpark	Nat Mon	y	0	y	0	0	0	0	0
WCC0769	Ringfort	Muchrath	Nat Mon		0	y	0	0	0	0	0
WCC0770	Castle	Ballyhack	Nat Mon	y	0	0	y	0	y	y	0
WCC0771	Castle	Slade	Nat Mon	y	0	0	y	0	0	y	0
WCC0772	Abbey (Cist.)	Tintern	Nat Mon	y	0	0	y	y	y	0	y
WCC0773	Motte	Ballymoty More	Nat Mon		0	y	0	0	0	0	0
WCC0774	Ferns Castle	Castleland	Nat Mon	y	0	y	y	0	y	0	0
WCC0775	Castle	Coolhull	Nat Mon		0	0	y	0	0	0	0
WCC0776	Abbey (Cist)	Dunbrody	Nat Mon	y	0	y	y	y	y	0	Y?
WCC0777	Tacumshane Windmill thatch	Fence	Nat Mon	y	0	y	y	?	y	0	0
WCC0778	Monastery (Aug.)	Ferns Upper	Nat Mon	y	0	0	y	0	0	0	0
WCC0779	Castle	Rathmacknee Great	Nat Mon		0		y		0	0	0
WCC0780	Castle	Rathumney	Nat Mon		0		y		0	0	0
WCC0790	Artramon Castle	Atramon			0		y		0	y	0
WCC0791	Clough Castle	Carne			0		y		0	0	y
WCC0792	Coolhull Castle	Coolhull	Nat Mon		0		y		0	y	0
WCC0793	Deeps	Deeps		y	0		y		y	0	y
WCC0794	House	Dunbrody		y	0		y		y	0	0
WCC0795	Towerhouse	Ferrycarrig		y	0	0	y	0	0	0	0
WCC0796	Hilltown House	Hilltown		y	0		y		y	0	0
WCC0797	Mount Garrett Castle	Mount Garrett		y	0	0	y- ruin-vul	0	0	0	0
WCC0798	Mylerspark	Mylerspark			0		y		y		
WCC0799	Baldwinstown Castle	Baldwinstown			0		y		y	0	0
WCC0800	Tower House	Ballyhack	Nat Mon	y	0	0	y	0	y	y	0
WCC0801	Ballyteigue Castle	Ballyteigue			0		y		y		
WCC0802	Butlerstown Castle	Butlerstown			0		y		y		
WCC0803	Castleboro	Castleboro			0		y		y		
WCC0804	Castletown House	Castletown			0		y		y		
WCC0805	Tower House	Carne			0		y		0		
WCC0806	Tower House	Sigginstown			0				0		
WCC0820	J. Bowe	Kiltealy			0				y		
WCC0821	First Fruits Type Church	Kiltennel		y	0		y		y	y	0

NAME	DESCRIPTION	TOWNLAND	GRID REF	inspected	materials					threats	threats
	Red type indicates thatched roof property –possibly clay walls				thatch	clay	stone	brick	timber		
RPS Reference	Name or Description of Structure	Location	Coastal zone	y	thatch					coast-erosion	inland flood- as per dev plan or rough estimate
WCC0822	Pedimented Entrance Arch	Kiltennel	y	y	0		y	y	y	y	0
WCC0823	Old National School	Kiltennel	y	y	0		y	y	y	0	0
WCC0824	Catholic Church	Oilgate	0	y	0				y		
WCC0825	Artisan Houses	Oilgate	0	y	0				y		
WCC0826	Thatched Cottage	Screen			y				y		
WCC0827	Patrick Fortune	Screen			0				y		
WCC0828	Catholic Church	Taghmon			0				y	0	0
WCC0829	Church of Ireland Church	Taghmon			0				y	0	0
WCC0830	Three Storey House	Taghmon			0				y	0	0
WCC0831	Whelan's	Taghmon			0				y	0	0
WCC0832	House	Taghmon			0				y	0	0
WCC0833	Taghmon Castle	Taghmon			0				y	0	0
WCC0834	Small First Fruits Church	Templescoby (Jamestown)			0				y		
WCC0835	Seyton's House and School	Templescoby (Jamestown)			0				y		
WCC0836	First Fruits Church and Tower	Templeshambo			0				y		
WCC0837	Former School House	Templeshambo			0				y		
WCC0838	House	Tomhaggard	y		y				y	0	0
WCC0839	Mass House	Tomhaggard	y	y	y	y	y	0	y	0	0
WCC0840	N/K Thatched House	Ballyedmond		y	y	y	y	?	y		
WCC0841	Thatched Cottage	Ballyedmond			y				y		
WCC0842	Ballyedmond								y		
WCC0843	Thatched Cottage	Ballyedmond			y				y		
WCC0844	Shell Cottage thatch	Blackwater	y	y	y				y		
WCC0845	Bridge	Blackwater	y	y	0				0	y	y
WCC0846	Thatched House	Blackwater	y	y	y				y	0	y
WCC0847	Catholic Church	Blackwater	y	y	y				y	0	0
WCC0848	Church of Ireland Church	Bunclody	y	y	0				y	0	0
WCC0850	J. Furlong	Bunclody	y	y	0				y	0	0
WCC0851	Bridge over the Slaney	Bunclody	riverine	y	0		y		0	0	y
WCC0852	Catholic Church Castlebridge	Castlebridge	y	y	0		y		y	0	0
WCC0852	Catholic Church	Castlebridge	y	y	0		y		y	y	y
WCC0853	Church of Ireland Church	Castlebridge	y	y	0		y		y	0	0
WCC0854	Conservatory	Castlebridge	y	y	0	iron	0	0	0	y	y
WCC0855	Mill Buildings	Castlebridge	y	y	0		y		y	y	y
WCC0856	House	Castlebridge	y	y	0		y		y	y	y
WCC0857	Mill Buildings	Castlebridge	y	y	0		y		y	y	y
WCC0858	Como Lodge	Castlebridge	y	y	0		y		y	0	y
WCC 859	Thatched house	Castlebridge	y	y	y		y			y	y
WCC860	Mill building	Craanford	0		0		y			y	y
WCC861	Thatched house	Craanford	0		y		y			y	0
WCC862	Mill building	Craanford	0		0		y			0	0
WCC862	The Fort	Duncannon	y	y	0		y			y	0
WCC0864	Duncannon Church of Ireland Church	Duncannon	y	y	0		y		y	0	0
WCC0865	Lighthouse and other buildings	Duncannon	y	y	0	0	y	y	y	y	0

NAME	DESCRIPTION	TOWNLAND	GRID REF	inspected	materials					threats	threats
	Red type indicates thatched roof property –possibly clay walls				thatch	clay	stone	brick	timber		
RPS Reference	Name or Description of Structure	Location	Coastal zone	y	thatch					coast-erosion	inland flood- as per dev plan or rough estimate
WCC0866	Church of Ireland	Ferns	y	y	0	0	y	?	y	0	0
WCC0867	Well	Ferns	y	y	0	y	y	?	y	0	0
WCC0868	The Old Mill	Ferns	y	y	0	0	y	y	y	0	0
WCC0869	Church of Ireland Church	Fethard	0	y	0	y	y	?	y	y	0
WCC0870	Fethard Castle	Fethard		y	0	0	y-ruin-vul	?	y	y	0
WCC0871	Mill Building	Foulkesmill		y	0		y		y		y
WCC0872	Polldoon House	Foulkesmill		y	0		y		y		
WCC0880	Mulrankin Castle	Bridgetown			0		y		0		
WCC0881	Ballyhealy Castle	Kilmore	y	y	0		y		0	0	0
WCC0882	Kilmokea House	Campile	0		0		y		y		
WCC0883	Dunmain House	New Ross	0		0	0	y		y	0	y
WCC0884	Polehore House	Weyford							y		0
WCC0890	Thatched House-Ballybeg Little	Allenstown Little	inland		y	y	y		y	0	0
WCC0891	Thatched Farmhouse	Carne	Ballygarra		Y	y	y		y	y	0
WCC0892	Thatched Cottage	Ballygarran	at kilmuckridge- high		y	y	y			y	y
WCC0893	Thatched Cottage	Ballygarrett	y		y	y	y		y	y	0
WCC0894	Thatched House	Ballygarrett Little	y		y	y	y		y	y	0
WCC0895	Thatched Farmhouse	Ballygillane Little	y		Y	y	y		y	0	0
WCC0896	Thatched Cottage	Ballymitty	y		y	y	y		y	0	0
WCC0897	Thatched Cottage	Ballymitty	y		y	y	y		y	0	0
WCC0898	Thatched House	Ballymoty Beg			y	y	y		y	0	0
WCC0899	Thatched Farmhouse	Ballynamire			y	y	y		y		
WCC0900	Thatched Cottage	Bolaboy More			y	y	y		y	0	0
WCC0901	Thatched Farmhouse	Ballysheen	our ladys I.		Y	y	y		y		
WCC0902	Thatched Farmhouse	Ballysimon			y	y	y		y		
WCC0903	Thatched Cottage	Ballyvaloo			y	y	y		y		
WCC0904	Farmhouse	Ballyvergin				y	y		y	0	0
WCC0905	Thatched HouseChapel	Nr Kilmore Q	y		Y	y	y		y	0	0
WCC0906	Cottage	Lady's Island	y			y	y		y	y	0
WCC0907	Thatched Gentleman's Residence	Lady's Island	y		y	y	y		y	y	0
WCC0908	Thatched House	Coddstown Great	Five Alley y		Y	y	y		y		
WCC0909	Thatched House	Coddstown Little	Five Alley y		Y	y	y		y		
WCC0910	Thatched Cottage	Coolgarrow			y	y	y		y	y	0
WCC0911	Cottage thatched	Coolhull			Y	y	y		y	0	0
WCC0912	Thatched House	Coolrainey	nr Curracloe		Y	y	y		y	0	0
WCC0913	Thatched Cabin	Coolrainey	nr Curracloe		Y	y	y		y	Y	0
WCC0914	Thatched House	Coolroe	n. kilmuckridge		y	y	y		y	y	0
WCC0915	Farmhouse	Coolattin				y	y		y		
WCC0916	Thatched House	Courtlough Lower	w blackwater		Y	y	y		y	thick walls-old	
WCC0917	Thatched Cottage	Cullenstown	s coolhull		Y	y	y		y	heavy shell work- vul	
WCC0918	Thatched Roof	Cullenstown	s coolhull		Y	y	y		y	Y 0	
WCC0919	Cottage (Ballask)	Kilmore			y	y	y		y		
WCC0920	Sinnotts thatched public hse	Duncormick	pub		Y	y	y		y	inlet12m	
WCC0921	Thatched House	Eardownes Great	Ladys Island		Y	y	y		y	y	0

NAME	DESCRIPTION	TOWNLAND	GRID REF	inspected	materials					threats	threats
	Red type indicates thatched roof property –possibly clay walls				thatch	clay	stone	brick	timber		
RPS Reference	Name or Description of Structure	Location	Coastal zone	y	thatch					coast-erosion	inland flood- as per dev plan or rough estimate
WCC0922	Thatched House	Gerry, Ballygarrett	y		y	y	y		y	y	0
WCC0923	Thatched House	Gibberwell,Duncormick			Y	y	y		y	below 10m-y	
WCC0924	Thatched Cottage	Glebe Blackwater	y		Y	y	y		y	Inland-0	0
WCC0925	Thatched Cottage	Johnstown			y	y	y		y		0
WCC0926	Thatched Cottage	Killenagh			y	y	y		y		0
WCC0927	Thatched Cottage	Kilmacoe			y	y	y		y		
WCC0928	Thatched Cottage	Lannagh	nr Kilmore Q	y	Y	y	y		y	below 10m-y 0	
WCC0929	Thatched Cottage	Libgate	nr Kilmore Q	y	Y	y	y		y	below 10m-y o	
WCC0930	Thatched House	Ballinesker	nr sea curracloe	y	y	y	y			y	0
WCC0931	Thatched Cottage	ED Kilscoran	w of tagoat		Y	y	y		y		
WCC0932	Whitewashed thatched House	ED Kilscoran	n of tagoat		Y	y	y		y	20m	
WCC0933	House	Nemestown	e kilmore quay						y		
WCC0934	Cottage	Nemestown							y		
WCC0935	Thatched House	Newtown	nw kilmore q		Y	y	y		y	below 10m-y	
WCC0936	Thatched House	ED Kilmore	nw kilmore q		Y	y	y		y	below 10m-y	0
WCC0937	Thatched Cottage	ED Kilmore	nw kilmore q		y	y	y		y		
WCC0938	Thatched Cottage	ED Kilmore	nw kilmore q		Y	y	y		y	below 10m-y	poss modern
WCC0939	Thatched Cottage	Orristown	killinick		Y	y	y		y	0	
WCC0940	Thatched Cottage	Richfield			Y	y	y		y	below 10m	
WCC0941	Thatched Farmhouse	Rickardstown			Y	y	y		y	below 10m	
WCC0942	Thatched Farmhouse	St. Awaries			Y	y	y		y		
WCC0943	Thatched House	St. Iberius	nr ladys i		Y	y	y		y	0	
WCC0944	Thatched Cottage	St. Iberius	nr ladys i		Y	y	y		y		
WCC0945	Thatched House	Sarshill			Y	y	y		y		
WCC0946	Thatched House	Whitefort			Y	y	y		y	0	0
WCC0947	Thatched Cottage	Whitefort			Y	y	y		y	0	Rebuilding 08
WCC0948	Thatched House	Ballinesker				y	y			y	0
WCC0949	Thatched House	ED Tacumshane			Y	y	y		y	below 10m-y	
WCC0950	Thatched Farmhouse	Ballyconnigar	bad erosion here	y		y	y			y	y

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APPENDIX A GLOBAL TEMPERATURE DURING 2009

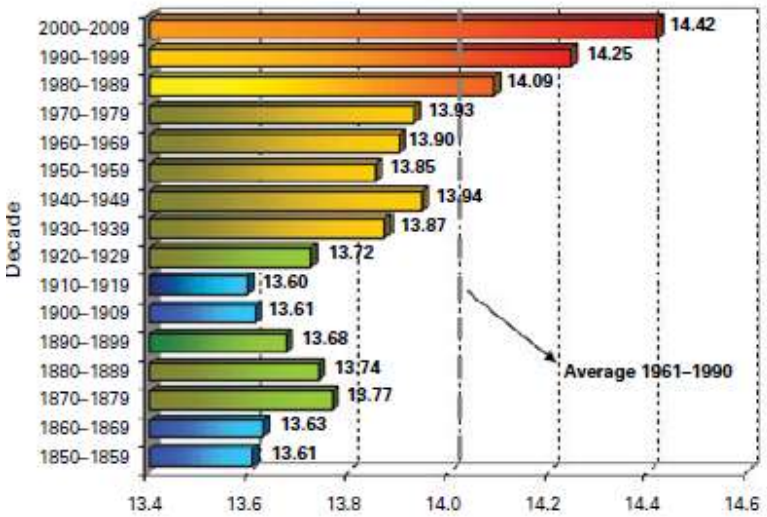
The WMO (World Meteorological Organisation, consisting of 189 member organisations and their partners) issued a report in 2010 on the status of the global climate in 2009 extract from which reads:

'The year 2009 is nominally ranked as the fifth warmest year on record since the beginning of instrumental climate records around 1850. On the decadal scale, the analysis shows that the 2000s decade (2000–2009) was warmer than the 1990s (1990–1999), which in turn were warmer than the 1980s (1980–1989) and earlier decades. Global temperature assessment is provided with an uncertainty margin that affects the global surface temperature figures and consequently their ranking mainly as a result of the existing gaps in data coverage. The magnitude of the uncertainty in assessing the global surface temperature in 2009 is estimated at 0.10°C. Therefore, the most likely value of the global surface temperature anomaly for 2009 is between +0.34°C and +0.56°C.'

Graph (Figure 3 WMO report) and comment below from WMO op.cit. Note, global average temperature at 14 degrees approx means an increase of 0.5 degrees is quite dramatic. This level of warming if sustained could change the predicted effects in the EPA report in a significant manner

Figure 3. Decadal global average combined

land–ocean surface temperature (°C)
combining two global temperature datasets
(Sources: (a) Met Office Hadley Centre, UK, and Climatic Research Unit, University of East Anglia, UK; (b) National Climatic Data Center, NOAA, United States. The only dataset available for decades 1850–1859, 1860–1869 and 1970–1979 is (a)).



APPENDIX B SANDEEP SIKKA AND CHARU CHAUDHRY EARTH STRUCTURES VULNERABILITY

ICOMOS Scientific Symposium – Malta, 2009 Changing World, Changing Views of Heritage

Theme 4: Historic Technology- Extracts

'Roofs, supported with structural wooden beams and rafters, rest directly on the load-bearing mud walls. Point loads developed by structural members resting on the walls without interstitial wall plates have created enormous stress on the walls, especially with vertical loads, such as snow-related dead load, or during oscillations caused by an earthquake. This stress has resulted in major and minor structural cracks below the ceiling level at the junctions between the roof and the walls. These cracks have now become the inlet points for water into the interiors. Moisture intrusion, temperature fluctuation, and lack of ventilation have made the interiors of the buildings humid, resulting in accelerated deterioration of the internal plaster and wooden structural members. Damp walls also impact the structural integrity of the polychrome clay sculptures by threatening the stability of their wooden supports in the walls. The addition of layers of clay intended to waterproof the earthen roof have contributed to the roof load even further. This has not only caused sagging of structural members but also deformation of load bearing walls especially in the upper courses just below the ceiling level.

Below ground and semi-subterranean structures [3] are the worst affected due to increased moisture level in the surrounding ground which seeps into the structure and its foundation in absence of a proper drainage system. Water intrusion into the foundations and seismic vibrations has also caused settling of load-bearing walls. It is known that the deteriorating agents do not act alone; action of one renders the surface or the structure susceptible to the subsequent action of another. Environmental humidity is another decay agent, which causes water-induced stress in the outer most porous surface of the walls and helps in the development of plants and microorganisms'.

Wind has been a main factor in the erosion of external renders, which with the impact of rain results in the loss of surface material. The surface exposed to several wet-dry cycles is easily abraded by coarse sand and dust particles carried by these high velocity winds in the region.

4. Mitigation:

The deterioration of historic building components as explained above necessitates remedial actions, including protection of exterior envelope against water damage and modification of traditional roofs against increased moisture, while addressing the drainage issue not only for subterranean structures but also for above grade earthen buildings. The current Situation also necessitates a methodology of identifying and investigating various monitoring tools in order to determine the most effective and appropriate tools for assessing and then mitigating the particular threat. Authors would like to share their experiences through a series of examples and studies conducted in the region for conservation of heritage buildings.'

APPENDIX C GEOLOGY OF SOUTH WEXFORD TIETZCH-TYLER,D., SLEEMAN A.G. G.S.I.

Industrial Minerals and rock

Dimension stone

Dimension stone is stone which is extracted from a quarry in block form and is then trimmed to a specification (dimension) before use. Roofing slate, stone cladding and gravestones are examples of the use of dimension stone. Three main varieties of stone have been quarried in this locality for dimension stone- slate, coarse grained sedimentary rocks and granite. Slates were exracted fro several localities in the Lower Palaeozoic sediments of co Wexford but the slates were generally of poor quality being rather thick, heavy and small in size.

Kinahan reported that the granite quarried near Carnsore (3859) was red, well-jointed and took a good polish. Bell, in a recent survey of the dimension stone potential of Irish granites, considers there is little potential for developing a significant granite dimension stone quarry in the area because of a lack of accessible stone outcrops which have widely spaced joints and good weathering characteristics and which could be developed in an environmentally sensitive way.

Old Red Sandstone and Carboniferous sandstones and conglomerates were quarried for general building stone and were used in the construction of several piers. Fine conglomerates were used for making millstones to grind corn, some examples of unfinished millstones can still be seen on the west coast of Hook Head.

Some Lower Palaeozoic sediments and volcaniclastics were used for local building purposes including the construction of Reginald's tower in Waterford, but they form irregular blocks and are not used for dimension stone now.

Aggregates
Limestone
Dolomite
Igneous rock
Shale, slate and quartzite
Sand and Gravel
This section not relevant re historic structures
Clays

Wexford town had a history of pottery manufacture going back to the early 18th Century when Jonathan Chamberlyne, from Stafford in England, set up a pottery near Wexford Harbour. Enamelled tiles were manufactured in the town in the 19th Century and in 1900 there were potteries near Enniscorthy and in Oilgate. In addition to pottery manufacture bricks were widely made throughout the area. The original source material for these clays on which these industries are based was a lime rich marine mud which had been dredged from the floor of the Irish Sea by the passage of the ice, and spread over the lowlands of the south-east of Ireland. These muds gave rise to a special soil, the Macamore, the upper one or two metres which have been deeply weathered to produce a lime-free clay known as the Redmore. It is this lime free clay which has been the source of clay for both the pottery and brick industries.

Brick manufacture continued in Co. Wexford until the 1950s. The pottery industry is still thriving with three potteries currently in production in the Enniscorthy area.

Dundry stone quarried near Bath and imported to Wexford is a soft buff limestone good for carving, but very prone to weathering damage- in some monuments it has been replaced over time, it is highly vulnerable to salt attack.

APPENDIX D EROSION EXAMPLES: VULNERABLE SHORE, ROCKY HEADLAND

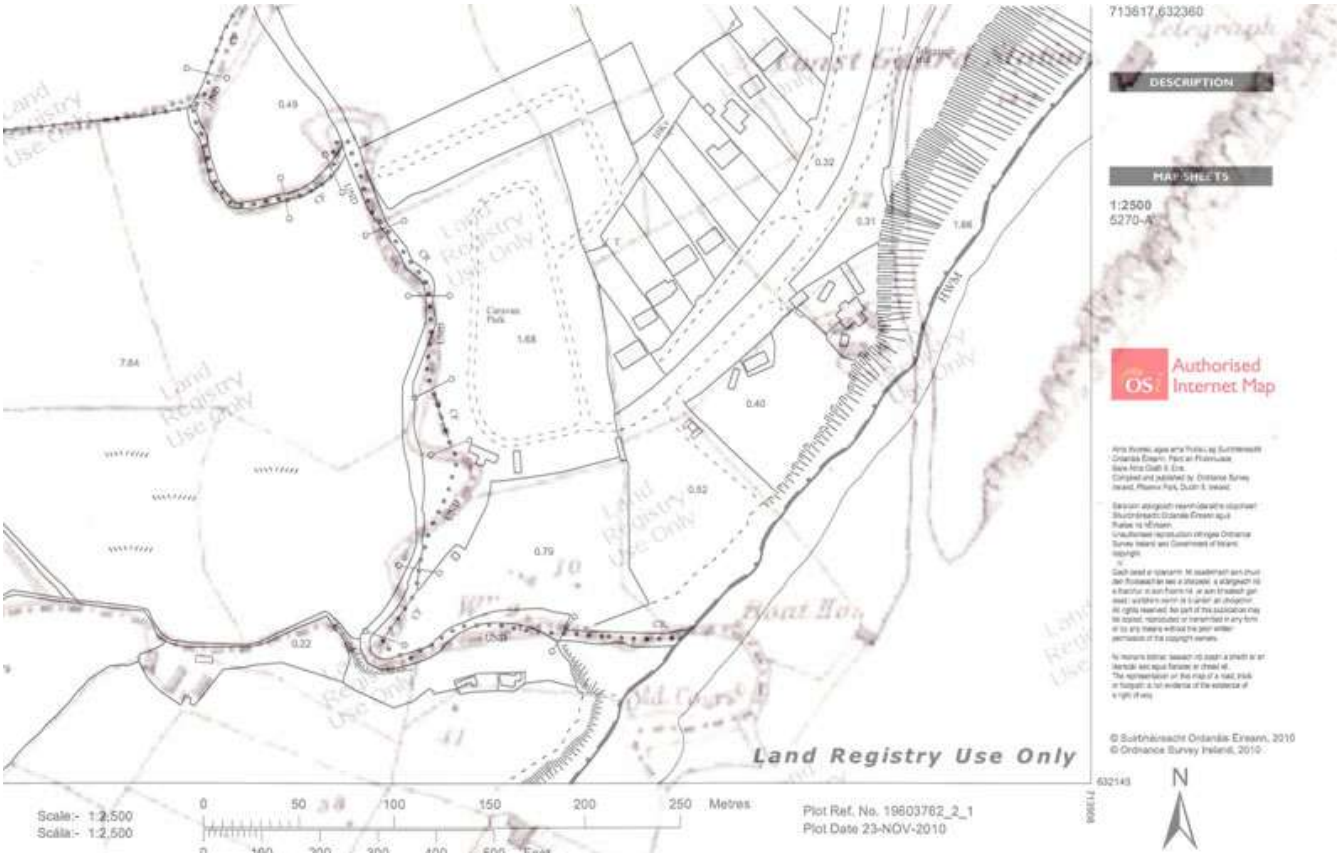


FIG D1 NE COAST: SOFT: BLACKWATER/ CURRACLOE SUPERIMPOSED MAPS: SEVERE RECESSION

Vulnerable shore: this map shows a section of coast at Curracloe /Blackwaterand superimposes the first Ordnance Survey, this area surveyed in 1840,irregular scallops show shore; with the current O.S. surveyed in 2008, regular parallel lines show dune line. Recession of the order of 150m may be noted see scale at base of map; an entire Coastguard Station has been lost at Telegraph Hill. A sizeable group of thatched vernacular houses lie behind the dune line; Ballyconnigar, Curracloe, Blackwater

D2 Blackwater active loss of terrain

D3 Historic map of area

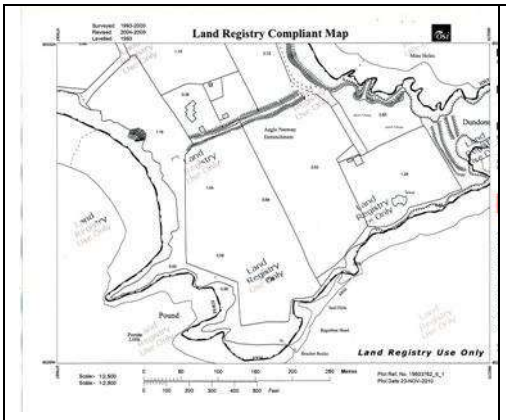
D4 Current map of area

		
D6 North of Blackwater, promontory fort at Poulshone shows signs of erosion;	D7 Church at Ardamine N again, with associated motte and cross could be vulnerable	D8 Sea view of Ardamine C of Ireland Church. Priory and holy well at Glascarrig Point could be vulnerable also

FIG D9 SE COAST: ROCKY HEAD: BAGINBUN SUPERIMPOSED MAPS:SOME RECESSION

This headland on the south coast S. of Fethard has a promontory fort, earthworks two sets of ditch and bank were altered as AngloNorman defences – it is a National Monument subject to Preservation Order- no. WX050-015002-

Despite the rocky siting, recession is notable to the west end of 'Strongbow's Entrenchment' see photo below, and also to each end of the north south fosse on the eastern promontory. This condition is also found at Duncannon, below

<table>
<tr><td> 
</td><td colspan="2">   </td></tr>
<tr><td>D10 Current 2008 OS</td><td>D11 Erosion at ditch and bank, west end</td><td>D12 Rock, till overlayer, D11 to rear</td></tr>
<tr><td>  </td><td>  </td><td>  </td></tr>
<tr><td>D13 Duncannon Fort: National Monument 668, WX044-015001 on Waterford Harbour</td><td>D14 Erosion attacking E side</td><td>D15 Ivy and salt exposure threat to brick to west side</td></tr>
</table>

APPENDIX E PHOTO SURVEY SELECTION OF WELLS AND WATER FEATURES USING GROUNDWATER

May be affected by: lower groundwater levels especially in summer

Tomhaggard: 16/09/2010

St Anne's well

St Anne's w/water rill and garden

St James' Well on road adj.St Anne's

Ferns Upper 2/09/2010

St Maodhog's Well adjacent N11-RPS WCC0867

Ferns Upper 2/09/2010

St Maodhog's well- 3m N

'covered over in 1847 with Wellhouse incorporating corbels from Clone church 'ASCoW'

Urban features incorporating water	May be affected by	Groundwater changes
Bunclody	2/09/2010	
		
Channel main street NIAH15602071	Very elegant feature which 'sometimes dries up due to building upriver'	
Channel, c.1825, incorporating fabric of earlier channel, c.1775		

APPENDIX F PHOTO SURVEY SELECTION OF BRIDGES ON SLANEY RIVER:

May be affected by: more severe storm events esp in winter: flood protection and mitigation works

SLANEY BRIDGES:

Slaney Bridge, Bunclody R746 WCC0851; 2/09/10

This major bridge listed NIAH 15602015, and well maintained

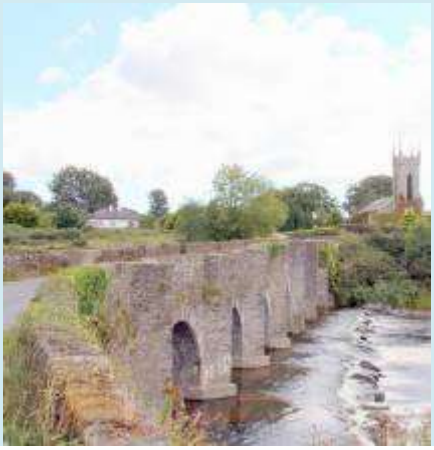
Steps to E upriver side bridge: Already eroded due to floods, lack of maintenance

Clody Bridge Bunclody N80 2/09/10 from S downriver. While not listed on inventories and having new N80 span built parallel, has excellent granite paving and remnants of limestone setts to ford adjacent remining

Clody Bridge-upriver, from N, new concrete bridge works adjacent

Clohamon Bridge 2/09/10: good cutwater feature to piers, already concrete repairs some loss of heritage value

Clohamon bridge 2/09/10 from upriver showing debris, concrete reinforcing to 2 arches close to village(E)



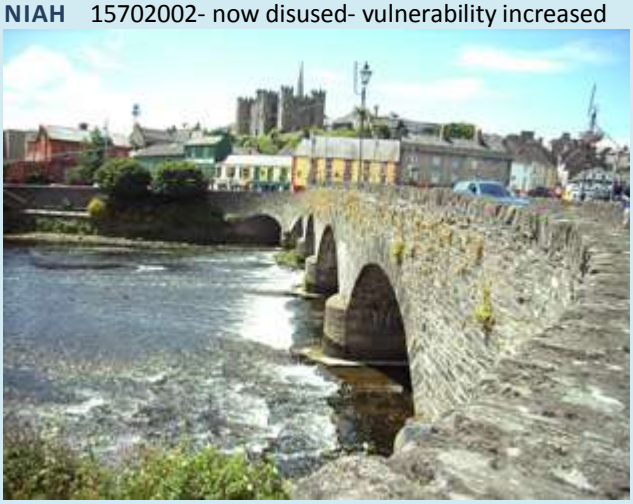
Ballycarney Bridge 2/09/10 over R745 ; NIAH 15701509

Photograph on right Ballycarney Bridge courtesy Peter Wynne, St Edan's. All following photos NIAH website.

TOWNLAND TEMPLE SHANNON *RIVER* SLANEY
ENNISCORTHY RAILWAY BRIDGE, ENNISCORTHY
NIAH 15603152

TOWNLAND **SCARAWALSH** *RIVER* SLANEY
SCARAWALSH BRIDGE, SCARAWALSH
NIAH 15702002- now disused- vulnerability increased

TOWNLAND TEMPLE SHANNON *RIVER* SLANEY
ST SENAN'S OR ENNISCORTHY BRIDGE, ENNISCORTHY
NIAH 15603154



Additional image
Enniscorthy has important local rubble stone quay walls and fishing steps which may be highly vulnerable to flood defense works under discussion at present

TOWNLAND DEEPS *RIVER* SLANEY **RAILWAY BRIDGE, DEEPS NIAH** 15703218

TOWNLAND TEMPLE SHANNON *RIVER* SLANEY
ST JOHN'S BRIDGE, ENNISCORTHY NIAH 15604024

APPENDIX G PHOTO SURVEY COAST GUARD STATIONS AND LIFE BOAT HOUSES: MARINE MARGINS

May be affected by: marine erosion, more severe storms, storm surge tides, flood protection and mitigation works

TOWNLAND BALLINATRAY LR
COAST GUARD/ LIFEBOAT STATION (COURTOWN UNIT), COURTOWN, COUNTY WEXFORD
NIAH 15611022; WCC0037

TOWNLAND FETHARD
COAST GUARD/ LIFEBOAT STATION (FETHARD UNIT), MAIN STREET, FETHARD
NIAH 15619006

TOWNLAND RAMSTOWN
DISUSED LIFEBOAT STATION , OUTSKIRTS FETHARD ON SEA
NIAH 15619015

TOWNLAND KILMICHAEL
COAST GUARD/ LIFEBOAT STATION (CAHORE POINT), + adjacent boat house (see 15701732)
NIAH 15701733

TOWNLAND BANNOW
CAHORE COASTGUARD/ LIFEBOAT STATION
NIAH 15705012

TOWNLAND KILHILE
ARTHURSTOWN COASTGUARD STATION
NIAH 15616002

TOWNLAND NEMESTOWN
OLINDA FORMERLY KILMORE QUAY **COASTGUARD STATION**
NIAH 15621017

TOWNLAND BALLYMONEY LR
BALLYMONEY **COASTGUARD STATION**
NIAH 15700738

TOWNLAND KILMICHAEL
KILMICHAEL POINT **COASTGUARD STATION**
NIAH 15700741 adj .BOATHOUSE 15701733

NO IMAGE AVAILABLE

TOWNLAND CAHORE
CAHORE POINT **COASTGUARD STATION**
NIAH 15701731

TOWNLAND BALLYGILLANE LITTLE
ROSSLARE HARBOUR **COASTGUARD STATION (IN PART USE AS GARDA STATION)**
NIAH 15704833 **NO IMAGE AVAILABLE**

TOWNLAND BALLASK
CARNAVILLAGH **COASTGUARD'S HOUSE**
NIAH 15705318

TOWNLAND BANNOW
BANNOW **COASTGUARD STATION**
NIAH 15705011 **NO IMAGE AVAILABLE**

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