

Juvenile Salmonid Summary

Seiont, Gwyrfai & Llyfni Catchments

This report summarises the findings of the 2018 juvenile salmonid monitoring on the Seiont, Gwyrfai & Llyfni catchment. A more detailed assessment of the stocks will be available in 2019 when the Know Your Rivers reports are published.

Juvenile Salmonid Monitoring Programme

In 2018 the temporal (annual) programme consists of 1 site on each catchment for the Seiont, Gwyrfai & Llyfni. The temporal data is used to look at trends in juvenile salmon and trout densities giving an indication of spawning across the whole catchment.

Spatial surveys were also carried out on the Gwyrfai and Llyfni in 2018, which included an additional 7 sites on both catchments. Spatial monitoring identifies changes in the distribution of fish and provides a basic level of surveillance monitoring over the widest practical area.

Key Points

Seiont

Juvenile salmon densities across Wales in 2018 have been mixed. The temporal site at Nant Peris on the Seiont had its best salmon fry densities on record, and salmon parr densities were also good. The surveys were carried out in September (after the rivers had risen again following the dry summer) so higher densities were not due to low flows.

A five-minute fry survey at Pen Llyn gave poor results. During the previous winter good numbers of salmon spawning redds were seen at this site following the work to improve the gravels. The habitat is minimal in this section, so we hope that the juveniles had moved to better sections. A five-minute survey was also carried out at Crawia. Seven salmon fry and seven parr were caught. This is more positive, and the habitat is a lot more varied. These five-minute fry surveys do not follow the excellent trend seen at Nant Peris.

Trout fry densities were down compared to the results seen since 2014. No trout parr were caught, however this is not unusual at this site due to habitat.

Gwyrfai

Salmon grades on the Gwyrfai are mixed. The lower tributaries did not contain any salmon, however this has generally been the case in the past. The main Gwyrfai sites both had good densities of salmon fry, as did the Afon Treweunydd. The site just downstream of Llyn y Gader had low salmon fry densities but this is often the case due to the poor spawning habitat. The Gwyrfai downstream of Cwellyn and the Afon Treweunydd were consistent against the historic data for salmon parr. Densities however are quite low. The Gwyrfai upstream of Cwellyn was poor for salmon parr, however the habitat is not good for parr. All other sites were fishless for salmon parr.

One five-minute fry survey was carried out on the lower Gwyrfai and the salmon fry numbers were very positive (23 salmon fry caught).

Trout fry densities are more positive across the catchment. The main Gwyrfai sites, Afon Treweunydd, and Nant y Betws all had their best trout fry results on record. All other sites were consistent with the historic data. Trout parr densities were slightly above the historic average for all the sites surveyed.

It appears to have been a positive spawning year for both salmon and trout on the Gwyrfai.

Llyfni

Salmon grades on the Llyfni appear poor. Sites such as Drws y coed, Crychdwr and Y Garth have not had salmon fry recorded in past surveys, so we are not concerned about the results. The Tal y Mignedd sites have historically had some years where salmon have been present. It is disappointing that no salmon fry or parr were recorded during these surveys. The Dolgau tributary has historically been good for salmon fry and parr, however densities are poor in 2018. The Llyfni temporal site remained consistent with the historic data for salmon fry, however densities are low. Salmon parr were poor compared to the historic data. A new site was set up on the main Llyfni upstream of Pont Llyfni and no salmon fry were caught. The habitat is more parr biased, and salmon parr densities were good.

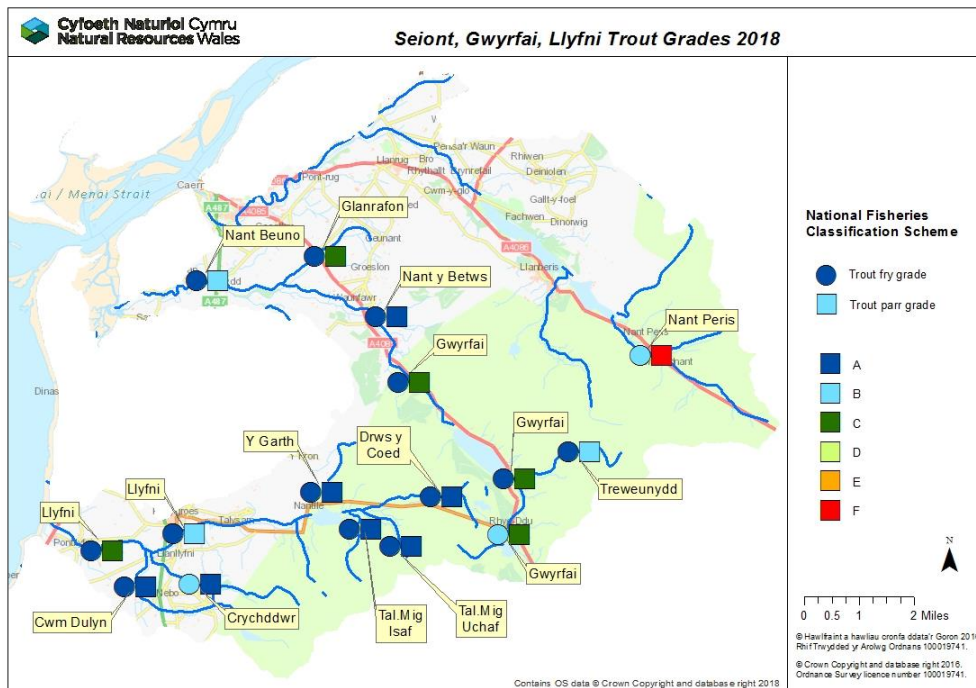
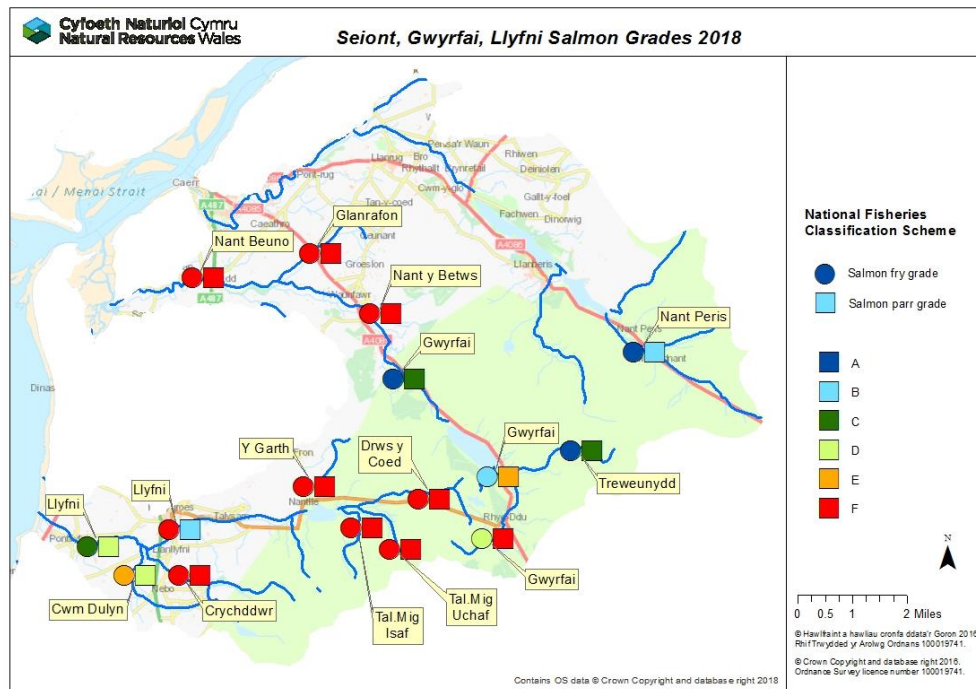
Trout fry densities were excellent in 2018, with every site but the Crychdwr having their best results on record. The Crychdwr was consistent with the historic average. The Llyfni temporal site and Tal y Mignedd isaf were consistent with the historic data, however all the other sites had their best results on record for trout parr.

Salmon and Trout Classifications

The following maps show the results of the routine juvenile salmonid population surveys from 2018 on the Seiont, Gwyrfai & Llyfni.

The symbols display the National Fish Classification Scheme (NFCS) grades which have been developed to evaluate and compare the results of fish population surveys in a consistent manner. The NFCS ranks survey data by comparing fish abundance at the survey sites with sites across Wales and England where juvenile salmonids are present. Sites are classified into categories A to F, depending on densities of juvenile salmonids at the site. The following table shows the values and classification of NFCS.

Grade	Descriptor	Interpretation
A	Excellent	In the top 20% for a fishery of this type
B	Good	In the top 40% for a fishery of this type
C	Fair	In the middle 20% for a fishery of this type
D	Fair	In the bottom 40% for a fishery of this type
E	Poor	In the bottom 20% for a fishery of this type
F	Fishless	No fish of this type present



Five-minute fry surveys

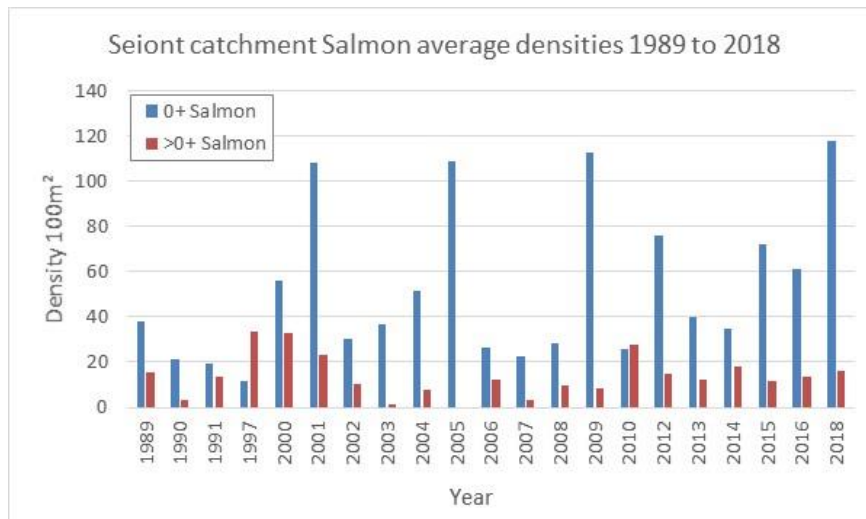
Two five-minute fry survey were carried out on the Seiont, and one on the Gwyrfai. No five-minute fry sureys were carried out on the Llyfni. The results are based on how many salmon fry were caught during the five-minute survey. The classification scheme is based on historic data from North Wales.



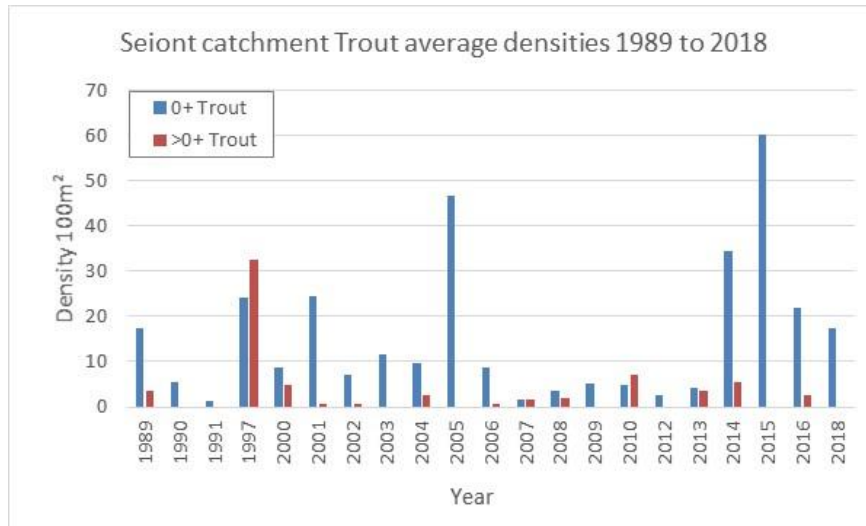
Catchment Population Trends

The graphs below show a simple comparison of average salmon and trout densities on the Seiont (Nant Peris) catchment since surveying began in 1989. NB – the data shown here is from Quantitative and Semi Quantitative surveys, the site was not done every year, and no surveys were done from 1992 to 1996, 1998 to 1999, 2011, and 2017. Historic catch efficiency data allows the semi quantitative figures to be comparable with quantitative data.

Since 2014 an additional 20 metres have been fished at the Nant Peris site to consider trout habitat.



Salmon fry and parr densities have fluctuated on the Seiont (Nant Peris). The current salmon fry densities are excellent compared to the historic data. Improvements in electro-fishing efficiency may have had some impact on this. The salmon parr density is relatively stable currently compared to the historic data. This does not follow the salmon rod catch trend which has declined from 29 salmon in 2012 to just 6 salmon in 2017.



Brown trout fry densities have improved on the Seiont (Nant Peris) since the addition of the extra habitat at the survey site in 2014. The 2018 trout fry density is low compared to the results since 2014. This decline does not link to the rod catch (2017 – 60 fish, 10 year average 68 fish). From previous studies it has been noted that lake trout from Padarn spawn in Nant Peris, so numbers of fish spawning from the lake may have been down.

The Gwyrfai and Llyfni temporal sites have only been fished a couple of times so the data collected is shown in table form in the following section.

The following table shows a simple comparison of the Nant Peris average density of juvenile salmon and trout from 2018, and compares this to 2016 (last survey carried out) and the 5-year average (2011 to 2015).

	0+ Salmon	>0+ Salmon	0+ Trout	>0+ Trout
2018 average density	117.8	16.2	17.5	0.0
2016 average density	61.1	13.8	21.8	2.5
Percentage difference to 2016	93%	18%	-20%	-100%
5-yr average (2011-15)	55.7	14.0	25.3	2.3
Percentage difference to 5-yr average	111%	15%	-31%	-100%

The improvement for both salmon fry and parr at Nant Peris is excellent compared to 2016 and the five-year average. This is not reflected in the rod catch as stated previously. Trout fry are slightly down but this is not a real concern as declines are marginal. Trout parr were not recorded in 2018, however densities are historically low and there are only minimal areas of habitat for trout parr.

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The following tables shows a simple comparison of the Gwyrfai and Llyfni average density of juvenile salmon and trout from 2018, and compares this to 2016 (last survey carried out).

Gwyrfai

	0+ Salmon	>0+ Salmon	0+ Trout	>0+ Trout
2018 average density	53.6	2.3	150.5	7.0
2016 average density	8.7	3.8	22.7	4.7
Percentage difference to 2016	519%	-40%	562%	49%

The improvement for both salmon and trout fry are excellent, however 2016 may have been a poor year, as many rivers across the UK had low salmonid densities due to the exceptionally wet winter. This is a new site and has only been surveyed in 2016 and 2018, so we have no historic data to compare against. It will be interesting to see what happens in the future. Though percentage changes are large for both salmon and trout parr the actual density changes are minimal. Fishing pressure on the Gwyrfai is minimal so it is not possible to compare the juvenile data against rod catch.

Llyfni

	0+ Salmon	>0+ Salmon	0+ Trout	>0+ Trout
2018 average density	23.9	3.9	50.8	8.5
2016 average density	13.6	9.9	12.2	13.4
Percentage difference to 2016	76%	-60%	316%	-37%

Salmon fry densities on the Llyfni have improved compared to 2016 however the densities are still relatively low. Salmon parr densities have declined quite notably. Trout fry densities are much improved compared to 2016, and this was seen across the catchment through the spatial surveys. As stated previously, many catchments performed poorly for salmonids in 2016 so figures might be exaggerated. Trout parr densities were down which is disappointing. Fishing pressure on the Llyfni is minimal so it is not possible to compare the juvenile data against rod catch.