

This report summarises the findings of the 2018 juvenile salmonid monitoring on the Tywi 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 12 sites on the Tywi catchment. The temporal data is used to look at trends in juvenile salmon and trout densities, to give an idea of spawning across the whole catchment.

Due to the exceptionally poor results across Wales in 2016, additional funding has been provided to investigate the issue further. Consequently, the Tywi catchment spatial programme (6 yearly programme) was added to this investigation. As a result, a total of 63 sites were planned to be surveyed in 2018.

Key Points

Weather Conditions

The 2018 monitoring season was hindered by a prolonged period of hot weather and, low rainfall leading to a period of drought. Inevitably, the reduced flows of many watercourses were not ideal habitats for juvenile salmonids, with densities likely to be affected. Consequently, ten sites on the Tywi catchment were initially recorded as drought sites following which, eight sites were later re-visited and surveyed when sufficient flows had returned.

Salmon Observations

The Tywi catchment was poor for salmon fry with 29 out of 63 sites recording no salmon fry, and a further 20 sites were rated as poor densities in 2018. The rod-catch figures in 2017 were recorded as 339 adult salmon caught across the Tywi catchment which, is the highest rod catch since 2013 and, would usually indicate higher salmon fry figures in the following year. However, the 2018 density figures represent a small decline in fry densities in the Tywi catchment. Additionally, the overall net catch for salmon on the Tywi catchment, has similarly continued to show a limited but gradual improvement in numbers of salmon caught since 2012. Alternatively, the survey results for the Tywi catchment demonstrates poor results for salmon parr whereby, 40 sites surveyed were recorded as containing no salmon parr. Moreover, an additional 13 sites on the catchment were recorded as containing poor densities of salmon parr. However, when compared to the 2017 density figures for this catchment, salmon parr densities have slightly improved but, remain nominally below the 5-year average figure.

Trout Observations

Trout Fry densities on the Tywi catchment continue to provide encouraging results whereby, 15 sites were recorded as containing excellent numbers of trout fry and, 18 sites were found to contain good densities of trout fry. A further 22 sites contained trout fry quantities rated as fair, with only 8 sites recorded as poor or fishless. The 2018 survey results demonstrate a slight improvement in fry densities although, Alternatively, parr densities were limited to only 2 sites recorded as containing no fish and, 7 sites were considered to hold poor quantities. Whereas, a large proportion of 33 Tywi catchment sites were found to hold fair densities of trout parr. Positively, 9 sites were considered to contain excellent quantities of trout parr and, 12 were rated as good densities. Furthermore, the juvenile trout densities are quite positive with consideration, as 2017 demonstrates the lowest number of rod caught trout since 1975 on the Tywi catchment. Furthermore, the combined net catch on the Tywi is also at its lowest since 1975.

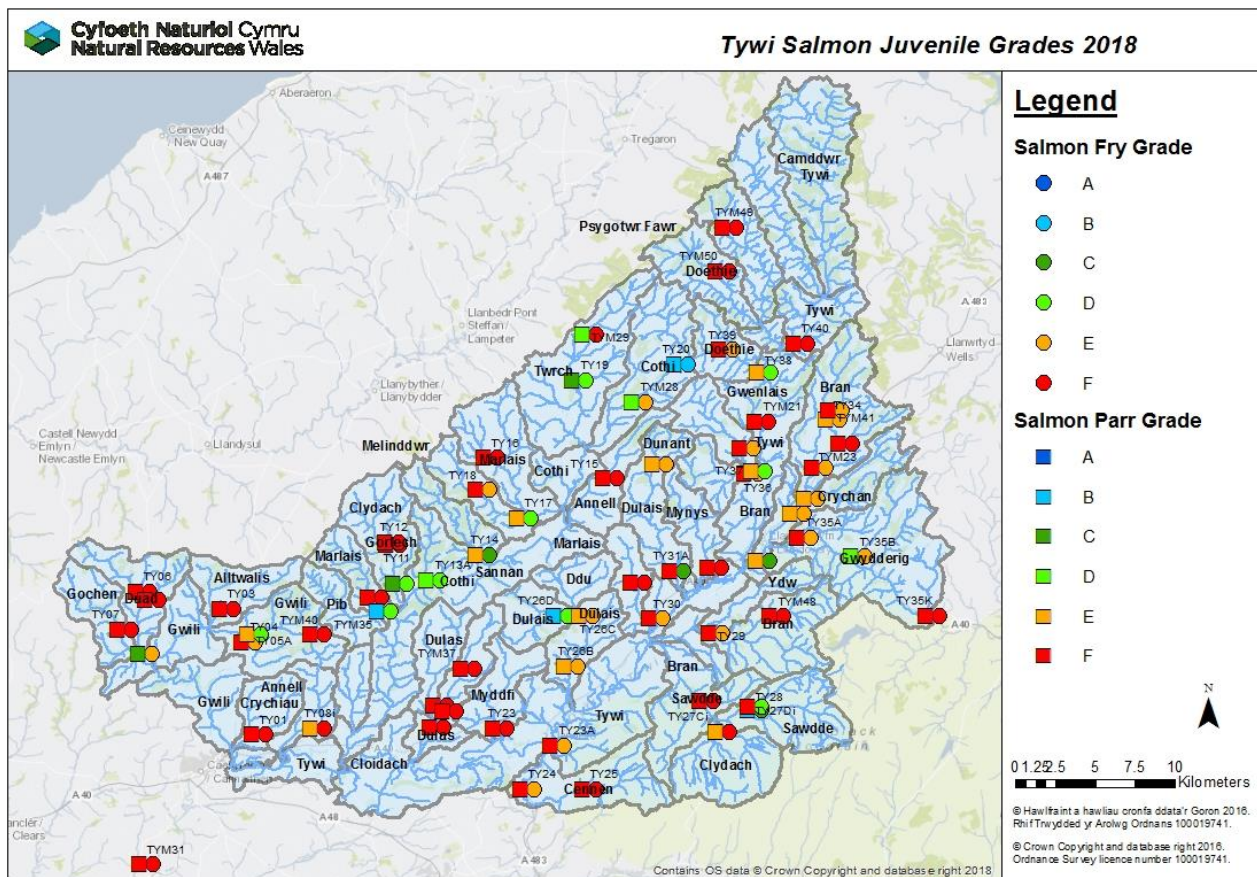
Salmon and Trout Classifications

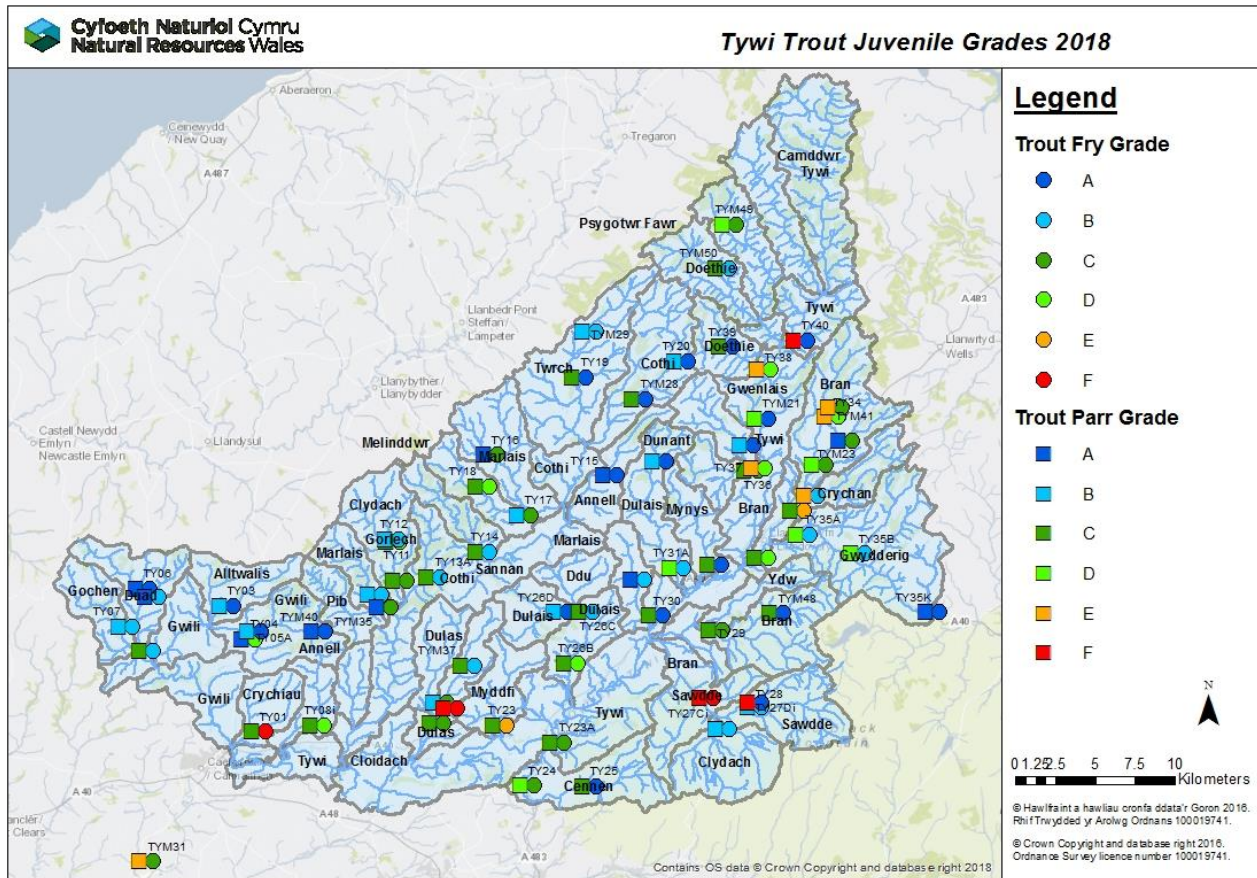
The following maps show the results of the routine juvenile salmonid population surveys from 2018 on the Tywi catchment.

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



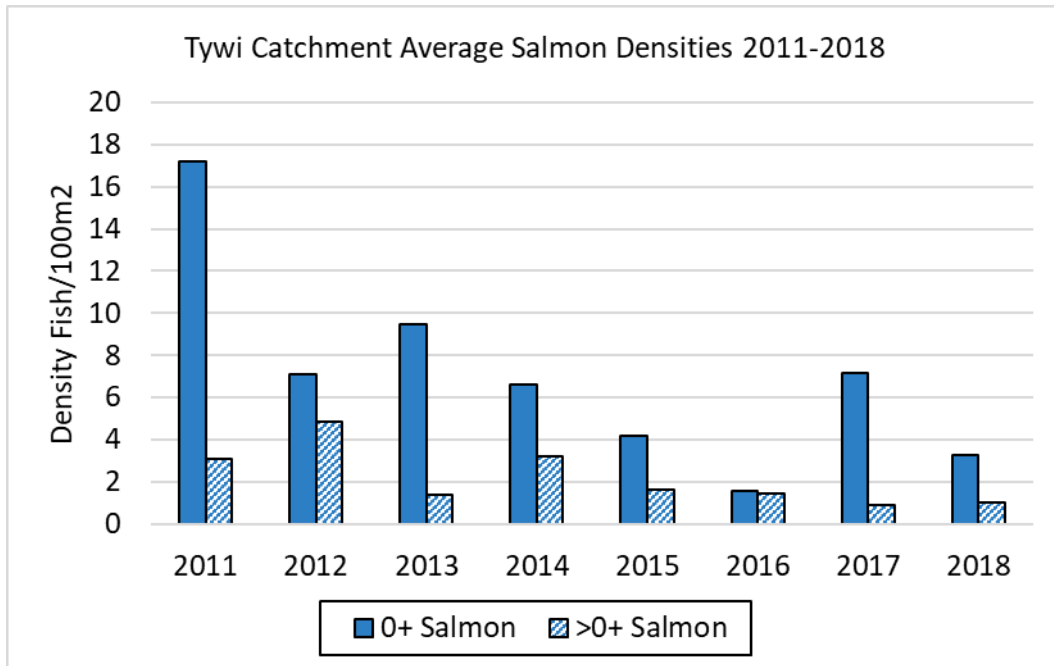


Catchment Population Trends

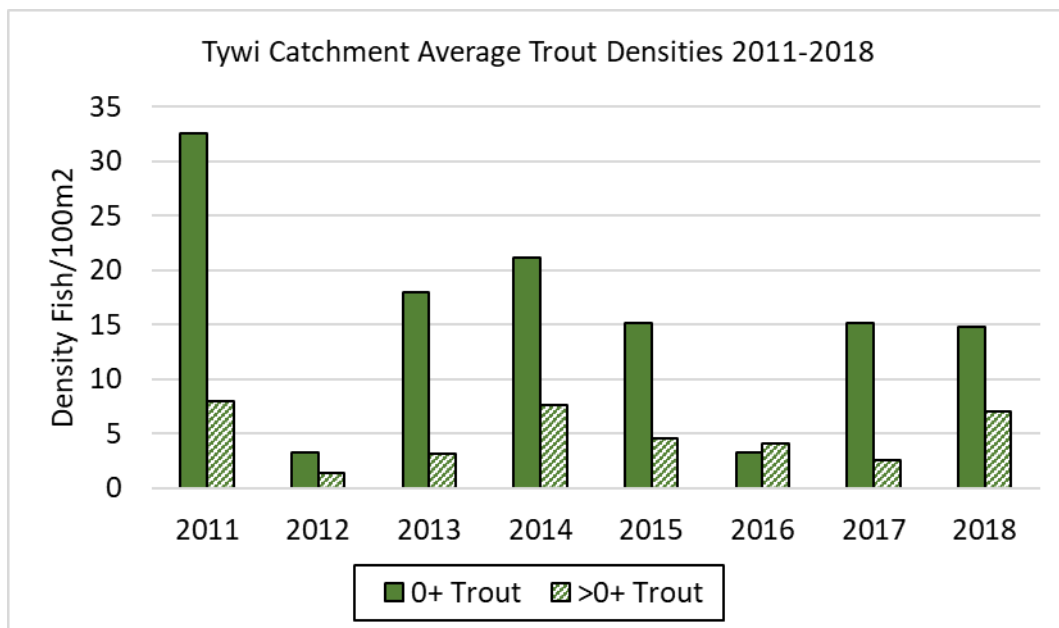
The graphs below show a simple comparison of average salmon densities across the temporal sites on the Tywi catchment since 2011. NB – the data shown here are from Semi Quantitative surveys while, not every site in the programme was done annually.

Salmon fry densities have fluctuated since 2011 with, the highest recording in 2011 and the lowest recording in 2016 which, is thought to have been caused by bad weather conditions. The salmon fry densities of 2018 are marginally higher than the low of 2016 however, they have noticeably declined since 2017 subsequently, remaining below the 5-year average figures for this catchment.

The salmon parr results from 2018 indicate salmon parr densities have recovered slightly which, is likely due to the recovering salmon fry densities indicated in 2017. However, the salmon fry densities of 2018 are still just below the 5-year average figures for the Tywi.



Trout fry and parr densities on the Tywi catchment have fluctuated greatly over the years, with two distinct periods of low densities in 2012 and 2016. A rapid improvement was recorded between 2012 and 2016, before terrible weather conditions are believed to have affected egg hatch success rates. The results from 2018 indicate trout parr densities have recovered slightly which, is likely due to the recovering trout fry densities indicated in 2017. However, trout fry densities were found to be reduced once more.



The following table shows a simple comparison of the catchment average density of juvenile salmon and trout from 2018 and, compares this against 2017, and the 5-year average. NB - The five year average has been set from 2011 to 2015 as 2016 was a poor year.

	0+ Salmon	>0+ Salmon	0+ Trout	>0+ Trout
2018 average density	5.8	1.5	11.6	5.6
2017 average density	7.1	0.9	15.1	2.6
Percentage difference to 2017	-18%	68%	-23%	114%
5-yr average (2011-15)	8.9	2.8	18.0	4.9
Percentage difference to 5-yr average	-34%	-48%	-36%	14%

There has been a small decline in salmon fry compared to 2017 and the overall salmon fry densities in 2018 are concerning compared to the five-year average. Whilst salmon parr densities have improved since 2017 considerably they are still much lower than the 5-year average. Trout fry densities have declined since 2017. Against the 5-year average the 2018 results are still slightly lower, but this average includes the exceptional year of 2011. Trout fry, like salmon, have declined again since 2017 and are still below the 5-year average. However, trout parr average densities have doubled from 2017 to 2018 and are above the 5-year average.