Juvenile Salmonid Summary
Cleddau Catchment

This report summarises the findings of the 2018 juvenile salmonid monitoring on the Cleddau 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 4 sites on the Cleddau catchment. The temporal data is used to look at trends in juvenile salmon and trout densities giving an idea of spawning across the whole catchment. Additionally, a number of spatial sites are surveyed which, are carried out every 6 years on a rolling programme.

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 Cleddau 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 Eastern Cleddau has demonstrated a positive recovery in salmon densities in 2018 which, is an improvement on the minimal densities recorded in 2016 and 2017 and, is higher than the 5-year average for this area. However, 9 out of 14 sites surveyed were recorded as fishless for salmon fry and, 2 out of 14 were classed as poor which are concerning results. While, salmon parr densities were documented as fishless at 9 out of 14 sites and, poor at two sites which is not ideal.

Whereas, the Western Cleddau salmon densities showed more mixed results whereby, fry densities made a slight recovery but, parr densities continued to decline. The slight recovery in fry densities is positive but, remains below the 5-year average for this catchment which, is highlighted by 11 out of 13 sites being recorded as fishless for fry. Alternatively, the salmon parr densities were classified as fishless at 10 out of 13 sites which, is also a concerning result.

Trout Observations

The Eastern Cleddau trout densities for 2018 have demonstrated a decline since 2017 which, falls below the 5-year average figures for this area. Interestingly, the Eastern Cleddau fry densities demonstrates a full array of classifications from excellent down to poor.

The 2018 trout parr densities for the Eastern Cleddau also suggested a decline since the 2017 survey year which, again is below the 5-year average figure for this area. However, 5 out of 14 sites were classified as containing fair densities and, 8 out of 14 sites were at good or excellent densities.

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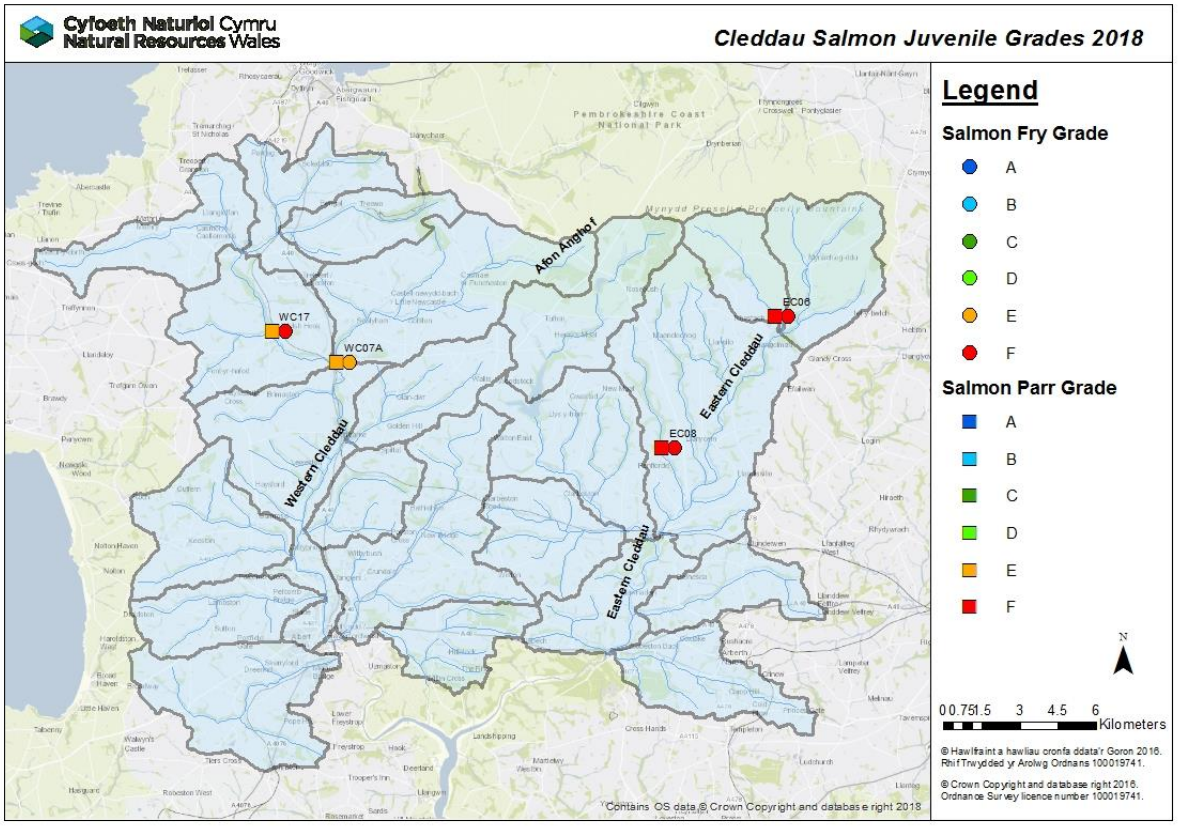
Salmon and Trout Classifications

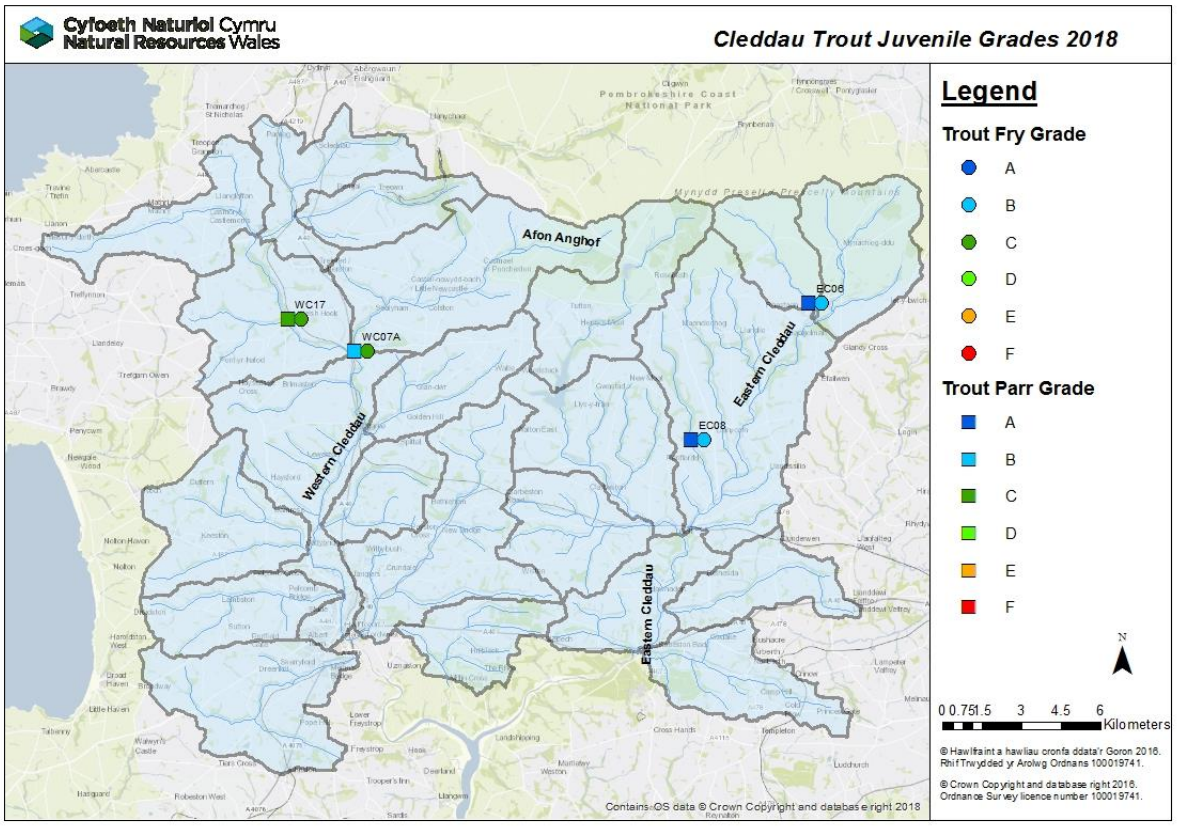
The following maps show the results of the routine juvenile salmonid population surveys from 2018 on the Cleddau catchment.

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





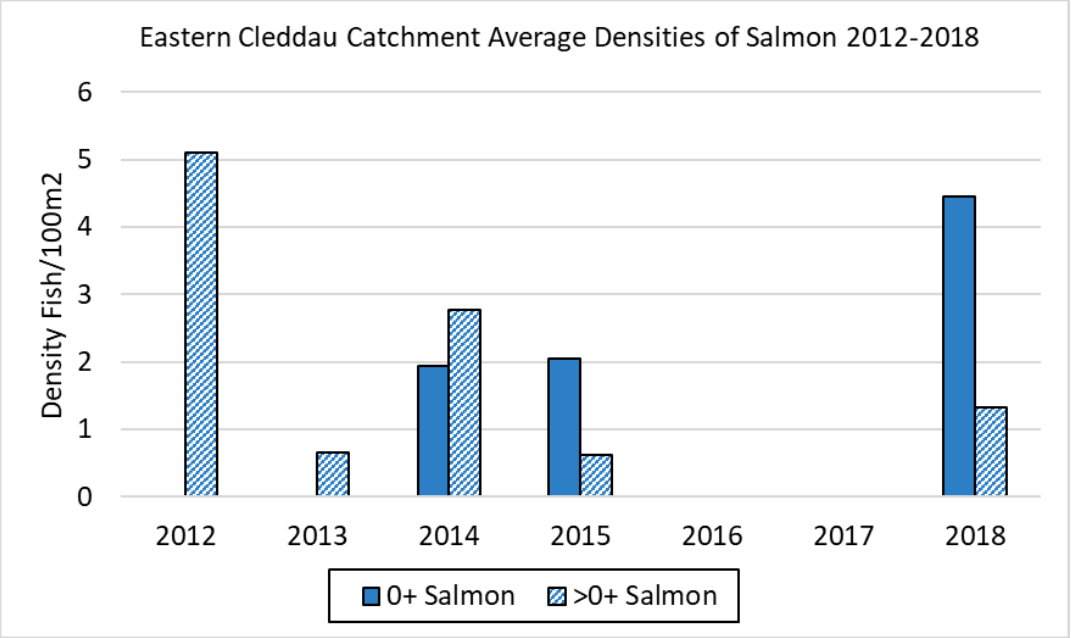
Catchment Population Trends

The graphs below show a simple comparison of average salmon and trout densities across the temporal sites on the Cleddau catchment since 2012. NB – the data shown here are from Semi Quantitative surveys and, not every site in the programme was done annually.

Eastern Cleddau Salmon

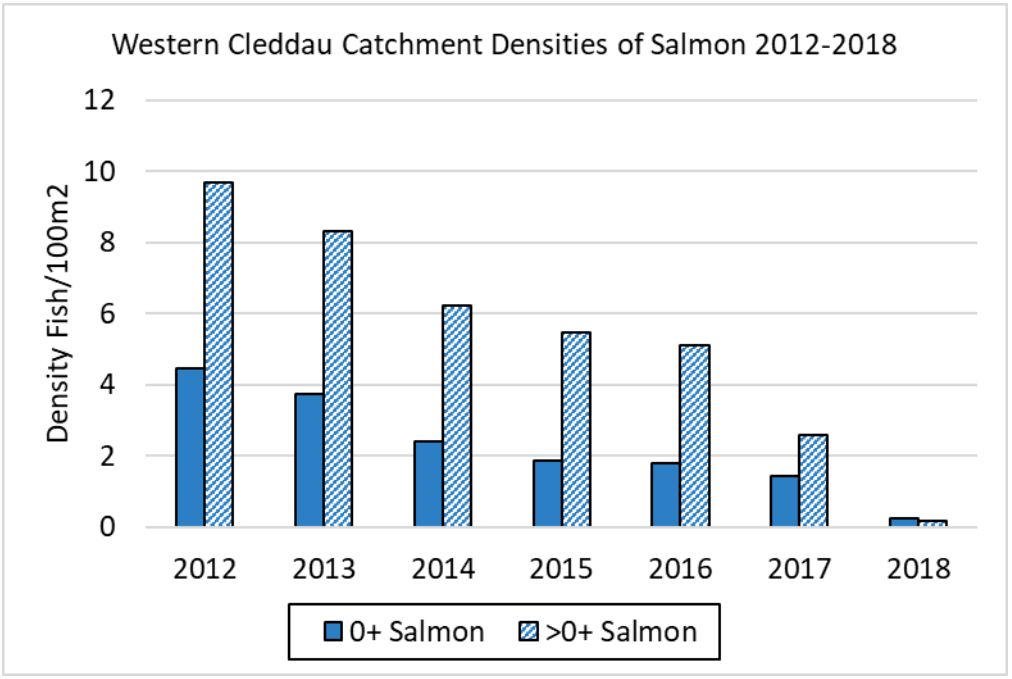
The salmon fry densities have been recorded as fishless on four survey years in 2012, 2013, 2016 and 2017 while, demonstrating low densities in 2014 and 2015. However, the salmon fry average density for 2018 has recovered considerably to a more positive density but, is still classified as fishless for this catchment.

Alternatively, salmon parr densities have been recorded with more regularity but were punctuated by, two fishless years in 2016 and 2017. The salmon parr densities have fluctuated at low levels but, a positive sign of recovery is exhibited by the increased density in 2018.



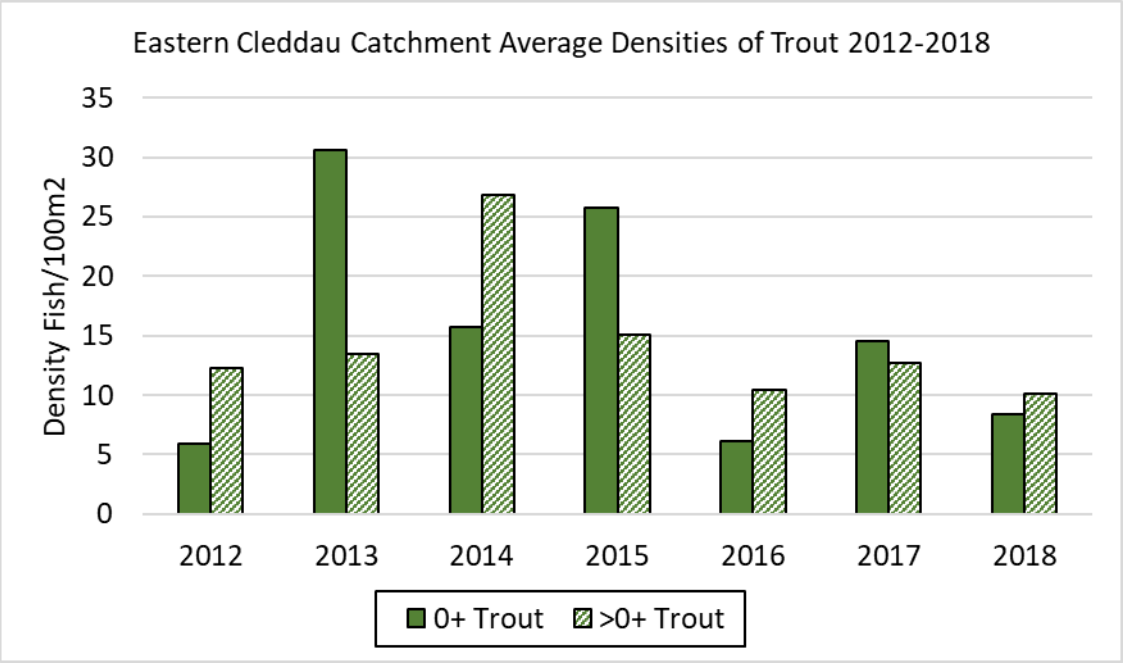
Western Cleddau Salmon

The salmon fry densities of the Western Cleddau demonstrate a clear trend of gradual decline from 2012 to 2017 which, is followed by a near total decline in density for 2018. Throughout this period, fry densities have maintained low levels. Similarly, salmon parr densities have demonstrated a clear trend of gradual decline however, no recovery in density can be determined during the entire 2012 to 2018 period. The salmon parr densities were also maintained at low density levels but, have been recorded as consistently higher than fry densities with the 2018 survey year being an exception. Furthermore, the salmon parr densities demonstrate a remarkably similar trend of gradual decline in the period 2012 to 2017 however, parr densities do not show any sign of recovery during the entire 2012 to 2018 period.



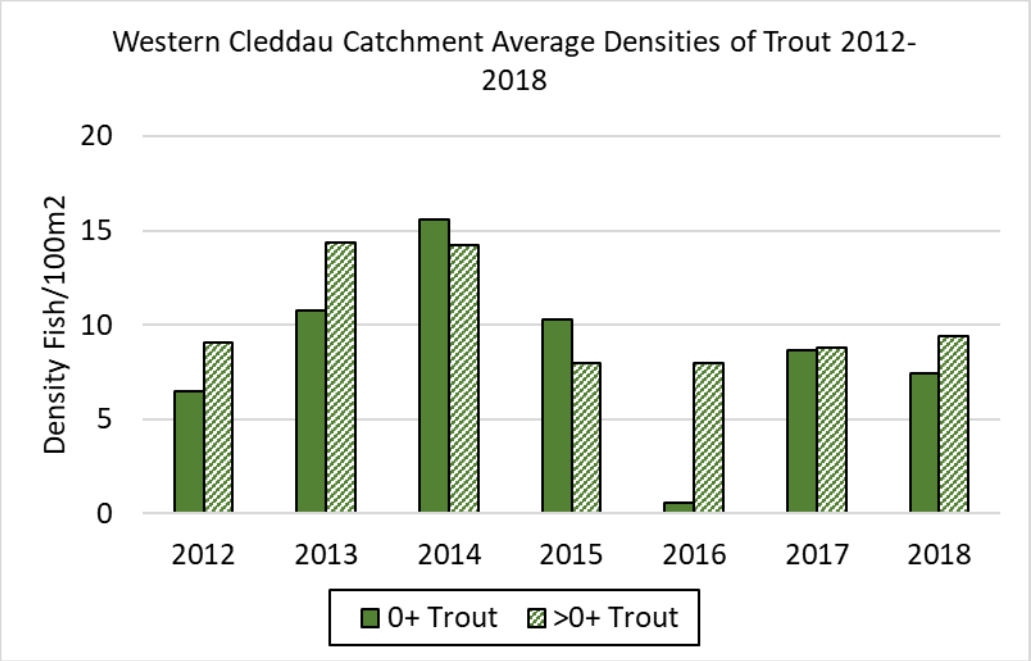
Eastern Cleddau Trout

The trout fry and parr densities on the Eastern Cleddau catchment have fluctuated greatly during the 2012 to 2018 period while, exhibiting moderate to low average density figures. The trout fry densities have declined from moderate levels during the 2013 and 2015 period, down to a seven year low in 2016 which was one of the lowest trout fry densities on record, believed to be due to bad weather conditions. The 2017 results displayed a recovery in fry density which, was followed by a decline in 2018. Alternatively, the trout parr densities are noted to have remained fairly consistent during the 2012 to 2018 period with, the exception of an unusually high year in 2014. The 2018 survey data demonstrates a small decline in trout parr densities since 2017 which, corroborates with a small decline in rod-caught sea trout on the Cleddau catchment in 2017.



Western Cleddau Trout

The trout fry and parr average densities on the Western Cleddau, remain fairly consistent with each other during the period 2012 to 2018, with the exception of the unusually bad year for trout fry recorded in 2016. This is believed to have been caused by bad weather conditions consequently, affecting survival rates. The trout fry densities subsequently displayed a recovery in 2017, followed by a nominal decrease in 2018. Whereas, the trout parr densities in 2018 have demonstrated a small increase which, has consistently continued since the 2015 survey year. The trout fry and parr densities on the Western Cleddau have maintained moderate density levels while, occasionally dropping to low levels.



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

(Eastern)	0+ Salmon	>0+ Salmon	0+ Trout	>0+ Trout
2018 average density	0	0	13.7	21.9
2017 average density	0	0	14.5	12.7
Percentage difference to 2017	**0%**	**0%**	**-6%**	**73%**
5-yr average (2011-15)	1.0	2.3	19.5	16.9
Percentage difference to 5-yr average	**-100%**	**-100%**	**-30%**	**29%**

The 2018 survey data from the Eastern Cleddau demonstrates, a positive recovery in salmon fry and parr densities when compared to the 5-year average figures especially, when compared to the minimal densities recorded in 2016 and 2017. Alternatively, the trout fry and parr densities for the Eastern Cleddau, have been recorded as demonstrating a further decline since the 2017 recordings. Regrettably, the overall trout densities for the Eastern Cleddau have decreased further which, is concerning when compared to the 5-year average figures.

(Western)	0+ Salmon	>0+ Salmon	0+ Trout	>0+ Trout
2018 average density	1.2	0.4	6.4	11.6
2017 average density	1.4	2.6	8.7	8.8
Percentage difference to 2017	**-15%**	**-83%**	**-26%**	**31%**
5-yr average (2011-15)	3.1	7.4	10.8	11.4
Percentage difference to 5-yr average	**-61%**	**-94%**	**-41%**	**1%**

The 2018 survey data from the Western Cleddau demonstrates, a slight recovery in salmon fry densities when compared to the average density for 2017 however, this remains slightly below the 5-year average figure. Whereas, the salmon parr average density figure for 2018 has continued to decline which, now is significantly below the 5-year average figure for the Western Cleddau.

Alternatively, the trout fry densities of the Western Cleddau, have been recorded as demonstrating a further decline since the 2017 recordings. This continues to be slightly below the 5-year average figure for the Western Cleddau which, continues to be of concern. Alternatively, the trout parr densities of the Western Cleddau have demonstrated a slight increase in average density however, this figure remains slightly below the 5-year average density.