



Know Your River – River Ystwyth Salmon and Sea Trout Catchment Summary

Introduction

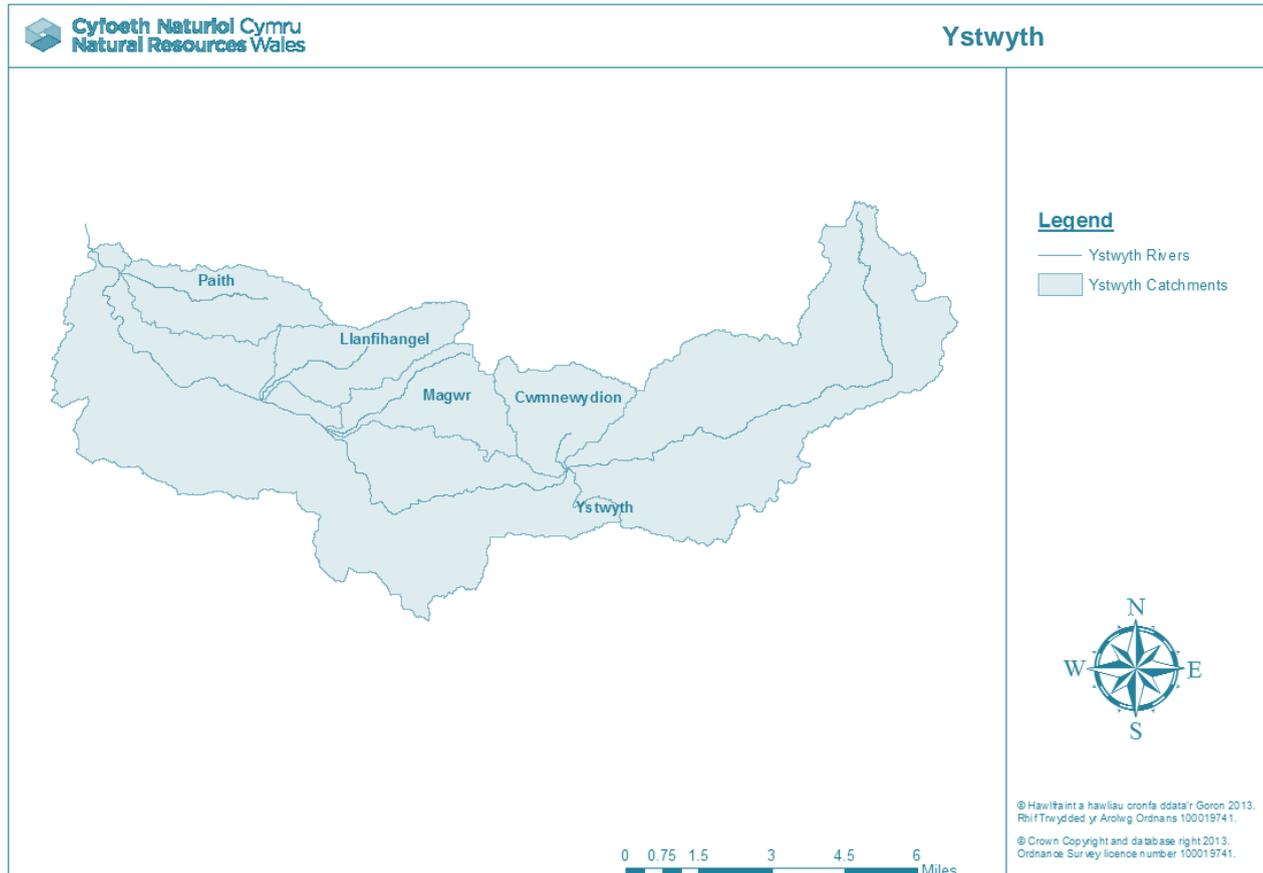
This report describes the status of the salmon and sea trout populations in the Ystwyth catchment. Bringing together data from rod catches, stock assessments and juvenile monitoring, it will describe the factors limiting the populations and set out the challenges faced in the catchment.

Action tables set out habitat improvements to restore freshwater productivity of salmon and sea trout populations. These tables also include some work which will be carried out by our partner organisations, not just Natural Resources Wales (NRW).

NRW has a duty, defined in the Environment (Wales) Act 2016 to have Sustainable Management of Natural Resources (SMNR) at the core of everything that we do. By applying the principles of SMNR in all our activities - from agriculture, forestry and flood defence to development planning - we are undertaking catchment-wide initiatives that will deliver for fish stock improvements. Our reports highlight the importance of considering the whole catchment when identifying and addressing fisheries issues; and of working with partners.

NRW is committed to reporting on the status of salmon stocks in all our principal salmon rivers for the Salmon Action Plans, Habitats Directive condition assessments in selected SAC rivers, and the international ICES salmon status. In addition the majority of fish species in all our rivers are reported for the Water Framework Directive (WFD). This report contributes towards these commitments and provides an informative and useful summary of stock status and remedial work planned, for our customers, specifically anglers, fishery and land owners; as well as our partners.

River Ystwyth



The River

The Ystwyth rises at above 600 AOD, to the remote uplands of the Cambrian Mountains in the east of the catchment. The Ystwyth has a catchment area of 196 km², and runs 39.9 km westerly through rocky valleys, tracts of coniferous forest, to the glacial lowlands of deciduous woodland and low-lying pasture before entering Cardigan Bay.

The catchment only comprises of developed areas along the lowland floodplain, with much of the population settled at Aberystwyth itself, with few other settlements of any appreciable size.

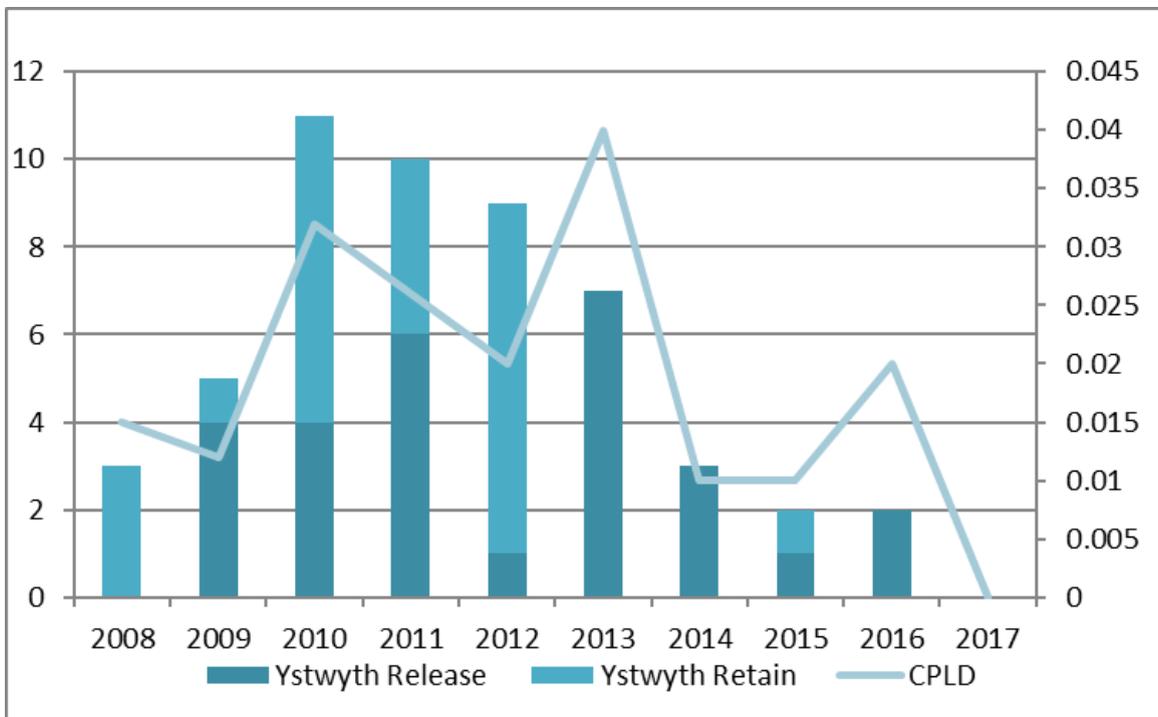
Remnants of the historic mining are to be found throughout the catchment in the shape of old mine adits, spoil tips, lakes and tracks. The mining industry has also had a great impact on water quality, the fishery and the general ecosystem of the river.

Rod Catches

The following graphs show the total declared rod catches, including numbers released or killed for salmon and sea trout on the Ystwyth. The catch per licence day (CPLD) has also been included to show the ratio of fish caught per licences sold.

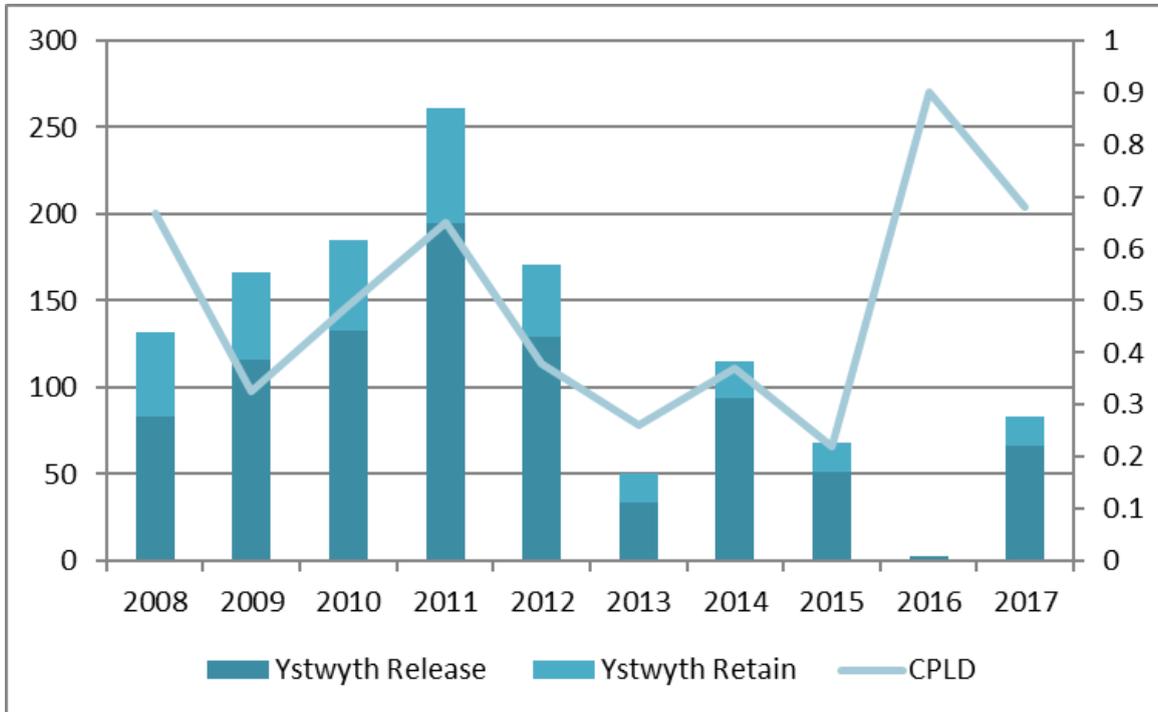
Declared salmon rod catches are variable over the 10-year period, the lowest catches were in 2008, 2015 and 2016. The highest catches were recorded in 2010 and in 2011. The average proportion of salmon catch returned alive for the period shown is 59%. No salmon were caught by rod in 2017.

River Ystwyth Declared Salmon Rod Catch



Declared rod catch for sea trout are also variable over the 10-year period but reported sea trout catches exceed those of salmon in all years. The lowest recorded catches are in 2013 and 2016. The average proportion of sea trout catch returned alive for the period shown is 75.6%. The release rate in 2017 was 79.5% which is slightly higher than the average figure for Wales of 77%. The CPLD trend follows the total catch trend, apart from in 2009, 2013, 2015 and 2016. In 2009 the CPLD decreased while the total catch increased which, is likely to be caused by an increase in days spent fishing and fewer fish being caught per day. Whereas, in 2013, 2015 and 2016 the CPLD has increased or stayed the same and, the total catch has decreased which, is likely due to few days being fished per licence.

River Ystwyth Declared Sea Trout Rod Catch



Stock Status

Conservation of Salmon

Salmon stock status is assessed through the use of 'Conservation Limits' which provide an objective reference point against which to assess the status of salmon stocks in individual rivers. The numbers of salmon a river can produce (and consequently the catches that the stocks support) are a function of the quality and quantity of accessible spawning and rearing area. This is why, in general, big rivers have larger catches and have correspondingly bigger total spawning requirements than small rivers. Thus, for any given rivers there should be an optimum level of stock which the CL seeks to protect. The conservation limit represents the number of eggs that must be deposited each year within a given catchment in order to conserve salmon stocks in the future.

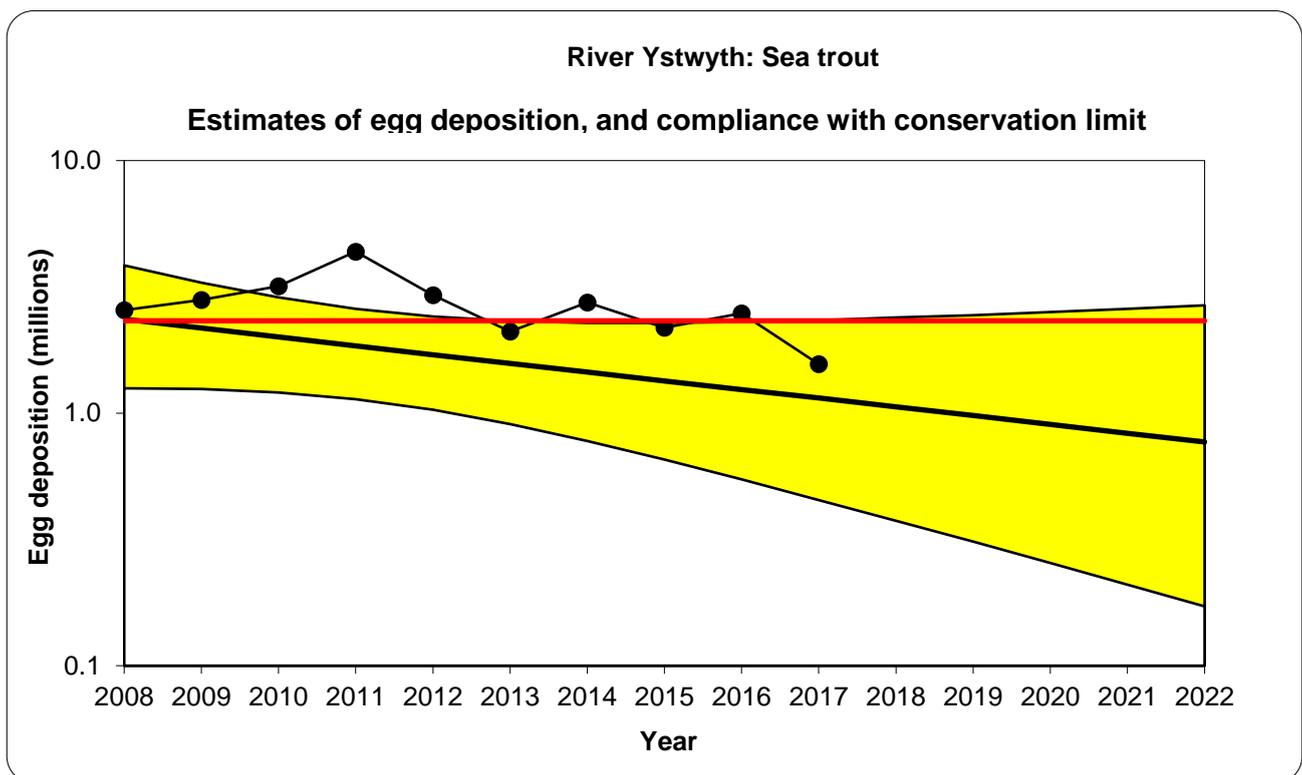
In the case of the Ystwyth, the low reported rod catches of salmon mean that it is not possible to obtain an accurate estimation of egg deposition for the river, due to the potential errors involved. Assessment of compliance against the conservation limit has therefore not been attempted.

Conservation of Sea Trout

In contrast to salmon, no established methods of setting Conservation Limits or similar have been available for sea trout. In the absence of such analysis, NRW and the Environment Agency have, for several years, routinely applied a fishery-based assessment to the principal sea trout rivers. This method – used previously in this report - utilises time-series' of angling catch per unit effort (CPUE) data ('catch per day') to examine sea trout performance on a river-by-river basis.

Recently an alternative stock-based assessment method has been developed by NRW and is applied here. This utilises angling catch data to derive run and egg deposition estimates for sea trout in much the same way that similar data sets are used in Conservation Limit compliance procedures for salmon assessment.

Further details on this method are given in the recent Technical Case supporting net and rod fishery byelaw proposals on all rivers in Wales and the cross-border rivers Wye and Dee (see: <https://cdn.naturalresources.wales/media/684367/technical-case-structure-final.pdf?mode=pad&rnd=131654078130000000>)



Are enough sea trout eggs being deposited to conserve sea trout stocks in the catchment?

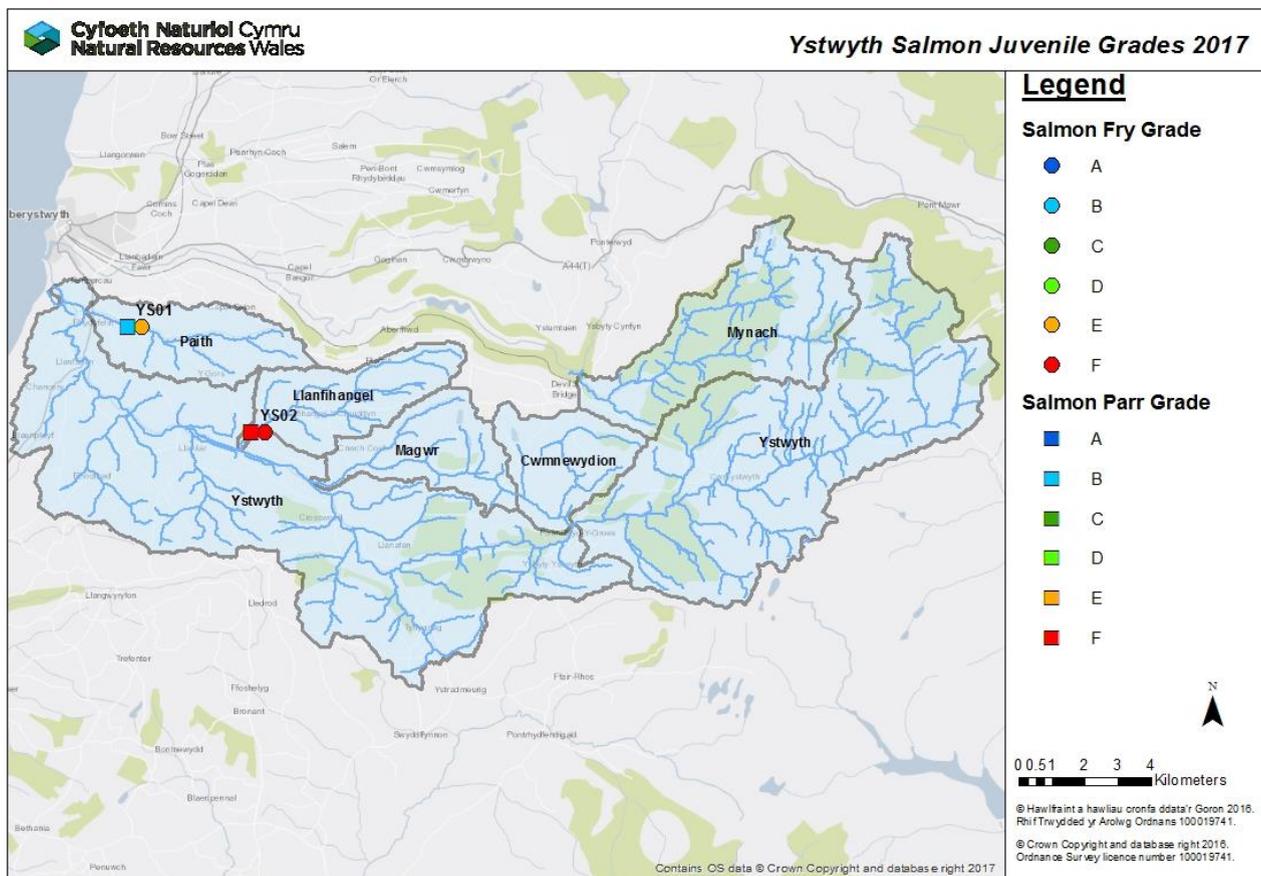
The red line represents the number of eggs required to be deposited to sustain a healthy sea trout stock. The black trend line and its confidence limits (the yellow band) is fitted to the most recent 10-year series of egg deposition estimates (2008-2017).

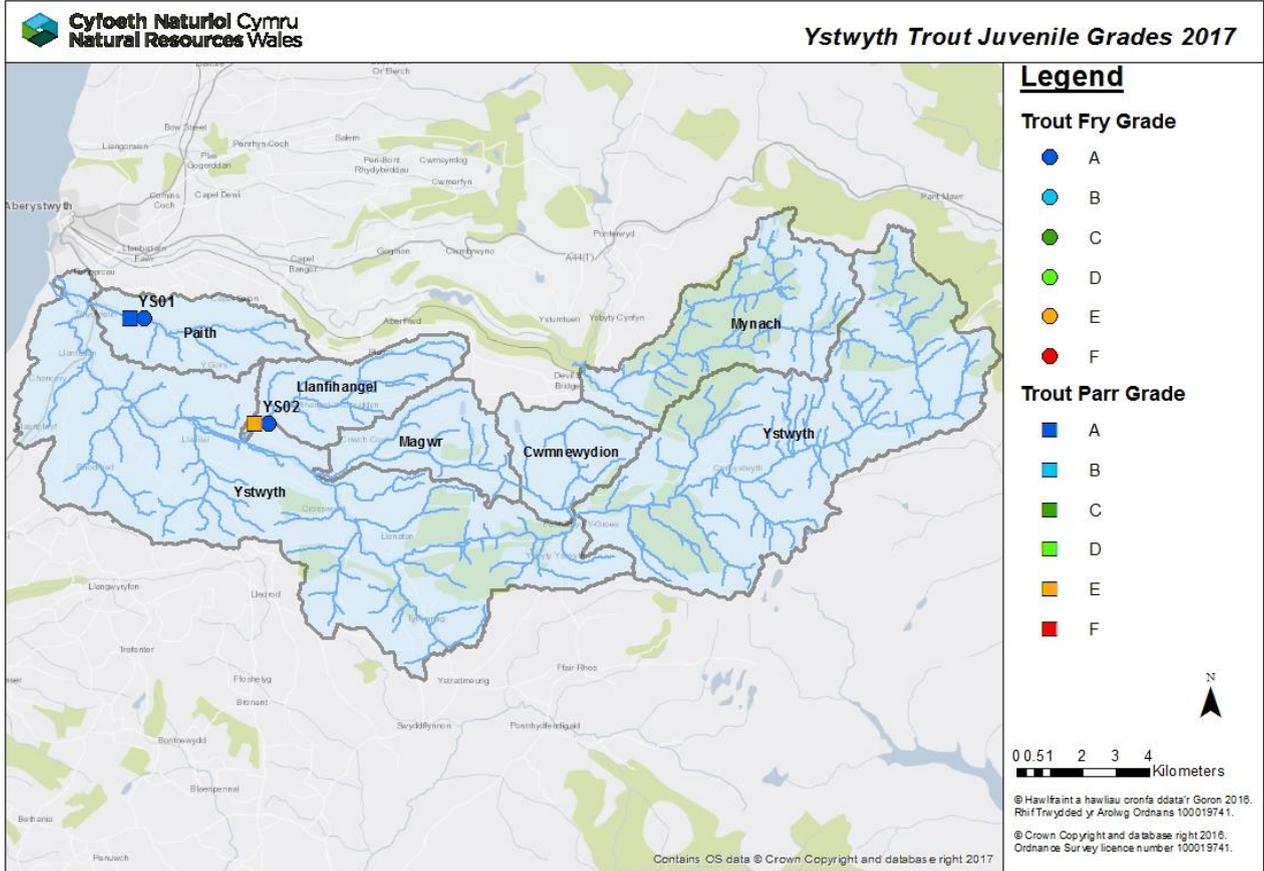
- Current number of eggs being deposited puts stocks **probably at risk**
- In 5 years' time the predicted status of salmon stocks will be **probably at risk**
- Based on current data, and the projection of the graph, sea trout stocks will continue to **decline** on the Ystwyth (**uncertain**).

Juvenile Monitoring

The following maps show results of the 2015 juvenile salmonid populations gathered from electro fishing surveys. They display the National Fish Classification (NFC) grades which have been developed to evaluate and compare the results of fish population surveys in a consistent manner. The NFC ranks survey data by comparing fish abundance at the survey sites with sites nationally 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 NFC.

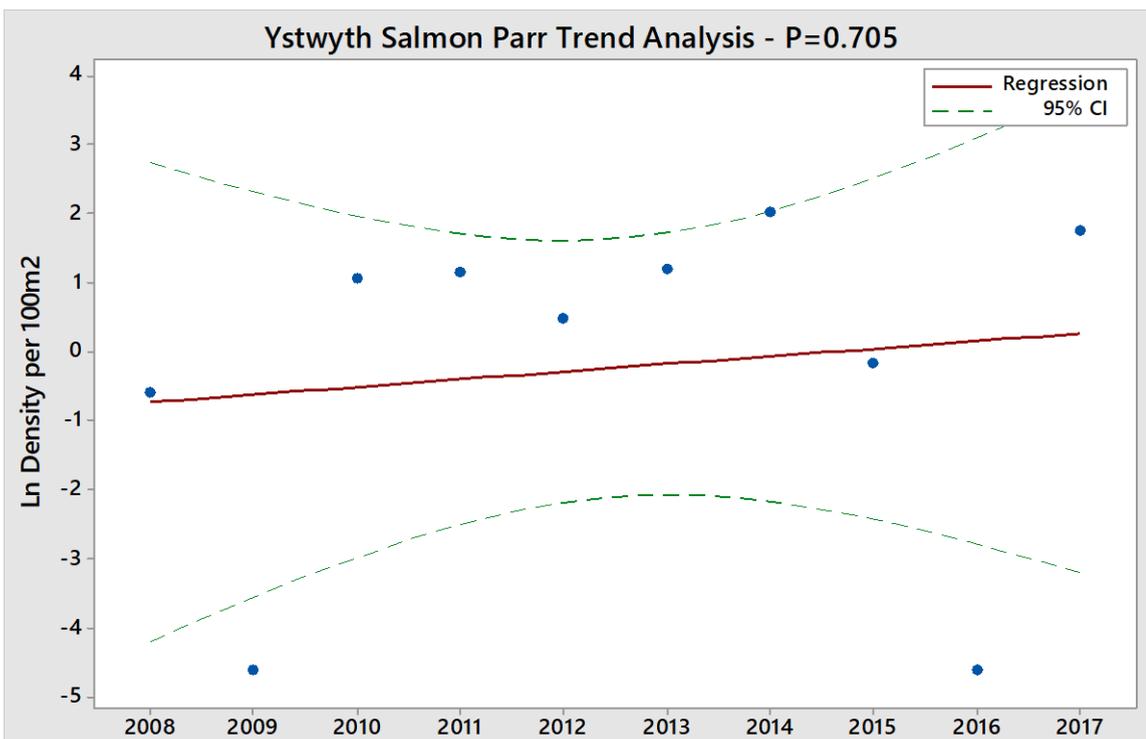
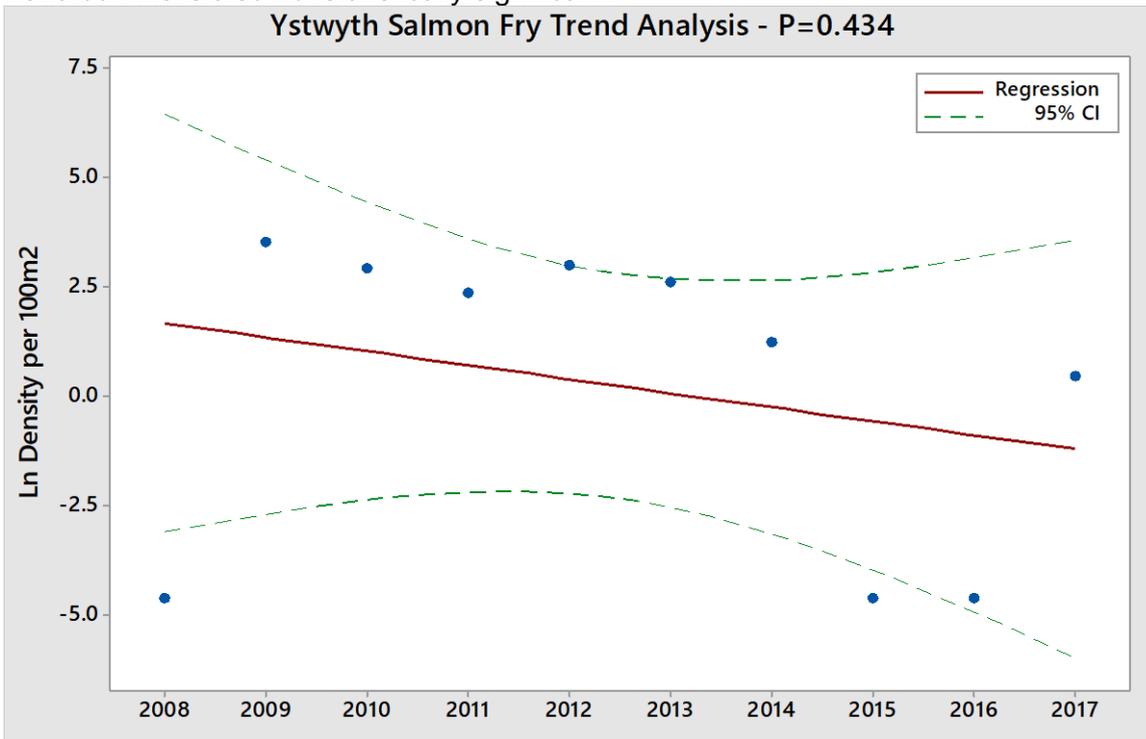
GRADE	Descriptor	Interpretation
A	Excellent	In the top 20% for a fishery of this type
B	Good	In the top 40% for a fishery of this type
C	Fair	In the middle 20% for a fishery of this type
D	Fair	In the bottom 40% for a fishery of this type
E	Poor	In the bottom 20% for a fishery of this type
F	Fishless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



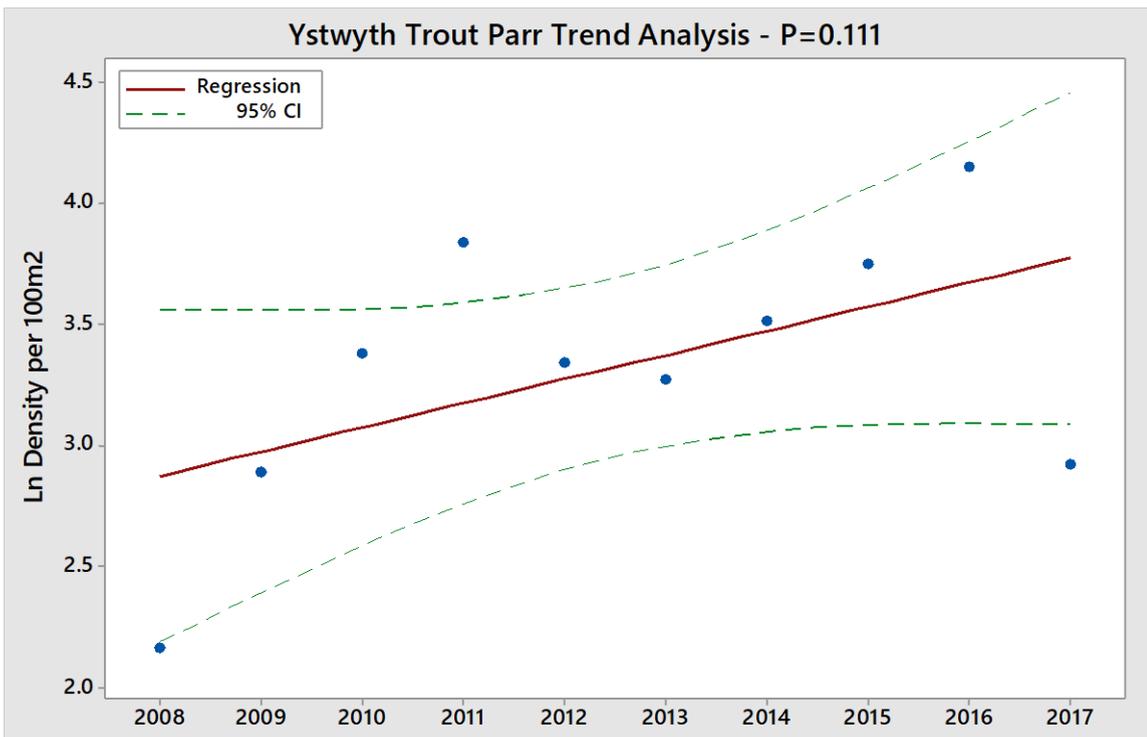
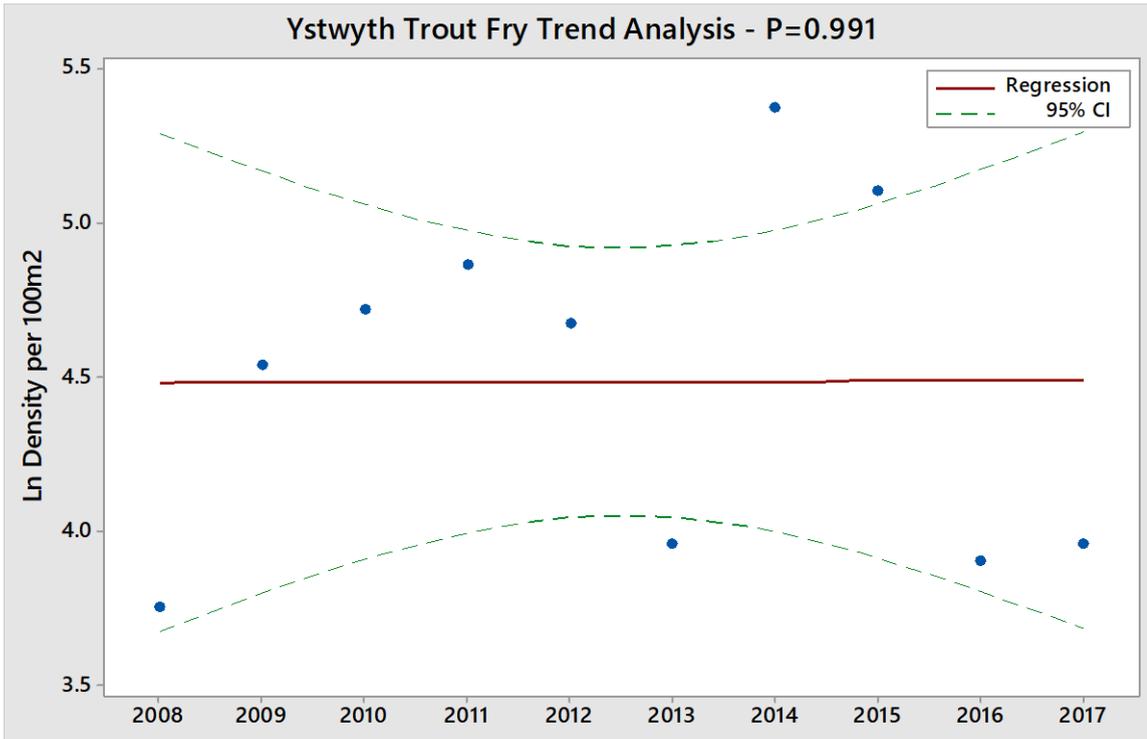


Juvenile Trend Analysis

Salmon have not been found consistently at both sites on the Ystwyth. The fry data shows a slightly downward trend, but this is not statistically significant. The parr data shows a slight upward trend but this is also not statistically significant.



Juvenile trout data shows a neutral trend for fry and a slightly upward trend for parr, however neither of these trends are statistically significant.



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Fisheries Mitigation Plan

Site	Planned action	Benefits	Lead	Partner(s)	Timescales for delivery
Ystwyth	Habitat improvements: We will investigate where there is opportunity to improve habitat for fish through improving access over barriers, restoration of riparian and instream habitat, including control of invasive species	More natural river system, reduced siltation, increased flow diversity, improved spawning gravels and juvenile habitat. Improved fish numbers.	NRW		Ongoing
	Water Framework Directive: We will continue to work to ensure no deterioration, monitor the status of the environment and investigate the causes of failures. Together with our partners we will look to put in place measures that protect and improve the status of the water environment.	<ul style="list-style-type: none"> Waterbodies protected and improved WFD waterbodies achieving Good Status/Potential 	NRW	NRW Wildlife trusts Local Authorities Landowners DCWW	Ongoing
	Enforcement: Action to reduce illegal activity on information provided and investigations.	Reduce illegal activity, more fish remain in the system.	NRW	Stakeholders SW Wales Police	Ongoing