

# Know Your River – Cleddau Rivers Salmon and Sea Trout Catchment Summary

## Introduction

This report describes the status of the salmon and sea trout populations in the Eastern and Western Cleddau catchments. 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 those catchments.

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, and 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.

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## Cleddau Rivers



## The River

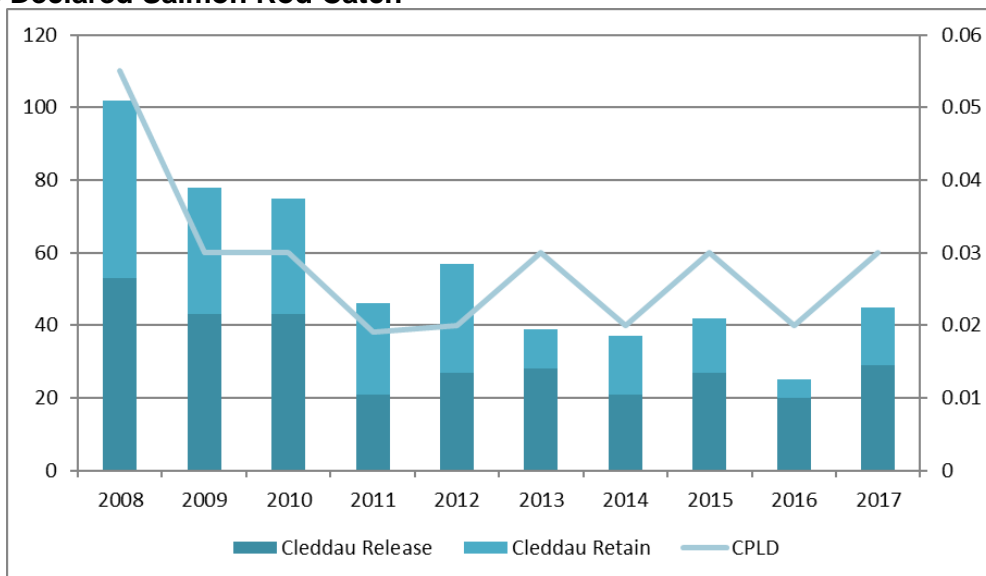
The Cleddau catchment comprises of the rivers Eastern and Western Cleddau, which are water courses of the Daugleddau, a tidal reach entering the Bristol Channel through Milford Haven. The catchment is largely of lowland nature, although both rivers have sources within the Preseli Mountains. The rivers flow in a predominantly southerly direction until joining at the tidal reaches, where the river flows in a westerly direction forming Milford Haven. From their sources to the tidal limit, the Eastern and Western Cleddau are 25 km and 30 km in length and drain a catchment area of 810 km<sup>2</sup>.

The Eastern and Western Cleddaus support a locally important salmon and sea trout (sewin) fishery. Sea trout are the principal salmonid, with a reasonable number of salmon also present. In addition, 6 compass nets are also licensed to operate between June and August

## Rod Catches

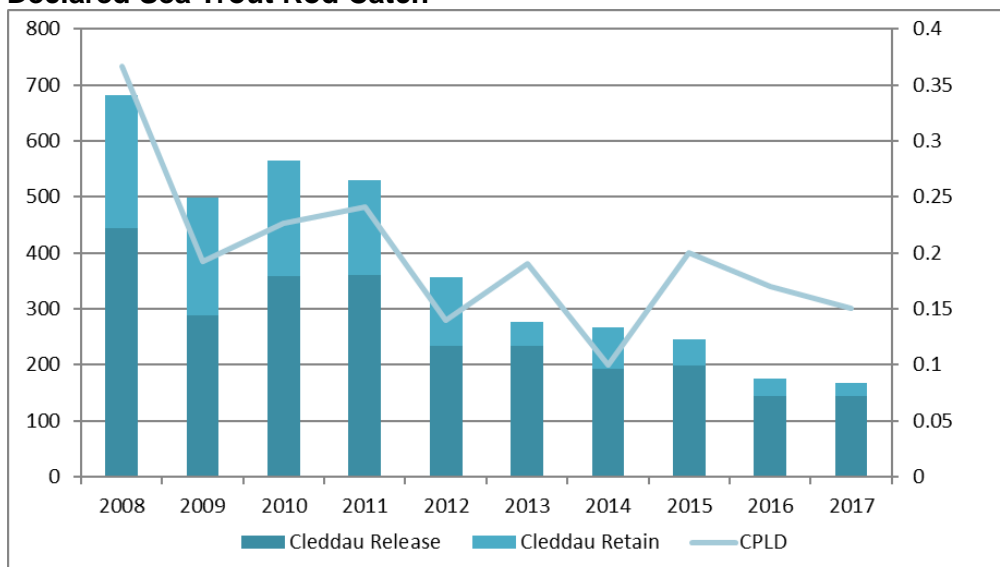
The following graphs show the total declared rod catches, including the numbers of fish released, for salmon and salmon and sea trout on the Eastern and Western Cleddau. The catch per licence day (CPLD) has also been included to show the ratio of fish caught per licences sold. Declared salmon rod catches are variable over the period, with the highest catch recorded in 2008. The average proportion of the salmon catch returned alive for the period shown is 59%. The release rate in 2017 was 86%. The CPLD trend is similar to that of the total catch trend during the 10-year period however, during 2013 the CPLD has increased and the total catch has decreased which, is likely due to few days being fished per licence.

### Cleddaus Declared Salmon Rod Catch



Declared rod catches for sea trout are also variable over the period, and reported catches exceed those of salmon in all years. The highest recorded catch was in 2008, and the lowest in 2016. The average proportion of sea trout catch returned alive for the period shown is 72.6%. The release rate in 2017 was 77%. The CPLD trend is generally similar to that of the total catch trend during the 10-year period however, during 2011, 2013, 2015 the CPLD has increased and the total catch has decreased which, is likely due to few days being fished per licence.

### Cleddaus Declared Sea Trout Rod Catch

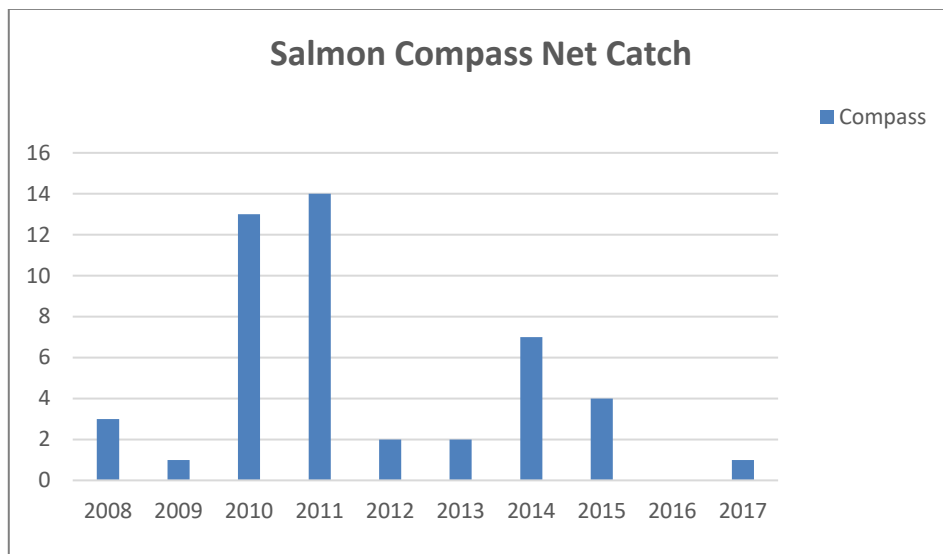


## Net Catches

The following graphs show the total declared net catches of salmon and sea trout on the Cleddaus (6 compass nets).

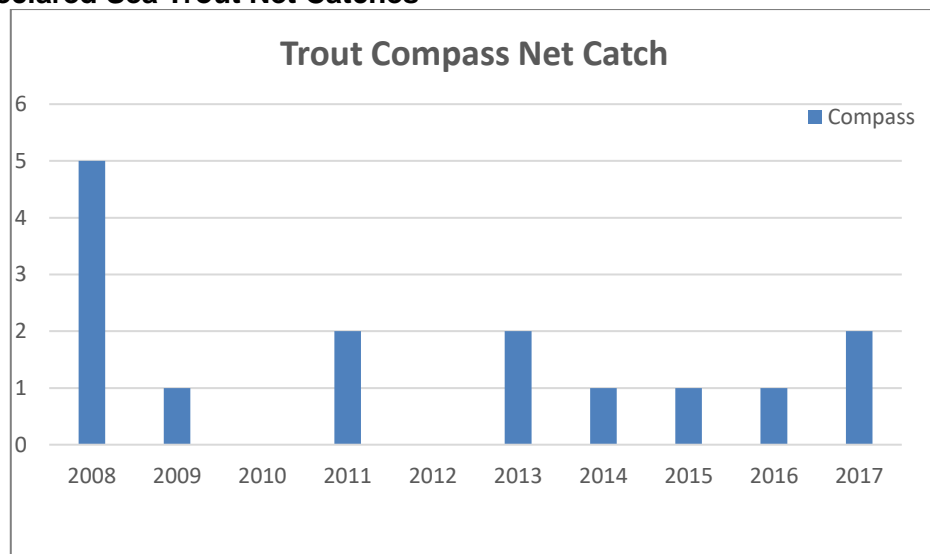
Declared salmon net catches are variable over the period, although there does appear to be a downward trend in catches over the period examined (2008 to 2017). The highest catches of salmon were reported in 2010 and 2011, and the lowest in 2009, 2012 and 0 in 2016.

### Cleddaus Declared Salmon Net Catches



Declared sea trout net catches for the same period are also variable, and also display a downward trend. The highest catches reported in 2008, whilst no sea trout were reported in 2010 and 2012.

### Cleddaus Declared Sea Trout Net Catches

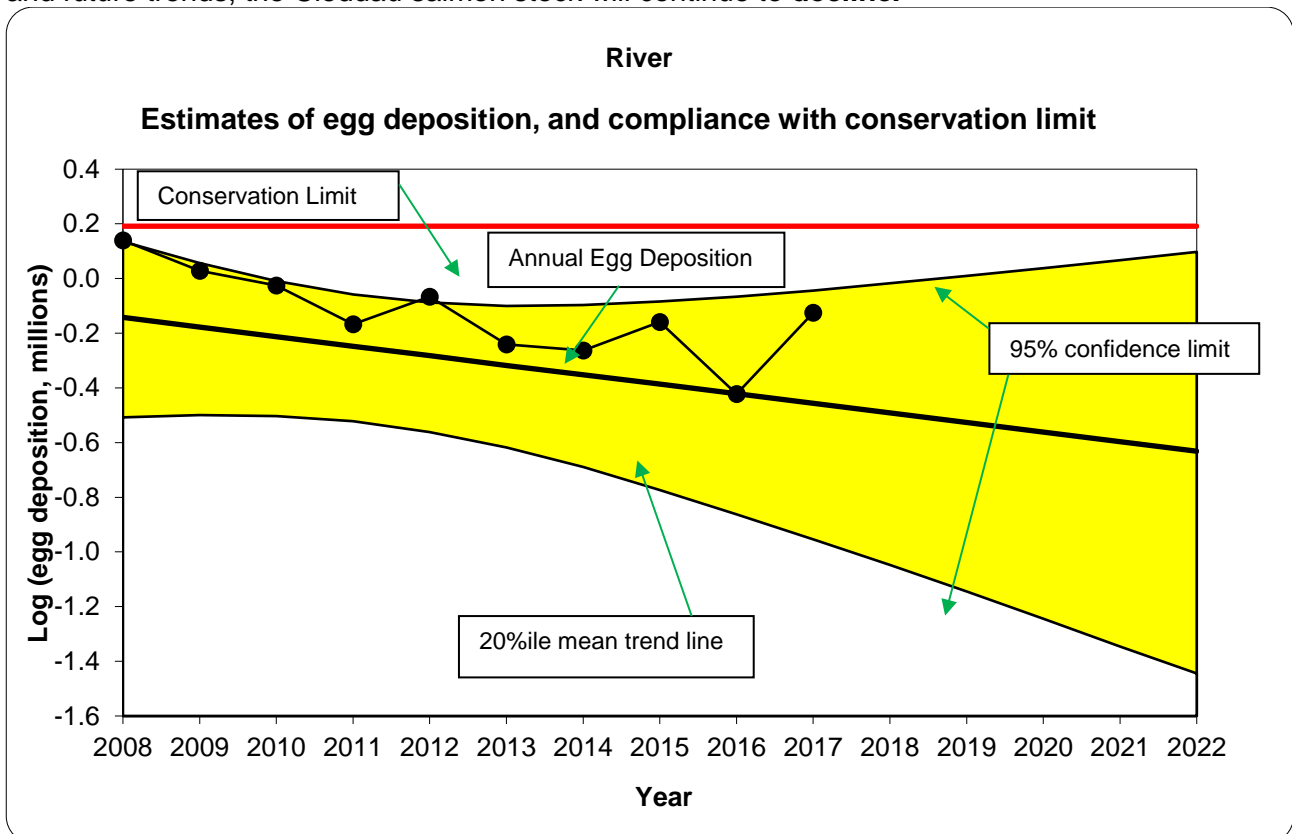


## Stock Status

### 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 river 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.

The conservation limit for the Cleddaus is set at 1.55 million eggs, represented by the red line on the graph. The number of eggs deposited in 2014 is below the Conservation Limit, and the Cleddau is classed as **at risk**. In 5 years time, the predicted status of the Cleddau salmon stock will be **at risk**. Based on current and future trends, the Cleddau salmon stock will continue to **decline**.

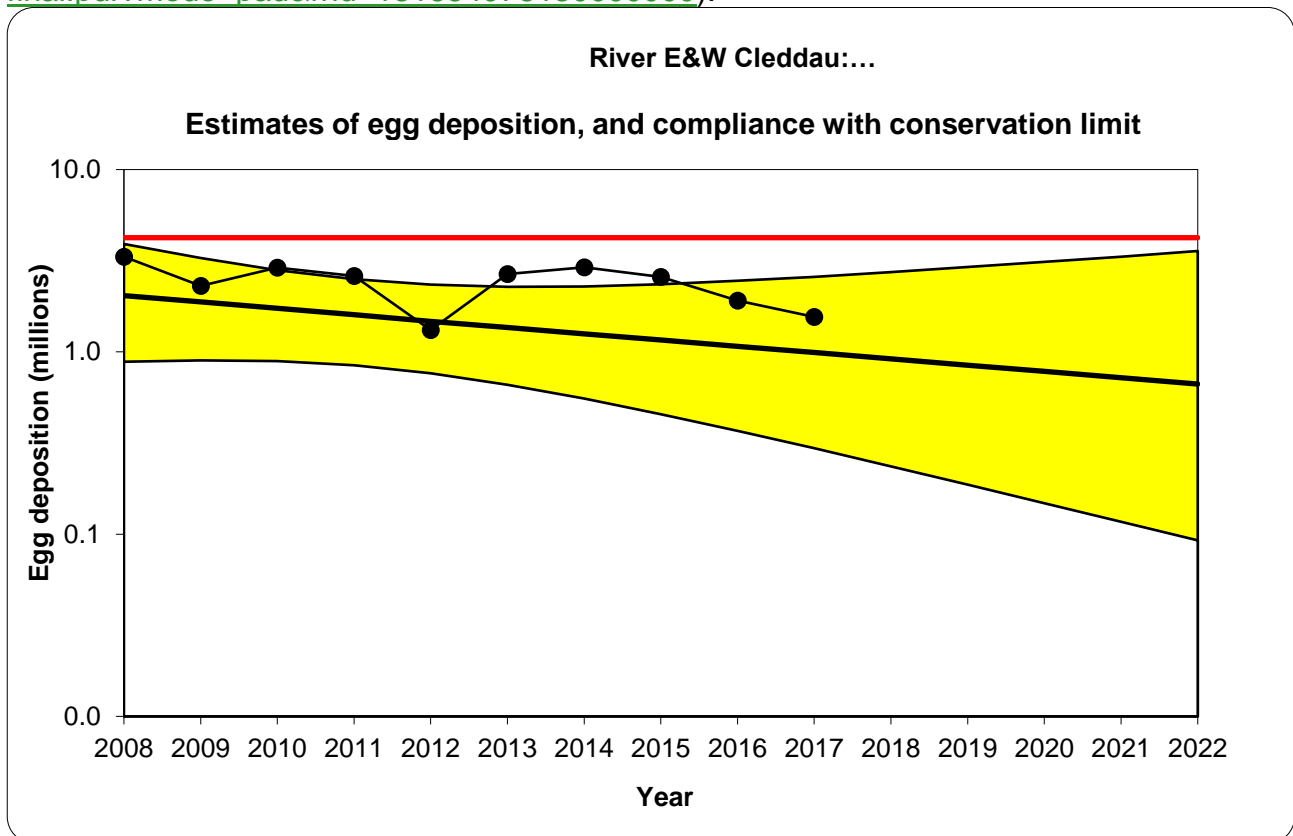


## Conservation of Sea Trout

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?

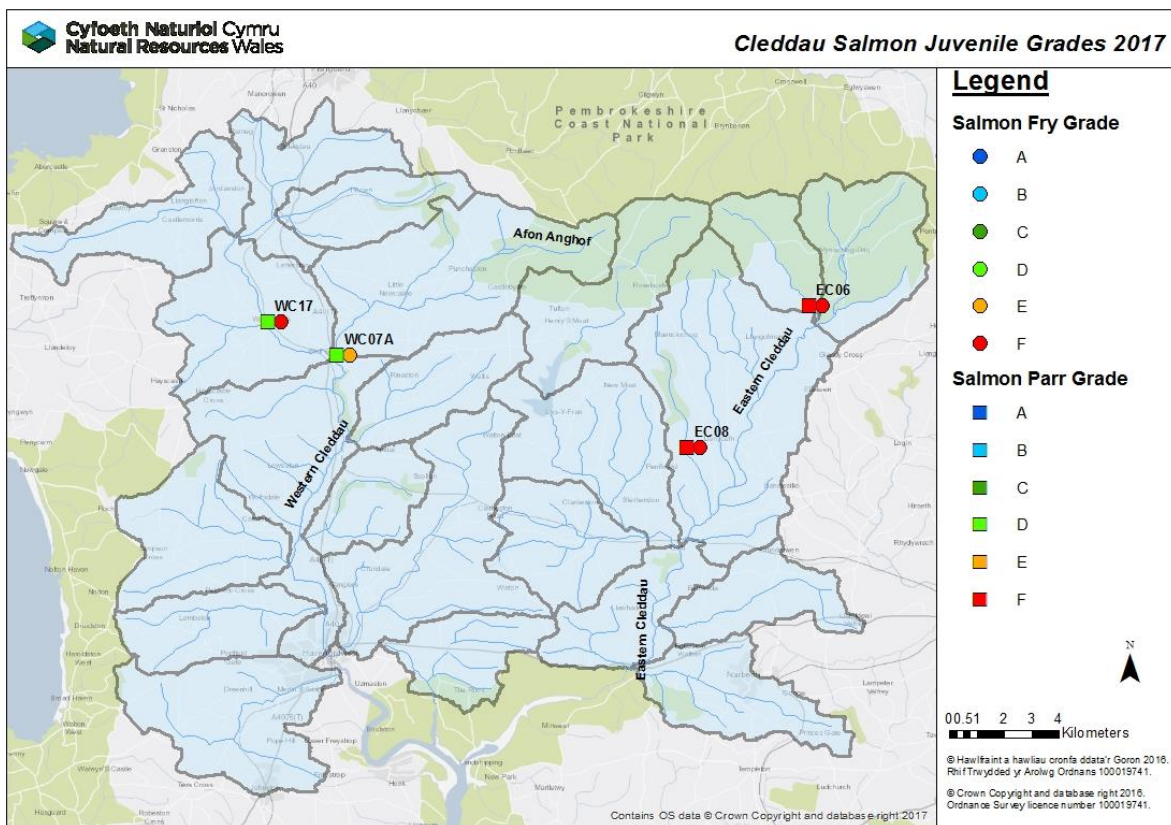
The red line represents the number of eggs required to be deposited to sustain a healthy sea trout stock. The black trend line and its confidence limits (the yellow band) is fitted to the most recent 10-year series of egg deposition estimates (2008-2017).

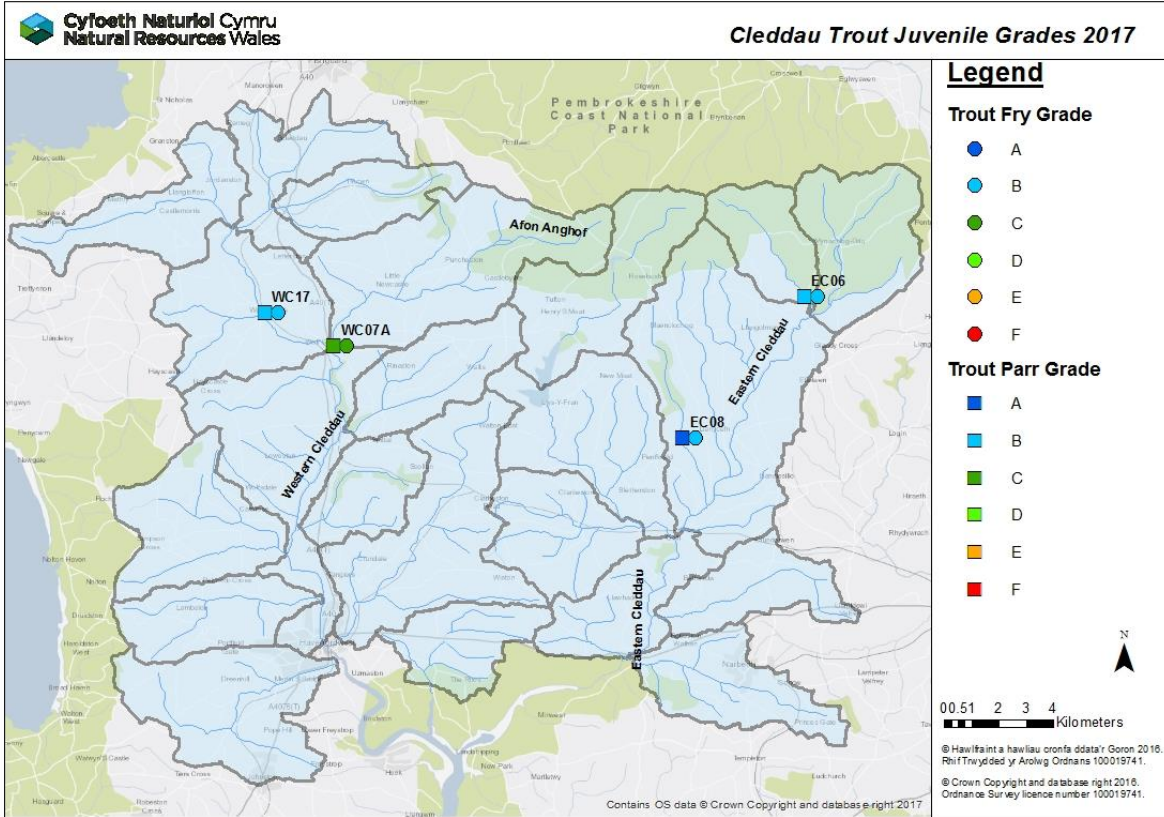
- Current number of eggs being deposited puts stocks **at risk**
- In 5 years' time the predicted status of salmon stocks will be **at risk**
- Based on current data, and the projection of the graph, sea trout stocks will continue to decline on the Cleddaus (**uncertain**).

## Juvenile Monitoring

The following map shows the results of the 2017 juvenile salmonid population 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
<b>A</b>	Excellent	In the top 20% for a fishery of this type
<b>B</b>	Good	In the top 40% for a fishery of this type
<b>C</b>	Fair	In the middle 20% for a fishery of this type
<b>D</b>	Fair	In the bottom 40% for a fishery of this type
<b>E</b>	Poor	In the bottom 20% for a fishery of this type
<b>F</b>	Fishless	No fish of this type present

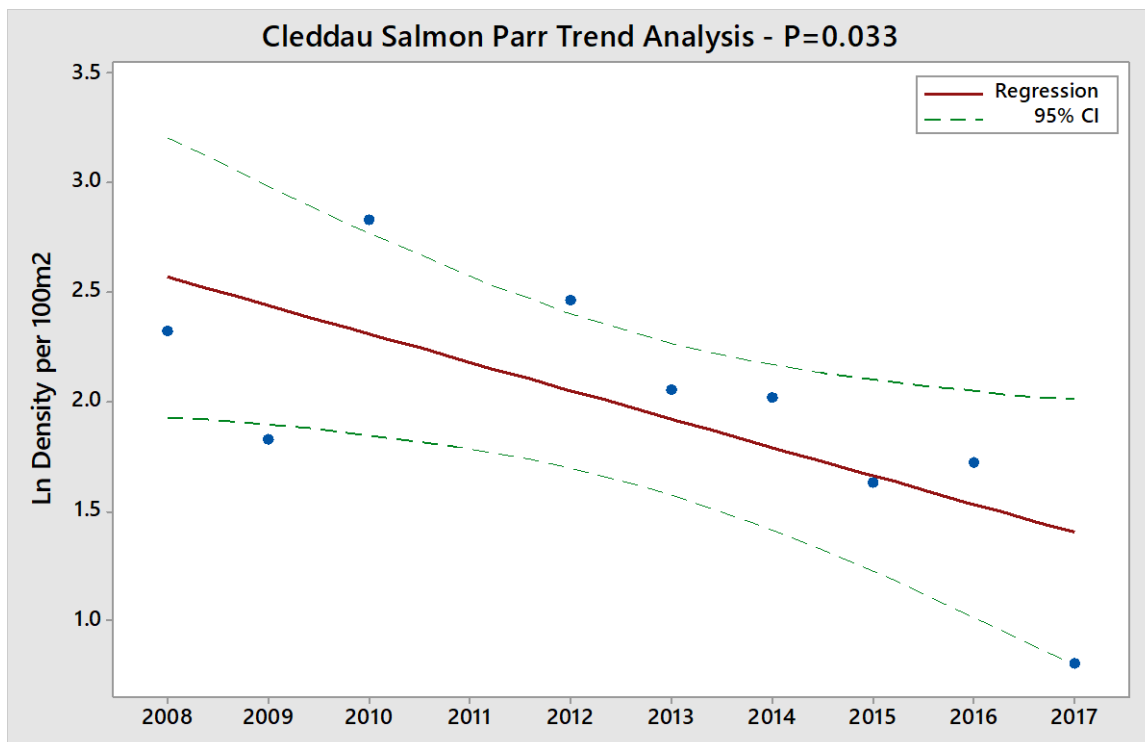
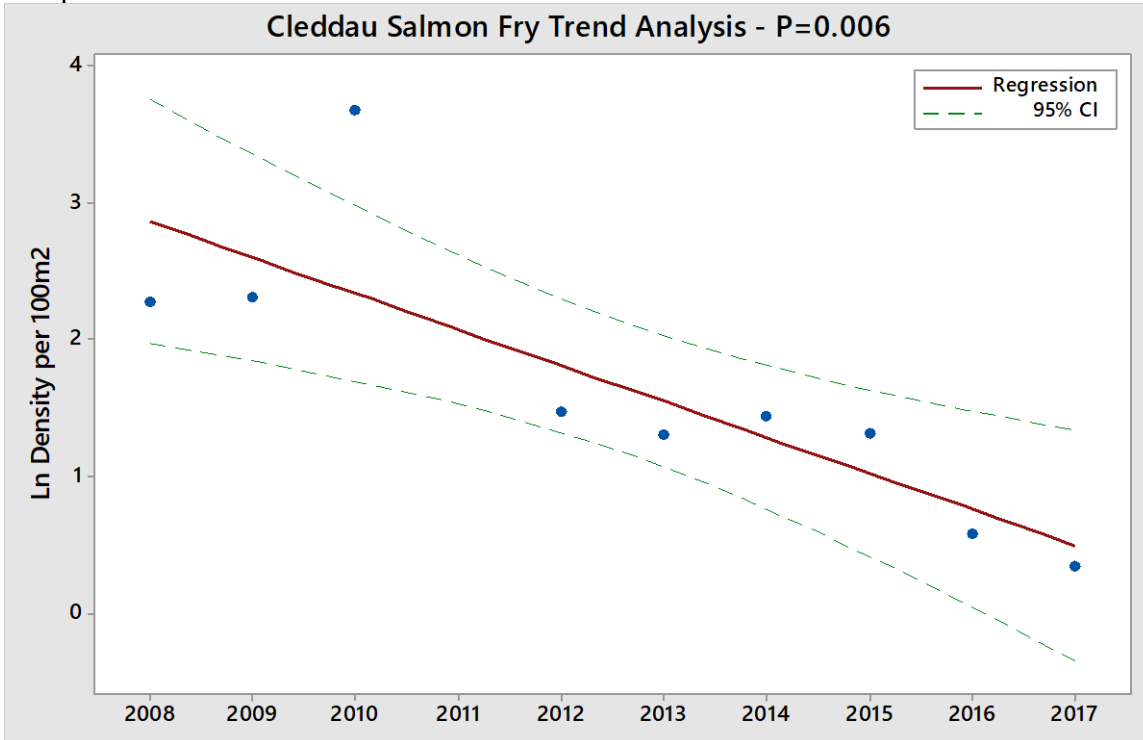




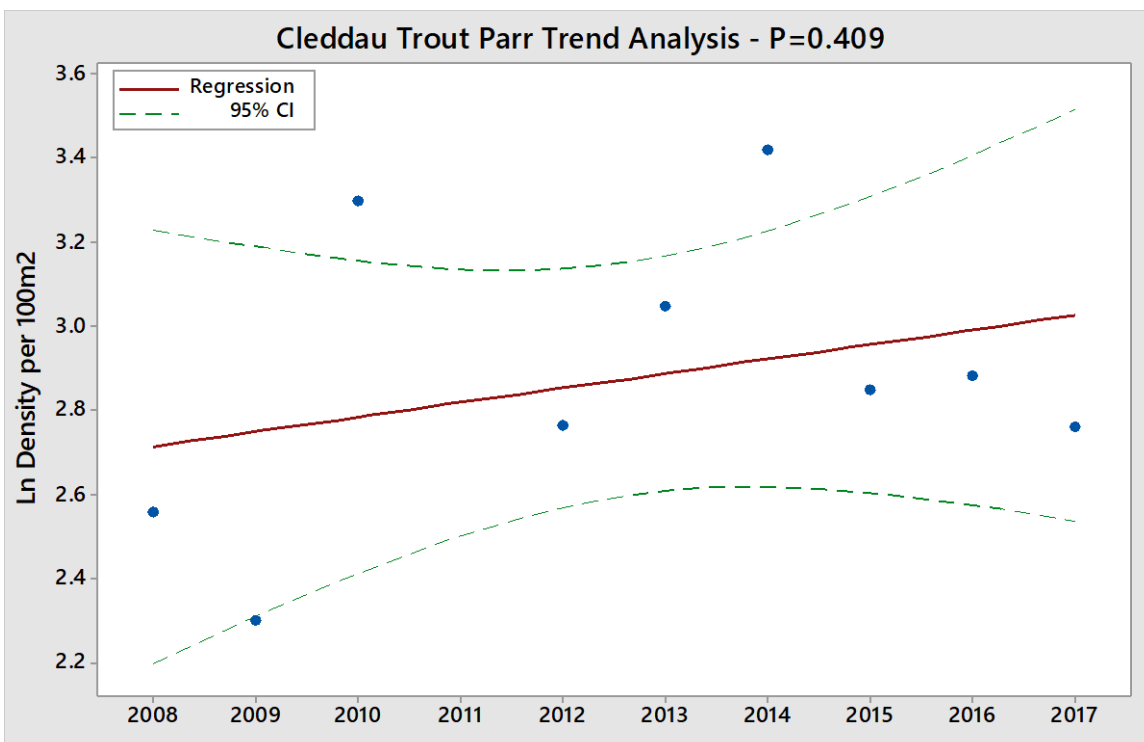
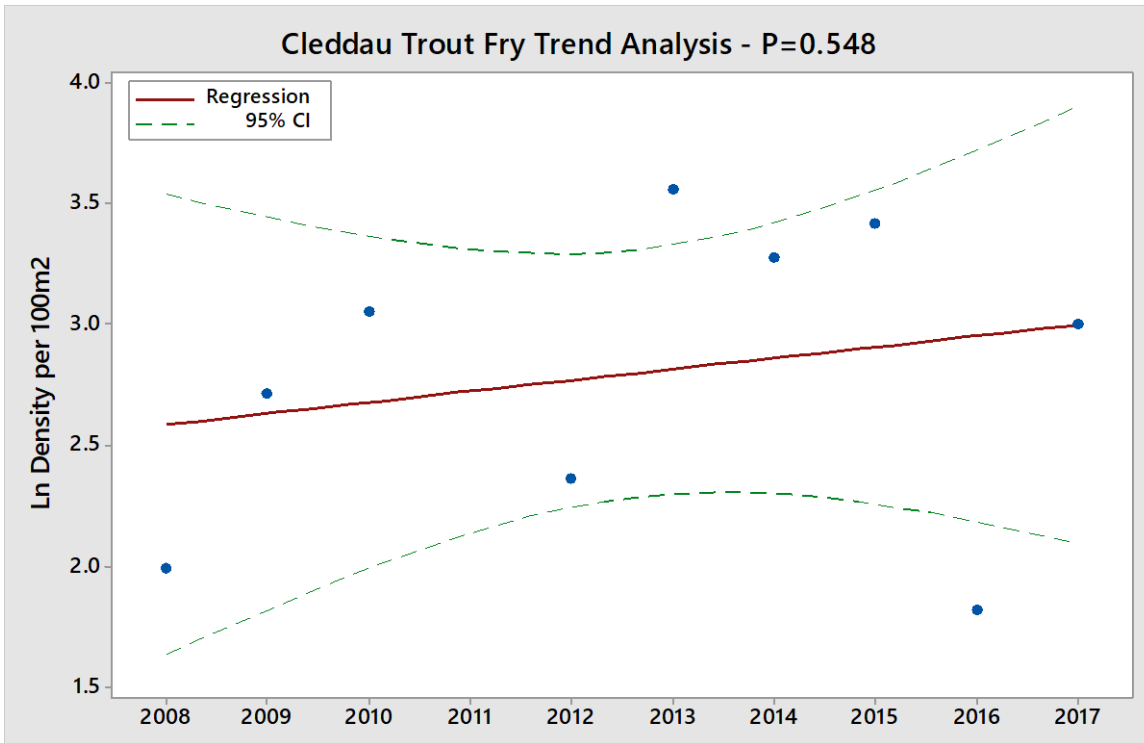


### Juvenile Trend Analysis

Juvenile salmon data shows downward trends in both fry and parr which, are considered to be statistically significant. However, densities for 2017 have shown a continued decrease for both fry and parr.



Juvenile trout data has shown slightly upward trends for both fry and parr. The trend for trout fry is not statistically significant nor is the trout parr trend.



## Fisheries Mitigation Plan

Site	Planned action	Benefits	% target	Estimated cost	Lead	Partner(s)	Timescales for delivery
<b>Cleddau</b>	Exploring opportunities with Pembrokeshire Rivers Trust	Improved habitat for salmonid spawning	N/A	N/A	NRW	Pembrokeshire Rivers Trust	1-3 years
<b>Syfywnwy</b>	Gravel replacement scheme	Improved salmonid spawning habitat	N/A	15, 000 over 3 years	NRW	DCWW, Pembrokeshire Rivers Trust	3 years
<b>E. Cleddau</b>	Modifications to Canaston weir	Improved fish passage	N/A	300,000 - 400,000	DCWW	NRW	2-3 years
<b>Deepford Brook</b>	Farm visits by Pembrokeshire Environmental Management team	Minimised impacts from Farming	N/A	N/A	NRW	Local Farmers	On-going
<b>Cleddau</b>	Catch and release to be increased to 100% until salmon population no longer 'at risk'	Potential increase in egg deposition	N/A	N/A	NRW	Pembrokeshire Rivers Trust	On-going as required
<b>Whole Catchment</b>	Enforcement action to reduce illegal activity	Reduction in illegal activity on catchment through intelligence led work.	N/A		NRW		Ongoing commitment