

Know Your River – Gwyrfai/Llyfni

Salmon & Sea Trout Catchment Summary

Introduction

This report describes the status of the salmon and sea trout populations in the Gwyrfai/Llyfni 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.

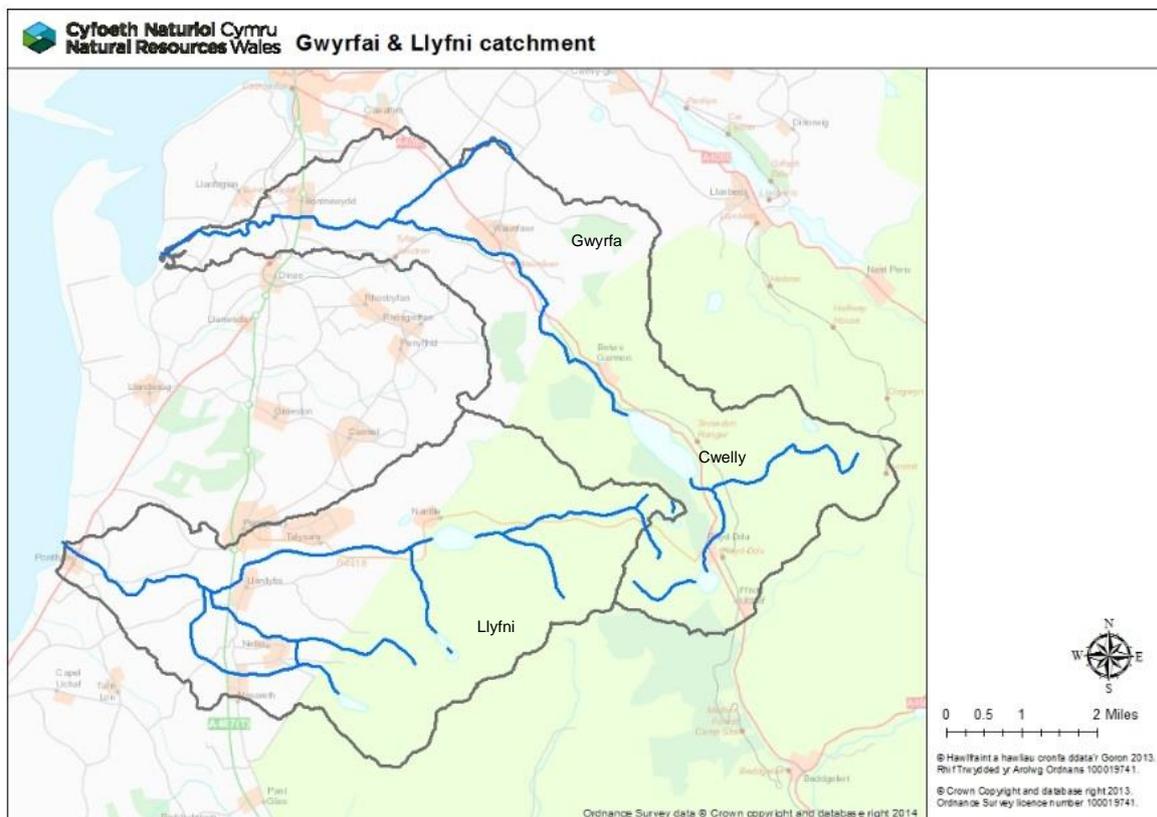
Action tables set out habitat improvements to restore freshwater productivity of salmon and sea trout populations. These tables also include some work which will be carried out by our partner organisations, not just Natural Resources Wales (NRW).

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 of 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 of our principal salmon rivers for the Salmon Action Plans and condition assessments under the Habitats Directive in SAC rivers; all fish species in all of our rivers are reported for the Water Framework Directive (WFD). This report will fulfil these commitments and provide 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.

Catchment

The Gwyrfai and Llyfni both have their sources at the foot of Snowdon near Rhyd Ddu. The rivers take two different routes out to sea with the Gwyrfai discharging into the Forth estuary



and the Llyfni flowing out into Caernarfon Bay at Pont Llyfni. The Gwyrfai catchment covers an area of 53km² and the Llyfni catchment covers an area of 50km² and they drain a predominantly upland catchment. The main populated areas are Bontnewydd on the Gwyrfai and Penygroes on the Llyfni. Both catchments focus on agriculture, sheep farming being the main land use. The area is an important tourist location due to large sections of the catchment being within the Snowdonia National Park.

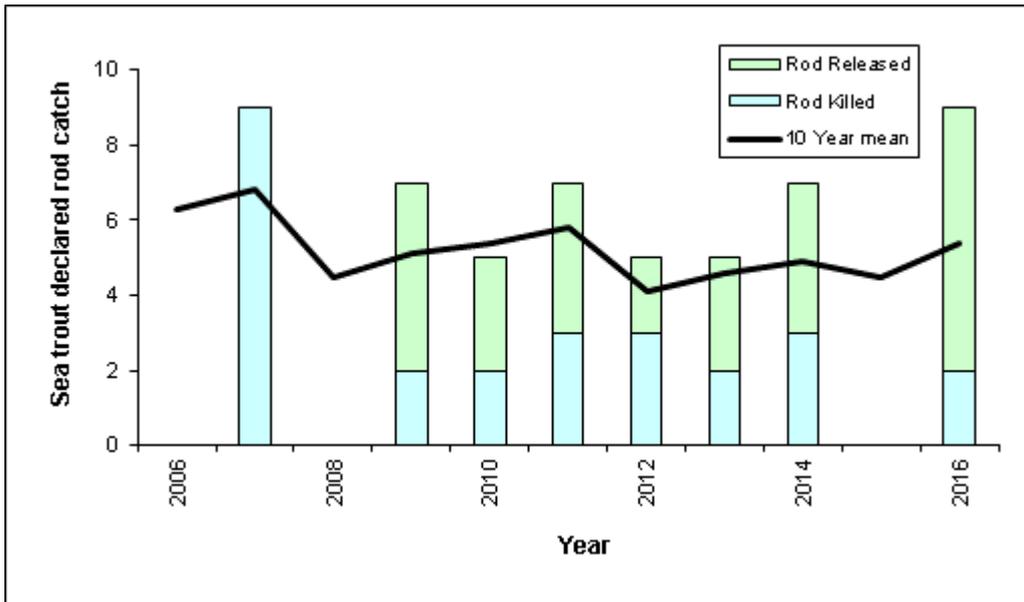
The bulk of Eryri's rocks are of Cambrian age, although Ordovician rocks are found in both the north and the south of the area. Igneous intrusions have metamorphosed many of these sedimentary shales, resulting in the formation of slate, which was once so important to the local economy.

The Gwyrfai & Llyn Cwellyn are a SAC area based upon its Salmon, Arctic Char, Otters & floating water plantain. Llyn Cwellyn hosts one of the three remaining native Welsh populations of Arctic Char (*Salvelinus alpinus*) a locally distinct relict species from the last Ice Age.

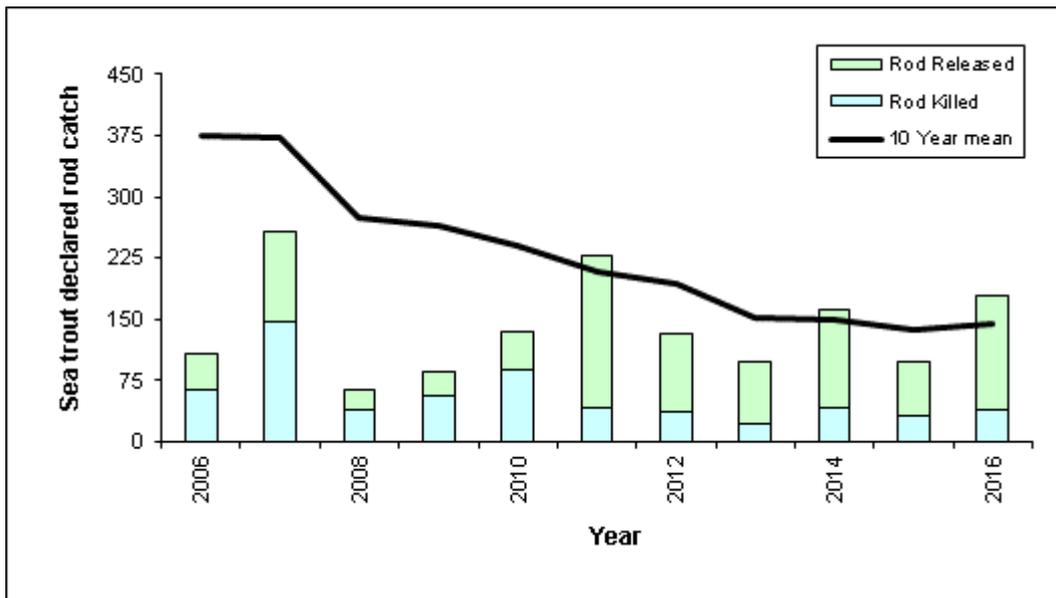
Rod catches

As the Gwyrfai/Llyfni are classed as major sea trout rivers rather than salmon, only the sea trout data has been included. Salmon catches are minor. The following graphs show the total declared rod catch for sea trout on the Gwyrfai/Llyfni.

Sea trout rod catch (Gwyrfai) – has improved compared to last year when no sea trout were caught. Effort is still very low. The release rate in 2016 was 78% which is an improvement on the last 10 years and needs to continue to conserve stocks. The North Wales average is 79%.



Sea trout rod catch (Llyfni) – has improved compared to last year and is good compared to the ten year average. Effort is low on this catchment compared to the catch rate. The release rate in 2016 was 79%, which is the average rate for North Wales.

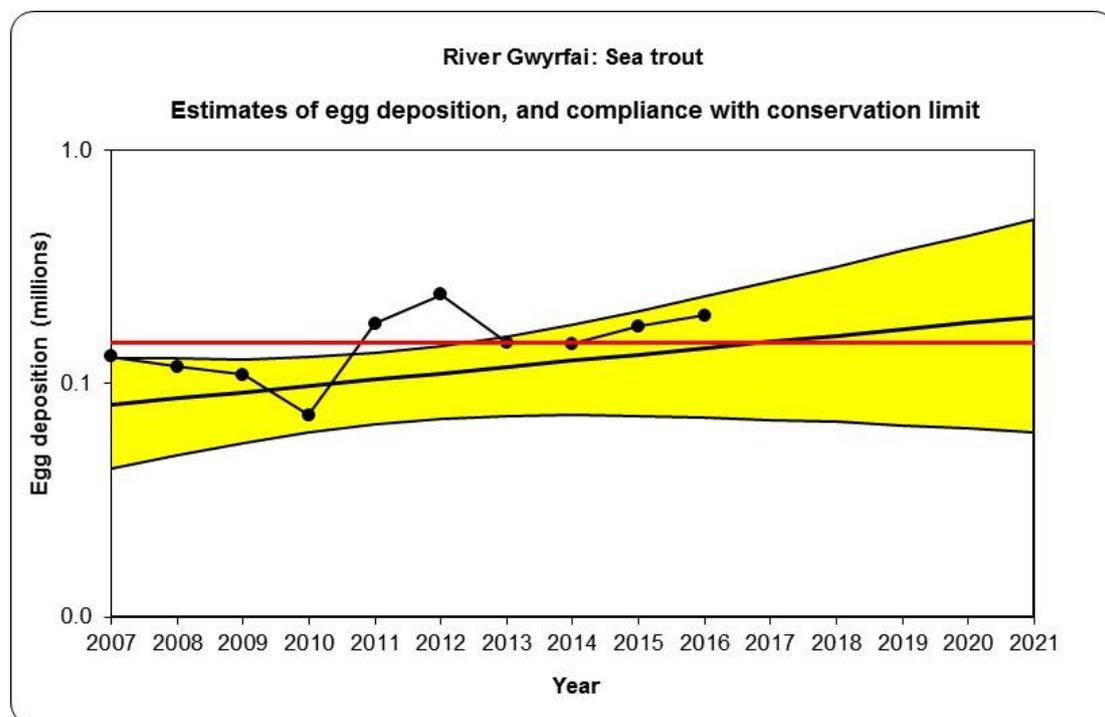


Conservation of Sea Trout

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.

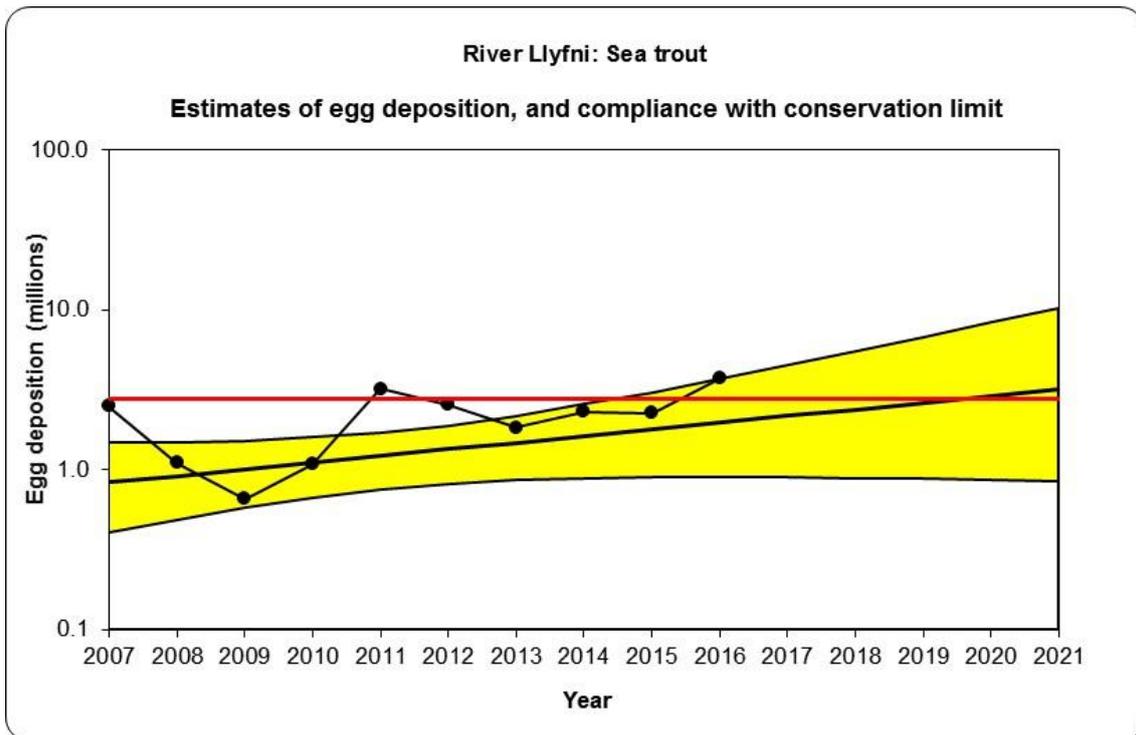
Further details on this method are given in the recent Technical Case supporting net and rod fishery byelaw proposals on all rivers in Wales and the cross-border rivers Wye and Dee (see: <http://naturalresourceswales.gov.uk/media/682258/technical-case-structure-final.pdf>)



Are enough sea trout eggs being deposited to conserve 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 (2007-2016).

- Current number of eggs being deposited puts stocks **probably at risk**
- In 5 years' time the predicted status of salmon stocks will be **probably not at risk**
- Based on current data, and the projection of the graph, sea trout stocks will continue to **improve (uncertain)** on the Gwyrfaï



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Juvenile Monitoring

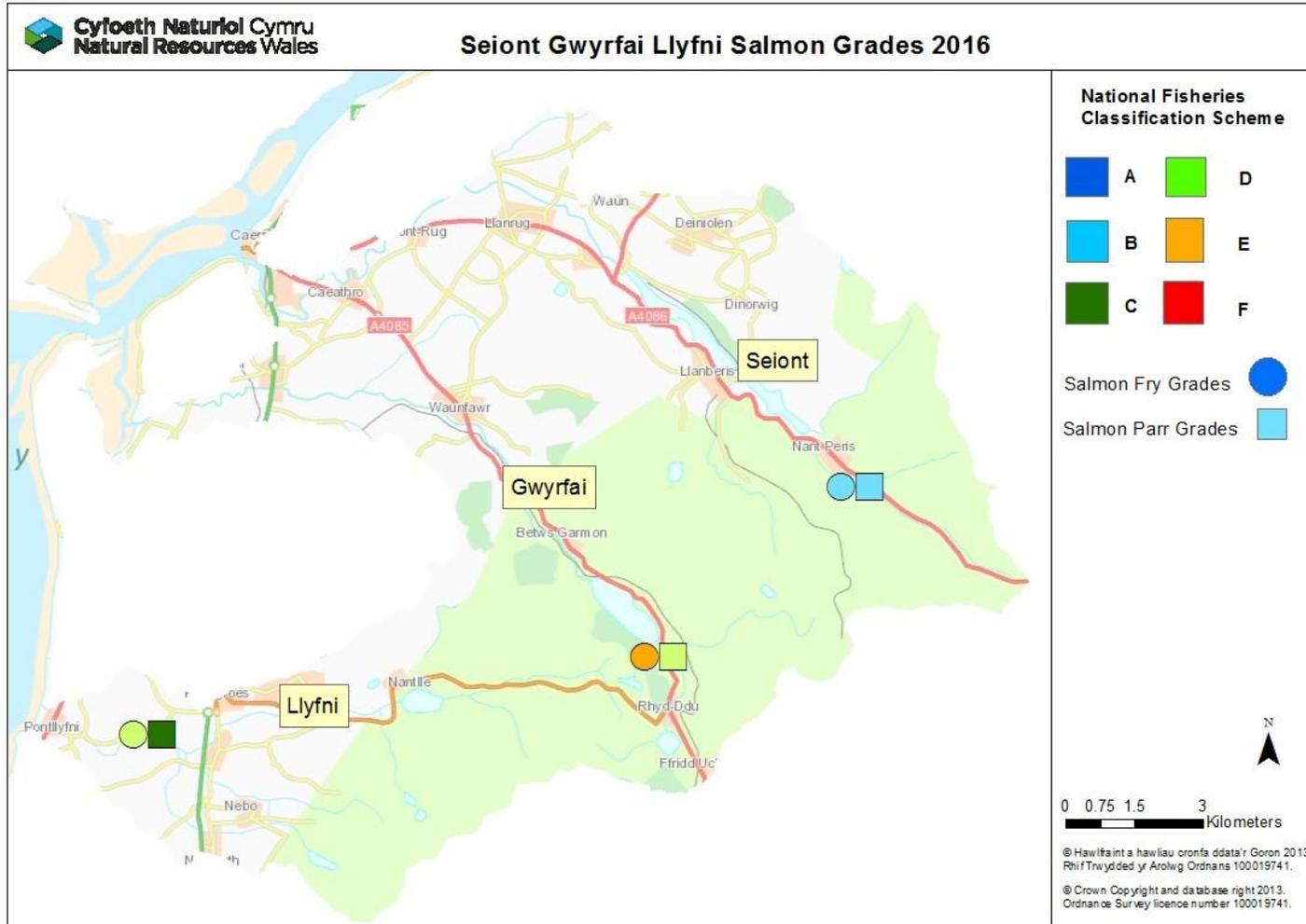
The following map shows the results of the 2015 juvenile salmonid population surveys. They display the National Fish Classification (NFC) grades which have been developed to evaluate and compare the results of fish population surveys in a consistent manner. The NFC ranks survey data by comparing fish 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	Description	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

No juvenile analysis has been carried out on the Gwyrfai & Llyfni sites as they have only been monitored for two years.

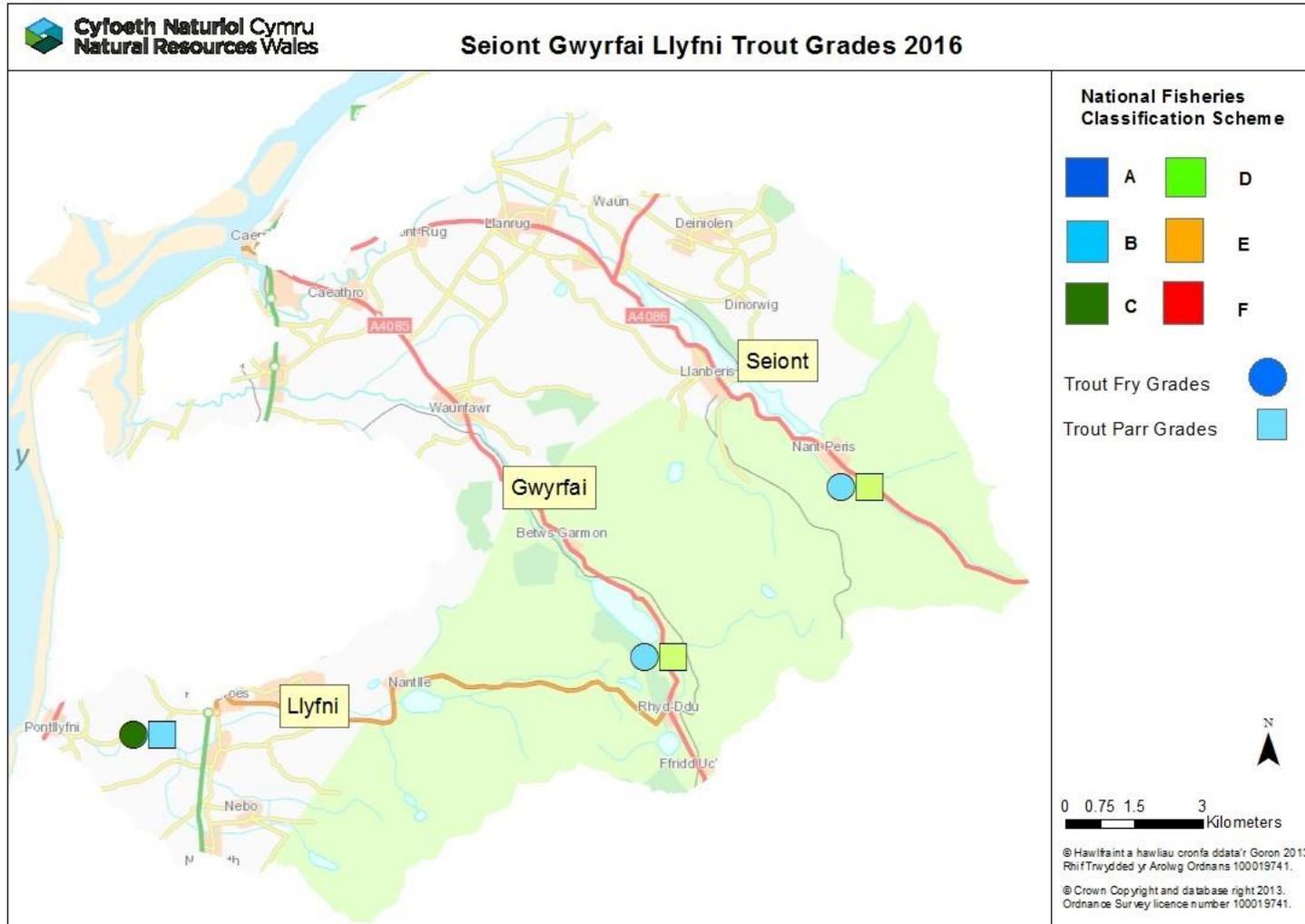
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Fisheries Action – Gwyrfai/Llyfni

Site	Action	Benefits	Lead	Partner(s)	Timescales for delivery
Gwyrfai/Llyfni	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 work to ensure no deterioration, monitor the status of the environment and investigate 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 SNPA	Ongoing
	Enforcement: Action to reduce illegal activity on information provided and investigations	Reduced illegal activity, more fish remain in the system.	NRW	Stakeholders North Wales Police	Ongoing