Know Your River – Dyfi
Salmon & Sea Trout Catchment Summary

Introduction

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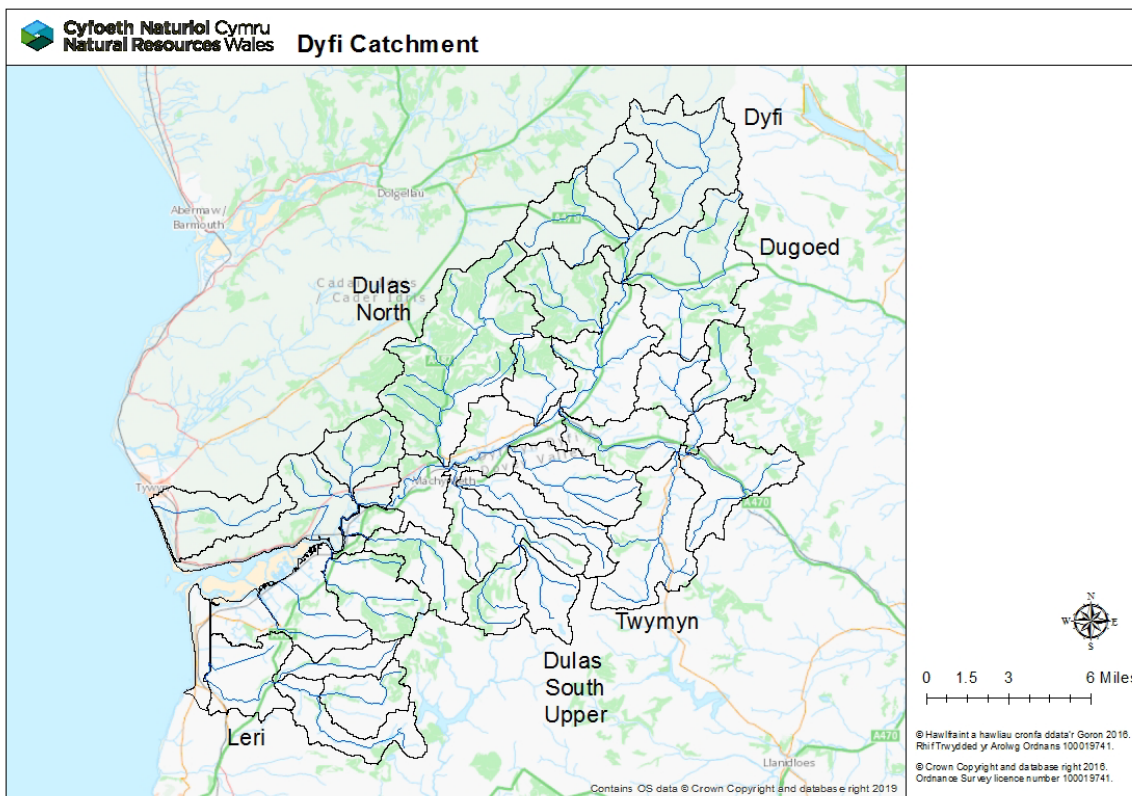
Action tables set out habitat improvements to restore freshwater productivity of salmon and sea trout populations. These tables also include some work which will be carried out by our partner organisations, not just Natural Resources Wales (NRW).

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 Dyfi catchment drains a predominantly upland catchment discharging into the Dyfi estuary and Cardigan Bay. The catchment is mainly rural with agriculture as the main land use whilst substantial parts of the area are afforested. The nature of the landscape has also encouraged the development of renewable energy production including hydro-electric power stations and wind farms.

The Dyfi catchment lies on a base of Silurian and Ordovician rocks, resulting in rounded hills and plateaux country, less rugged than the scenery of Snowdonia to the North. Water quality on the Dyfi catchment is generally good however a number of tributaries have acidification issues that can be exacerbated by coniferous afforestation. The Twymyn is affected by discharges from abandoned lead mines causing elevated levels of zinc.
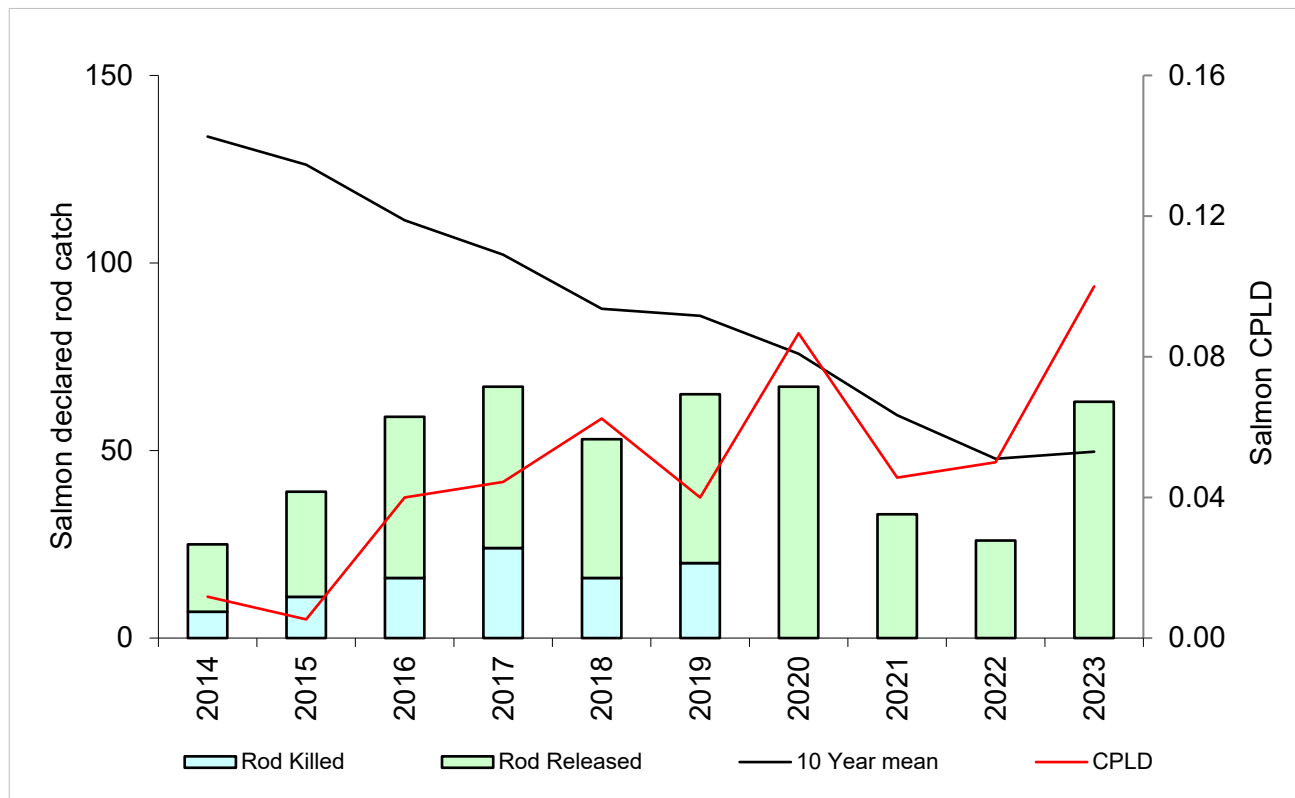
The Dyfi is an important conservation area due to the diverse range of habitats within the catchment area. Due to the presence of sand dunes, wet grasslands, saltmarsh, woodlands, forested areas and riparian habitats, the downstream area of the river and the estuary, are designated as a Site of Special Scientific Interest (SSSI) and one of the only three designated Biosphere Reserves in the United Kingdom. The catchment also contains National Nature Reserves (NNR's), Special Protection Areas (SPA's) and Ramsar sites (wetlands considered to be of international importance, particularly as habitat for wildfowl).

Rod Catches

The following tables/graphs show the total declared rod catches of salmon and sea trout on the Dyfi and Catch Per License Day. CPLD is an estimate of the average catch per fishing day on a catchment.
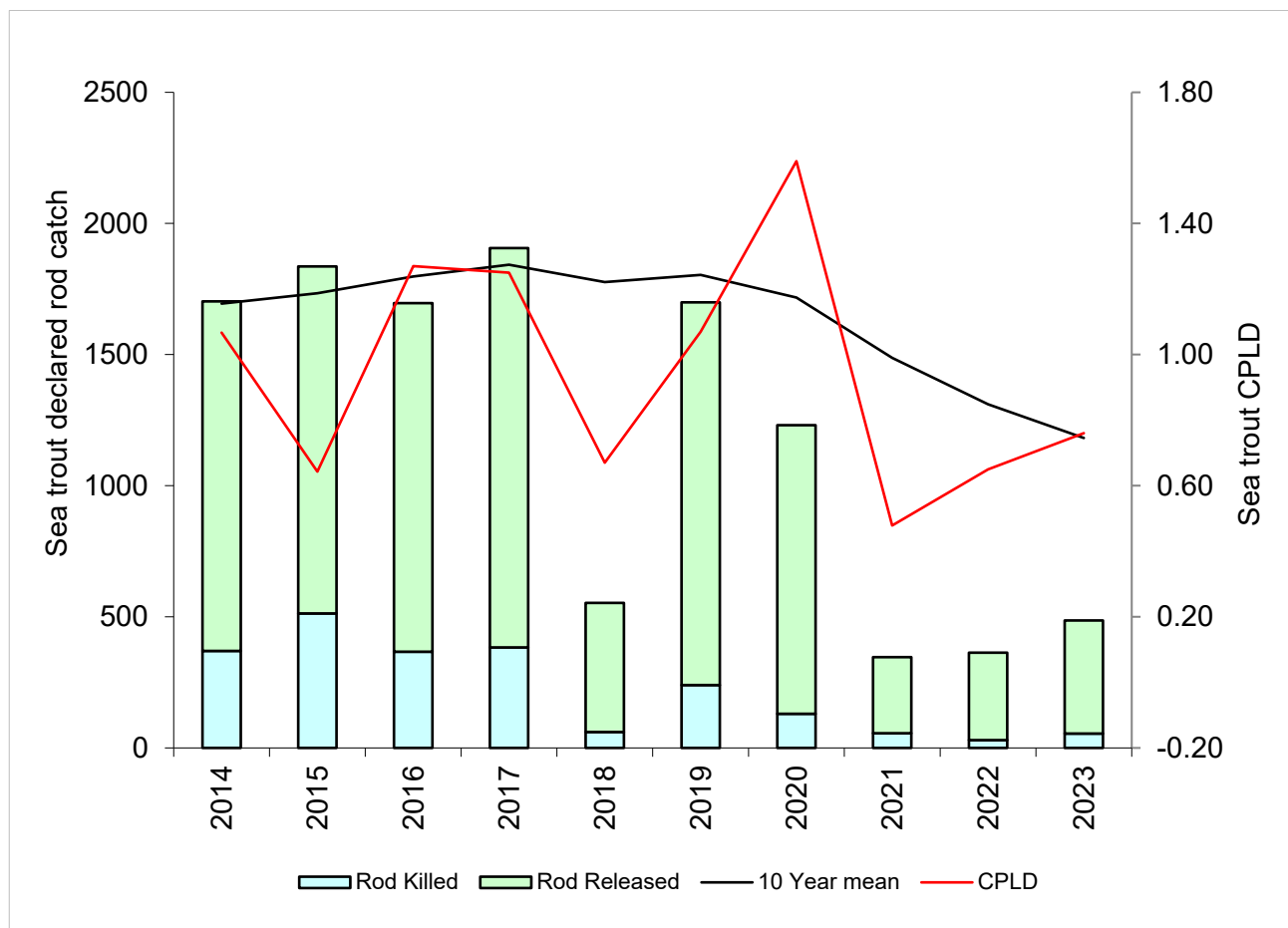
Salmon Rod Catch

Year	Caught	Rod Killed	Rod Released	10 Year mean	Percentage released	Catch per license day
2023	63	0	63	49.7	100	0.100
2022	26	0	26	47.8	100	0.050
2021	33	0	33	59.4	100	0.046
2020	67	0	67	75.8	100	0.089
2019	65	20	45	85.9	69	0.040
2018	53	16	37	87.8	70	0.062
2017	67	24	43	102.2	64	0.044
2016	59	16	43	111.4	73	0.040
2015	39	11	28	126.2	72	0.005
2014	25	7	18	133.7	72	0.012

Sea Trout Rod Catch

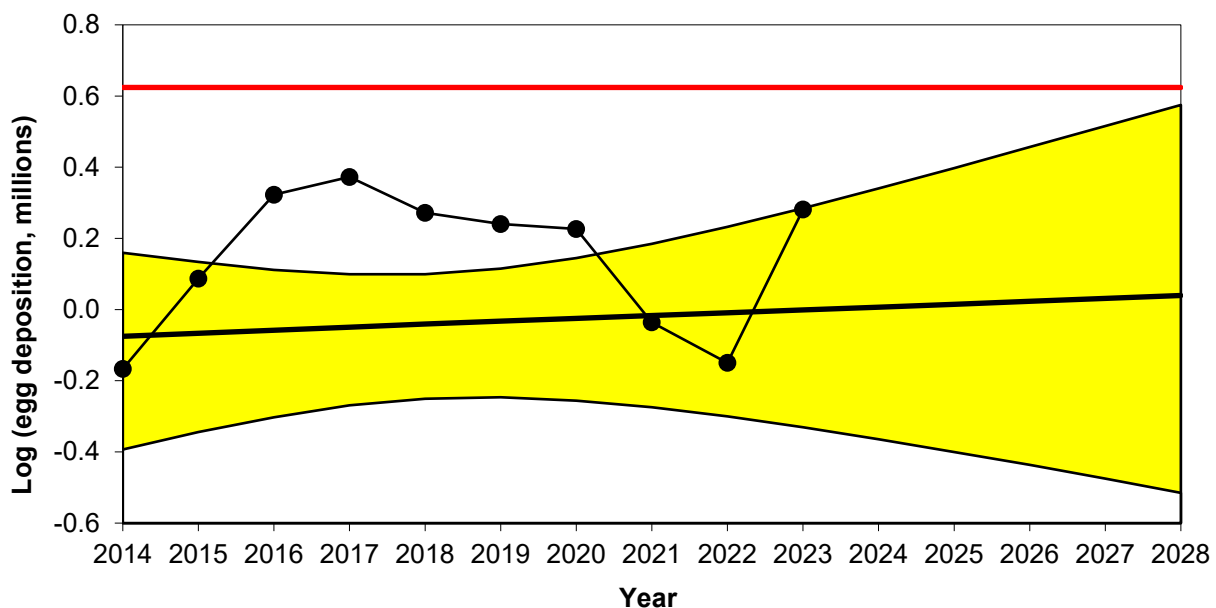| Year	Caught	Rod Killed	Rod Released	10 Year mean	Percentage released	Catch per license day
2023	486	55	431	1181.9	89	0.760
2022	363	30	333	1310.5	92	0.650
2021	346	56	290	1487.6	84	0.479
2020	1231	130	1101	1717.6	89	1.618
2019	1699	240	1459	1803.8	86	1.070
2018	553	61	492	1776.4	89	0.670
2017	1906	383	1523	1842.6	80	1.250
2016	1696	367	1329	1797.9	78	1.270
2015	1836	513	1323	1733.7	72	0.643
2014	1703	370	1333	1694.0	78	1.067

Stock Status

Conservation of Salmon

Salmon stock status is assessed using 'Conservation Limits' which provide an objective reference point against which to assess the status of salmon stocks in individual rivers.

This is calculated by applying assumed angling exploitation rates to catch data to derive run estimates; adopting standard sex ratios and weight-fecundity relationships to generate egg deposition figures. 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. Therefore, 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.

River Dyfi

Estimates of egg deposition, and compliance with conservation limit

Are enough salmon 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 salmon stock. The black trend line and its confidence limits (the yellow band) is fitted to the most recent ten-year series of egg deposition estimates (2014-2023).

- Current number of eggs being deposited puts stocks **at risk**

- In five years' time the predicted status of salmon stocks will be **at risk**

- Based on current data, and the projection of the graph, the stocks of salmon on the Dyfi will continue to **improve (uncertain trend)**
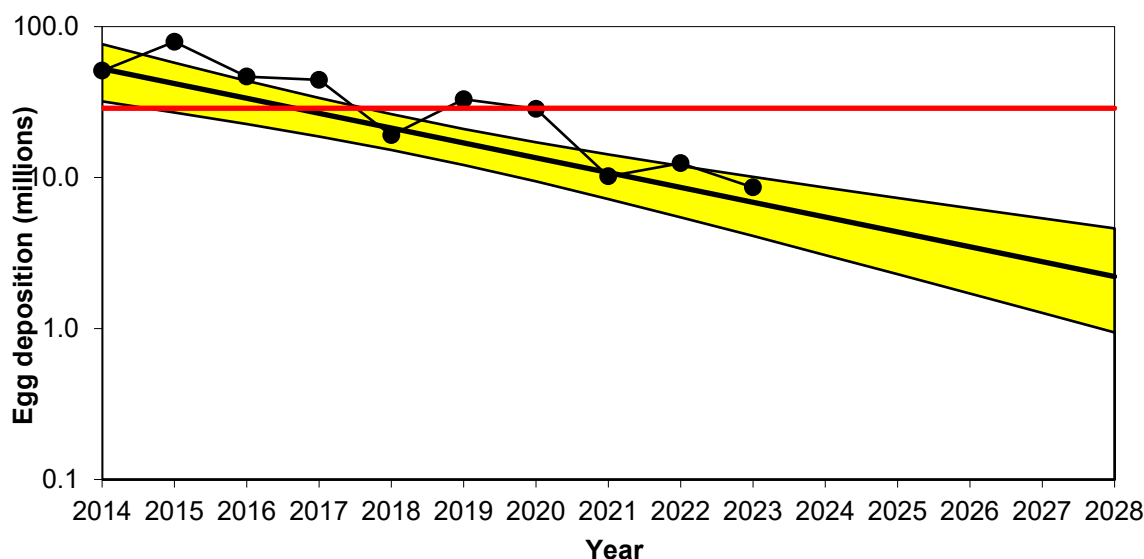
Conservation of Sea Trout

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: Technical case for fishing controls to protect salmon and sea trout).

River Dyfi: Sea trout

Estimates of egg deposition, and compliance with conservation limit

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 ten-year series of egg deposition estimates (2014-2023).

- Current number of eggs being deposited puts stocks **at risk**

- In five years' time the predicted status of sea trout stocks will be **at risk**

- Based on current data, and the projection of the graph, the stocks of salmon on the Dyfi will continue to **decline (downward trend)**

Juvenile Salmonid Monitoring Programme
In 2024 the temporal (annual) programme consisted of four sites on the Dyfi. The temporal data is used to look at trends in juvenile salmon and trout densities giving an indication of how successful spawning has been across the whole catchment.

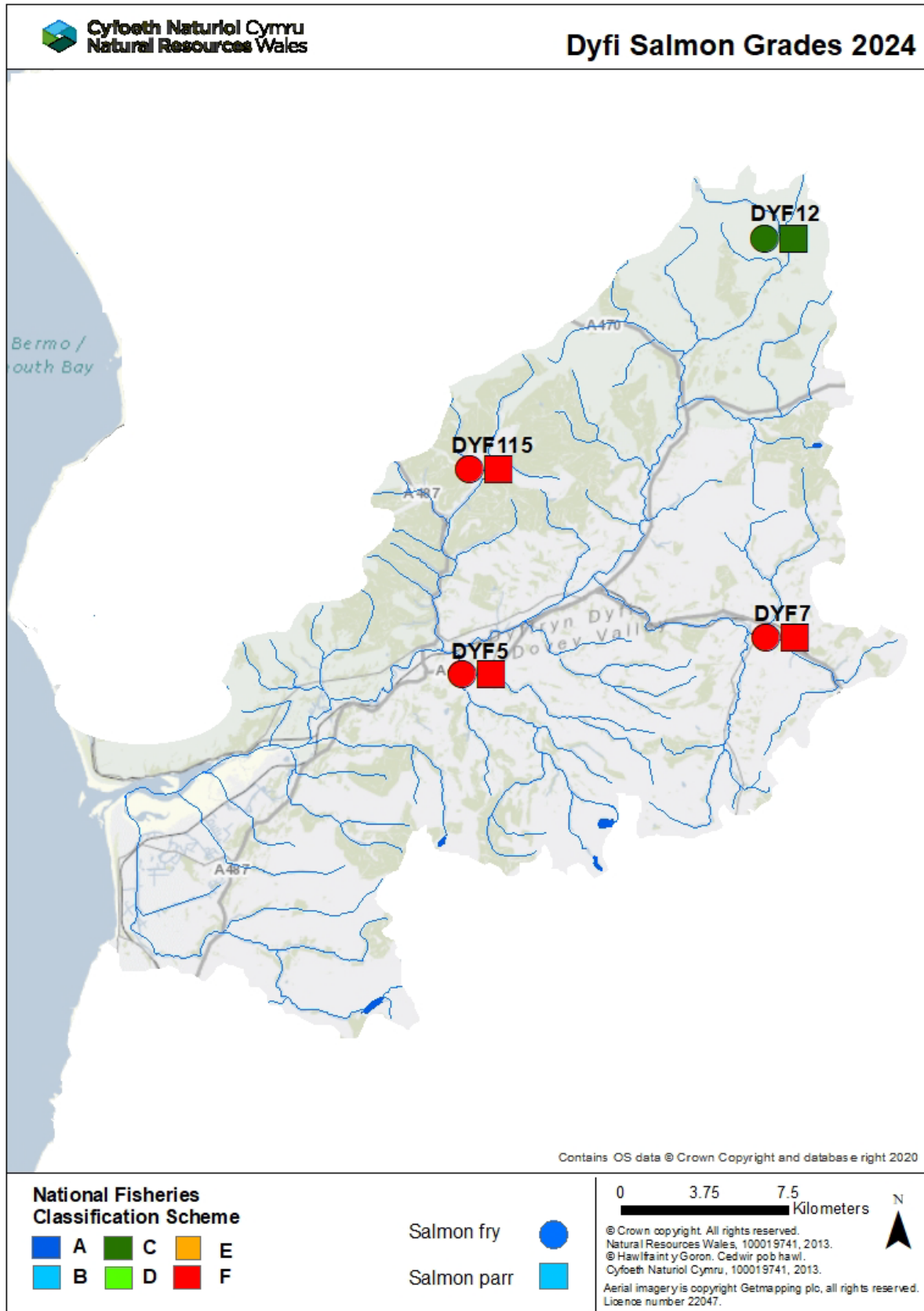**Salmon and Trout Classifications**
The tables/maps below shows the results of the routine juvenile salmonid population surveys from 2024 on the Dyfi.

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	Site code	Year	Salmon fry grade	Salmon parr grade	Trout fry grade	Trout parr grade
Crewi	5	2024	F	F	C	A
Iain	7	2024	F	F	C	C
U. Dyfi	12	2024	C	C	B	B
Dulas N	115	2024	F	F	B	C

Map of Juvenile Salmon Results

Dyfi Salmon Grades 2024

DYF12
DYF115
DYF5
DYF7

National Fisheries Classification Scheme

A B C D E F

Salmon fry
Salmon parr

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0   3.75   7.5
Kilometers

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Map of Juvenile Trout Results

Dyfi Trout Grades 2024

DYF12

DYF115

DYF7

DYF5

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National Fisheries Classification Scheme

■ A	■ C	■ E
■ B	■ D	■ F

Trout fry ●

Trout parr ■

0   3.75   7.5
Kilometers

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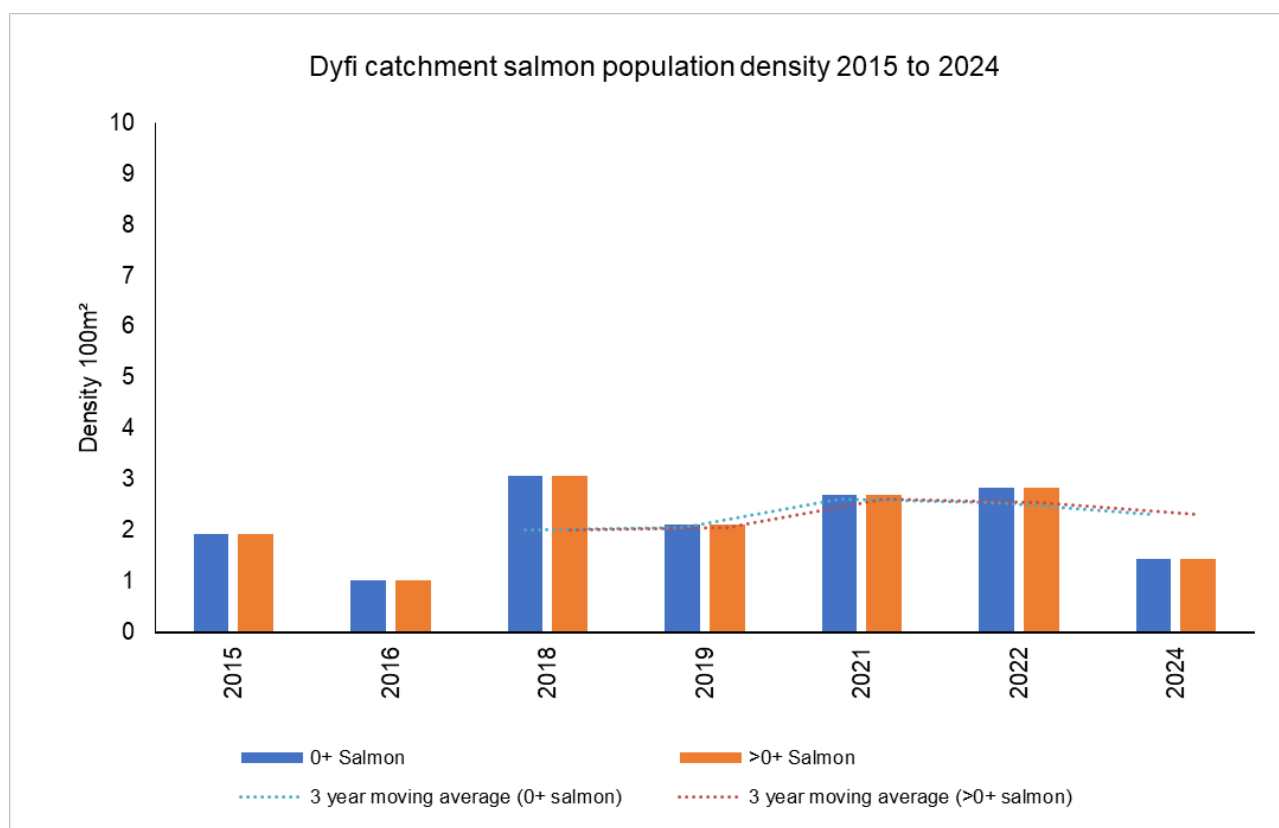Licence number 22047.

Catchment Population Trends

The tables/graphs below show the average salmon and trout densities from the temporal sites across the Dyfi catchment since 2015. NB – 2017 & 2023 were not surveyed due to high flows, 2020 was not carried out due to covid restrictions. The Dulas North is not included in the salmon population trend as the site was not historically accessible to salmon. NA stands for not announced.
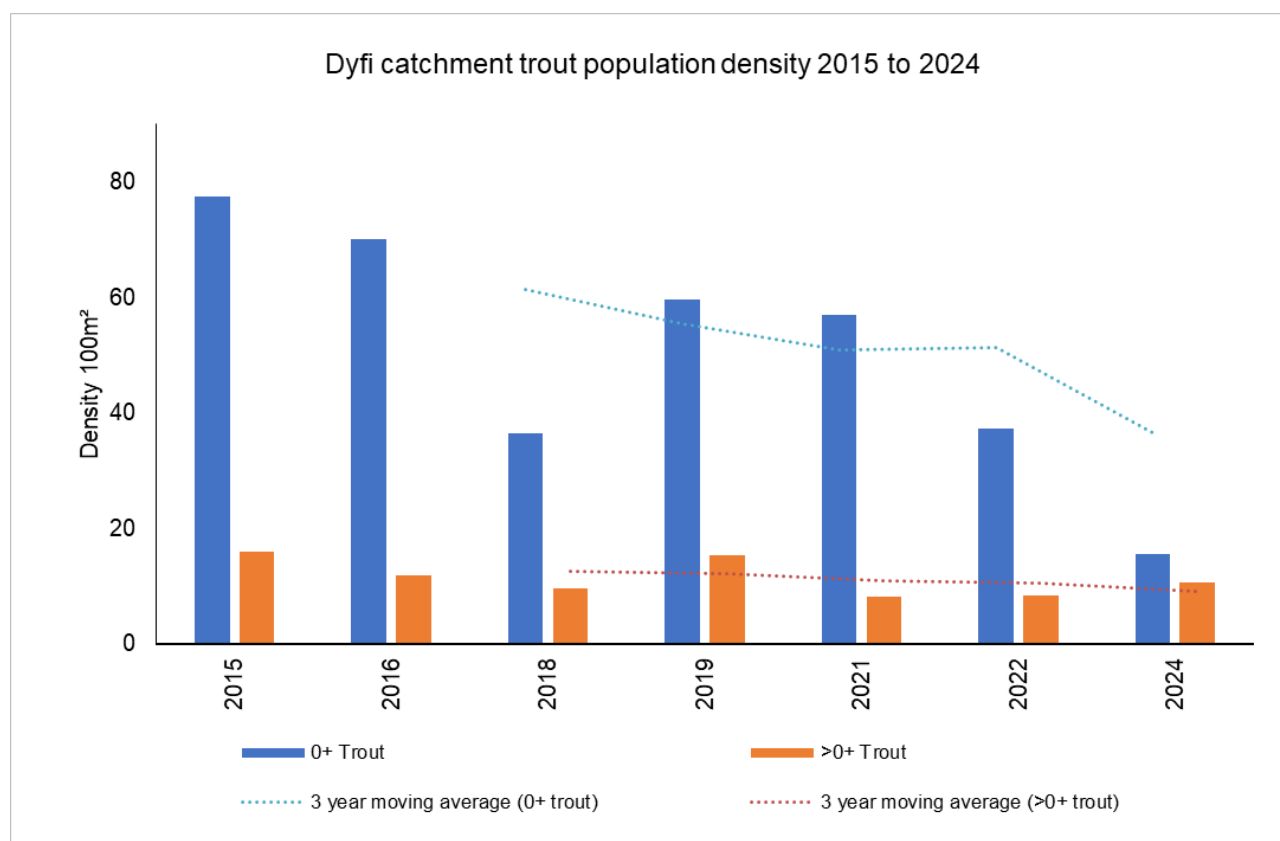
Salmon population trend - Note: Geometric mean has been used to better represent 'normal' densities. One or two high values were making more recent mean values (average) look better than the true picture of low densities. The true picture is now better illustrated.

Year	0+ Salmon	3-year average (0+ salmon)	>0+ Salmon	3-year average (>0+ salmon)
2024	1.4	2.3	0.7	1.8
2022	2.8	2.5	2.7	3.0
2021	2.7	2.6	2.2	2.7
2019	2.1	2.1	4.1	2.7
2018	3.1	2.0	1.6	3.0
2016	1.0	NA	2.4	NA
2015	1.9	NA	5.0	NA

Dyfi catchment salmon population density 2015 to 2024

Trout population trend - Note: Geometric mean has been used to better represent 'normal' densities. One or two high values were making more recent mean values (average) look better than the true picture of low densities. The true picture is now better illustrated.

Year	0+ Trout	3-year average (0+ trout)	>0+ Trout	3-year average (>0+ trout)
2024	15.5	36.6	10.6	9.0
2022	37.3	51.3	8.3	10.6
2021	56.9	50.9	8.1	11.0
2019	59.6	55.4	15.3	12.2
2018	36.4	61.3	9.5	12.5
2016	70.2	NA	11.9	NA
2015	77.5	NA	16.0	NA

Dyfi catchment trout population density 2015 to 2024

Dyfi Fisheries Action Table

Planned actions	Benefits	Lead	Partner(s)	Timescale for delivery
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		On-going
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.	Waterbodies protected and improved WFD waterbodies achieving Good Status/Potential.	NRW	NRW Wildlife trusts Local authorities Landowner DCWW	On-going
Enforcement: Action to reduce illegal activity on information provided and investigations.	Reduce illegal activity, more fish remain in the system.	NRW	Stakeholders North Wales Police	On-going