Know Your River – Dysynni
Salmon & Sea Trout Catchment Summary

Introduction

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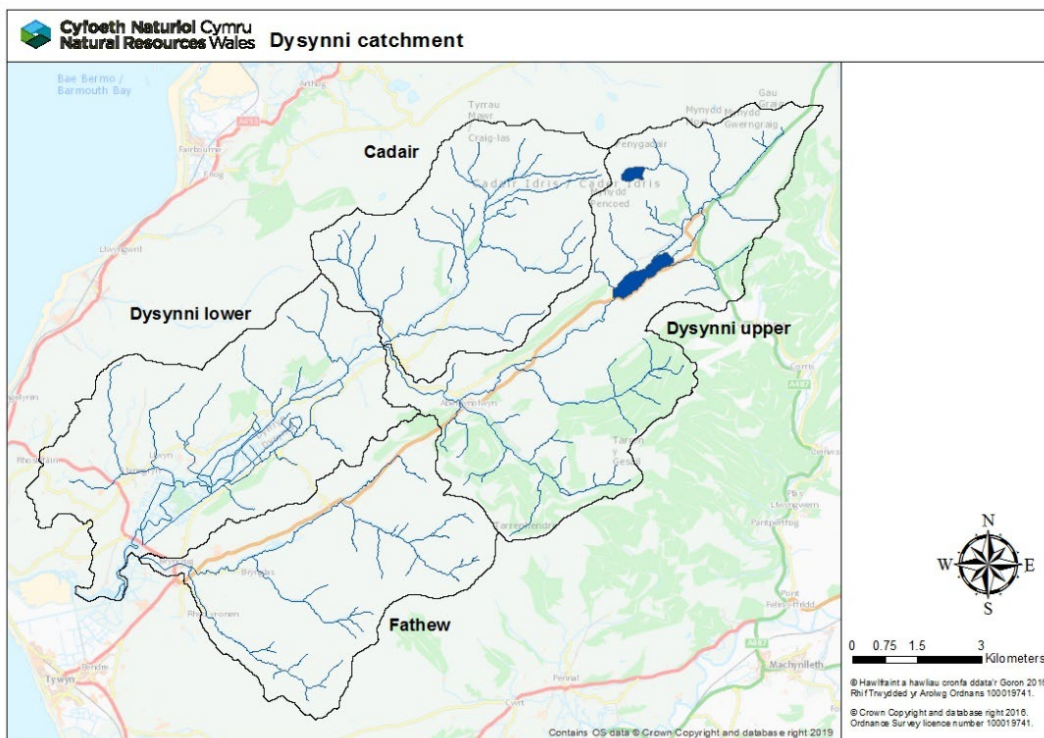
Action tables set out habitat improvements to restore freshwater productivity of salmon and sea trout populations. These tables also include some work which will be carried out by our partner organisations, not just Natural Resources Wales (NRW).

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 principal salmon rivers where, in the past, Salmon Action Plans have been produced, and/or, in SAC rivers, where condition assessments have been undertaken under the Habitats Directive. In addition, the status of various fish species in all our rivers is reported as part of Water Framework Directive (WFD) assessments. This report refers to these commitments. Its purpose is to provide, for our customers, an informative and useful summary of stock status and remedial work planned - specifically for anglers, fishery and land owners; as well as other partners.

Catchment

The Afon Dysynni rises on the slopes of Cadair Idris, draining a predominantly upland catchment (72.2 km^2) into Cardigan Bay, north of Tywyn after flowing a distance of 30.1km. The largest populated area within the catchment is the small town of Tywyn with a population of 2,995 (1991 Census). The catchment is in a predominantly rural area incorporating the Cadir Idris National Nature Reserve and areas of the Dyfi Forest. The main land use within the catchment is upland area sheep grazing, whilst on the lower flood plain the land is predominantly improved pasture. This area requires an enhanced level of drainage and is designated as an Internal Drainage District (IDD).
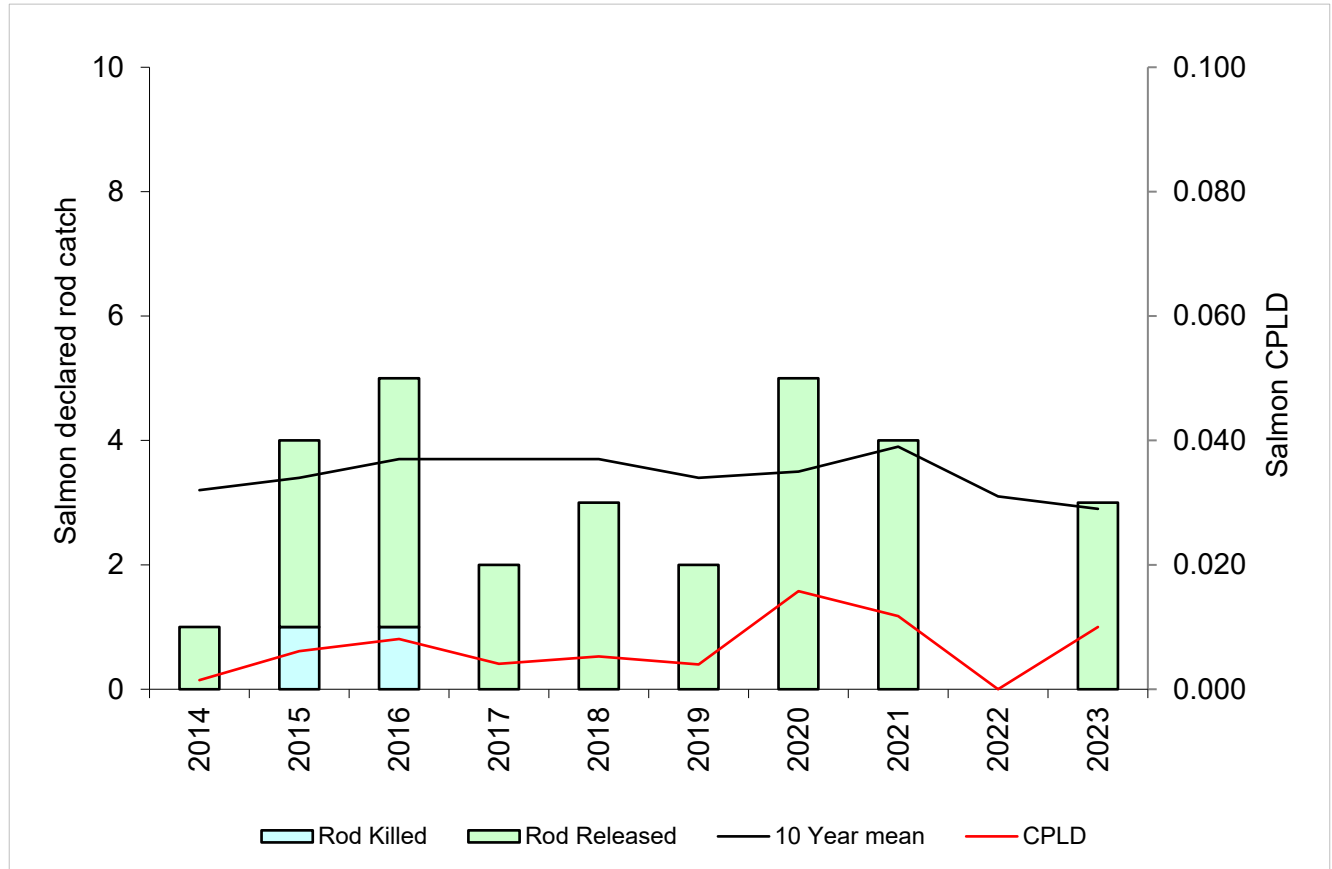
The Dysynni catchment lies on a base of Silurian and Ordovician rocks, resulting in rounded hills and plateaux country much less rugged than that of the Snowdonia National Park that lies to the North. Water quality is poor on a number of river stretches, suffering from low pH values due to acidification that can lead to elevated metal concentrations. Contributing factors to the low pH are the predominance of base poor soils in the catchment with low buffering capabilities and coniferous afforestation.

Rod Catches

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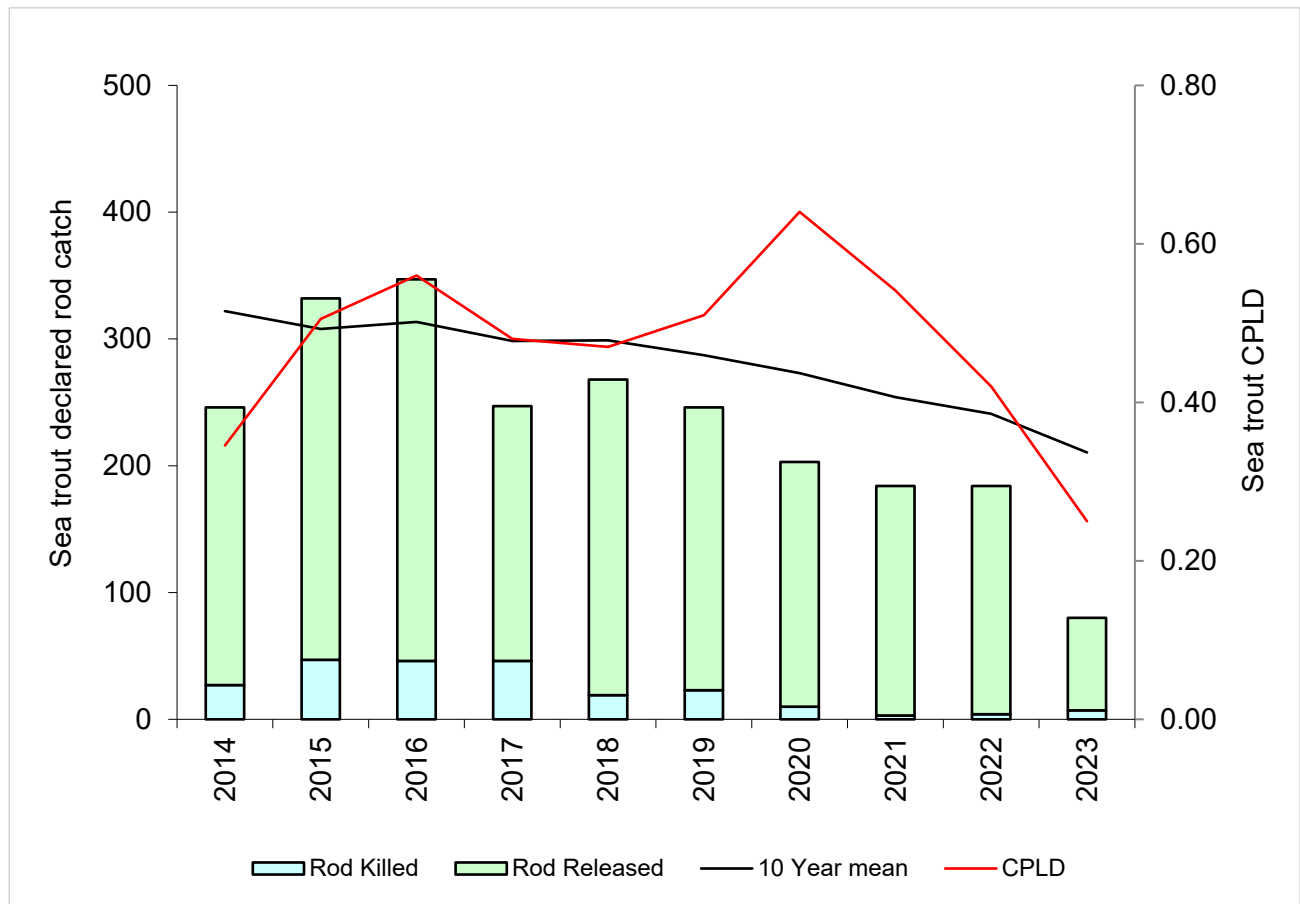
Salmon Rod Catch

Year	Caught	Rod Killed	Rod Released	10 Year mean	Percentage released	Catch per license day
2023	3	0	3	2.9	100	0.01
2022	0	0	0	3.1	100	0
2021	4	0	4	3.9	100	0.012
2020	5	0	5	3.5	100	0.016
2019	2	0	2	3.4	100	0.004
2018	3	0	3	3.7	100	0.005
2017	2	0	2	3.7	100	0.004
2016	5	1	4	3.7	80	0.008
2015	4	1	3	3.4	75	0.006
2014	1	0	1	3.2	100	0.001

Sea Trout Rod Catch

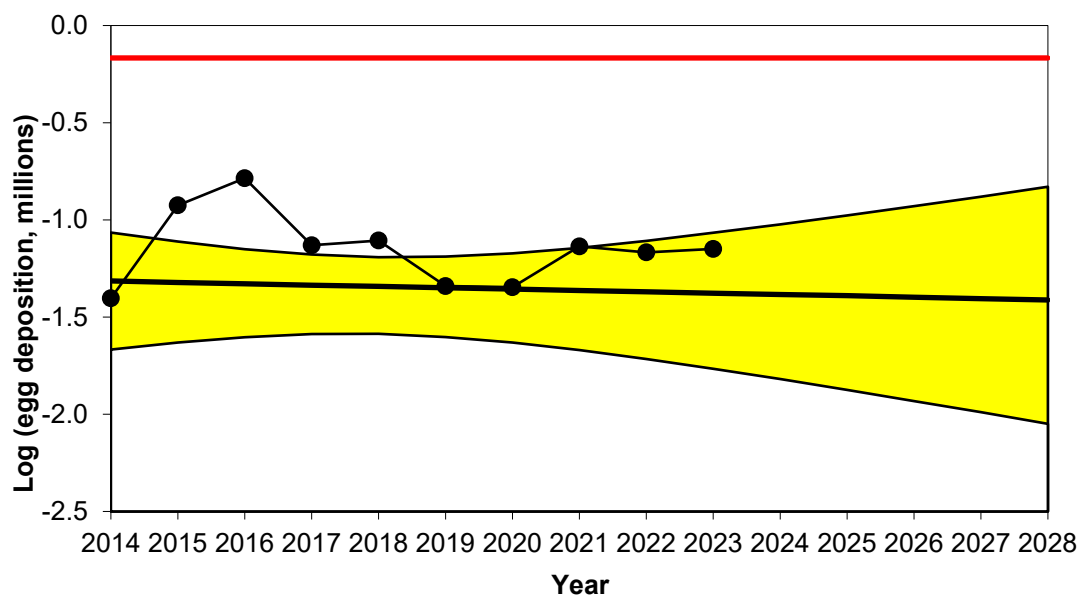| Year	Caught	Rod Killed	Rod Released	10 Year mean	Percentage released	Catch per license day
2023	80	7	73	210.5	91	0.25
2022	184	4	180	241	98	0.42
2021	184	3	181	254.1	98	0.541
2020	203	10	193	273.0	95	0.640
2019	245	23	223	287.2	91	0.510
2018	268	19	249	298.9	93	0.470
2017	247	46	201	298.5	81	0.480
2016	347	46	301	313.5	87	0.560
2015	332	47	285	307.9	86	0.505
2014	246	27	219	322.0	89	0.346

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 conservation limit 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 Dysynni

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 Dysynni will continue to **decline (uncertain trend)**
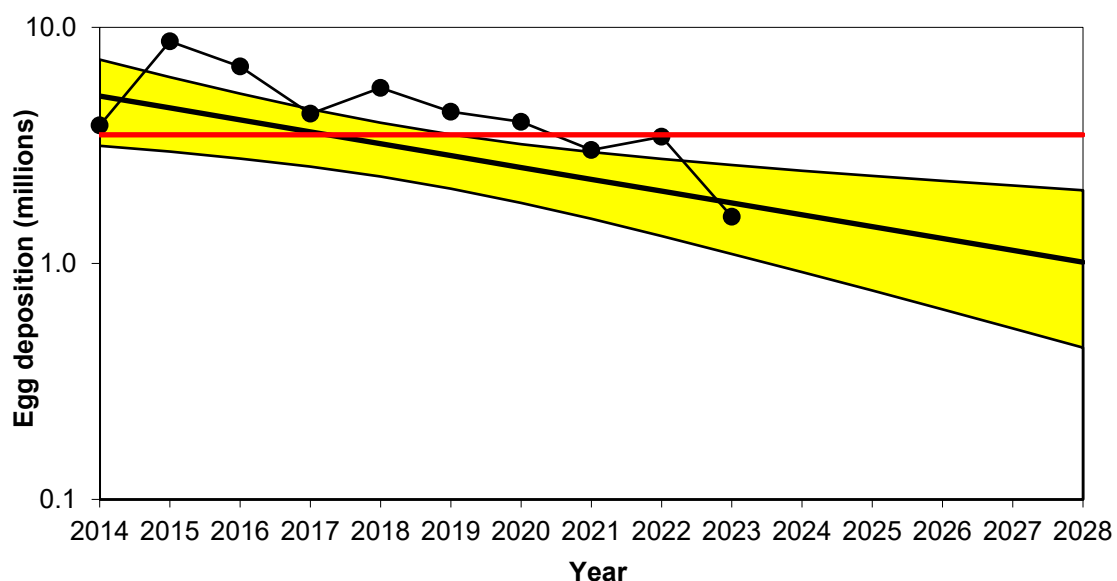
Conservation of Sea Trout

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 Dysynni: 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 sea trout on the Dysynni will continue to **decline (Downward trend)**

Juvenile Salmonid Monitoring Programme

In 2024 the temporal (annual) programme consisted of two sites on the Dysynni, however, neither of these were sampled due to adverse weather conditions. The temporal data is used to look at trends in juvenile salmon and trout densities giving an indication of spawning across the whole catchment.

Salmon and Trout Classification

The table/map below shows the results of the routine juvenile salmonid population survey up to 2022 on the Dysynni.

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
Dysynni	33	2022	D	B	A	D
Dysynni	34	2022	B	D	B	D

Dysynni Juvenile Salmon Grades 2022

Dysynni Juvenile Trout Grades 2022

Dysynni Trout Grades 2022

DYS33

DYS34

National Fisheries Classification Scheme

A C E
B D F

Trout fry

Trout parr

0   1.75   3.5
Kilometers

N

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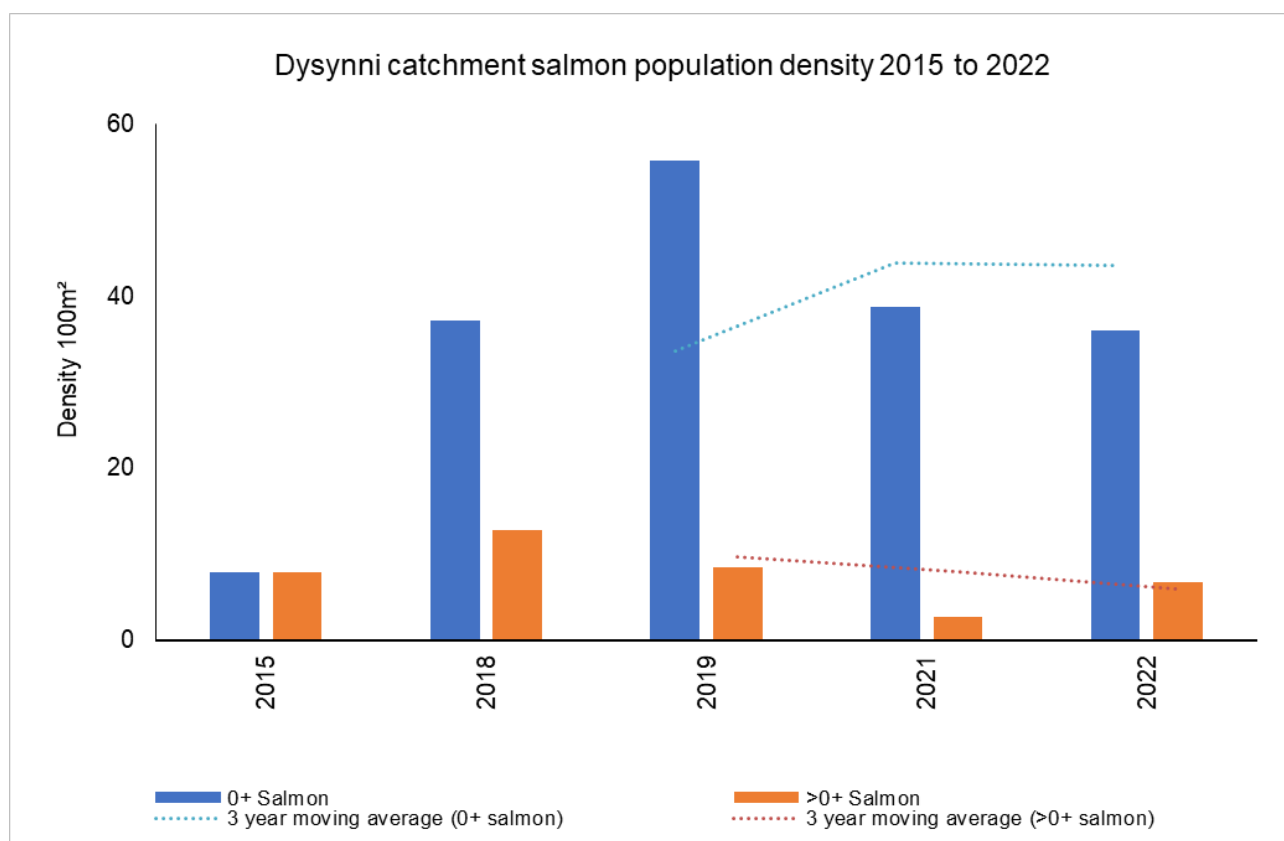Contains OS data © Crown Copyright and database right 2020

Catchment Population Trends

The tables/graphs below show a simple comparison of average salmon and trout densities for the temporal sites on the Dysynni catchment since 2015. Surveys were not carried out in 2016, 2017, 2023 or 2024 due to consistently high flows throughout the summer, covid restrictions halted surveys in 2020. Site 34 is a relatively new annual site and has only been surveyed in 2013, 2018 and 2022. NA stands for not applicable.
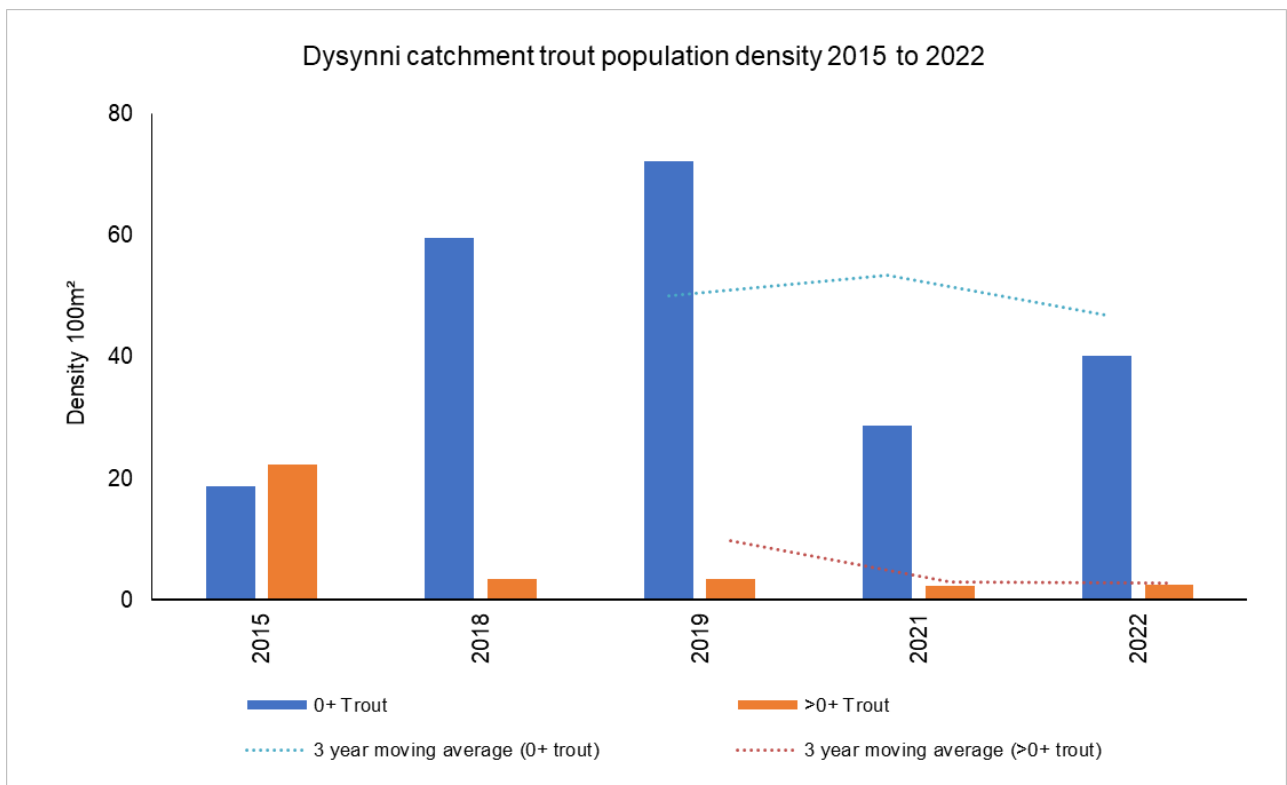
Salmon population estimate - Note: Geometric mean has been used to better represent 'normal' densities. One or two high values were making more recent mean values (average) look better than the true picture of low densities. The true picture is now better illustrated.

Year	0+ Salmon	3-year average (0+ salmon)	>0+ Salmon	3-year average (>0+ salmon)
2022	36.0	43.5	6.8	6.0
2021	38.8	43.9	2.7	8.0
2019	55.8	33.6	8.5	9.7
2018	37.2	NA	12.8	NA
2015	7.9	NA	7.8	NA

Trout population estimate - 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)
2022	40.1	46.9	2.5	2.7
2021	28.6	53.4	2.3	3.0
2019	72.1	50.1	3.4	9.7
2018	59.5	NA	3.4	NA
2015	18.8	NA	22.3	NA

Dysynni Fisheries Action Plan

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