

Salmon stock performance in Wales 2013

1. Introduction

- This report examines salmon stock performance on the 23 principal salmon rivers in Wales for 2013 (including the border rivers Severn, Wye and Dee) based on compliance with Conservation Limits. These rivers are listed in Table 1 and included among the 32 main salmon and sea trout rivers in Wales shown on the map in Fig 1.
- Under Ministerial Direction, each of these 23 rivers (alongside 40 rivers in England - excluding the above border rivers) (i) have produced Salmon Action Plans; (ii) assess and report on compliance with Conservation Limits annually and (iii) utilise the latter in reviewing Net Limitation Orders and byelaws.
- This report fulfils the second of these requirements and informs the third; i.e. it serves to assess the conservation status of individual river stocks and helps to ensure that Natural Resources Wales has appropriate fisheries management measures in place. The latter principally take the form of voluntary or mandatory controls on exploitation by net and rod fisheries as directed by the Decision Structure (Appendix I).
- A more comprehensive annual report on the status of salmon stocks and fisheries in England and Wales - including compliance with Conservation Limits – has been produced jointly by Cefas, the Environment Agency and Natural Resources Wales for 2013. This is also a requirement under Ministerial Direction which, aside from informing domestic fisheries management, fulfils reporting obligations to ICES (the International Council for the Exploration of the Sea) and NASCO (North Atlantic Salmon Conservation Organisation) for the purposes of North Atlantic scale assessment of salmon stock status. This is used to help regulate international fisheries in Greenland and the Faroes, and for the provision of wider management advice.
- The status of sea trout stocks in Wales is examined in an equivalent annual report to this one, but, in the absence of Conservation Limits or similar 'biological reference points' for this species, is based solely on measures of rod fishery performance.

2. Conservation Limits and compliance assessment

- Conservation Limits (CLs) are based on estimates of the salmon producing capacity of individual catchments. They are expressed in terms of egg numbers and are set to help ensure that adequate numbers of fish go on to spawn.
- Compliance assessment involves (i) producing estimates (from rod catches or more direct methods e.g. use of traps or fish counters) of the numbers of salmon returning each year and their likely egg contribution and (ii) undertaking formal statistical assessment of compliance status against the CL. The latter procedure is designed to achieve the 'management objective': that stocks meet or exceed their CL four years out of five, on average.
- Compliance assessment is carried out on a rolling ten-year series of egg deposition estimates (ending with the latest year) and examines the linear trend in egg numbers (projected forward five years in time) as well as the likelihood that a river stock is statistically passing or failing its management objective in any one year.
- River stocks which are statistically passing or failing their management objective (i.e. there is a greater than 95% chance they are in one of these categories) are classed as 'not at risk' or 'at risk', respectively. River stocks in an intermediate position are classed as either 'probably not at

risk' or 'probably at risk' depending on whether the likelihood of them passing their management objective is greater or less than 50%, respectively.

- In terms of the Decision Structure (Appendix I), it is the 'at risk' status projected 5-years beyond the current year which is the most important performance measure, as well as the severity of the upward or downward trend in egg numbers. These statistics, along with compliance status in the current year and angling catch-and-release levels, are summarised in Table 1. Assessment results for the last four years are shown in Table 2 to track changes in projected compliance status from 2015 to 2018.

Table 1 Catch and release statistics, latest 10-year trends in egg numbers, and CL compliance status in the current year (2013) and projected in 5 years time (2018) for the 23 principal salmon rivers in Wales.

Number	River	% Rod released:				Current compliance	Projected compliance	Trend	
		2010	2011	2012	2013	2013	2018		
33	Severn	56.4	61.2	74.3	68.6	Prob at risk	Prob at risk	Uncertain	-
34	Wye	86.0	92.5	100.0	100.0	At risk	Prob at risk	Uncertain	+
35	Usk	64.3	64.2	68.1	70.5	Prob at risk	Prob at risk	Uncertain	--
36	Taff & Ely	79.2	87.3	97.6	100.0	At risk	Prob at risk	Up	+++
37	Ogmore	63.2	77.6	58.1	62.5	At risk	At risk	Uncertain	--
40	Tawe	45.7	33.9	36.9	35.6	At risk	At risk	Down	---
43	Tywi	46.0	44.4	39.5	51.7	Prob at risk	Prob at risk	Uncertain	---
44	Taf	26.5	33.3	30.0	30.0	At risk	At risk	Uncertain	--
45	E&W Cleddau	57.3	45.7	47.4	71.8	At risk	At risk	Uncertain	+
47	Teifi	42.4	46.4	46.9	58.8	Prob at risk	Prob at risk	Uncertain	--
50	Rheidol	44.4	58.1	31.8	72.7	At risk	At risk	Uncertain	--
46	Nevern	18.6	31.8	36.4	60.6	At risk	At risk	Uncertain	--
51	Dyfi	32.1	42.5	34.8	52.3	At risk	At risk	Uncertain	---
52	Dysinni*	25.0	100.0	75.0	80.0	At risk	At risk	Uncertain	-
53	Mawddach	63.2	55.6	60.7	44.4	Prob at risk	Prob at risk	Uncertain	-
55	Dwyrdd*	75.0	0.0	0.0	25.0	At risk	At risk	Down	---
56	Glaslyn	59.1	62.1	73.1	53.2	Prob not at risk	Prob not at risk	Uncertain	+++
57	Dwyfawr*	42.3	43.8	20.0	66.7	At risk	At risk	Uncertain	--
60	Seiont	22.0	47.4	34.5	37.5	At risk	At risk	Down	---
61	Ogwen	40.5	29.8	34.6	22.9	Prob not at risk	Prob at risk	Uncertain	---
62	Conwy	53.2	51.7	53.9	57.7	Not at risk	Prob not at risk	Uncertain	---
63	Clwyd	65.8	71.9	73.7	80.0	Prob at risk	Prob at risk	Uncertain	+
64	Dee	55.3	54.2	74.4	81.2	At risk	At risk	Uncertain	---

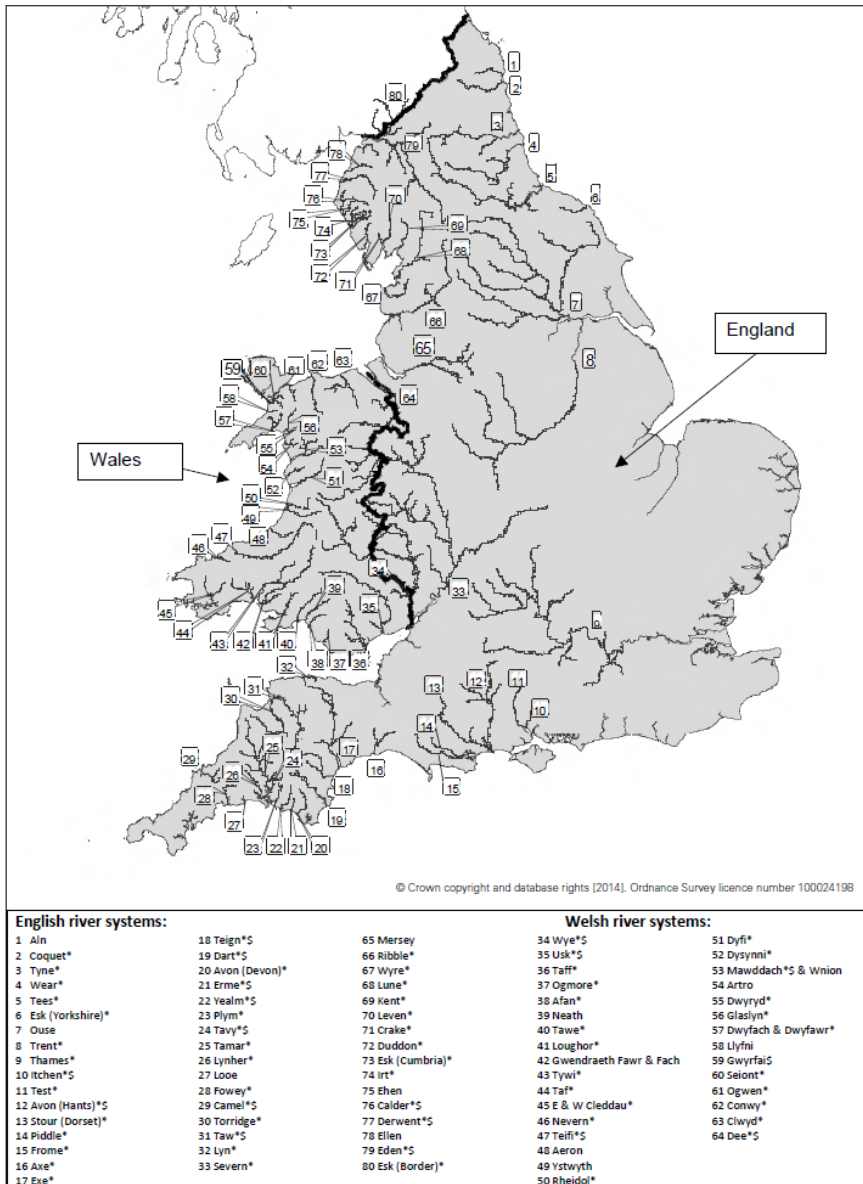
Trend:	
p<0.05	---
p<0.10	--
0.10<=p<0.30	-
0.30<=p<0.50	-
0.70=>p>0.50	+
0.90=>p>0.70	++
p>0.90	+++
p>0.95	+++

* Mean rod catch <20

Table 2 Projected CL compliance status for the latest and previous three assessments (i.e. 2015-2018) for the 23 principal salmon rivers in Wales

Number	River	Projected compliance 2015	Projected compliance 2016	Projected compliance 2017	Projected compliance 2018
33	Severn	Prob at risk	Prob at risk	Prob at risk	Prob at risk
34	Wye	At risk	At risk	At risk	Prob at risk
35	Usk	Prob at risk	Prob at risk	Prob not at risk	Prob at risk
36	Taff & Ely	At risk	At risk	At risk	Prob at risk
37	Ogmore	Prob at risk	Prob at risk	Prob at risk	At risk
40	Tawe	Prob at risk	Prob at risk	Prob at risk	At risk
43	Tywi	Prob not at risk	Prob not at risk	Prob at risk	Prob at risk
44	Taf	Prob not at risk	Prob not at risk	Prob at risk	At risk
45	E&W Cleddau	Prob not at risk	Prob at risk	Prob at risk	At risk
47	Teifi	Prob not at risk	Prob not at risk	Prob at risk	Prob at risk
50	Rheidol	Prob at risk	Prob at risk	At risk	At risk
46	Nevern	Prob at risk	Prob at risk	At risk	At risk
51	Dyfi	Prob at risk	Prob not at risk	Prob at risk	At risk
52	Dysinni*	At risk	At risk	At risk	At risk
53	Mawddach	Prob at risk	Prob not at risk	Prob not at risk	Prob at risk
55	Dwyrdd*	At risk	At risk	At risk	At risk
56	Glaslyn	Prob not at risk	Prob not at risk	Prob not at risk	Prob not at risk
57	Dwyfawr*	At risk	At risk	At risk	At risk
60	Seiont	Prob not at risk	Prob not at risk	Prob at risk	At risk
61	Ogwen	Prob not at risk	Prob not at risk	Prob not at risk	Prob at risk
62	Conwy	Not at risk	Not at risk	Not at risk	Prob not at risk
63	Clwyd	Prob not at risk	Prob not at risk	Prob not at risk	Prob at risk
64	Dee	Prob at risk	At risk	At risk	At risk

Fig 1 Main salmon and sea trout rivers in England and Wales



3. Management response

- In line with the Decision Structure, steps should be taken to significantly reduce or even eliminate net and rod fishery exploitation (i.e. the numbers of fish killed) on those rivers projected to be “at risk” in 5 years time (i.e. 2018 in the current assessment), or “probably at risk with a downward trend”. Where possible (principally on rod fisheries), voluntary measures to control exploitation should be promoted in the first instance before considering mandatory action. For example, for rivers in the ‘at risk’ category, angling catch-and-release (C&R) levels of 90% or more, achieved by voluntary means, would normally be considered an adequate level of control. Once the need for intervention has been identified then usually a maximum a period of three years would be given for C&R levels to meet or exceed the 90% level before mandatory action for 100% C&R is instigated. This requirement may cease if compliance status improves within the 3-year period. For rivers where the long-term (1994-2013) average rod catch is less than 20 salmon (namely the Dysynni, Dwyrhyd and Dwyfawr – see Table 1) mandatory measures will not be required but anglers should still be encouraged to achieve C&R levels of >90% by voluntary means. Timely intervention to protect stocks is particularly important on the SAC rivers for Atlantic salmon (namely: Wye, Usk, Teifi, Mawddach, GwyrfaI and Dee).

- For rivers which have been in the “not at risk” category for 5 consecutive years, consideration should be given to relaxing fishing controls - including on net fisheries, where these exist.
- Recovering rivers should be considered as “at risk” unless assessment information is available and indicates otherwise. Voluntary C&R levels of 100% should be encouraged at the same time as working on the necessary environmental improvements. If these rivers have the potential to develop rod fisheries with average catches of >20 salmon, then mandatory measures may need to be considered.
- Water Framework Directive (WFD) Good Ecological Status (GES) assessments for salmon (where available) for catchment water bodies should be considered alongside CL compliance results as part of the management decision making process.

Appendix I: Developing fishing controls for salmon fisheries in England & Wales (“The Decision Structure”)

