Salmon Stocks and Fisheries in England and Wales in 2022

Cefas

Centre for Environment Fisheries & Aquaculture Science

Environment Agency

Cyfoeth Naturiol Cymru
Natural Resources Wales

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Preliminary assessment prepared for ICES, March 2023

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FOREWORD

Annual reports on the status of salmon stocks and fisheries in England and Wales have been produced since 1997. These reports present a preliminary assessment for the most recent year to assist the International Council for the Exploration of the Sea (ICES) in providing scientific advice to the North Atlantic Salmon Conservation Organisation (NASCO) and to provide early feedback to fishery managers and anglers. The list of questions posed by NASCO to ICES for consideration in 2023 is provided at Annex 1 of this report.

For much of the period, the annual reports were prepared by the Centre for Environment, Fisheries and Aquaculture Science (Cefas) and the Environment Agency. However, from 1 April 2013, the functions of the Environment Agency in Wales were transferred to Natural Resources Wales (Cyfoeth Naturiol Cymru) (NRW). This body is now responsible for salmon management and regulation in Wales. All three organisations have therefore contributed to production of the annual assessment reports since 2013.

Until 2013, each annual assessment report was designed to stand alone to avoid the need to refer to previous reports for background information. However, this resulted in much of the descriptive text being very similar from year to year. From 2014, therefore, and in the interest of streamlining procedures, the report has been split into two separate documents. A Background Report provides the regulatory framework and describes the various methods and approaches used in the assessment process (Cefas, Environment Agency and Natural Resources Wales, 2023); the Background report therefore changes relatively little from year to year. The report describing the most recent annual assessment (this report) then provides a relatively short description of developments in the most recent year together with updated tables and figures. Both reports are available online on the Gov.UK website.

It should be noted that data for the most recent year are provisional and will be updated and confirmed once complete catch data are obtained and records validated. The final confirmed reported catch data for the most recent year will be included in the annual compilation of catch statistics published by the Environment Agency and NRW later in the year (e.g., Environment Agency, 2022: also available at GOV.UK: www.gov.uk/government/publications/salmonid-and-freshwater-fisheries-statistics-2021/salmonid-and-fisheries-statistics-for-england-and-wales-2021) and final assessments will be published in next year's version of this report.

HIGHLIGHTS FOR 2022

- The provisional declared salmon catch by nets and fixed engines in 2022 was 565 fish (2.4 t). This was 22% lower than the catch in 2021 and well below (88%) the average of the previous five years. The largest percentage contribution to net catches of salmon in 2022 was made in the North West (44%) of England, followed by Wales (41%), the North East (13%), the Midlands (2%), and the South West (1%). All net caught salmon were released alive in line with national byelaws. There has been a marked decline in net catches over the past 20 years due to a reduction in stock abundance as well as increased regulatory controls. However, the closure of many salmon net fisheries and implementation of mandatory catch-and-release (C&R) in others in England and Wales since 2019 has accelerated this trend.
- The provisional declared rod catch in 2022 was 6,303 fish (27.0 t). This was 8% more than the final declared catch for 2021 but the second lowest (5,814 fish in 2021) in the time series (since 1988). The catch of 1SW salmon (grilse) was 42% below the average of the previous five years and the second lowest in the time series, and the catch of multi-sea-winter (MSW) salmon was 39% below the average of the previous five years and the ninth lowest in the time series.
- Environmental conditions for returning adult salmon, and for angling, in 2022 were less favourable than those experienced over the preceding five years due to prolonged hot, dry weather, from spring to autumn resulting in low flows and high temperatures, particularly in South West England and Wales.
- Since 1993, rod catches have included an increasing proportion of fish that have been caught and released. In 2022, it is provisionally estimated that 6,032 salmon (96% of the catch) were released across England and Wales, which is the highest percentage ever recorded. This rate reflects the implementation of both voluntary and mandatory exploitation control measures. Released fish are estimated to have contributed about 12 million eggs to the breeding populations.
- Returning stock estimates and counts for 8 out of 11 rivers (73%) in 2022 were below the values recorded in 2021, with estimated returns being the lowest in the time series for 2 rivers (Itchen and Taff). Increases in returns compared to those reported in 2021 were observed on 3 rivers (27%; Teifi, Tyne, and Frome). Overall, there has been a marked decline in the numbers of returns to most rivers over the last decade, particularly in the South West, Wales, and North West. However, for a number of rivers in southern England, there is evidence of stocks stabilising and showing slight signs of recovery.
- Egg deposition levels in 2022 were estimated to be above the Conservation Limit (CL) on 8 out of the 64 Principal Salmon Rivers in England and Wales (14%), which is the lowest in the 30-year time series. Rivers where egg deposition levels were below the CL were widely distributed across England and Wales.
- Formal compliance assessment in the current year (2022) classified 1 river as 'not at risk' (≥95% probability of achieving the management objective (MO) – namely to meet or exceed the CL in at least 4 years out of 5, on average), 5 rivers (8%) as 'probably not at risk' (50-94% probability of achieving the MO), 7 rivers (11%) as 'probably at risk' (5-49% probability of achieving the MO), and 51 rivers (80%) as 'at risk' (≤5% probability of achieving the MO). The percentage of rivers in the latter 'at risk' category was the joint-highest in the time series.

- New regulatory provisions that came into force in 2019 and 2020 in England and Wales, respectively, have substantially reduced the retention of salmon. The measures included the closure of many net fisheries and mandatory C&R in all others. In many rod fisheries, there were increased levels of C&R, some mandatory and others voluntary, although further progress still needs to be made on some river catchments. Concomitant byelaws on the rivers Usk, Wye, and Severn were either renewed or introduced in 2021, requiring all salmon to be released, and restricting angling methods to promote the survival of released fish.
- Salmon returning to rivers with swollen and/or bleeding vents (Red Vent Syndrome) continued to be observed in 2022, with the percentage of incidences on the River Dee being the highest in the time series since 2004. One credible, but unconfirmed, reported capture of pink salmon in England and Wales was made on the River Lune in 2022.

REPORT ON SALMON FISHERIES IN 2022

1. DESCRIPTION OF STOCKS AND FISHERIES

There are 49 rivers in England and 31 rivers in Wales that regularly support salmon, although some of the stocks are very small and support minimal catches. Of these, 64 rivers were designated 'Principal Salmon Rivers' on the basis of the prospect of annual rod catches of at least 50 fish around the time (~1996) of the development of Salmon Action Plans (SAPs) (Figure 1). These plans reviewed the status of stocks and fisheries, identified the main factors limiting performance, and proposed and costed remedial measures. Conservation Limits (CLs) and Management Targets (MTs) have been set for these Principal Salmon Rivers in England and Wales and are used to inform annual advice on stock status and to assess the need for management and conservation measures.

Rod fishing for salmon is permitted on all rivers supporting salmon stocks, with net or fixed engine fisheries for sea trout operating on a proportion of these – usually in estuaries and coastal waters. Descriptions of the different salmon fishing methods employed in England and Wales can be found in the Background Report (Cefas, Environment Agency and Natural Resources Wales, 2023).

Many of the tables and figures presented in this report summarise statistics for England and Wales at a regional level. Following a reorganisation in 2014, the Environment Agency ceased to operate on a regional basis. However, in the interests of maintaining existing time series, data are still aggregated and reported by region in this report. The full statistics, reported on a river-by-river basis, are provided in the catch statistics reports which are published annually by the Environment Agency and NRW. A list of the individual salmon rivers falling within each region is provided in Table 1.

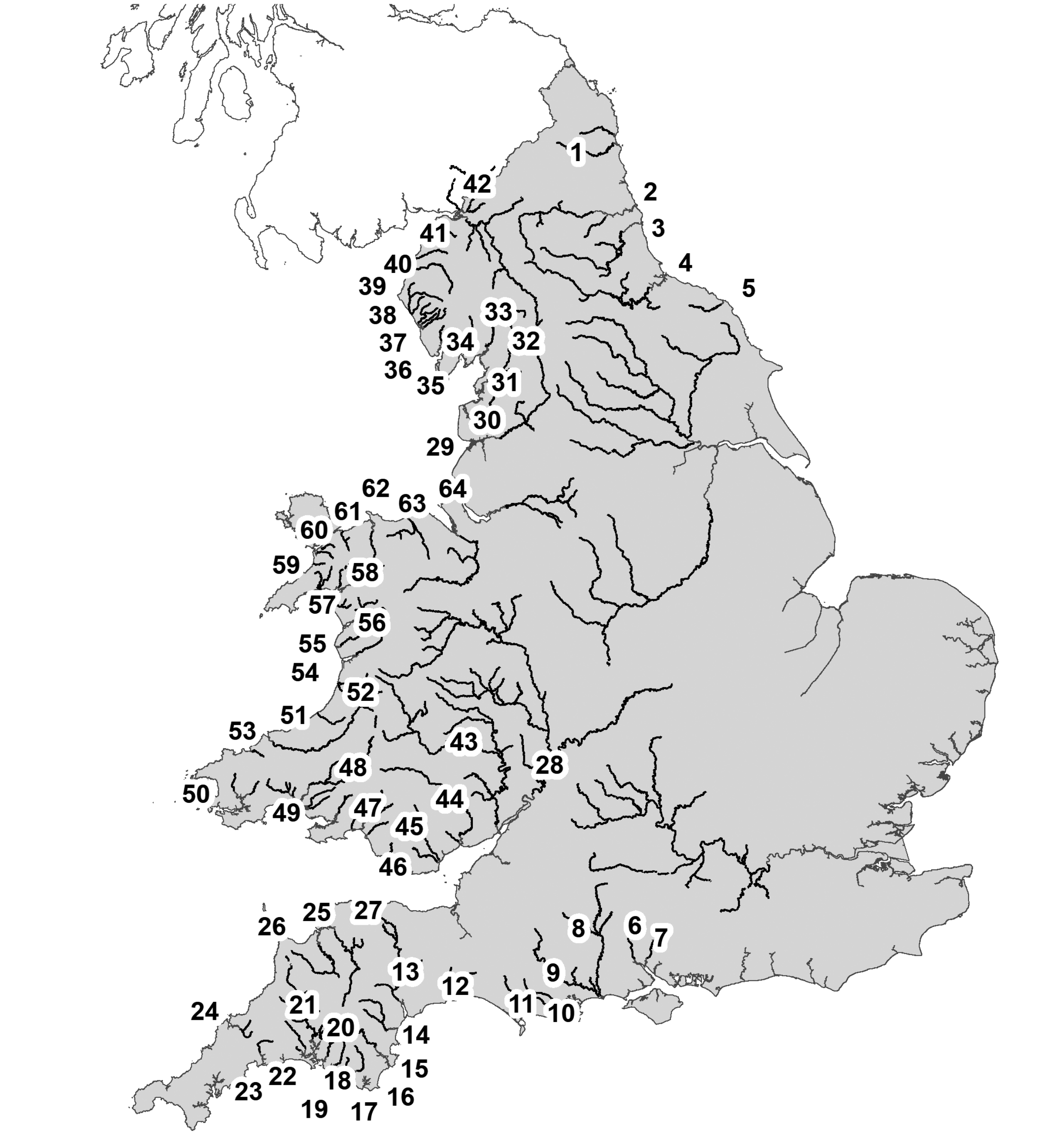
Table 1. The main salmon rivers in England and Wales aggregated by their former regional jurisdictions. The table also provides details of those rivers with Salmon Action Plans* (SAPs) and those designated as Special Areas of Conservation (SAC) for which salmon are a qualifying species

Country	Region (pre 2014)	Region (pre 2011 where different)	Principal Salmon River	Other salmon river	SAP for river *	SAC designation	Comments
England	North East			Aln	No	No	
			Coquet		Yes	No	
			Tyne		Yes	No	
			Wear		Yes	No	
			Tees		Yes	No	
			Yorkshire Esk		Yes	No	
	Anglian				No	No	No salmon producing rivers, but had a coastal fishery for salmon.
	South East	Thames		Thames	Yes	No	
		Southern	Itchen		Yes	Yes	
			Test		Yes	No	
	South West		Hampshire Avon		Yes	Yes	
			Stour		Yes	No	
			Piddle		Yes	No	
			Frome		Yes	No	
			Axe		Yes	No	
			Exe		Yes	No	
			Teign		Yes	Yes	
			Dart		Yes	Yes	
			Avon (Devon)		Yes	No	
			Erme		Yes	Yes	
			Yealm		Yes	Yes	
			Plym		Yes	No	
			Tavy		Yes	Yes	

Table 1. continued

Country	Region (pre 2014)	Region (pre 2011 where different)	Principal Salmon River	Other salmon river	SAP for river *	SAC designation	Comments
			Tamar		Yes	No	
			Lynher		Yes	No	
				Looe	No	No	
			Fowey		Yes	No	
			Camel		Yes	Yes	
			Taw		Yes	Yes	
			Torridge		Yes	No	
			Lyn		Yes	No	
	Midlands			Ouse	No	No	
				Trent	Yes	No	
			Severn		Yes	No	
	North West			Mersey	No	No	
			Ribble		Yes	No	
			Wyre		Yes	No	
			Lune		Yes	No	
			Kent		Yes	No	
			Leven		Yes	No	
			Crake		Yes	No	
			Duddon		Yes	No	
			Esk (Cumbria)		Yes	No	
			Irt		Yes	No	
			Ehen		Yes	Yes	
			Calder		Yes	No	
			Derwent		Yes	Yes	
				Ellen	No	No	
			Eden		Yes	Yes	
			Esk (Border)		Yes	No	
Wales	Welsh		Wye		Yes	Yes	
			Usk		Yes	Yes	
			Taff		Yes	No	
			Ogmore		Yes	No	
				Afan	Yes	No	
				Neath	No	No	
			Tawe		Yes	No	
				Loughor	Yes	No	
				Gwendraeth Fawr & Fach	No	No	
			Tywi		Yes	No	
			Taf		Yes	No	
			E & W Cleddau		Yes	No	
			Nevern		Yes	No	
			Teifi		Yes	Yes	
				Aeron	No	No	
				Ystwyth	No	No	
			Rheidol		Yes	No	
			Dyfi		Yes	No	
			Dysynni		Yes	No	
			Mawddach		Yes	Yes	
				Wnion	No	No	
				Artro	No	No	
			Dwyryd		Yes	No	
			Glaslyn		Yes	No	
			Dwyfach & Dwyfawr		Yes	No	
				Llyfni	No	No	
				Gwyrfai	No	Yes	
			Seiont		Yes	No	
			Ogwen		Yes	No	
			Conwy		Yes	No	
			Clwyd		Yes	No	
			Dee		Yes	Yes	

Notes: *Those rivers designated as SACs have salmon identified as a qualifying species in all or part of the catchment. This confers additional protection measures specifically for salmon in these rivers and any associated on-line lakes. In some of these rivers, salmon are a primary reason for SAC designation.*
** Salmon Action Plans in Wales are now referred to as 'Know Your Rivers' reports.*



English river systems

1 Coquet*	15 Dart*$	29 Ribble*
2 Tyne*	16 Avon (Devon)*	30 Wyre*
3 Wear*	17 Erme*$	31 Lune*
4 Tees*	18 Yealm*$	32 Kent*
5 Esk (Yorkshire)*	19 Plym*	33 Leven*
6 Test*	20 Tavy*$	34 Crake*
7 Itchen*$	21 Tamar*	35 Duddon*
8 Avon (Hants)*$	22 Lynher*	36 Esk (Cumbria)*
9 Stour (Dorset)*	23 Fowey*	37 Irt*
10 Piddle*	24 Camel*$	38 Ehen*$
11 Frome*	25 Taw*$	39 Calder*
12 Axe*	26 Torridge*	40 Derwent*$
13 Exe*	27 Lyn*	41 Eden*$
14 Teign*$	28 Severn*	42 Esk (Border)*

Welsh river systems

43 Wye*$	55 Dysynni*
44 Usk*$	56 Mawddach*$ & Wnion*
45 Taff*	57 Dwyryd*
46 Ogmore*	58 Glaslyn*
47 Tawe*	59 Dwyfach & Dwyfawr*
48 Tywi*	60 Seiont*
49 Taf*	61 Ogwen*
50 E & W Cleddau*	62 Conwy*
51 Nevern*	63 Clwyd*
52 Teifi*$	64 Dee*$
53 Rheidol*	
54 Dyfi*	

Figure 1. Map of England and Wales showing the Principal Salmon Rivers (*) and those designated as Special Areas of Conservation ($) in which salmon must be maintained or restored to favourable conservation status.

2. FISHERY REGULATION MEASURES

Salmon fisheries in England and Wales are primarily regulated by effort controls, which specify the nature of the gear that may be operated, along with where, when, and how it may be used. A full description of these controls is provided in the Background Report (Cefas, Environment Agency and Natural Resources Wales, 2023); summary details of the current Net Limitation Orders (NLOs) and byelaws related to rod fisheries are provided in this report at Annex 2 and Annex 3, respectively. The following tables summarise some of the other current controls:

- Table 2 provides details of the statutory rod bag limits and catch limits on net and fixed engine fisheries currently in force.
- Table 3 summarises the progress in phasing out net fisheries including those fisheries that exploited predominantly mixed stocks where our capacity to manage individual stocks is compromised. A policy to phase out such fisheries has been in place since 1996 (see Background Report (Cefas, Environment Agency and Natural Resources Wales, 2023) for further details).
- Table 4 provides details of other arrangements to reduce netting effort operating in 2022, principally by a mandatory requirement to release fish alive or by compensating netters not to fish for the periods shown.
- Table 5 provides a summary of the effort restrictions recorded in Table 3 and Table 4 over the available time series, 1993 – present.

In response to the widespread decline in stocks of early-running multi-sea-winter (MSW) salmon, national measures were first introduced in 1999 to reduce the exploitation of this stock component. Most net fisheries were prohibited from fishing for salmon before 1 June, with a small number allowed to continue where netting was predominantly for sea trout, on the basis that any salmon caught were returned alive. The national measures also introduced mandatory catch-and-release (C&R) of salmon by anglers prior to 16 June and imposed other method restrictions. In 2009 and again in December 2018, the measures were approved for continuation in England for a further 10 years, subject to a mid-term review (Salmon and Sea Trout Protection Byelaws, 2018). This mid-term review will be conducted after the conclusion of the present review and update of the current national salmon stock assessment process. This review has, however, not prevented the implementation of new measures to protect salmon stocks if there has been a need to renew a Net Limitation Order (NLO) or if the status of the salmon stock on an individual Principal Salmon River has indicated the need for urgent intervention. In Wales, the same measures were retained in 2019 by emergency byelaw and the most recent byelaws came into force in January 2020 to ensure the continued protection of stocks. A brief evaluation of the effect of these measures is included in Section 4.

In response to ongoing declines in stock status, further controls on exploitation by both nets and rods have been developed separately on some river catchments in England and Wales over the last three years (see Annex 2 and 3).

Measures introduced in England under the Salmon and Sea Trout Protection Byelaws in December 2018 required the closure of a number of net fisheries and mandatory C&R in others (Table 3). Where a net fishery is allowed to continue to operate for sea trout, any salmon caught must be released alive. Mandatory C&R is required for anglers on rivers that have a byelaw prohibiting the retention of salmon and are classed as 'at risk', based on the projected status of stocks for 2022 as assessed in 2017, and on all recovering rivers in England; high levels of voluntary C&R (>90%) are also occurring in rod fisheries on rivers designated as ‘probably at risk’. The Environment Agency further reviewed rivers in England in both 2020 and 2021 to evaluate whether the requirements and targets are being achieved. Of the 38 Principal Salmon Rivers in England that reported a catch of salmon in 2021, 13 (34%) had 100% C&R rates after 16 June (6 of which are also subject to other mandatory river-specific exploitation controls) and all those classed as ‘at risk’ in the 2017 assessment complied with the mandatory C&R requirement. In contrast, 7 rivers designated as ‘probably at risk’ in the 2017 assessment did not comply with the voluntary C&R (>90%) target after 16 June in 2021, and the status of 5 of these river stocks has declined since 2017. As a result, the Environment Agency will consider whether to persist with the voluntary measures or implement mandatory C&R byelaws to improve the protection of stocks.

‘All Wales’ and ‘Cross-Border (Wye and Dee)’ fishery byelaws have been introduced in Wales. The byelaws will run for 10 years from January 2020 (with a 5-year mid-term review), and consequently all salmon caught by net and rod fisheries must be released alive with the minimum of injury and delay.

Full details of the regulatory provisions are provided in the Background Report (Cefas, Environment Agency and Natural Resources Wales, 2023).

Table 2. Statutory rod bag limits and catch limits on net and fixed engine fisheries in force for salmon in 2022.

EA Region / NRW	Rod fishery bag limits					Net/FE catch limits	
	River	Salmon Bag Limits - per			Other constraints	Fishery	Measure
		day	week	season			
North East		No bag limits apply			Mandatory catch-and-release of salmon before 16 Jun. Limits on hook size when night fishing (all season). Prohibition on fishing near certain obstructions at night 1 Sept-30 Nov and at all times at certain named obstructions.	Drift nets	Fishery closed through National Salmon and Sea Trout Protection byelaws 2018.
North East		No bag limits apply			Mandatory catch-and-release of salmon before 16 Jun. Limits on hook size when night fishing (all season). Prohibition on fishing near certain obstructions at night 1 Sept-30 Nov and at all times at certain named obstructions.	T & J net / T net	Sea trout fishery only, mandatory release of all salmon.
Anglian		No bag limits apply			Mandatory catch-and-release of salmon before 16 Jun.	Drift	Sea trout fishery only, mandatory release of all salmon.
South East	Thames	2			No salmon may be retained. Mandatory 100% catch-and-release.		
South West	Taw				Mandatory catch-and-release of salmon before 16 Jun.	Seine	Fishery closed through National Salmon and Sea Trout Protection byelaws 2018.
	Torridge				Mandatory catch-and-release of salmon before 16 Jun.	Seine	Fishery closed through National Salmon and Sea Trout Protection byelaws 2018.
	Tavy				Mandatory catch-and-release of salmon before 16 Jun.	Tavy seine nets	Fishery closed through National Salmon and Sea Trout Protection byelaws 2018.
	Tamar				Mandatory catch-and-release of salmon before 16 Jun.	Tamar seine nets	Fishery closed through National Salmon and Sea Trout Protection byelaws 2018.
	Exe				Mandatory catch-and-release of salmon before 16 Jun.	Exe seine nets	Fishery closed through National Salmon and Sea Trout Protection byelaws 2018.

Table 2. continued

EA Region / NRW	River	Rod fishery bag limits				Net/FE catch limits	
		Salmon Bag Limits - per			Other constraints	Fishery	Measure
		day	week	season			
	Camel				No salmon may be retained. Mandatory 100% catch-and-release.	Camel drift nets	Fishery closed through National Salmon and Sea Trout Protection byelaws 2018.
	Lynher				Mandatory catch-and-release of salmon before 16 Jun.	Lynher seine nets	Fishery closed through National Salmon and Sea Trout Protection byelaws 2018.
	Poole Harbour				Mandatory catch-and-release of salmon before 16 Jun.	Poole Harbour seine nets	Sea trout fishery only, mandatory release of all salmon.
Midlands	Severn	No bag limits apply			Mandatory catch-and-release of salmon and sea trout. Restricted operations.	Severn fixed engines (Putchers)	Operation of the Putcher ranks prohibited by byelaw (2021), fishery closed for 10 years.
						Severn lave nets	Lave net fishing only 1 Jun to 31 Aug. Mandatory catch-and-release of salmon and sea trout. 2021 Byelaws effective for 10 years.
						Severn seine nets (Draft net)	Operation of the Draft nets prohibited by byelaw (2021), fishery closed for 10 years.
North West	Ribble			2	Mandatory catch-and-release of salmon before 16 Jun.	Drift	Fishery closed through National Salmon and Sea Trout Protection byelaws 2018.
	Lune				Mandatory 100% catch-and-release of salmon.	Haaf net	Sea trout fishery only, mandatory release of all salmon.
						Drift	Fishery closed through National Salmon and Sea Trout Protection byelaws 2018.
	Leven			3	Mandatory catch-and-release of salmon before 16 Jun. Mandatory carcass tagging scheme.	Lave	Sea trout fishery only, mandatory release of all salmon.
	Kent				Mandatory catch-and-release of salmon before 16 Jun.	Lave	Sea trout fishery only, mandatory release of all salmon.
	Crake			3	Mandatory catch-and-release of salmon before 16 Jun. Limit applies to catch on whole river by all anglers; mandatory carcass tagging scheme.		
	Derwent	2			Mandatory catch-and-release of salmon before 16 Jun. No female fish to be retained after 30 Sept. Voluntary 100% catch-and-release encouraged by Derwent Owners Association.		
	Eden				No salmon may be retained. Mandatory 100% catch-and-release.	Solway haaf nets	Mandatory 100% catch-and-release.
	Border Esk				No salmon may be retained. Mandatory 100% catch-and-release.		
Wales	Wye				No salmon may be retained. Mandatory 100% catch-and-release.	Blackrock lave nets	No salmon may be retained. Mandatory release of all salmon (licence condition).
	Usk				No salmon may be retained. Mandatory 100% catch-and-release.		
	Taff & Ely				No salmon may be retained. Mandatory 100% catch-and-release.		

Table 2. continued

EA Region / NRW	Rod fishery bag limits					Net/FE catch limits	
	River	Salmon Bag Limits - per			Other constraints	Fishery	Measure
		day	week	season			
	Ogmore				No salmon may be retained. Mandatory 100% catch-and-release.		
	Afan				No salmon may be retained. Mandatory 100% catch-and-release.		
	Neath				No salmon may be retained. Mandatory 100% catch-and-release.		
	Tawe				No salmon may be retained. Mandatory 100% catch-and-release.		
	Loughor				No salmon may be retained. Mandatory 100% catch-and-release.		
	Tywi				No salmon may be retained. Mandatory 100% catch-and-release.	Draft/seine and coracle	Sea trout fishery only, mandatory release of all salmon.
	Taf				No salmon may be retained. Mandatory 100% catch-and-release.	Wade nets and coracle	Sea trout fishery only, mandatory release of all salmon.
	E+W. Cleddau				No salmon may be retained. Mandatory 100% catch-and-release.	Compass	Sea trout fishery only, mandatory release of all salmon.
	Nevern				No salmon may be retained. Mandatory 100% catch-and-release.	Draft/seine	Sea trout fishery only, mandatory release of all salmon.
	Teifi				No salmon may be retained. Mandatory 100% catch-and-release.	Draft/seine and coracle	Sea trout fishery only, mandatory release of all salmon.
	Aeron				No salmon may be retained. Mandatory 100% catch-and-release.		
	Ystwyth				No salmon may be retained. Mandatory 100% catch-and-release.		
	Rheidol				No salmon may be retained. Mandatory 100% catch-and-release.		
	Dyfi				No salmon may be retained. Mandatory 100% catch-and-release.	Draft/seine	Sea trout fishery only, mandatory release of all salmon.
	Dysynni				No salmon may be retained. Mandatory 100% catch-and-release.		
	Mawddach				No salmon may be retained. Mandatory 100% catch-and-release.	Draft/seine	Sea trout fishery only, mandatory release of all salmon.
	Artro				No salmon may be retained. Mandatory 100% catch-and-release.		
	Dwyryd				No salmon may be retained. Mandatory 100% catch-and-release.		
	Glaslyn				No salmon may be retained. Mandatory 100% catch-and-release.		
	Dwyfawr				No salmon may be retained. Mandatory 100% catch-and-release.		
	Llyfni				No salmon may be retained. Mandatory 100% catch-and-release.		
	Gwyrfai				No salmon may be retained. Mandatory 100% catch-and-release.		
	Seiont				No salmon may be retained. Mandatory 100% catch-and-release.		
	Ogwen				No salmon may be retained. Mandatory 100% catch-and-release.		
	Conwy				No salmon may be retained. Mandatory 100% catch-and-release.	Draft/seine	Sea trout fishery only, mandatory release of all salmon.
	Clwyd				No salmon may be retained. Mandatory 100% catch-and-release.		
	Dee				No salmon may be retained. Mandatory 100% catch-and-release.		

Table 3. Number of licences issued each year in net fisheries subject to phase outs (zero NLOs) and closures, 1992-2022.

Fishery	Phase Outs																				Closures [a]		
	NE Coast drift	NE Coast T/J	Anglian coastal	SW Wales coast wade & seine	R. Ogwen seine	R. Seiont seine	R. Clwyd sling	R. Llyfni seine	R. Dwyfawr seine	R. Usk drift	SW Cumbria drift	R. Lune seine	Taw/Torridge seine	R. Leven lave	R. Tamar seine	R. Lynher seine	R. Tavy seine	R. Dee trammel	R. Dee seine	R. Severn seine	R. Dart seine	R. Duddon seine	S. Caern seine	N. Anglesey seine
Phase out commenced	1993	2012	1996	1997	1997	1997	1997	1997	1997	1997	1998	2000	2002	2003	2004	2004	2004	2005	2005	2014	2015			
Year 1992	142		129	17	2	2	2	0	2	8	4	1	14 [b]	6	14	5	4	4	13			2	0	0
1993	124		93	11	1	1	3	0	2	8	4	1	14 [b]	6	14	5	4	4	21			1	0	0
1994	114		72	16	2	2	2	0	2	8	4	1	14 [b]	6	14	5	5	4	18			0	0	0
1995	99		65	9	2	1	2	0	2	8	4	1	14 [b]	6	14	5	5	4	14			0	0	0
1996	89		59	0	2	1	2	1	2	8	4	1	12	6	14	5	4	4	14			0	0	0
1997	81		56	1	2	1	2	0	2	8	4	1	14	6	14	5	5	4	15			0	0	0
1998	75		54	**0**	2	**0**	**0** *	0	1	8	4	1	14	6	15	5	5	4	14			0	0	0
1999	72		54		2				1	8	1	1	14	6	14	5	4	4	12			0	0	0
2000	71		46		1				**0**	**0** *	1	1	14	6	14	5	4	4	10			0	0	0
2001	70		46		**0**						1	1	14	6	14	5	4	4	8			0	0	0
2002	69		46								1	1	3 *	6	14	5	4	4	12			0	0	0
2003	16 *		45								1	1	3	4	14	5	4	4	12			#	0	0
2004	16		40	#	#	#	#	#	#	#	**0**	1	3	4	3 * [b]	1 * [b]	2 * [b]	4	11				#	#
2005	16		39								#	1	3	4	3 [b]	1 [b]	2 [b]	4	13					
2006	16		36									1	3	3	3 [b]	1 [b]	2 [b]	3 *	9 *					
2007	16		35									1	3	3	3 [b]	1 [b]	2 [b]	2 *	4 *					
2008	16		33									1	3	3	3 [b]	1 [b]	2 [b]	**0** *	3 *					
2009	15		30									**0**	3	2	3 [b]	1 [b]	2 [b]		**0** *					
2010	14		30										3	2	3 [b]	1 [b]	2 [b]							
2011	14		26										3	2	3 [b]	1 [b]	2 [b]							
2012	14	63	25										3 [c]	2	3 [b]	1 [b]	2 [b]							
2013	13	56	24										3	1 [d]	3 [b]	1 [b]	2 [b]							
2014	13	52	22										3	2	3 [e]	**0**	1 [e]			1				
2015	12	49	20										3	2	3 [e]		1 [e]			1	1			
2016	11	48	18										3	2	3 [e]		1 [e]			1	**0** *			
2017	11	47	17										3	2	3 [e]		1 [e]			1				
2018	11	43	17										3	2	3 [e]		1 [e]			1				
2019	**0** [f]	41	17										**0** [f]	2	**0** [f]		**0** [f]			**0** [g]				
2020	#	40	16										#	1	#		#			**0** [g]				
2021		35	14											2						**0** [g]				
2022		35	8											2						**0** [g]				

Note: *Bold text denotes target reached.*

Key:
** Phase out accelerated by full or partial buy-off.*
 # Denotes fishery closed by byelaw.
[a] Fisheries have not operated for a number of years, now formally closed through byelaw.
[b] Licences issued but fishers compensated not to fish in these years.
[c] Phase out replaced by new NLO in 2012 permitting the use of 1 net.
[d] Phase out replaced by new NLO in 2013 permitting the use of 2 nets.
[e] Phase out remains in place, but under new NLO existing licensees able to resume fishing following 10-year buy-off, subject to catch limits.
[f] Net fishery closed in 2019 following the introduction of the National Salmon and Sea Trout Protection Byelaws.
[g] Emergency byelaw introduced in 2019, extended to 2020, prohibited draft nets and putcher ranks and required mandatory catch-and-release of salmon by the lave net fishery in the River Severn.

Table 4. Buy off arrangements operating on net fisheries in 2022.

River/Fishery	Method	Period without netting	Brokers/Funding agency
Fowey	Draft nets	Complete season (2007 to present)	Brokered by: Environment Agency / South West Water plc
Dart	Draft nets	Complete season (2015–2025)	Brokered by: Environment Agency / Dart Fishery Association
Christchurch Harbour (Hants Avon & Stour)	Draft nets	Complete season (2012–2022)	Brokered by: Environment Agency / North Atlantic Salmon Fund / Avon Riparian Group

Notes: Fowey buy-off - fishing from 2 March to 31 May applies to sea trout only.

Table 5. Summary of buy off arrangements and local agreements operating on net fisheries, 1993–2022. (X denotes compensation measure applied; O denotes fishery closed or no licences issued/available).

Year	Fishery																						
	Itchen seine net #	Avon & Stour seine nets $	Piddle & Frome seine net $	Exe seine nets	Teign seine nets	Dart seine nets	Tavy seine nets	Tamar seine nets	Lynher seine nets	Fowey seine nets	Camel drift nets	Taw & Torridge seine nets	Lyn fixed engine	Severn fixed engine	Wye fixed engines	Usk drift nets	Usk fixed engines	Tywi seine nets	Dee seine nets	Dee trammel nets	Ribble drift nets	Leven lave nets	Cumbrian coastal drift nets
1993	X											X											
1994	X											X											
1995	O											X											
1996	O																						
1997	O	X					X	X	X	X													
1998	O	X		X			X	X	X	X													X
1999	O	X		X			X	X	X	X													X
2000	O	X					X	X	X	X					X	X	X						X
2001	O	X					X	X	X	X					X	O	X						X
2002	O	X					X	X	X	X	X	X			X	O	X					X	X
2003	O	X					X	X	X	X	X		X		X	O	X						X
2004	O	X					X	X	X	X	X		O	X	X	O	X						X
2005	O	X					X	X	X	X	X		O		O	O	O				X		O
2006	O	X			X	X	X	X	X	X	X		O		O	O	O		X	X			O
2007	O	X		X			X	X	X	X	X		O		O	O	O		X	X			O
2008	O	X	X	X			X	X	X	X	X		O		O	O	O	X	X	X			O
2009	O	X	X	X			X	X	X	X	X		O		O	O	O	X	X	O			O
2010	O	X	X	X			X	X	X	X	X		O	X	O	O	O	X	O	O			O
2011	O	X	X	X		X	X	X	X	X	X		O	X	O	O	O	X	O	O			O
2012	O	O	X			X	X	X	X	X			O	X	O	O	O	X	O	O			O
2013	O	O	X			X	X	X	X	X			O		O	O	O		O	O			O
2014	O	O	X						O	X			O		O	O	O		O	O	X		O
2015	O	O	X						O	X			O		O	O	O		O	O			O
2016	O	O	X						O	X			O		O	O	O		O	O			O
2017	O	O	X						O	X			O		O	O	O		O	O			O
2018	O	O	X						O	X			O		O	O	O		O	O			O
2019	O	O	X	O	O	O	O	O	O	O	O	O	O	O	O	O	O		O	O	O		O
2020	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O		O	O	O		O
2021	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O		O	O	O		O
2022	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O		O	O	O		O

Key: # Fishery operated for scientific purposes – all fish released alive in tracking investigation (no compensation agreement).
$ Agreement for all salmon caught to be released alive.

3. FISHING EFFORT

The regulatory measures outlined above provide overall limits on the 'allowable' fishing effort in England and Wales; this has fallen in recent years as measures have been introduced to regulate exploitation. The amount that both netters and anglers actually fish (the 'utilised' effort) also varies due to weather conditions, perceptions about the numbers of fish returning, and other factors. For instance, angling effort in 2020 was likely to have been constrained to some extent by coronavirus (COVID-19) restrictions throughout England and Wales, which imposed some limitations on angling opportunities and access to rod fisheries – particularly in the early part of the season. The following tables and figures summarise changes in allowable and utilised effort:

Net fisheries – Table 6 and Figure 2 illustrate the long-term decline in the numbers of licences issued for all types of nets and fixed engines over the period since 1971. The rate of decline in the number of fishing days available, since 1999 when data became available, has been sharp over this time due to additional effort restrictions on remaining licensees (Figure 3). Since 2020, net and fixed engine licences have only been issued for sea trout fishing. Table 7 provides details of licences available, and allowable and utilised effort (currently zero in all cases) in salmon net fisheries for the latest season. Figure 3 also illustrates the overall changes in allowable and utilised effort, and the percentage of available days utilised by netters, over the time series.

Rod fisheries – Numbers of rod licences (annual and short-term) from 1994 are shown in Table 6 and Figure 4. No comparable data are available for earlier years because of changes in licensing arrangements. Regional summaries of the total rod days fished, over the time series, are provided in Table 8 and Figure 5. It should be noted that effort data (days fished) submitted via rod licence returns do not distinguish between time spent fishing for salmon and sea trout, and not all anglers declare their fishing effort despite declaring their catch.

Overview of fishing effort in 2022

A progressive decline in the number of net and fixed engine licences issued for salmon and sea trout fishing, and/or constraints on available fishing effort, has occurred over the time series. Commercial licences have only been issued for sea trout fishing since 2019 in England and 2020 in Wales, and therefore no directed fishing for salmon was permitted in 2022. Licence numbers in 2022 were the lowest in the time series, with fifteen fewer licences issued in 2022 compared to 2021. The time spent fishing is reported by licensees and enables derivation of the percentage of the available days utilised by netters. The overall percentage of available days utilised by netters declined steadily between 2000 and 2009, from a little over 34% to about 20% (Figure 3). It then increased in more recent years (24-32%) associated with some relatively good catches, suggesting that the take-up of available fishing opportunities is strongly influenced by catch rates. However, allowable effort specifically targeting salmon has been zero in England since 2019 and in Wales since 2020. Utilised effort has fallen sharply in the last four years and is non-existent since 2020.

The numbers of salmon rod licenses issued since 1994, when such data became available, show variable patterns. The number of short-term (one-day and eight-day) rod licences issued has shown a progressive decline over the period, from a 5-year mean of about 11,000 licences at the start of the period to a 5-year mean of around 5,000 recently, and with the sales in 2022 the lowest in the time series. There has been greater variation in the pattern of trend in the number of annual licences issued; these account for most of the salmon caught by anglers. Annual licence numbers decreased sharply from over 26,000 in 1994 to about 15,000 in 2001. This was thought to reflect the decline in salmon stocks and the introduction of restrictions on angling, especially those to protect early-run MSW fish, although licence sales were particularly low in 2001 due to the restrictions on access to many rivers due to an outbreak of the 'foot and mouth' livestock disease. Sales of annual licences increased again after this date, reflecting Environment Agency efforts to promote angling and to reduce levels of licence evasion through targeted enforcement. Licence sales in the period 2009 to 2012 were around 26,000 but declined again after this. In 2017, new 365-day 'annual' licences (valid from day of purchase) were introduced, primarily to allow greater flexibility for coarse fish anglers. There was an 8% drop in annual licence sales in 2022 compared to 2021. The rate of decline in annual licence sales from 2021 to 2022 was the fourth biggest year-on-year decline since 2001.

The number of days fished by anglers closely followed the reduction in rod licence numbers over the period 1994 to 2001. However, while annual licence sales then recovered to the levels at the start of the time series, the number of declared days fished by anglers has not. There is some variation over the time series in the pattern of fishing effort between regions (Figure 5). For Wales and the North West, South West, and Midlands regions of England, the number of days fished has fallen by more than half since the start of the time series. In contrast, fishing effort in the North East and Southern Regions has remained relatively constant. Provisionally, the overall number of declared days fished by anglers in 2022 has been estimated to be about 74,400, which is 19% lower than 2021 and 35% below the average of the previous five years. This decrease in fishing effort may reflect the reduction in the number of rod licences and the generally less amenable environmental conditions for angling in 2022 compared to 2021 (Section 9.2).

Table 6. Numbers of rod licences (1994-2022) and net and fixed engine licences (1971-2022) in England and Wales.

Year	Rod licences		Net and fixed engine gear type					Total net licences
	Short-term	Annual	Gill	Sweep	Hand-held	FE	Combined drift/T net #	
1971			437	230	294	79	75	1040
1972			308	224	315	76	75	923
1973			291	230	335	70	75	926
1974			280	240	329	69	75	918
1975			269	243	341	69	75	922
1976			275	247	355	70	75	947
1977			273	251	365	71	75	960
1978			249	244	376	70	75	939
1979			241	225	322	68	75	856
1980			233	238	339	69	75	879
1981			232	219	336	72	75	859
1982			232	221	319	72	75	844
1983			232	209	333	73	75	847
1984			226	223	354	74	75	877
1985			223	232	375	69	75	899
1986			220	221	369	64	75	874
1987			213	206	352	68	75	839
1988			210	212	284	70	75	776
1989			208	199	282	75	75	764
1990			207	204	292	70	75	773
1991			199	187	264	66	75	716
1992			203	158	267	65	75	693
1993			187	151	259	55	36	652
1994	10,637	26,641	177	158	257	53	30	645
1995	9,992	24,949	163	156	249	47	29	615
1996	12,508	22,773	151	132	232	42	29	557
1997	11,640	21,146	139	131	231	35	27	536
1998	11,364	21,161	130	129	196	35	26	490
1999	10,709	18,423	120	109	178	30	26	437
2000	10,916	19,223	110	103	158	32	25	403
2001	9,434	14,916	113	99	143	33	24	388
2002	10,039	19,368	113	94	147	32	24	386
2003	8,683	21,253	58	96	160	57	5	371
2004	10,628	22,138	57	75	157	65	5	354
2005	10,170	23,870	59	73	148	65	5	345
2006	9,460	22,146	52	57	147	65	5	321
2007	9,065	23,116	53	45	157	66	5	321
2008	9,761	24,139	55	42	130	66	5	293
2009	9,353	27,108	50	42	118	66	4	276
2010	10,024	26,135	51	41	118	66	4	276
2011	10,121	26,870	53	41	117	66	3	277
2012	9,045	26,090	51	34	115	73	3	273
2013	8,264	25,037	49	29	111	62	3	251
2014	7,691	23,914	48	34	109	65	3	256
2015	8,017	22,830	52	33	102	63	3	250
2016	8,055	22,159	49	34	105	62	2	250
2017	7,098	28,064	46	32	112	57	2	247
2018	5,479	26,176	38	30	87	57	2	212
2019	5,545	23,581	14	13	60	49	0	136
2020	5,433	22,954	17	13	64	43	0	137
2021	4,729	18,801	17	15	73	40	0	145
2022	4,195	17,379	16	14	61	39	0	130

Notes: ***Net fisheries are authorised for sea trout and salmon, but all net caught salmon are required to be released.***
Rod short-term licences are for 1 or 8 days; from 2019 annual licences are reported as sales from 1 February to 31 January the proceeding year as licences are now valid for 365 days from purchase.
Gill nets include: drift, trammel, sling and coracle nets.
Sweep nets include: seine (draft and draw) and wade nets.
Hand-held nets include: haaf/heave and lave/dip nets.
Fixed engines include: T-nets, J-nets, stop (compass) nets, putcher ranks, traps, weirs and cribs (coops).
East Anglian coastal nets & Southern seine net are not included, as they are targeted primarily at sea trout and catch few salmon.
Table only includes data for gear licences that are fished (i.e. excluding licences that remain available, but which cannot be fished due to compensation arrangements or other similar provisions).
Free annual licences were introduced for junior anglers in 2017 and accounts for the observed increase in licence numbers.
Licences previously recorded as combined drift/t net are included as FE as no drift nets are authorised.
Data for 2022 are provisional.

Key: *# Combined drift/T net licences (issued in Northumbria (Northern area)) have been included in the gill net totals.*

Table 7. Allowable and utilised effort for salmon in the principal migratory salmonid net fisheries in 2022. N.B. no allowable effort was available to net fisheries to fish for salmon in England and Wales in line with the requirements of national byelaws.

EA Region / NRW	River/Fishery [a]	Method	No. of licences [a]	NLO [c]	Days available [b,g, k]	Allowable effort net days [i]	Utilised effort		% days utilised	Av. day/ lic.
							net days	net tides		
NE	N Coastal (N)	Drift &T	0	0	0	0	n/a	n/a	n/a	n/a
	N Coastal (N)	Drift	0	0	0	0	n/a	n/a	n/a	n/a
	N Coastal (N) [b]	T	15	15	0	0	n/a	n/a	n/a	n/a
	N Coastal (S)	Drift	0	0	0	0	n/a	n/a	n/a	n/a
	N Coastal (S) [b]	T	0	0	0	0	n/a	n/a	n/a	n/a
	Y Coastal	Drift	0	0	0	0	n/a	n/a	n/a	n/a
	Y Coastal [b]	T or J	20	21	0	0	n/a	n/a	n/a	n/a
	Region total		**35**			**0**	**n/a**	**n/a**	**n/a**	
SW	Avon & Stour	Seine	0	0	0	0	n/a	n/a	n/a	n/a
	Poole Harbour [g]	Seine	0	1	0	0	n/a	n/a	n/a	n/a
	Exe	Seine	0	0	0	0	n/a	n/a	n/a	n/a
	Teign [b]	Seine	3	3	0	0	n/a	n/a	n/a	n/a
	Dart [b]	Seine	0	0	0	0	n/a	n/a	n/a	n/a
	Camel	Drift	0	0	0	0	n/a	n/a	n/a	n/a
	Tavy	Seine [i]	0	0	0	0	n/a	n/a	n/a	n/a
	Tamar	Seine [i]	0	0	0	0	n/a	n/a	n/a	n/a
	Lynher	Seine	0	0	0	0	n/a	n/a	n/a	n/a
	Fowey [b,g]	Seine	0	0	0	0	n/a	n/a	n/a	n/a
	Taw/Torridge	Seine	0	0	0	0	n/a	n/a	n/a	n/a
	Region total		**3**			**0**	**n/a**	**n/a**	**n/a**	
Midlands	Severn	Putchers [d,i, j]	0	0	0	0	n/a	n/a	n/a	n/a
	Severn	Seine [i]	0	0	0	0	n/a	n/a	n/a	n/a
	Severn	Lave [i]	8	22	0	0	n/a	n/a	n/a	n/a
	Region total		**8**			**0**	**n/a**	**n/a**	**n/a**	
NW	Ribble	Drift	0	4	0	0	n/a	n/a	n/a	n/a
	Lune	Haaf [d]	11	12	0	0	n/a	n/a	n/a	n/a
	Lune	Drift	0	7	0	0	n/a	n/a	n/a	n/a
	Kent	Lave	0	6	0	0	n/a	n/a	n/a	n/a
	Leven	Lave	2	2	0	0	n/a	n/a	n/a	n/a
	Eden & Esk	Haaf [i]	32	75	0	0	n/a	n/a	n/a	n/a
	Eden & Esk	Coops [d]	0	0	0	0	n/a	n/a	n/a	n/a
	Region total		**45**			**0**	**n/a**	**n/a**	**n/a**	
Wales	Wye	Lave	8	[e]	0	0	n/a	n/a	n/a	n/a
	Tywi	Seine	2	3	0	0	n/a	n/a	n/a	n/a
	Tywi	Coracles	5	8	0	0	n/a	n/a	n/a	n/a
	Taf	Coracles	1	1	0	0	n/a	n/a	n/a	n/a
	Taf	Wade	1	1	0	0	n/a	n/a	n/a	n/a
	E/W Cleddau	Compass	5	6	0	0	n/a	n/a	n/a	n/a
	Nevern	Seine	1	1	0	0	n/a	n/a	n/a	n/a
	Teifi	Seine	1	3	0	0	n/a	n/a	n/a	n/a
	Teifi	Coracles	9	12	0	0	n/a	n/a	n/a	n/a
	Dyfi	Seine	2	3	0	0	n/a	n/a	n/a	n/a
	Dysynni	Seine	0	1	0	0	n/a	n/a	n/a	n/a
	Mawddach	Seine	1	3	0	0	n/a	n/a	n/a	n/a
	Conwy	Seine	3	3	0	0	n/a	n/a	n/a	n/a
	Conwy	Basket [e]	0	1	0	0	n/a	n/a	n/a	n/a
	Dee	Trammel	0	0	0	0	n/a	n/a	n/a	n/a
	Dee	Seine	0	0	0	0	n/a	n/a	n/a	n/a
	Wales total		**39**			**0**	**n/a**	**n/a**	**n/a**	

Key:
- [a] *Net and fixed engine licences are issued for sea trout and salmon fisheries, but all net caught salmon are required to be released.*
- [b] *National spring salmon byelaws apply - all net fisheries closed until June 1.*
- [c] *Sea trout fisheries - exempted from national spring salmon byelaws (all salmon caught before 1 June to be released).*
- [d] *NLO refers to number of nets allowed under the terms of the net limitation order for that fishery. Where the number of licences exceeds the NLO, numbers are being reduced as licensees leave the fishery. For coastal mixed stock fisheries a zero NLO means the fishery is being phased out permanently, but for other fisheries the zero limit may only apply for the duration of the NLO.*
- [e] *Fishery operates under an historical certificate of priviledge.*
- [f] *No NLO, but number of licences capped.*
- [g] *In calculating the days available, any day, or part day, on which fishing has been allowed is included. Days available have been adjusted to take account of partial buy-off arrangements and the national measures.*
- [h] *Buy-off applies for all or part season (see Table 4 for details).*
- [i] *Allowable effort is calculated by multiplying the days available by the number of nets permitted under the NLO, except where the number of licences exceeds the NLO, in which case the higher figure is used.*
- [j] *Licence issued with a zero catch limit and did not operate.*
- [k] *No days were available to net and fixed engines to fish for salmon in England and Wales following the introduction of national byelaws.*

Notes: Effort data incomplete for some licence returns; minor corrections were applied based on catch and effort data for other licensees fishing in same area and time period.

For all regions in England, days fished were calculated from data provided on tides fished, using an average of 1.4 tides per day. For Wales, days fished were as reported.

Table 8. Total number of rod days fished, as reported in catch returns, 1994-2022.

Total days	Former Environment Agency Region						NRW Wales	E&W Total
	NE	Thames	Southern	SW	Midlands	NW		
1994	37,937	343	2,446	41,087	13,596	78,176	118,862	292,447
1995	38,724	414	2,696	35,853	14,893	65,601	85,107	243,288
1996	34,726	154	1,928	32,504	13,056	64,454	84,922	231,744
1997	40,345	181	2,332	38,809	14,886	70,222	102,930	269,705
1998	38,229	145	2,095	31,285	11,493	64,248	85,906	233,401
1999	31,676	311	2,018	25,642	7,024	50,667	70,660	187,998
2000	32,319	143	1,771	22,401	5,373	49,255	66,270	177,532
2001	27,485	111	2,117	18,573	4,084	23,320	59,163	134,853
2002	34,423	91	2,462	25,526	4,720	43,278	72,328	182,828
2003	31,030	126	2,663	23,322	5,302	37,567	72,719	172,729
2004	37,677	110	2,344	24,730	4,633	48,174	72,846	190,514
2005	37,355	86	2,096	22,427	5,221	49,698	69,786	186,669
2006	30,441	21	1,602	17,704	4,124	40,782	53,441	148,115
2007	33,292	64	1,816	19,979	3,800	40,828	64,694	164,473
2008	35,633	53	2,132	20,708	4,211	44,499	63,776	171,012
2009	37,366	46	2,046	22,828	4,819	47,509	69,144	183,758
2010	42,061	37	2,652	23,279	5,052	51,774	70,201	195,056
2011	42,982	22	2,873	24,122	5,105	53,340	68,453	196,897
2012	38,349	13	2,284	20,763	3,521	47,352	63,131	175,413
2013	38,785	17	2,709	18,497	4,211	46,163	56,634	167,016
2014	35,366	55	2,812	16,476	4,198	36,592	49,456	144,955
2015	32,892	68	3,022	18,359	4,584	30,573	52,232	141,730
2016	33,018	73	2,974	15,573	3,611	30,521	49,586	135,356
2017	36,095	160	2,999	17,981	3,875	32,749	47,967	141,826
2018	30,785	70	2,873	12,174	2,605	24,110	33,150	105,767
2019	35,906	63	3,243	15,129	2,724	26,903	41,283	125,251
2020	33,357	140	3,052	14,059	1,861	26,771	28,527	107,767
2021	25,780	32	2,744	14,794	1,635	20,296	26,587	91,868
2022	22,558	16	2,138	9,508	1,288	19,125	19,811	74,444
Mean (2017-21)	32,385	93	2,982	14,827	2,540	26,166	35,503	114,496
% change:								
2022 on 2021	-12	-50	-22	-36	-21	-6	-25	-19
2022 on 5-yr mean	-30	-83	-28	-36	-49	-27	-44	-35

Notes: Includes effort targeted at both salmon and sea trout.
Table does not include rod days fished in the Anglian Region, where there are not thought to be any directed salmon rod fisheries.
Table does not include reported fishing days where no location was recorded.
Not all catch returns report effort data.
Data for 2022 are provisional.

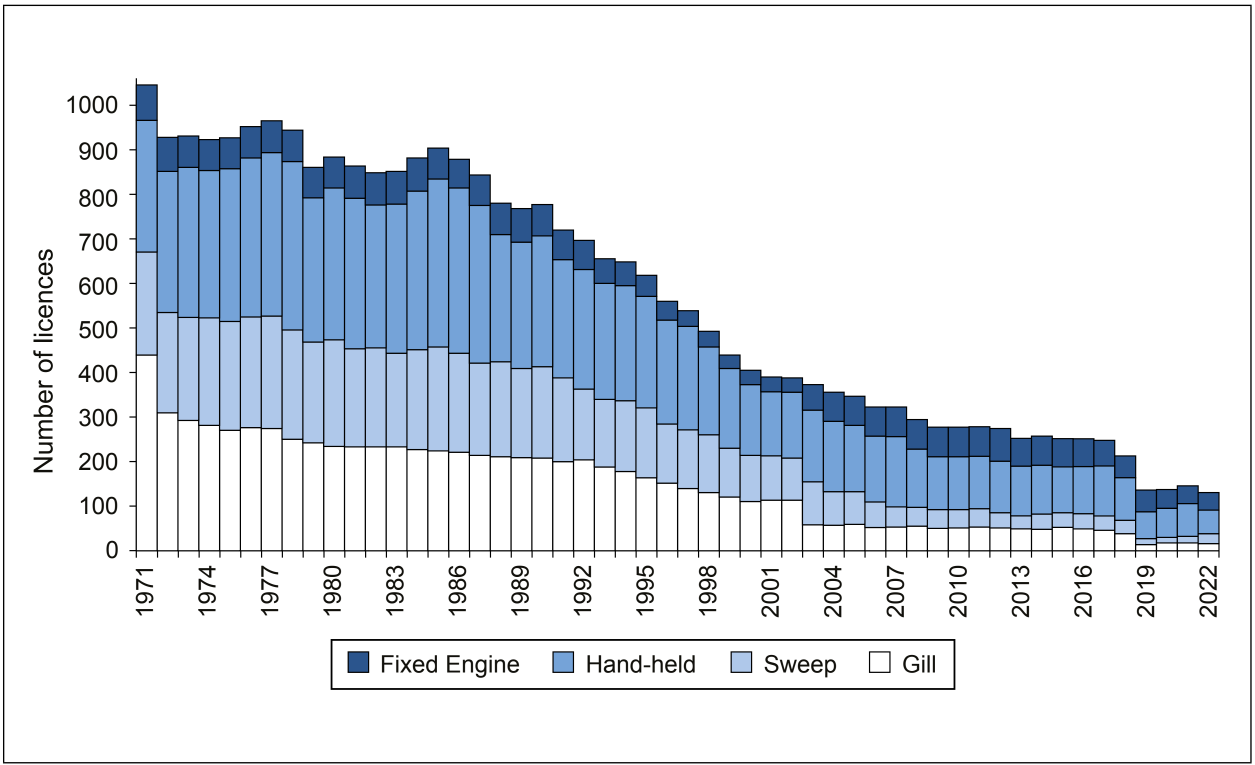


Figure 2. Numbers of net and fixed engine licences issued in England and Wales, 1971-2022. N.B. since 2020, net fisheries operate for sea trout and all salmon caught are required to be released.

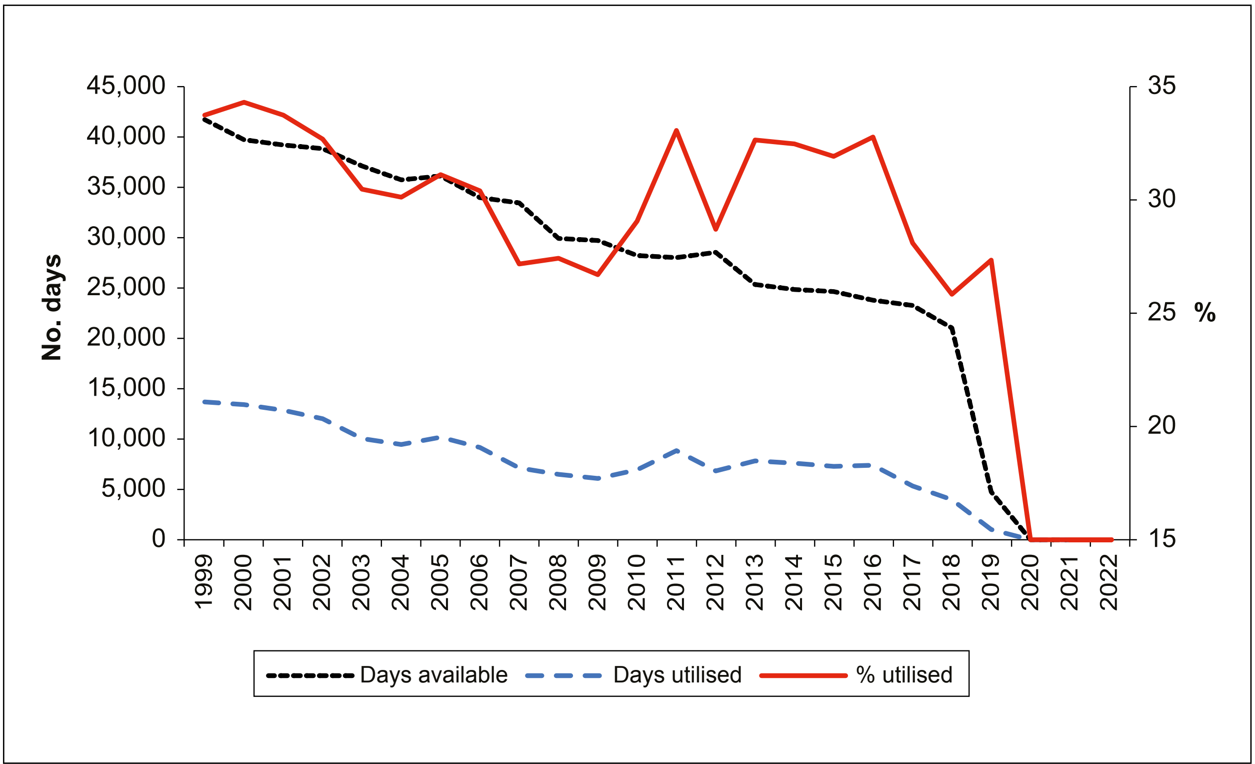


Figure 3. Numbers of fishing days available to net and fixed engine fisheries in England and Wales, and number and percentage of available days utilised, 1999-2022.

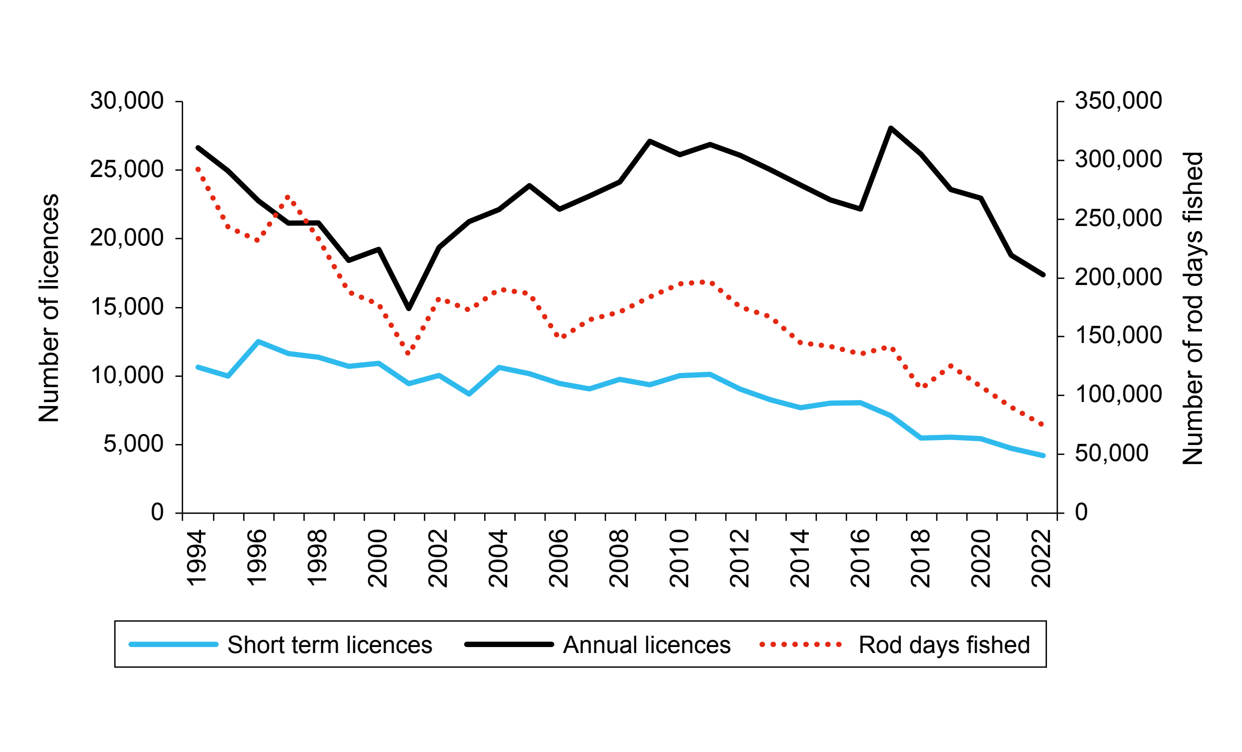


Figure 4. Numbers of annual and short-term rod licences issued, and the number of rod days fished in England and Wales, 1994-2022.

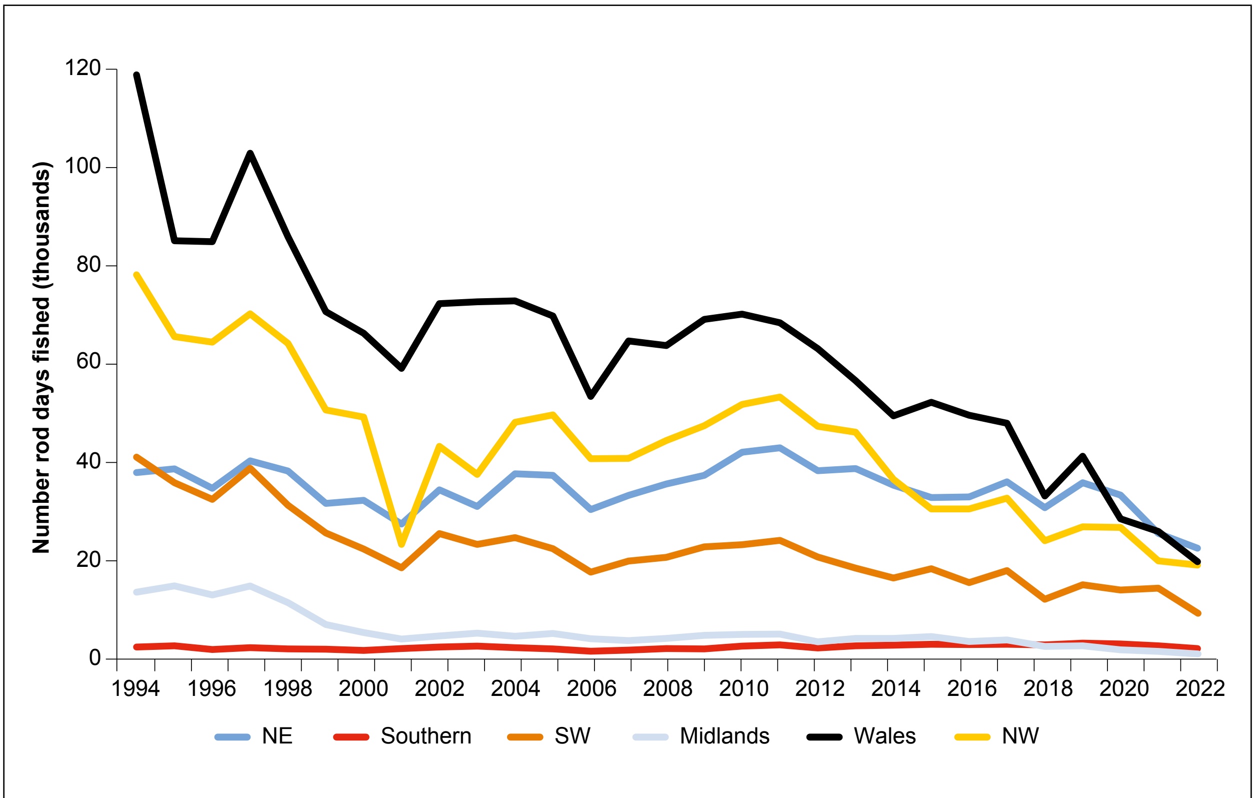


Figure 5. Numbers of rod days fished, as reported in catch returns, 1994-2022.

4. CATCHES

It should be remembered that the data presented here for 2022 are provisional. Final confirmed declared catch data for 2022 will be reported in the Environment Agency and NRW annual compilation of catch statistics (e.g., Environment Agency, 2022).

Net and rod fisheries – The following tables and figures provide provisional declared catches for 2022 together with confirmed catches for earlier years:

- Table 9 provides the total declared number and weight of salmon caught by nets and fixed engines and by rods in England and Wales since 1988.
- Table 10 gives a regional breakdown of the provisional 2022 net and rod catches (based on the former Environment Agency regions). These data are total catches and therefore include fish that have been caught and released by nets and rods.
- Table 11 and Figure 6 provide time series of regional net and fixed engine catches from 1971 onwards.
- Table 12 and Figure 7 provide time series of regional rod catches from 1993 onwards, distinguishing fish caught and released from those caught and retained (data on C&R were not recorded prior to 1993).

Catches in coastal, estuary and river fisheries – ICES requests that catch data (fish caught and retained only) are grouped by coastal, estuary, and river fisheries. Data for the available time series, since 1988, are presented in Table 13 and Figure 8. Details of the fisheries included in the various categories are provided in the footnotes to the table. Historically, the catch for the coastal zone has mainly reflected the catch in the north east coast drift and fixed net fishery. However, no coastal drift net fishery has operated since 2019, and all incidental catches of salmon in the north east T & J net fishery for sea trout were released alive (Table 11). The catches in each of the categories have been subjected to downward pressures over recent years, in the case of the coastal and estuarine categories due to the substantial reductions in fishing effort, and, in the case of rod fisheries, due to the increasing use of C&R.

Catch-and-release (C&R) – C&R data were first collected in England and Wales in 1993, and the practice has been used increasingly by salmon anglers in recent years. This increase is largely a result of voluntary measures, but also reflects national measures to protect spring salmon and the introduction of mandatory C&R on some rivers (details available in Annex 3). As noted above, new measures to increase C&R levels were introduced in England from 2019 and Wales from 2020. Regional C&R rates are provided in Table 12 and Figure 7 and a summary for England and Wales as a whole is given in Table 14 and Figure 9. C&R rates for individual salmon rivers in England and Wales are published in the annual catch statistics reports (e.g., Environment Agency, 2022).

Long-term catch trends – The annual declared net and fixed engine catch for England and Wales since 1956 is shown in Figure 10; this distinguishes the catch taken in the north east coast fishery from net catches elsewhere. Figure 11 presents the declared rod catch of salmon from 1956, including (since 1993) fish that have been caught and released. It is unclear to what extent fish may be caught and recorded more than once because of C&R.

Undeclared and illegal catches – The undeclared and illegal catch for England and Wales in 2022 (only fish retained) is estimated at about 170 kg. This represents approximately 14% of the total weight (including the unreported and illegal catch) of salmon caught and retained.

The methodology used to derive these estimates is provided in the Background Report (Cefas, Environment Agency and Natural Resources Wales, 2023). Of the total undeclared and illegal catch in 2022 (about 40 salmon), 62.5% by number is estimated to have derived from under-reporting in rod fisheries, 0% from under-reporting in net fisheries, and 37.5% from illegal catches in net and rod fisheries.

In 2022, reports were received from rod fisheries in some rivers suggesting that under-reporting catches or manipulation of declared rod catch returns may be occurring. All fishers are statutorily required to make an accurate catch return to the Environment Agency and NRW and this information alongside fish counter and juvenile survey data are used to assess stock status and inform management decisions. It is for this reason that only formally declared catches will be used in most circumstances to derive returning stock estimates for those rivers that do not have a fish counter or trap.

Other potential or confirmed sources of non-catch fishing mortality were noted in 2022. Prolonged periods of low river flows and warm water temperatures, which were most pronounced in Wales and South West England, resulted in increased reports of mortality on some rivers. Drought conditions also caused significant delays to upstream movements, impacting fitness, and run timings. Reports of fungal (*Saprolegnia*) infections due to environmental stress, mainly in the spring, caused mortalities of fish, most notably in some North West rivers.

Effect of the national spring salmon measures – The restrictions imposed since 1999 have affected both net and rod fisheries. Table 15 and Figures 12a (nets) and 12b (rods) show the general reduction in the number of fish caught before 1 June.

It should be noted that the percentage of salmon caught and released by nets before 1 June in 2019 (12.5%), 2020 (12.7%), 2021 (1.5%), and 2022 (15.9%) are not directly comparable to the values presented in the preceding years. This reflects the introduction of new national byelaws in England and Wales in 2019 and 2020, respectively, which restricted migratory salmonid net fisheries to harvest sea trout only and required mandatory C&R of any salmon captured within the fishing season. In addition, caution needs to be exercised when comparing the percentages of this salmon 'by-catch' since 2019. Net catches have declined to relatively low levels and small differences in these values result in large percentage differences among years. Annual fishing effort by nets, now targeting sea trout, has declined to historically low levels and proportionally more effort is spent fishing before 1 June compared to earlier periods in the time series.

Table 16 and Figure 13 show the numbers of salmon released by weight category (<3.6 kg (8 lbs), 3.6–6.4 kg, and >6.4 kg (14 lbs)) and season, since 1998. This illustrates that anglers have been voluntarily releasing an increased proportion of all fish caught after June, and large salmon in particular.

Age composition of catches – The annual salmon stock assessments carried out by ICES for national and larger geographic scales are conducted on two separate stock components: those fish that mature after one winter at sea (i.e., one-sea-winter fish, 1SW or grilse) and those that mature after two or more winters at sea (i.e., multi-sea-winter, MSW fish). The relative percentages of the different sea-age groups have varied markedly over time (Figure 14), the age groups tend to have different patterns of run-timing, and differences in the typical weight of females between age groups affects river-wide egg deposition. It is therefore necessary to be able to estimate the relative percentages of 1SW and MSW fish in catches, and hence spawning stocks; details of the approaches used are provided in the Background Report (Cefas, Environment Agency and Natural Resources Wales, 2023).

- **Nets** – The relative percentages of 1SW and MSW fish caught and released in nets in 2022 are provided in Table 17 and available time series are presented in Figures 15 and 16. The longer time series for the North East Region reflects the consistent reporting arrangements that have applied in this fishery from the mid-1960s onwards.
- **Rods** – The estimated age composition of catches for 40 out of 64 Principal Salmon Rivers in 2022 are provided in Table 18. Catch age composition estimates are only available for rivers where rod catch weight data have been provided on catch returns. Of these, 26 rivers (65%) were estimated to contain 50% or more MSW salmon (including fish subsequently released), 10 rivers (25%) had between 25% and 49% MSW salmon, and 4 rivers (10%) had less than 25% MSW salmon in their declared rod catch. Changes in the relative percentages of fish in these different categories (for the same rivers) are presented in Figure 17. There has been a notable increase in the percentage of MSW fish in rod catches over the last twelve years.

The estimated numbers of 1SW and MSW salmon (including fish released), and the percentage of MSW fish, in regional rod catches over the period since 1992 are provided in Table 19; these data have been corrected for under-reporting – a scaling factor of ×1.1 has been applied each year. Additional adjustments were made for the catches between 2015 and 2018 (see Background Report (Cefas, Environment Agency and Natural Resources Wales, 2023) for details). The number and percentage of MSW salmon in regional rod catches are illustrated in Figure 18. A summary of the estimated rod catches of 1SW and MSW salmon for England and Wales as a whole, for the same period, is provided in Figure 19.

Overview of catches in 2022

The total declared salmon catch for 2022 (including those fish released alive by netters and anglers) is provisionally estimated at 29.4 t, representing 6,868 fish, and comprising 2.4 t (565 fish) by nets and fixed engines and 27.0 t (6,303 fish) by rods. All the salmon caught by nets and fixed engines were released. Of the rod caught fish, 25.95 t (6,032 fish) were released, representing 96% of the catch by weight. Thus, 0 t (0 fish) were retained by netters and 1.1 t (271 fish) were retained by anglers. These figures do not take account of catches of salmon which go unreported (including those taken illegally), and it is estimated that there may have been a total of about 170 kg of unreported and/or illegally caught fish in 2022.

The total declared catch by nets and fixed engines in 2022 decreased by 22% on the catch recorded in 2021 and was 88% below the average of the previous five years. There has been a marked decline in net catches over the past 20 years due to increased regulatory controls and the phasing out of some fisheries. Net and fixed engine fisheries in England and Wales have been prohibited from retaining catches of salmon following the introduction of national byelaws in 2019 and 2020, respectively.

The policy to phase out salmon fisheries predominantly exploiting mixed stocks, where the capacity to manage individual river stocks is compromised, has had a major effect on catches. The largest phase out has occurred in the north east coast fishery. This was enhanced by a partial buy out in 2003, which reduced the number of drift net licences from 69 in 2002 to 16 (an immediate reduction of 77%). The ongoing phase out had resulted in the number of drift net licences continuing to fall, culminating in no licences being issued since 2019 following the closure of the drift net fishery through the implementation of national byelaws (2018) in England. The T & J nets have also been subject to a reducing NLO since 2012 with licence numbers falling from 63 in 2012 to 35 currently. Historically, the north east coast fishery accounted for the majority (86–93% between 2012 and 2018) of the total retained net catch in England and Wales. However, following the closure of this drift net fishery and the mandatory requirement for T & J nets fishing for sea trout to release any salmon caught alive from 2019, there is no longer any retained net catch in this fishery.

The provisional estimated declared rod catch in 2022 (including released fish) increased by 8% on 2021 but was 34% below the average of the previous five years. Long-term trends in rod catch (Figure 11) indicate a progressive decline from the peak in the mid-1960's to the early 2000's. This was followed by a general improvement in the rod catch between 2004 and 2011, suggesting some degree of reversal in the declining trend, when catches, including fish caught and released, were typically above the long-term average. Since 2012, there has been a decline in catches and the provisional rod catch for 2022 was the second lowest in the time series.

It should be noted that rod catch trends on individual rivers have varied from much more severe declines to substantial recoveries (e.g., the River Tyne, where rod catch has increased considerably since the mid-1950s as the river recovered from industrial pollution, such that it contributed 32% of the total rod catch in England and Wales in 2022).

The overall percentage of rod caught fish released by anglers has increased progressively since such data were first recorded in 1993; it is provisionally estimated that 96% of rod caught fish were released in 2022. It should be noted that rod catches have not been adjusted to account for any repeat capture of salmon arising from C&R practices.

Rod catches of 1SW salmon adjusted to account for under-reporting show substantially greater year-to-year variability than those of MSW fish in numerical terms (Figure 19). Since the early 1990s, adjusted catches of 1SW salmon have ranged from a high of over 24,200 to a low of around 2,400. Adjusted catches in the period 2004 to 2011 were generally higher than those in the earlier part of the time series. However, there was a sharp downturn in the 1SW rod catch from 2012 to 2014, which subsequently stabilised at relatively low levels until 2017 and then declined further. The provisional adjusted catch in 2022 was the second lowest in the time series. In contrast, adjusted rod catches of MSW salmon have demonstrated comparatively small numerical changes (range 3,100 to 10,900) and have been trending positively over the period as a whole. The adjusted catch of MSW salmon in 2022 was 8% higher than in 2021 and the ninth lowest in the time series. The MSW salmon have comprised more than 50% of the estimated total adjusted rod catch, on average, over the past twelve years, compared with an average of 25% in the preceding period back to 1992.

In total, the declared number of salmon retained in catches by rods, nets, and fixed engines in 2022 (271) was the lowest in the time series, representing just 4% of the 6,868 salmon caught.

Assessment of national catch trend

The annual assessment of the status of salmon stocks in the North East Atlantic carried out by the ICES Working Group on North Atlantic Salmon (WGNAS) requires the best available time series of catch data (i.e., fish retained and released) for each country. Figure 20 provides the current best estimate of the total catches of 1SW and MSW salmon for England and Wales as a whole, for the period since 1971. These data have been adjusted to take account of non-reported and illegal catches and exclude Scottish origin fish taken historically in the north east coast fishery. Further details on the procedures used in deriving these estimates are provided in the Background Report (Cefas, Environment Agency and Natural Resources Wales, 2023).

These data indicate that total retained catches of salmon in England and Wales as a whole (fish caught and killed only) have declined by 98% from the early 1970s to the present time. Although the decline in total retained catches can be linked to changes in fishing effort largely due to the implementation of effort controls in net and rod fisheries, the procedures used by ICES to evaluate trends in catches take these changes in fishing effort into account. A particularly marked decline in catch occurred around 1990, which is consistent with the observed decrease in marine survival for many stocks around the North Atlantic, and consequently in the abundance of returning fish, at this time. For much of the period, the decline has been greater for MSW salmon than for 1SW fish. However, there has been a marked increase in the percentage of MSW salmon in the national catch in the last twelve years (Figure 20) and the overall reduction in catches between the start and end of the time series is now similar for MSW (a reduction of 97% in the most recent 5-year mean compared with the 5-year mean at the start of the time series) and 1SW salmon (a reduction of 98% between 5-year means).

Table 9. Declared number and weight of salmon caught by nets and fixed engines, and by rods, in England and Wales, 1988-2022.

Year	Nets & Fixed Engines		Rods (inc. released fish)		Total caught		Total retained	
	No.	Wt (t)	No.	Wt (t)	No.	Wt (t)	No.	Wt (t)
1988	77,317	271.1	32,846	123.6	110,163	394.8	110,163	394.8
1989	68,940	239.3	14,728	56.6	83,668	295.9	83,668	295.9
1990	71,827	277.8	14,849	60.3	86,676	338.1	86,676	338.1
1991	37,675	144.6	13,974	55.5	51,649	200.1	51,649	200.1
1992	33,849	130.4	10,737	40.2	44,586	170.5	44,586	170.5
1993	56,566	202.3	14,059	51.1	70,625	253.4	69,177	248.1
1994	66,457	241.9	24,891	94.0	91,348	335.9	88,121	323.7
1995	67,659	245.7	16,008	61.0	83,667	306.7	80,478	294.6
1996	32,680	125.7	17,444	71.5	50,124	197.2	46,696	183.2
1997	31,459	107.2	13,047	48.4	44,506	155.6	41,374	141.8
1998	25,179	84.7	17,109	59.1	42,288	143.9	36,917	122.9
1999	34,167	124.4	12,505	49.8	46,672	174.2	41,107	150.0
2000	50,998	182.7	17,596	67.5	68,594	250.2	60,953	218.8
2001	43,243	153.3	14,383	56.8	57,626	210.1	51,307	184.2
2002	38,279	133.2	15,282	60.4	53,561	193.6	45,669	161.0
2003	17,219	69.2	11,519	48.5	28,738	117.7	22,206	89.0
2004	16,581	59.1	27,332	104.5	43,913	163.6	30,559	111.4
2005	16,811	60.9	21,418	85.8	38,229	146.7	26,162	96.5
2006	13,578	50.5	19,509	72.1	33,087	122.6	22,056	79.8
2007	10,922	37.9	19,984	71.6	30,906	109.5	19,914	67.1
2008	8,647	30.2	23,512	83.7	32,159	113.9	19,036	63.7
2009	7,505	29.3	15,563	62.0	23,068	91.3	13,910	54.0
2010	22,615	72.9	25,153	89.4	47,768	162.3	32,695	108.7
2011	26,193	101.2	23,199	98.5	49,392	199.7	34,575	135.8
2012	8,484	31.0	18,450	81.1	26,934	112.1	14,926	58.0
2013	18,176	67.2	14,920	62.2	33,096	129.4	22,608	84.1
2014	11,976	45.2	10,307	43.4	22,283	88.6	14,218	54.3
2015	17,320	60.4	10,263	42.8	27,583	103.1	19,261	67.6
2016	20,312	76.9	12,068	52.9	32,380	129.8	22,494	85.9
2017	10,133	40.2	13,570	60.4	23,703	100.6	12,195	48.8
2018	11,140	40.3	7,787	33.9	18,927	74.2	11,640	42.3
2019	488	1.7	9,163	39.0	9,651	40.7	1,139	4.5
2020	904	3.4	11,566	48.9	12,470	52.4	754	3.0
2021	721	3.0	5,814	24.5	6,535	27.5	280	1.1
2022	565	2.4	6,303	27.0	6,868	29.4	271	1.1
Mean (2017-2021)	4,677	18	9,580	41	14,257	59	5,202	20

Note: Data for 2022 are provisional. ***Since 2020, salmon caught by net and fixed engines were released.***

Table 10. Provisional regional declared number and weight of salmon caught by nets and rods (including released fish), 2022.

Former EA Region / NRW	Net catch		Rod catch		Total catch	
	No.	Weight (kg)	No.	Weight (kg)	No.	Weight (kg)
North East	73	261	3,122	13,827	3,195	14,088
Anglian	0	0	0	0	0	0
Southern	0	0	159	704	159	704
South West	4	18	447	1,728	451	1,745
Midlands	10	39	62	361	72	399
North West	246	1082	1,655	6,445	1,901	7,527
Wales	232	1033	850	3,897	1,082	4,930
Unknown	0	0	8	45	8	45
E&W Total	**565**	**2,432**	**6,303**	**27,008**	**6,868**	**29,440**

Note: Declared catches are reported in this table, however, adjusted values have been used for assessment purposes (see Table 19).
All net caught salmon were released in 2022.

Table 11. Declared number of salmon caught by nets and fixed engines, 1971-2022. (N.B. since 1999, catches include fish that were subsequently released).

Year	Environment Agency Region						NRW	E&W
	NE	Anglian [a]	Southern	SW	Midlands	NW	Wales	Total
1971	60,353		186	11,827	3,629	4,989	9,008	89,992
1972	51,681		317	13,146	4,467	3,941	9,633	83,185
1973	62,842		455	12,637	3,887	4,939	9,006	93,766
1974	52,756		346	8,709	3,152	6,282	8,883	80,128
1975	53,451		384	14,736	3,833	5,251	11,107	88,762
1976	15,701		195	11,365	3,194	5,348	7,712	43,515
1977	52,888		212	7,566	2,593	5,312	6,492	75,063
1978	51,630		163	6,653	2,327	7,321	7,426	75,520
1979	43,464		282	7,853	1,404	3,723	4,552	61,278
1980	45,780		137	9,303	3,204	3,769	6,880	69,073
1981	69,113		233	11,391	4,014	5,048	9,050	98,849
1982	50,167		94	6,341	1,738	3,944	4,481	66,765
1983	77,277		163	8,718	2,699	8,489	4,834	102,180
1984	59,295		157	8,489	3,376	7,957	3,947	83,221
1985	57,356		251	9,876	2,423	2,559	3,465	75,930
1986	63,425		461	11,548	3,300	6,682	5,031	90,447
1987	36,143		505	14,530	2,963	5,052	4,535	63,728
1988	50,849		477	11,799	3,511	5,671	5,010	77,317
1989	41,453	4	83	10,684	4,364	7,294	5,058	68,940
1990	51,530	9	43	5,892	4,397	5,579	4,377	71,827
1991	25,429	34	25	2,897	1,747	4,499	3,044	37,675
1992	20,144	11		5,521	2,117	3,123	2,927	33,843
1993	41,800	4		5,017	950	5,460	3,324	56,555
1994	46,554	3		6,437	2,321	6,143	4,995	66,453
1995	53,210	5		3,251	2,588	5,566	3,039	67,659
1996	18,581	3		5,093	1,608	4,464	2,931	32,680
1997	21,922	0		2,466	1,282	3,161	2,628	31,459
1998	18,265	3		1,759	1,074	1,778	2,300	25,179
1999	26,833	6		1,605	989	2,387	2,347	34,167
2000	43,354	0		2,171	973	3,496	1,004	50,998
2001	36,115	0		1,794	1,027	3,310	997	43,243
2002	30,980	112		1,404	1,190	3,318	1,275	38,279
2003	10,435	24		1,444	1,540	2,801	975	17,219
2004	11,017	53		1,295	769	2,477	970	16,581
2005	8,987	15		572	938	5,178	1,121	16,811
2006	7,566	15		477	864	3,977	679	13,578
2007	7,091	7		211	676	2,324	613	10,922
2008	6,241	9		587	871	981	160	8,849
2009	5,395	3		285	883	846	93	7,505
2010	19,982	1		506	238	1,665	223	22,615
2011	24,214	5		363	171	915	228	25,896
2012	7,276	2		258	210	577	106	8,429
2013	16,643	2		286	131	877	204	18,143
2014	10,800	7		291	177	479	222	11,976
2015	15,863	1		402	135	543	188	17,132
2016	18,824	0		338	162	742	241	20,307
2017	9,157	0		246	42	424	264	10,133
2018	9,909	4		235	113	562	317	11,140
2019	164	0		5	4	126	189	488
2020	288	0		12	45	375	184	904
2021	121	0		2	6	464	128	721
2022	73	0		4	10	246	232	565
Mean (2017–21)	3,928	1		100	42	390	216	4,677
% change:								
2022 on 2021	-40			+100	+67	-47	+81	-22
2022 on 5-yr mean	-98			-96	-76	-37	+7	-88

Note: Data for 2022 are provisional. ***Since 2020, salmon caught by nets and fixed engines were released.***

Key: [a] Returns not required before 1989. It is unusual for salmonids positively identified as salmon to be caught in this sea trout fishery in any numbers; some reported fish may have been misidentified in some years. Hence, no period means are reported.

Table 12. Declared number of salmon caught by rods and the number and percentage of salmon released, 1993-2022.

Year	Environment Agency Region						NRW	E&W
	NE	Thames	Southern	SW	Midlands	NW	Wales	Total #
Number caught								
1993	1,696	2	84	2,806	336	5,055	4,080	14,059
1994	1,939	11	432	5,213	555	8,840	7,901	24,891
1995	2,201	13	302	2,554	442	6,348	4,146	16,006
1996	2,514	34	384	2,681	643	5,720	5,468	17,444
1997	2,445	2	149	2,372	312	4,144	3,622	13,047
1998	2,941	0	366	2,919	186	6,359	4,325	17,109
1999	2,670	1	253	1,881	185	4,133	3,369	12,493
2000	3,600	0	316	2,487	327	6,814	4,049	17,596
2001	3,733	0	405	1,396	273	4,209	4,351	14,383
2002	3,967	0	531	1,737	195	5,532	3,312	15,282
2003	3,507	0	225	1,266	333	3,547	2,632	11,519
2004	6,788	0	609	2,799	319	10,022	6,648	27,332
2005	5,933	0	438	1,725	430	8,446	4,408	21,418
2006	5,774	0	331	1,802	356	6,771	4,355	19,509
2007	4,872	0	466	2,071	280	7,151	5,136	19,984
2008	5,634	0	711	2,686	294	8,065	6,122	23,512
2009	4,421	0	391	1,648	213	5,532	3,356	15,563
2010	7,947	2	590	2,628	235	8,074	5,676	25,153
2011	8,373	0	606	2,402	362	6,672	4,784	23,199
2012	6,465	0	364	2,022	249	4,609	4,740	18,450
2013	6,469	0	271	1,085	332	3,539	3,224	14,920
2014	4,269	0	336	799	211	2,530	2,162	10,307
2015	2,936	0	451	1,592	469	2,179	2,636	10,263
2016	4,460	0	368	1,178	334	2,590	3,137	12,067
2017	4,977	0	283	1,622	330	3,124	3,234	13,570
2018	3,356	0	140	598	185	2,209	1,299	7,787
2019	4,468	1	216	656	161	2,172	1,489	9,163
2020	4,480	0	418	947	220	3,455	2,046	11,566
2021	2,351	0	208	822	93	1,294	1,046	5,814
2022	3,122	0	159	447	62	1,655	850	6,303
Number released								
1993	191	1	36	262	17	668	273	1,448
1994	322	0	69	745	36	1,253	802	3,227
1995	555	7	83	526	32	1,393	593	3,189
1996	732	25	88	510	57	1,332	684	3,428
1997	797	1	107	586	30	1,131	480	3,132
1998	1,037	0	222	1,077	31	2,019	979	5,371
1999	1,348	1	137	898	65	1,795	1,203	5,447
2000	1,888	0	247	1,152	103	2,816	1,264	7,470
2001	1,855	0	397	635	128	1,779	1,347	6,143
2002	2,257	0	528	920	73	2,534	1,346	7,658
2003	2,265	0	225	746	153	1,859	1,172	6,425
2004	3,612	0	609	1,572	174	4,672	2,487	13,211
2005	3,426	0	438	1,130	271	4,376	2,310	11,983
2006	3,283	0	331	1,342	210	3,450	2,285	10,959
2007	2,545	0	466	1,406	145	3,838	2,517	10,922
2008	2,831	0	711	1,825	155	4,360	3,153	13,035
2009	2,533	0	391	1,080	119	3,236	1,736	9,096
2010	4,714	2	587	1,795	133	4,807	2,974	15,012
2011	5,232	0	604	1,678	222	3,904	2,766	14,406
2012	3,995	0	358	1,454	185	2,774	3,186	11,952
2013	4,444	0	266	870	227	2,320	2,331	10,458
2014	3,193	0	332	657	166	1,953	1,691	7,992
2015	2,114	0	449	1,338	340	1,708	2,164	8,113
2016	3,448	0	366	989	260	2,027	2,610	9,700
2017	3,977	0	282	1,393	253	2,567	2,783	11,255
2018	2,759	0	140	569	149	2,103	1,137	6,857
2019	3,922	1	216	617	159	2,002	1,254	8,171
2020	3,976	0	418	890	219	3,267	2,042	10,812
2021	2,163	0	208	780	92	1,245	1,046	5,534
2022	2,914	0	158	438	62	1,614	846	6,032
Number retained								
1993	1,505	1	48	2,544	319	4,387	3,807	12,611
1994	1,617	11	363	4,468	519	7,587	7,099	21,664

Table 12. continued

1995	1,646	6	219	2,028	410	4,955	3,553	12,817
1996	1,782	9	296	2,171	586	4,388	4,784	14,016
1997	1,648	1	42	1,786	282	3,013	3,142	9,915
1998	1,904	0	144	1,842	155	4,340	3,346	11,738
1999	1,322	0	116	983	120	2,338	2,166	7,046
2000	1,712	0	69	1,335	224	3,998	2,785	10,126
2001	1,878	0	8	761	145	2,430	3,004	8,240
2002	1,710	0	3	817	122	2,998	1,966	7,624
2003	1,242	0	0	520	180	1,688	1,460	5,094
2004	3,176	0	0	1,227	145	5,350	4,161	14,121
2005	2,507	0	0	595	159	4,070	2,098	9,435
2006	2,491	0	0	460	146	3,321	2,070	8,550
2007	2,327	0	0	665	135	3,313	2,619	9,062
2008	2,803	0	0	861	139	3,705	2,969	10,477
2009	1,888	0	0	568	94	2,296	1,620	6,467
2010	3,233	0	3	833	102	3,267	2,702	10,141
2011	3,141	0	2	724	140	2,768	2,018	8,793
2012	2,470	0	6	568	64	1,835	1,554	6,498
2013	2,025	0	5	215	105	1,219	893	4,462
2014	1,076	0	4	142	45	577	471	2,315
2015	822	0	2	254	129	471	472	2,150
2016	1,012	0	2	189	74	563	527	2,367
2017	991	0	1	226	76	555	435	2,315
2018	597	0	0	29	36	106	162	930
2019	546	0	0	39	2	170	235	992
2020	504	0	0	57	1	188	4	754
2021	188	0	0	42	1	49	0	280
2022	208	0	1	9	0	41	4	271
% of fish released								
1993	11		43	9	5	13	7	10
1994	17		16	14	6	14	10	13
1995	25		27	21	7	22	14	20
1996	29		23	19	9	23	13	20
1997	33		72	25	10	27	13	24
1998	35		61	37	17	32	23	31
1999	50		54	48	35	43	36	44
2000	52		78	46	31	41	31	42
2001	50		98	45	47	42	31	43
2002	57		99	53	37	46	41	50
2003	65		100	59	46	52	45	56
2004	53		100	56	55	47	37	48
2005	58		100	66	63	52	52	56
2006	57		100	74	59	51	52	56
2007	52		100	68	52	54	49	55
2008	50		100	68	53	54	52	55
2009	57		100	66	56	58	52	58
2010	59		99	68	57	60	52	60
2011	62		99.7	70	61	59	58	62
2012	62		98	72	74	60	67	65
2013	69		98	80	68	66	72	70
2014	75		99	82	79	77	78	78
2015	72		100	84	72	78	82	79
2016	77		99	84	78	78	83	80
2017	80		100	86	77	82	86	83
2018	82		100	95	81	95	88	88
2019	88		100	94	99	92	84	89
2020	89		100	94	100	95	100	93
2021	92		100	95	99	96	100	95
2022	93		99	98	100	98	100	96
Mean total catch – inc. fish caught & released (2017–21)	3,926		253	929	198	2,451	1,823	9,580
% change:								
2022 on 2021	+33		-24	-46	-33	+28	-19	+8
2022 on 5-yr mean	-20		-37	-52	-69	-32	-53	-34

Key: # Totals include some fish of unknown region of capture.

Notes: Declared catches are reported in this table, however, adjusted values have been used for assessment purposes (see Table 19). Data for 2022 are provisional.

Table 13. Declared weight of salmon caught (retained fish only) and percentage of catch by weight taken in coastal, estuarine, and riverine fisheries in England and Wales, 1988-2022.

Year	Coastal		Estuarine		Riverine		Total
	Wt (t)	%	Wt (t)	%	Wt (t)	%	Wt (t)
1988	218.1	55	53.0	13	123.6	31	394.8
1989	159.3	54	80.0	27	56.6	19	295.9
1990	212.4	63	65.5	19	60.3	18	338.1
1991	105.9	53	38.7	19	55.6	28	200.1
1992	90.7	53	39.6	23	40.2	24	170.5
1993	158.8	64	43.4	18	45.9	18	248.1
1994	183.5	57	58.4	18	81.9	25	323.8
1995	200.3	68	45.4	15	48.9	17	294.6
1996	83.3	45	42.3	23	57.5	31	183.2
1997	80.5	57	26.7	19	34.6	24	141.8
1998	65.2	53	19.4	16	38.2	31	122.9
1999	101.0	67	23.1	15	26.0	17	150.0
2000	156.6	72	25.4	12	36.9	17	218.8
2001	128.6	70	24.2	13	31.3	17	184.2
2002	107.9	67	24.4	15	28.7	18	161.0
2003	42.0	47	26.6	30	20.4	23	89.0
2004	39.2	35	19.4	17	52.8	47	111.4
2005	32.2	33	28.3	29	36.0	37	96.5
2006	29.5	37	20.7	26	29.6	37	79.8
2007	23.9	36	13.4	20	29.8	44	67.1
2008	21.7	34	8.1	13	34.0	53	63.7
2009	20.2	37	8.6	16	25.2	47	54.0
2010	63.8	59	8.8	8	36.2	33	108.7
2011	93.1	69	6.4	5	36.3	27	135.8
2012	26.1	45	4.6	8	27.2	47	58.0
2013	61.5	73	5.6	7	17.0	20	84.1
2014	40.6	75	4.3	8	9.3	17	54.3
2015	55.2	82	4.4	6	8.0	12	67.6
2016	70.7	82	5.6	6	9.7	11	85.9
2017	36.0	74	3.2	7	9.7	20	48.8
2018	35.5	84	3.3	8	3.5	8	42.3
2019	0.0	0	0.5	12	4.0	88	4.5
2020	0.0	0	0.0	0	3.0	100	3.0
2021	0.0	0	0.0	0	1.1	100	1.1
2022	0.0	0	0.0	0	1.1	100	1.1
Mean (2017–21)	14.3	31.5	1.4	5.3	4.2	63.2	20.0

Notes: *Coastal catches in 2018 from North East coast nets and Anglian coastal nets, but previously included River Parrett putcher rank (last fished 1999), River Usk drift nets (1997) & putcher rank (1999), SW Wales coastal wade (1995) & seine nets (1997), River Ogwen seine nets (2000), River Seiont/Gwyrfai seine nets (1997), River Dwyfawr seine nets (1999), N. Caernarvonshire seine nets (1996), River Clwyd sling (drift) nets (1997) and the SW Cumbria drift nets (2003).*
Riverine catches in 2017 from rod catches and River Eden coops; River Conwy basket trap (also operated in freshwater) was last fished in 2002.
Estuarine fisheries include all other nets and fixed engines not mentioned above.
Data for 2022 are provisional.

Table 14. Declared number, weight, and percentage of salmon released by rods, and declared number and weight of salmon released by nets in England and Wales, 1993-2022.

Year	Salmon released by rods			Salmon released by nets	
	Number released	Weight (t)	% of declared catch	Number	Weight (t)
1993	1,448	5.26	10		
1994	3,227	12.19	13		
1995	3,189	12.11	20		
1996	3,428	13.99	20		
1997	3,132	13.77	24		
1998	5,371	20.98	31		
1999	5,447	23.87	44	118	0.4
2000	7,470	30.70	42	171	0.7
2001	6,143	25.50	43	176	0.4
2002	7,658	31.80	50	234	0.9
2003	6,425	28.20	56	107	0.5
2004	13,211	51.70	48	143	0.5
2005	11,983	49.80	56	84	0.4
2006	10,959	42.50	56	72	0.3
2007	10,922	42.00	55	70	0.3
2008	13,035	49.80	55	88	0.3
2009	9,096	37.00	58	62	0.3
2010	15,012	53.38	60	61	0.2
2011	14,406	62.40	62	411	1.5
2012	11,952	53.89	65	56	0.2
2013	10,458	45.26	70	30	0.1
2014	7,992	34.19	78	73	0.2
2015	8,113	34.74	79	209	0.8
2016	9,700	43.25	80	185	0.6
2017	11,255	50.72	83	253	1.0
2018	6,857	30.07	88	363	1.4
2019	8,171	35.06	89	341	1.2
2020	10,812	45.92	93	904	3.4
2021	5,534	23.46	95	721	3.0
2022	6,032	25.95	96	565	2.4

Notes: A proportion of the salmon released by nets are fish caught prior to June, which, since 1999, are required to be released. Since 2020, all net caught salmon have been released.
A small proportion of the salmon released by nets have previously resulted from an agreement between the Environment Agency and netters fishing the estuary of the River Avon (Hants); this fishery ceased to operate in 2012.
There was no requirement for net caught salmon to be released prior to 1999.
The data reported in this table are declared catches, however, adjusted values have been used for assessment purposes (see Table 19).
Data for 2022 are provisional.

Table 15. Declared number and percentage of salmon caught by nets and rods taken before (<) and from (≥) 1 June, 1989-2022.

Year	Net catch (including released fish)				Rod catch (including released fish)			
	Number			%	Number #			%
	< 1 June	≥ 1 June	Total	< 1 June	< 1 June	≥ 1 June	Total	< 1 June
1989	4,742	64,198	68,940	6.9	3,199	11,529	14,728	21.7
1990	7,339	64,488	71,827	10.2	2,397	12,290	14,687	16.3
1991	3,637	34,038	37,675	9.7	2,240	11,496	13,736	16.3
1992	2,497	31,352	33,849	7.4	1,012	9,725	10,737	9.4
1993	1,630	54,936	56,566	2.9	865	13,194	14,059	6.2
1994	4,824	61,633	66,457	7.3	2,609	22,282	24,891	10.5
1995	4,888	62,771	67,659	7.2	2,141	13,865	16,006	13.4
1996	2,913	29,767	32,680	8.9	2,691	14,753	17,444	15.4
1997	1,528	29,931	31,459	4.9	1,335	11,278	12,613	10.6
1998	832	24,335	25,167	3.3	712	15,275	15,987	4.5
1999	116	34,043	34,159	0.3	920	11,211	12,131	7.6
2000	19	50,979	50,998	0.04	760	16,496	17,256	4.4
2001	47	43,196	43,243	0.11	708	13,675	14,383	4.9
2002	32	38,247	38,279	0.08	815	14,250	15,065	5.4
2003	42	17,177	17,219	0.24	1,037	10,373	11,410	9.1
2004	35	16,546	16,581	0.21	1,168	25,777	26,945	4.3
2005	29	16,782	16,811	0.17	1,652	19,239	20,891	7.9
2006	17	13,561	13,578	0.13	1,618	17,891	19,509	8.3
2007	14	10,908	10,922	0.13	908	18,733	19,641	4.6
2008	17	8,630	8,647	0.20	1,068	22,444	23,512	4.5
2009 [a]	1	7,504	7,505	0.01	925	14,638	15,563	5.9
2010 [a]	1	22,614	22,615	0.00	682	23,811	24,493	2.8
2011 [b]	367	25,826	26,193	1.40	1,255	21,383	22,638	5.5
2012	59	8,425	8,484	0.70	1,175	17,025	18,200	6.5
2013	30	18,146	18,176	0.17	1,236	13,541	14,777	8.4
2014	47	11,417	11,464	0.41	957	9,350	10,307	9.3
2015	133	17,188	17,321	0.77	1,348	8,843	10,191	13.2
2016	104	20,203	20,307	0.51	1,173	10,801	11,974	9.8
2017	172	9,961	10,133	1.70	1,086	12,484	13,570	8.0
2018	61	11,079	11,140	0.55	583	7,197	7,780	7.5
2019	61	427	488	12.50	685	8,298	8,983	7.6
2020	115	789	904	12.7	372	11,136	11,508	3.2
2021	11	710	721	1.5	564	5240	5,804	9.7
2022	90	475	565	15.9	538	5753	6,291	8.6
Mean (1994–98)	2,997	41,687	44,684	6.7	1,898	15,491	17,388	10.9
Mean (1999–22)	68	16,868	16,936	2.1	968	14,150	15,118	7.0

Notes: *National measures to protect 'spring' salmon introduced on April 15 1999- required compulsory catch-and-release of all rod caught salmon prior to June 16, and closed most net fisheries prior to June 1. Those net fisheries still allowed to operate before June target sea trout and are required to release all salmon alive.*
Declared catches are reported in this table, however, adjusted values have been used for assessment purposes (see Table 19).
Since 2020, all net caught salmon have been released.
Data for 2022 are provisional.
 # Excludes fish for which no capture date recorded.

Key: *[a] No requirement to record net-released fish on new logbooks, so pre-June catch under-estimated.*
[b] The increase in the pre-June catch from 2011 reflects the fact that salmon caught and released by T&J nets operating in the NE Region were not recorded over the period 1999-2010.

Table 16. Declared number of salmon caught by rods, and number and percentage of fish released, by weight category and season, 1998-2022.

Period	April to June			July to August			September to October			April to October		
Wt. category (kg)	<3.6	3.6–6.4	>6.4	<3.6	3.6–6.4	>6.4	<3.6	3.6–6.4	>6.4	<3.6	3.6–6.4	>6.4
Number caught												
1998	523	753	111	3782	857	222	5767	2045	562	10,072	3,655	896
1999	354	864	262	1283	627	203	3667	2209	879	5,303	3,699	1,345
2000	388	771	206	2495	818	240	5813	3111	896	8,695	4,700	1,342
2001	205	971	203	1758	1041	200	4290	2536	724	6,253	4,548	1,127
2002	377	1014	300	2033	767	173	4434	2728	775	6,844	4,508	1,247
2003	282	817	241	885	839	188	2879	2400	862	4,046	4,056	1,292
2004	516	832	241	3374	1587	283	11124	6120	1212	15,014	8,539	1,736
2005	546	1454	327	2007	1198	169	8048	4941	974	10,601	7,593	1,470
2006	567	1505	269	1422	779	110	9176	3593	766	11,165	5,877	1,145
2007	565	931	161	2936	1897	233	7876	3445	707	11,377	6,273	1,101
2008	719	1,381	215	3,367	2,213	288	8,908	4,028	1,018	12,994	7,622	1,521
2009	500	849	172	2,163	1,933	221	4,955	3,096	802	7,618	5,878	1,195
2010	441	469	117	3740	1418	215	11284	4986	1099	15,465	6,873	1,431
2011	643	1,426	364	2,606	2,777	574	6,831	5,255	1,567	10,080	9,458	2,505
2012	597	1,395	512	2,504	2,750	558	4,476	3,762	1,185	7,577	7,907	2,255
2013	437	1,200	486	1,644	1,146	228	5,202	3,130	1,006	7,283	5,476	1,720
2014	388	879	214	1,296	1,096	184	2,993	2,270	647	4,677	4,245	1,045
2015	547	1,236	461	1,826	1,182	292	2,465	1,403	575	4,838	3,821	1,328
2016	614	1,184	574	1,996	1,527	580	2,534	1,715	1,101	5,144	4,426	2,255
2017	576	1,223	465	2,112	1,688	603	2,722	2,524	1,317	5,410	5,435	2,385
2018	94	584	201	792	936	157	1,765	2,461	626	2,651	3,981	984
2019	242	1,072	291	1,153	1,044	225	1,999	2,036	684	3,394	4,152	1,200
2020	199	777	127	1,740	1,967	377	2,367	3,003	841	4,306	5,747	1,345
2021	131	604	206	795	664	113	1287	1499	366	2,213	2,767	685
2022	132	632	140	453	383	76	1704	1948	635	2,289	2,963	851
Number released												
1998	136	113	20	643	197	40	2,076	900	253	2,855	1,210	313
1999	209	570	194	295	163	61	1,430	994	466	1,934	1,727	721
2000	221	532	148	499	229	72	2,325	1,431	502	3,045	2,192	722
2001	119	602	138	422	302	52	1,673	1,141	420	2,214	2,045	610
2002	241	659	213	488	207	57	2,084	1,473	488	2,813	2,339	758
2003	214	629	193	239	235	64	1,382	1,392	595	1,835	2,256	852
2004	283	576	143	1074	501	116	5,154	2,962	707	6,511	4,039	966
2005	464	1105	265	715	439	67	4,240	2,661	598	5,419	4,205	930
2006	499	1234	239	583	304	54	4,496	2,048	498	5,578	3,586	791
2007	436	666	142	1181	726	109	4,253	1,981	448	5,870	3,373	699
2008	507	948	170	1547	874	116	4,827	2,307	622	6,881	4,129	908
2009	378	630	148	957	743	104	2,925	1,963	549	4,260	3,336	801
2010	339	367	104	1743	604	107	6751	3141	802	8,833	4,112	1,013
2011	481	1,038	298	1,380	1,289	301	4,242	3,351	1,092	6,102	5,678	1,691
2012	449	1,046	443	1,391	1,371	334	2,960	2,502	871	4,800	4,919	1,648
2013	367	996	456	874	619	137	3,553	2,292	794	4,794	3,907	1,387
2014	345	768	204	830	649	112	2,406	1,823	553	3,581	3,240	869
2015	486	1,140	440	1,280	745	215	1,876	1,170	512	3,642	3,055	1,167
2016	522	1,040	528	1,424	1,009	409	2,081	1,468	983	4,027	3,517	1,920
2017	507	1,104	435	1,560	1,152	436	2,357	2,198	1,193	4,424	4,454	2,064
2018	85	542	192	639	772	127	1,548	2,213	570	2,272	3,527	889
2019	223	981	264	968	897	190	1,765	1,860	635	2,956	3,738	1,089
2020	191	750	122	1,581	1,776	347	2,208	2,870	806	3,980	5,396	1,275
2021	127	594	204	738	610	102	1221	1440	354	2,086	2,644	660
2022	128	619	138	409	361	72	1627	1880	610	2,164	2,860	820
Percentage (%) released												
1998	26	15	18	17	23	18	36	44	45	28	33	35
1999	59	66	74	23	26	30	39	45	53	36	47	54
2000	57	69	72	20	28	30	40	46	56	35	47	54
2001	58	62	68	24	29	26	39	45	58	35	45	54
2002	64	65	71	24	27	33	47	54	63	41	52	61

Table 16. continued

2003	76	77	80	27	28	34	48	58	69	45	56	66
2004	55	69	59	32	32	41	46	48	58	43	47	56
2005	85	76	81	36	37	40	53	54	61	51	55	63
2006	88	82	89	41	39	49	49	57	65	50	61	69
2007	77	72	88	40	38	47	54	58	63	52	54	63
2008	71	69	79	46	39	40	54	57	61	53	54	60
2009	76	74	86	44	38	47	59	63	68	56	57	67
2010	77	78	89	47	43	50	60	63	73	57	60	71
2011	75	73	82	53	46	52	62	64	70	61	60	68
2012	75	75	87	56	50	60	66	67	74	63	62	73
2013	84	83	94	53	54	60	68	73	79	66	71	81
2014	89	87	95	64	59	61	80	80	85	77	76	83
2015	89	92	95	70	63	74	76	83	89	75	80	88
2016	85	88	92	71	66	71	82	86	89	78	79	85
2017	88	90	94	74	68	72	87	87	91	82	82	87
2018	90	93	96	81	82	81	88	90	91	86	89	90
2019	92	92	91	84	86	84	88	91	93	87	90	91
2020	96	97	96	91	90	92	93	96	96	92	94	95
2021	97	98	99	93	92	90	95	96	97	94	96	96
2022	97	98	99	90	94	95	95	97	96	95	97	96

Notes: 1998 Prior to national byelaw.
1999 National byelaw requiring compulsory catch-and-release before 16 June introduced on 15 April.
2000 First full year of national catch-and-release byelaw.
Analysis based on representative sample of catch return data; totals differ from the declared catches (Table 10).
The data reported in this table are declared catches, however, adjusted values have been used for assessment purposes (see Table 19).
Data for 2022 are provisional.

Table 17. Provisional declared number and percentage of small (≤3.6 kg) and large (>3.6 kg) salmon caught and released by net fisheries in England and Wales, 2022.

EA Region/NRW	Small salmon (1SW)		Large salmon (MSW)		Total
	(≤3.6 kg)	%	(>3.6 kg)	%	
Anglian	0	n/a	0	n/a	0
North East	48	66	25	34	73
South West	1	25	3	75	4
Midlands	4	40	6	60	10
North West	89	36	157	64	246
Wales	40	17	192	83	232
Total	**182**	**32**	**383**	**68**	**565**

Table 18. Provisional declared number and percentage of 1SW (grilse) and MSW salmon caught by selected rod fisheries (including fish caught and released), 2022.

EA Region / NRW	River	No. 1SW	%	No. MSW	%
NE	Coquet	228	59	156	41
	Tyne	770	39	1187	61
	Wear	255	40	375	60
Southern	Itchen	32	40	48	60
	Test	25	33	51	67
SW	Hants Avon	3	6	45	94
	Frome	10	41	14	59
	Exe	16	52	14	48
	Teign	10	41	14	59
	Dart	1	100	0	0
	Tavy	6	41	8	59
	Tamar	44	50	44	50
	Lynher	21	49	22	51
	Fowey	32	38	52	62
	Camel	14	55	11	45
	Taw	5	12	35	88
	Torridge	1	9	11	91
	Lyn	5	61	4	39
Midlands	Severn	3	4	57	96
NW	Ribble	50	32	106	68
	Lune	97	56	77	44
	Kent	46	75	16	25
	Leven	20	62	12	38
	Irt	58	86	9	14
	Ehen	112	91	11	9
	Derwent	106	50	108	50
	Eden	122	30	281	70
	Border Esk	124	40	188	60
Wales	Wye	19	8	209	92
	Usk	3	5	48	95
	Tywi	64	38	105	62
	Tawe	4	46	5	54
	Taf	2	38	3	62
	E & W Cleddau	13	74	4	26
	Teifi	47	44	61	56
	Dyfi	16	60	10	40
	Mawddach	9	40	14	60
	Ogwen	3	99	0	1
	Conwy	13	54	11	46
	Dee	54	36	94	64
E&W Total		**2,461**	**41**	**3,522**	**59**

Note: Data only included for fish for which weight data provided on catch return and do not include all rivers; these data therefore differ from the total reported catch (Table 10).

Table 19. Estimated number of 1SW and MSW salmon (corrected for under-reporting) and the percentage composition of MSW salmon caught by rods (including fish caught and released), 1992-2022.

Year	Environment Agency Region										NRW Wales		E&W Total		
	NE		Southern		SW		Midlands		NW						
	1SW	MSW	1SW	MSW	1SW	MSW	1SW	MSW	1SW	MSW	1SW	MSW	1SW	MSW	Total
1992	1,085	723	235	29	3,186	476	112	175	4,029	945	2,282	1,074	10,927	3,422	14,349
1993	966	729	465	82	3,216	706	145	192	5,245	999	4,788	1,197	14,825	3,905	18,730
1994	1,173	660	277	156	4,172	1,043	217	339	7,162	1,680	5,609	2,291	18,611	6,169	24,780
1995	1,270	1,082	218	65	1,914	860	71	402	5,380	1,102	2,769	1,491	11,622	5,002	16,624
1996	1,246	1,405	262	97	1,674	1,116	90	603	4,620	1,228	3,431	2,287	11,322	6,736	18,058
1997	1,325	1,084	120	30	1,932	483	54	266	3,780	667	2,382	1,021	9,593	3,551	13,144
1998	2,226	909	378	24	2,543	501	66	131	5,975	699	3,548	843	14,736	3,107	17,843
1999	1,586	1,351	206	72	1,386	683	70	132	3,589	955	2,278	1,175	9,115	4,368	13,483
2000	2,188	1,618	292	56	2,270	441	200	139	6,507	807	3,196	816	14,653	3,877	18,530
2001	2,628	1,478	344	61	1,275	261	90	210	3,936	694	3,638	1,149	11,911	3,853	15,764
2002	2,924	1,440	520	64	1,452	459	92	123	5,233	852	2,550	1,093	12,771	4,031	16,802
2003	2,353	1,505	151	74	947	446	117	249	3,121	780	1,766	1,129	8,455	4,183	12,638
2004	5,222	2,245	528	81	2,633	446	123	228	9,790	1,234	5,927	1,386	24,223	5,620	29,843
2005	5,481	2,088	306	132	1,404	494	151	322	7,804	1,487	3,588	1,261	18,734	5,784	24,518
2006	4,637	1,715	256	76	1,388	595	145	247	5,810	1,639	3,593	1,198	15,829	5,470	21,299
2007	3,798	1,431	382	84	1,615	656	171	136	6,725	1,029	4,110	1,267	16,801	4,603	21,404
2008	4,651	1,547	633	78	2,245	710	106	217	7,724	1,147	5,387	1,347	20,746	5,046	25,792
2009	3,686	1,346	157	95	1,326	477	74	157	4,686	1,346	2,323	1,163	12,252	4,584	16,836
2010	6,119	2,623	498	88	2,486	335	106	153	7,194	1,687	5,027	1,103	21,430	5,989	27,419
2011	4,422	4,788	420	183	1,882	760	105	293	4,564	2,775	3,066	2,126	14,460	10,925	25,385
2012	3,528	3,584	273	128	1,219	1,005	68	206	2,877	2,193	2,198	3,016	10,162	10,132	20,294
2013	3,978	3,138	140	158	778	416	76	289	2,790	1,103	1,828	1,719	9,590	6,822	16,412
2014	2,153	2,200	256	100	463	339	48	161	1,738	901	953	1,197	5,610	4,897	10,507
2015	2,074	1,919	326	287	1,232	933	136	502	1,323	1,641	1,414	2,171	6,505	7,453	13,958
2016	2,285	3,602	263	223	881	674	78	363	1,614	1,805	1,439	2,702	6,560	9,369	15,928
2017	2,133	4,238	237	125	1,233	843	96	327	1,773	2,225	1,525	2,614	6,997	10,372	17,370
2018	2,233	2,835	109	102	475	428	58	221	1,729	1,606	729	1,232	5,334	6,424	11,758
2019	1,849	3,066	140	97	425	297	16	162	1,333	1,056	667	970	4,430	5,648	10,078
2020	2,138	2,790	297	162	641	400	38	204	1,530	2,271	911	1,339	5,555	7,168	12,723
2021	909	1,678	124	105	495	409	12	90	592	831	345	806	2,477	3,918	6,395
2022	1,448	1,986	64	111	187	305	3	65	867	953	284	651	2,853	4,072	6,925
Mean (2017–21)	1,852	2,921	182	118	654	475	44	201	1,391	1,598	836	1,392	4,959	6,706	11,665
% change:															
2022 on 2021	+59	+18	-48	+5	-62	-25	-77	-27	+46	+15	-18	-19	+15	+4	+8
2022 on 5-yr mean	-22	-32	-65	-6	-71	-36	-93	-67	-38	-40	-66	-53	-42	-39	-41

Table 19. continued

Percentage MSW

Year	Environment Agency Region					NRW Wales	E&W Total
	NE	Southern	SW	Midlands	NW		
1992	40	11	13	61	19	32	24
1993	43	15	18	57	16	20	21
1994	36	36	20	61	19	29	25
1995	46	23	31	85	17	35	30
1996	53	27	40	87	21	40	37
1997	45	20	20	83	15	30	27
1998	29	6	16	66	10	19	17
1999	46	26	33	65	21	34	32
2000	43	16	16	41	11	20	21
2001	36	15	17	70	15	24	24
2002	33	11	24	57	14	30	24
2003	39	33	32	68	20	39	33
2004	30	13	14	65	11	19	19
2005	28	30	26	68	16	26	24
2006	27	23	30	63	22	25	26
2007	27	18	29	44	13	24	22
2008	25	11	24	67	13	20	20
2009	27	38	26	68	22	33	27
2010	30	15	12	59	19	18	22
2011	52	30	29	74	38	41	43
2012	50	32	45	75	43	58	50
2013	44	53	35	79	28	48	42
2014	51	28	42	77	34	56	47
2015	48	47	43	79	55	61	53
2016	61	46	43	82	53	65	59
2017	67	35	41	77	56	63	60
2018	56	48	47	79	48	63	55
2019	62	41	41	91	44	59	56
2020	57	35	38	84	60	60	56
2021	65	46	45	88	58	70	61
2022	58	63	62	96	52	70	59
Mean (2017–21)	61	39	42	82	53	62	57

Note: Data for 2022 are provisional.

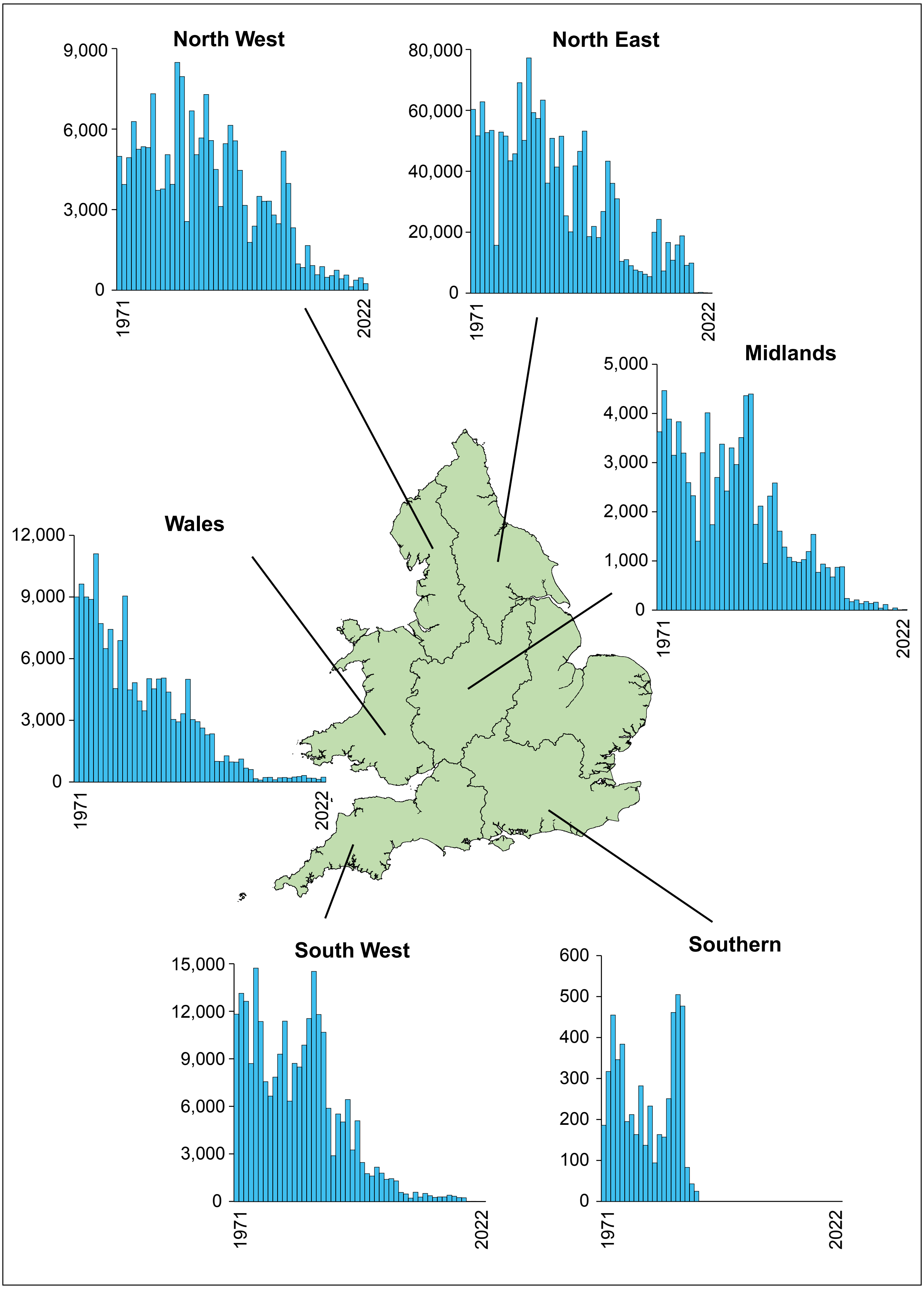


Figure 6. Declared number of salmon caught by nets and fixed engines, 1971-2022. (N.B. since 2020, all net caught salmon have been released). Note that the figure axes are not drawn to the same scale.

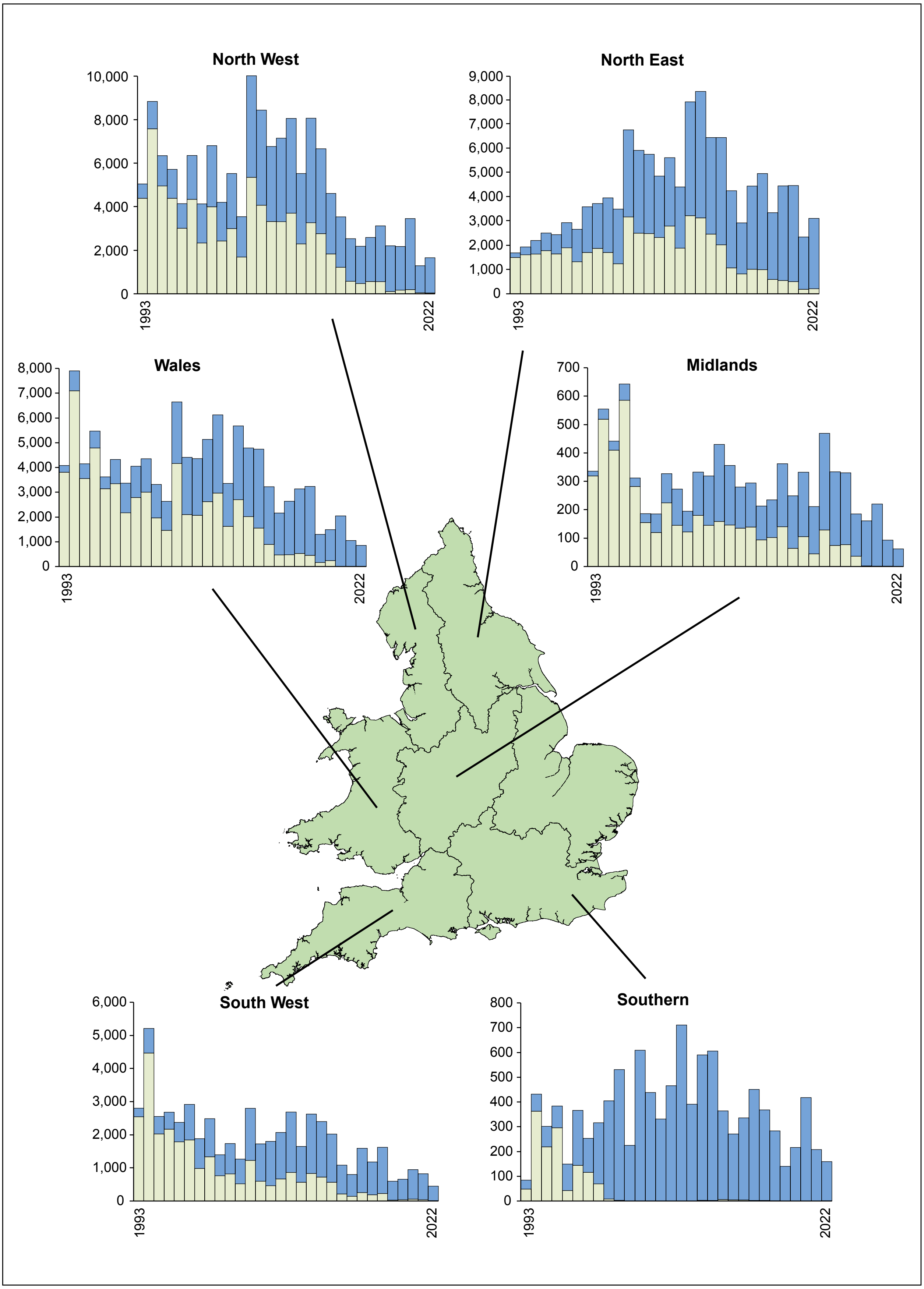


Figure 7. Declared number of salmon caught by rods, 1993-2022. The histograms display the total declared catch, with the blue shaded area denoting fish caught and released. Note that the histograms are not drawn to the same scale.

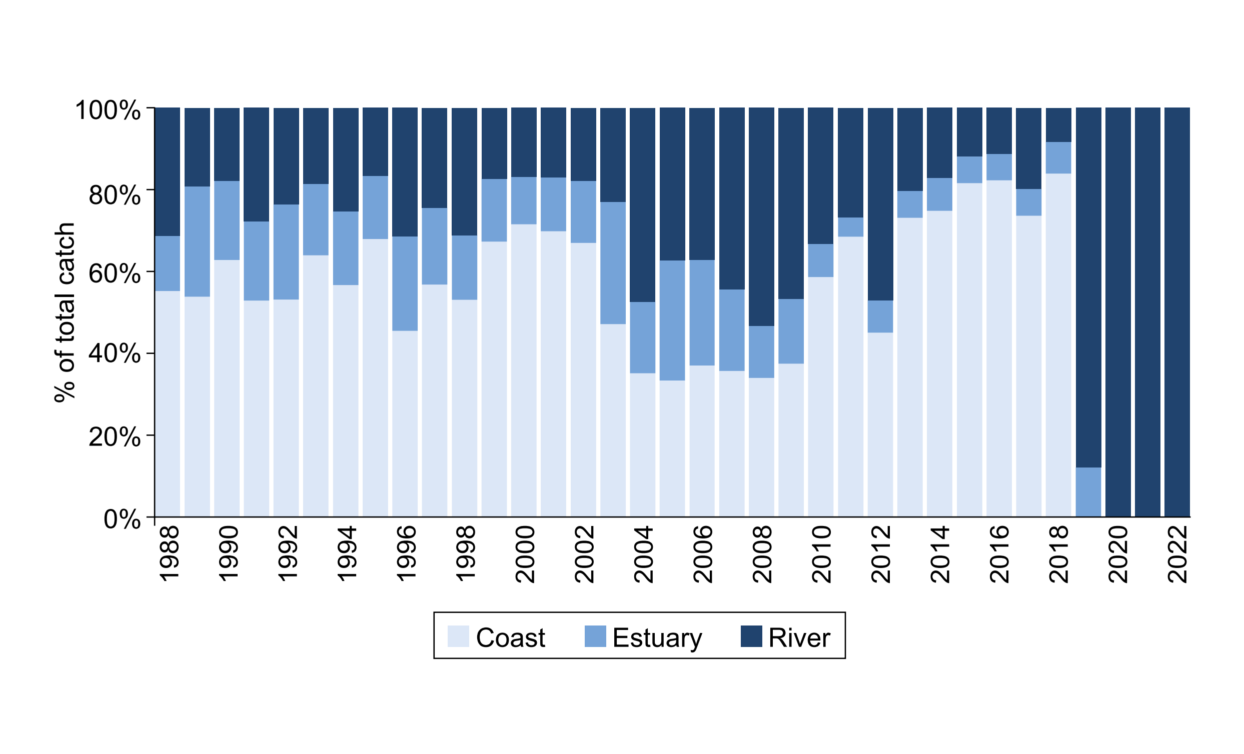


Figure 8. Percentage (by weight) of the declared total catch of salmon (caught and retained only) taken in coastal, estuarine, and riverine fisheries, 1988-2022.

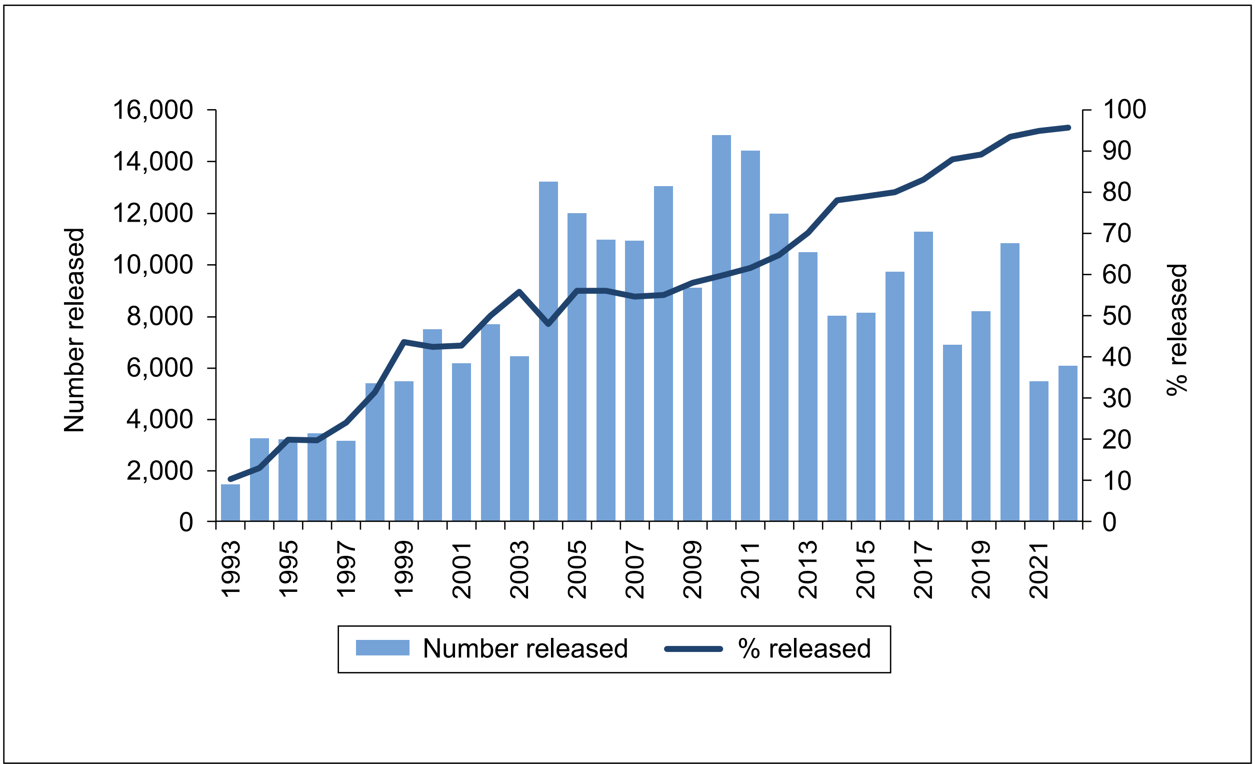


Figure 9. The number and percentage of the declared salmon catch released by anglers, 1993-2022.

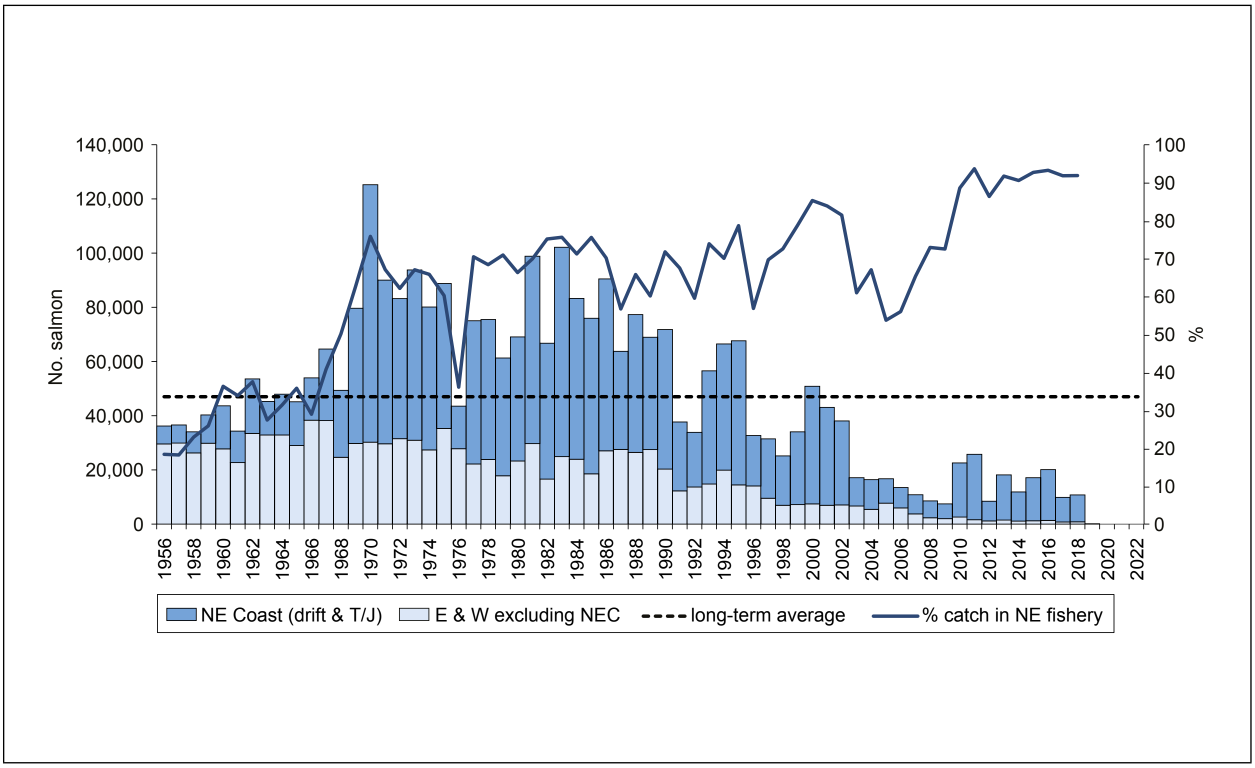


Figure 10. Declared number of salmon caught by nets and fixed engines in England and Wales and the percentage of the catch taken in the north east coast fishery, 1956-2022. (N.B. since 2020, no data shown on the figure because all salmon caught were released).

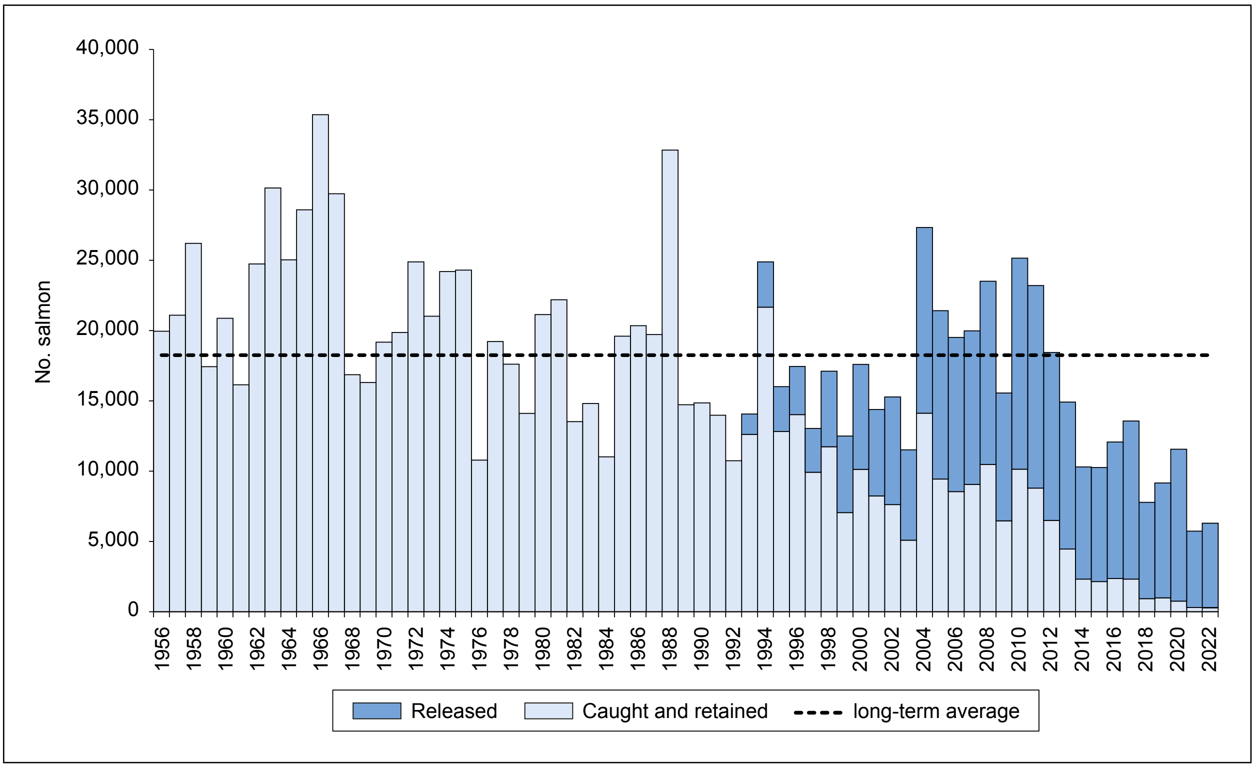


Figure 11. Declared number of salmon caught by rods in England and Wales, 1956-2022. (Fish caught and released not reported prior to 1993).

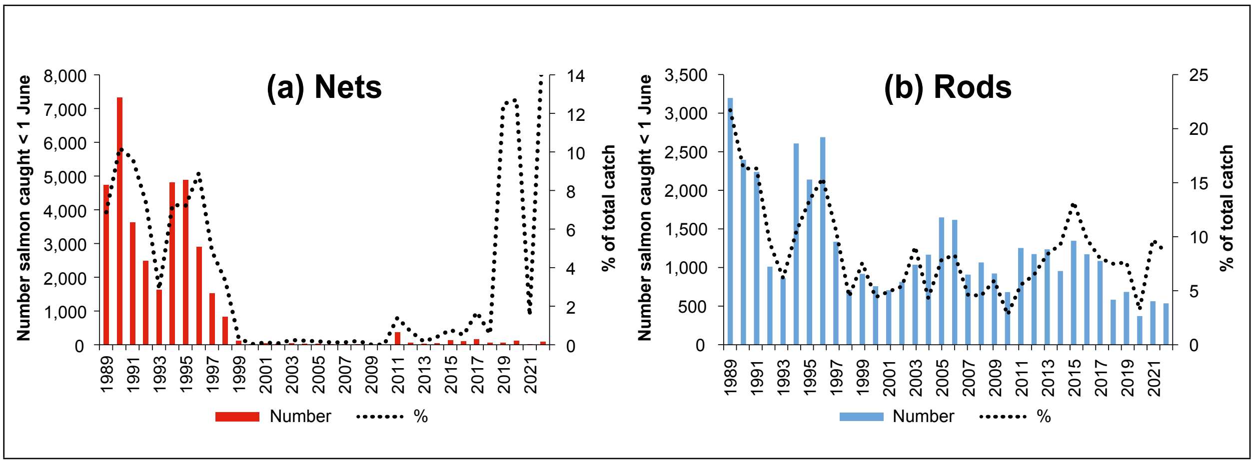


Figure 12. Declared number and percentage of salmon caught (including released fish) by (a) nets and (b) rods before 1 June, 1989-2022.

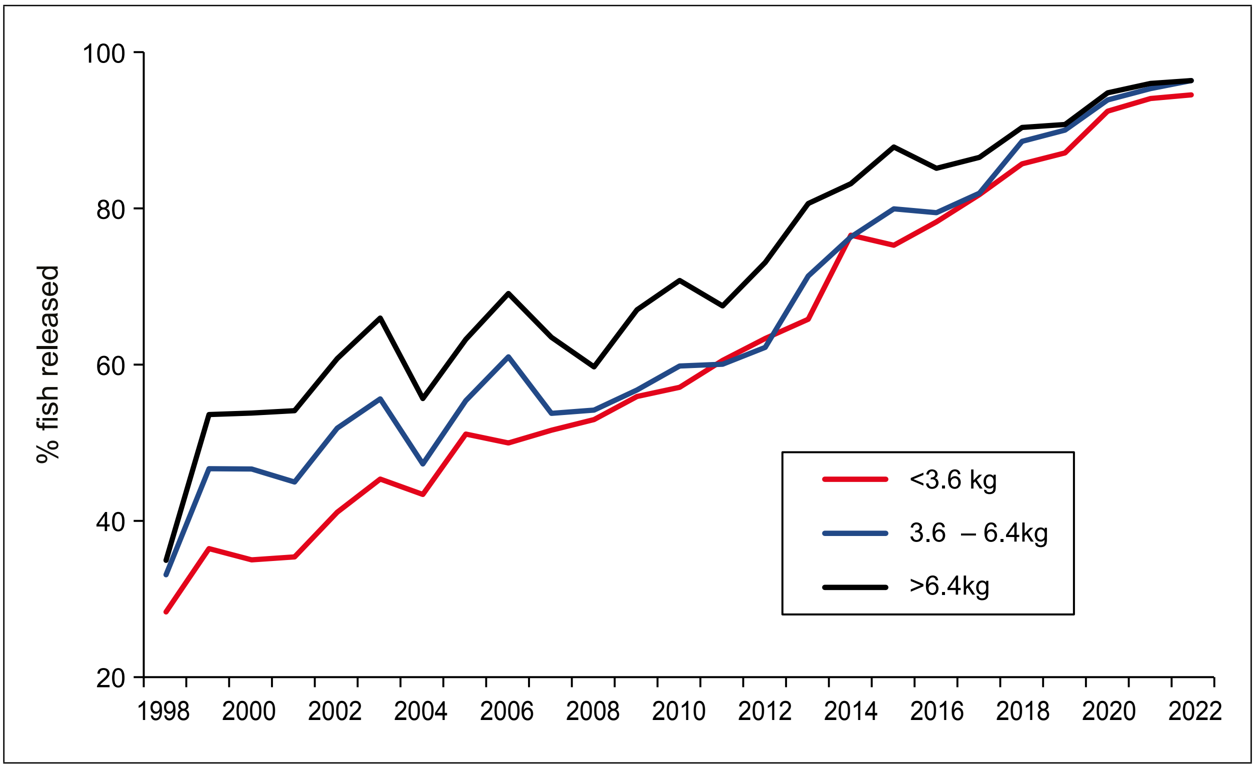


Figure 13. Percentage of rod caught fish released by anglers, by weight category, 1998-2022.

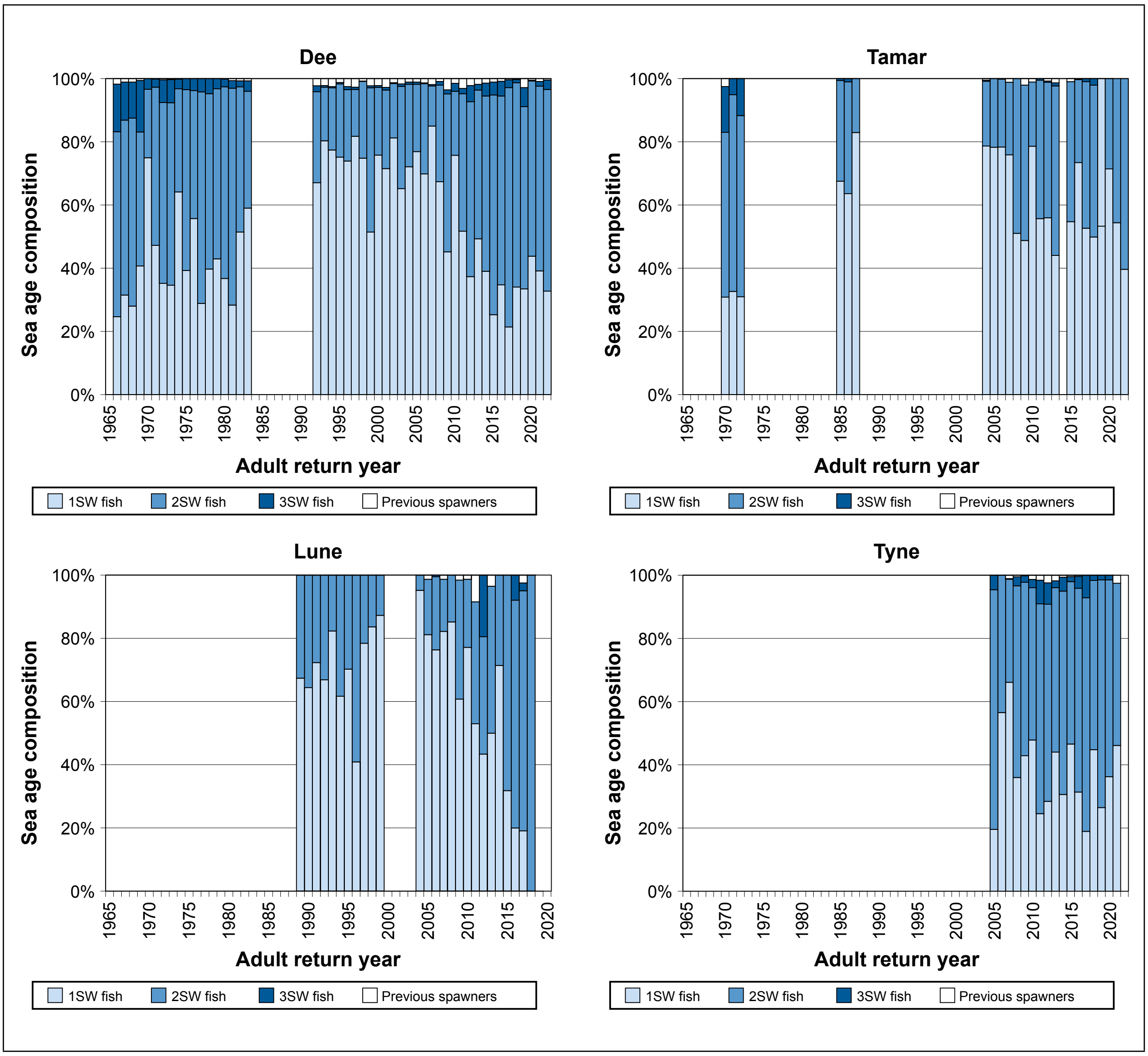


Figure 14. Variation in the percentages of 1SW and older salmon returning to the Rivers Dee, Tamar, Lune, and Tyne over the available time series.

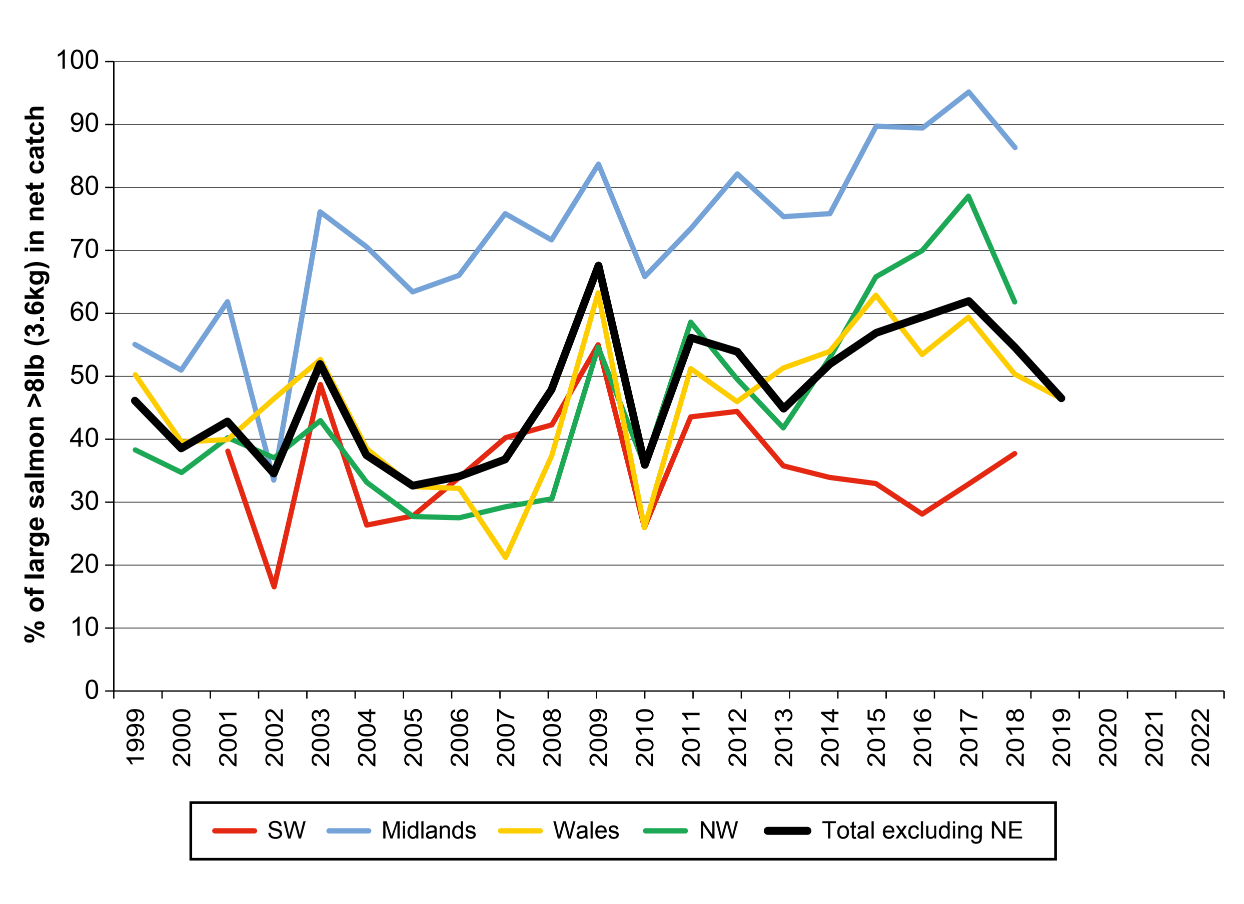


Figure 15. Estimated percentage of salmon >3.6 kg (8lb) caught in regional net and fixed engine fisheries (excluding NE Region), 1999-2022. (N.B. since 2020, no data shown on the figure because all net caught salmon were released).

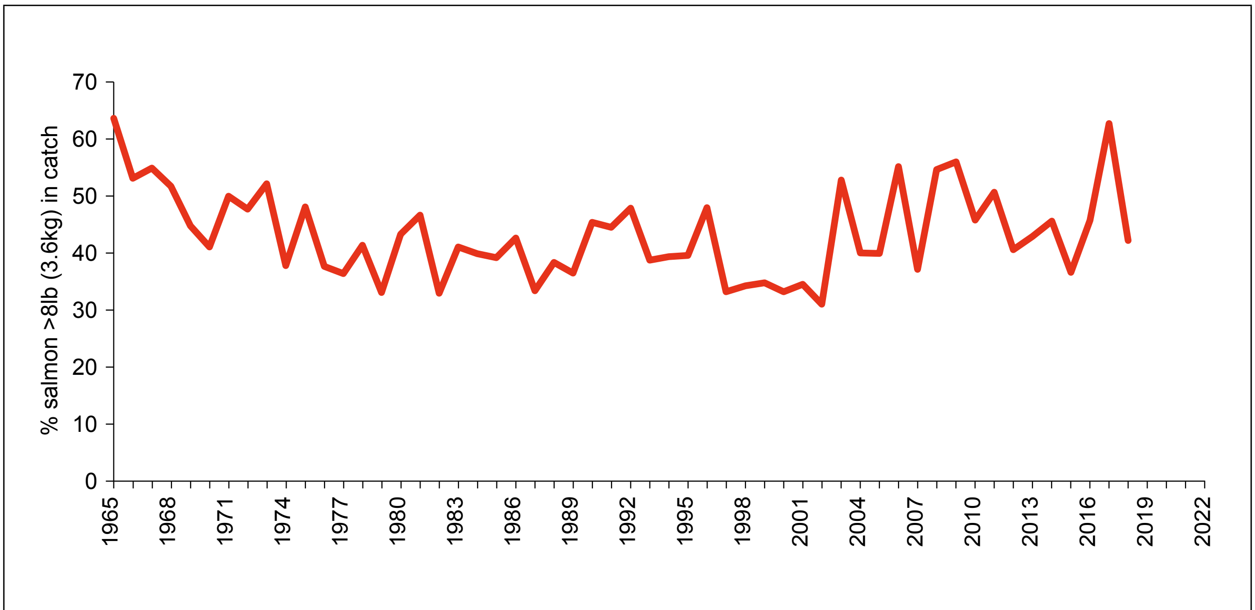


Figure 16. Estimated percentage of salmon >3.6 kg (8lb) caught in the north east coast net fishery (as declared by netters), 1965-2022. (N.B. since 2019, no data shown on the figure because all net caught salmon were released).

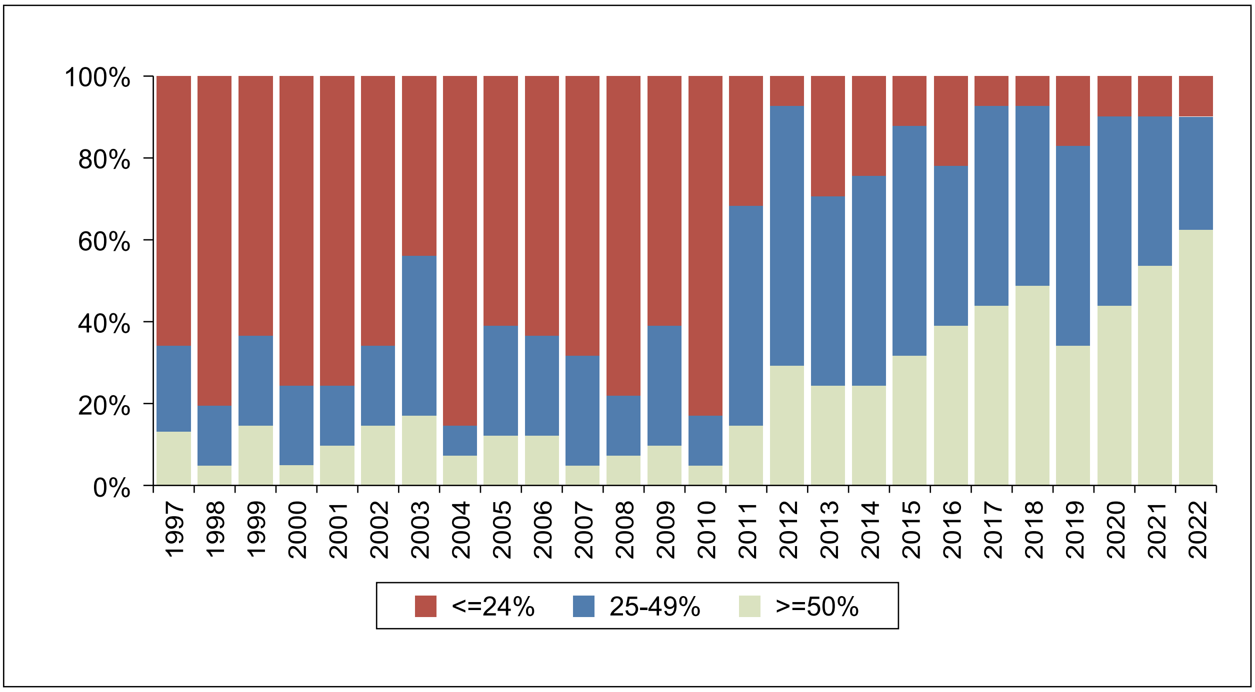


Figure 17. Estimated percentage of selected Principal Salmon Rivers with ≥50%, 25-49% or ≤24% of MSW salmon in the declared rod catch, 1997-2022.

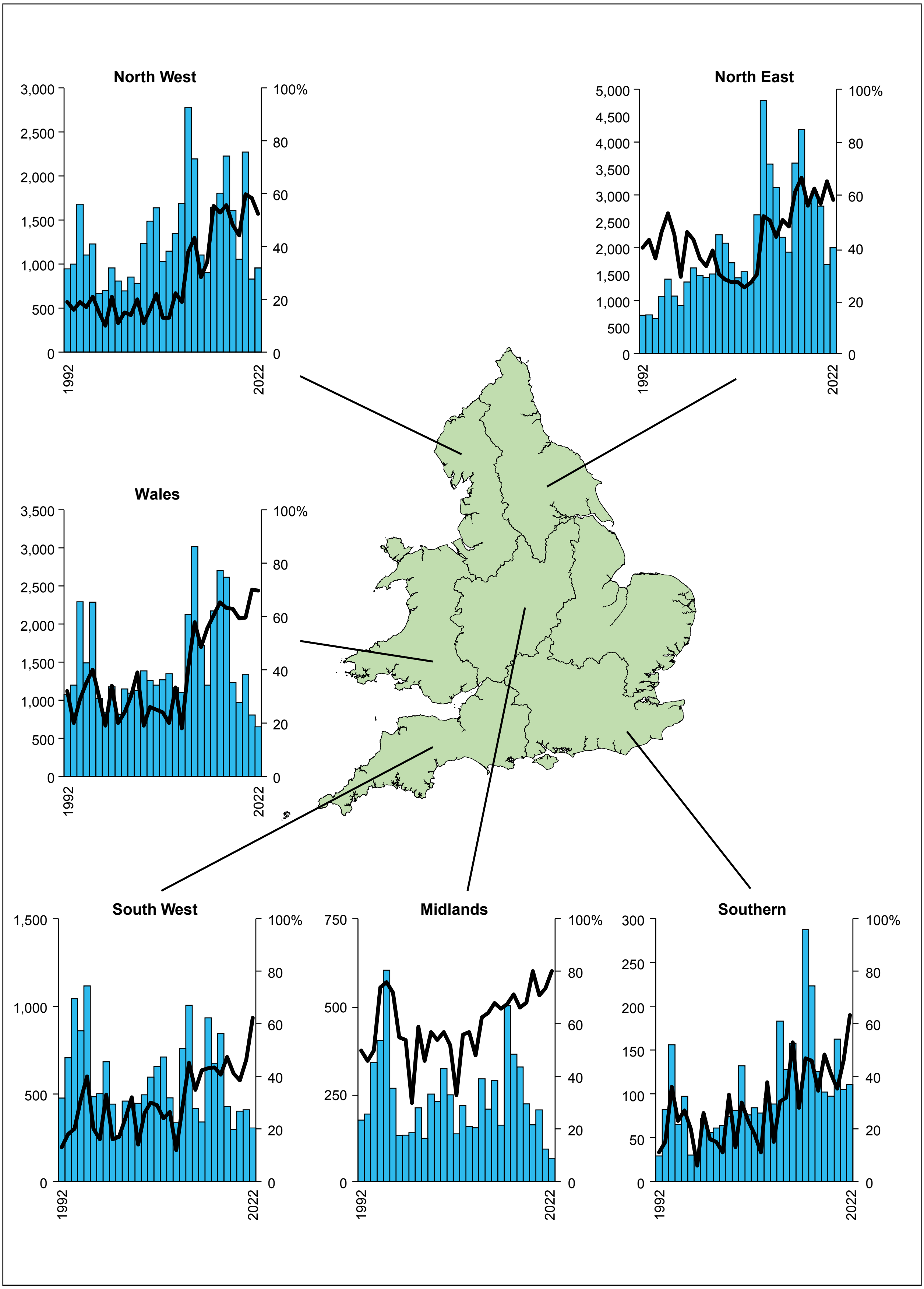


Figure 18. Estimated number (histogram) and percentage (solid line) of MSW salmon caught by rods, 1992-2022. Note that the histograms are not drawn to the same scale.

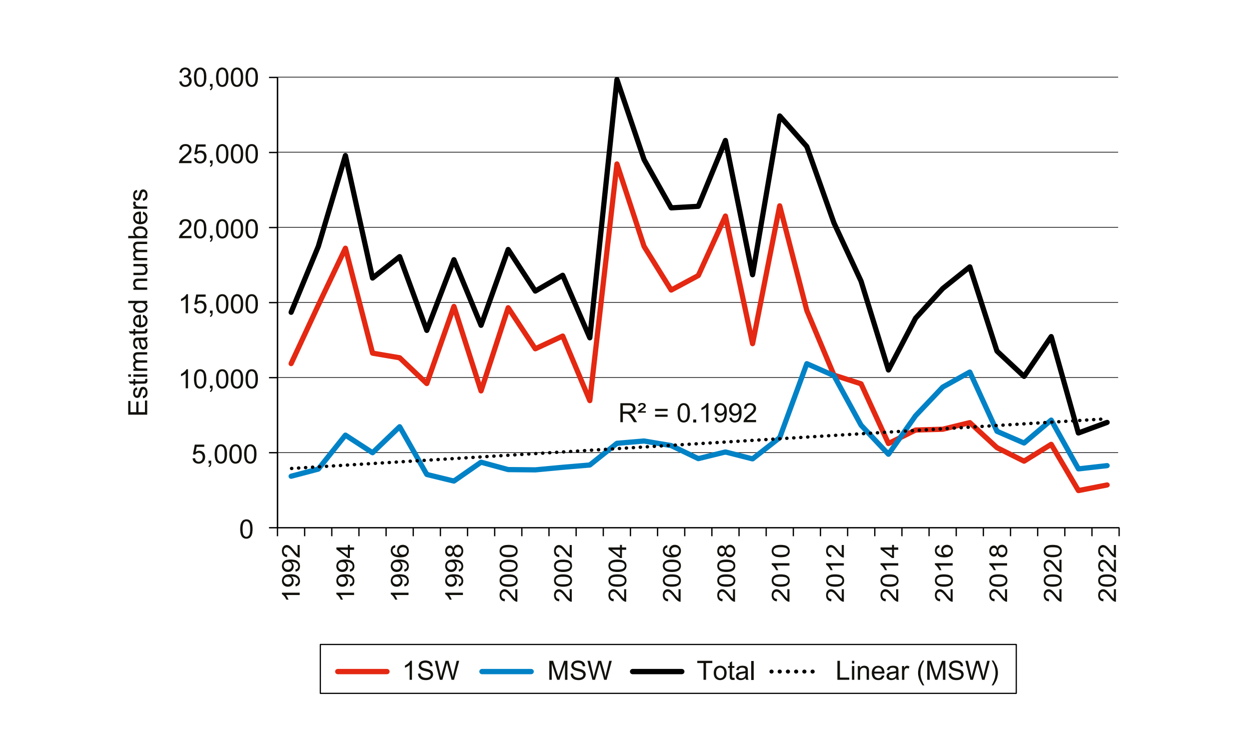


Figure 19. Estimated total number (corrected for under-reporting) of 1SW, MSW, and all salmon caught by rod fisheries in England and Wales (including fish caught and released), 1992-2022.

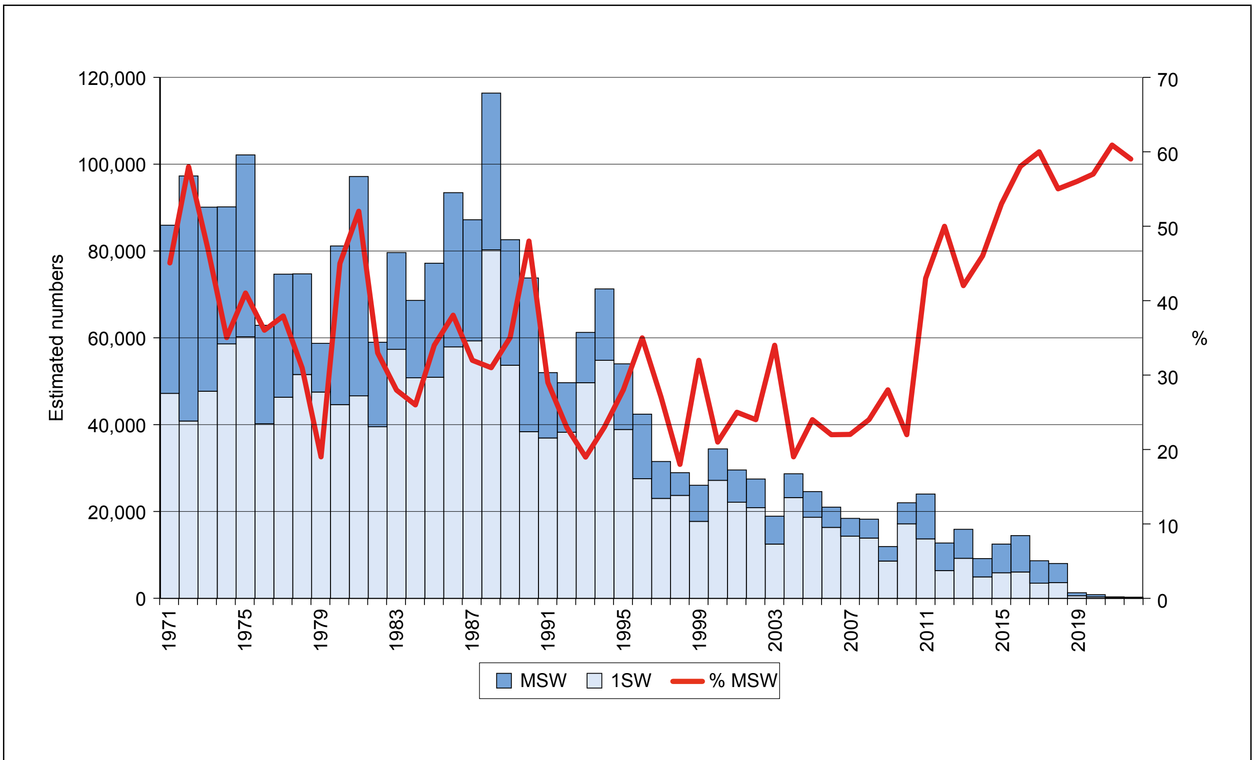


Figure 20. Estimated total catch of 1SW and MSW salmon in England and Wales (fish caught and retained only), 1971-2022, as used in the ICES PFA assessment.

5. CATCH PER UNIT EFFORT (CPUE)

Since catch levels are influenced strongly by the level of fishing effort, catch per unit effort (CPUE) data are commonly used as well as the declared catch to help evaluate the status of stocks. However, the relationship between CPUE and abundance can be influenced by confounding factors in both net and rod fisheries. It should also be remembered that, when operated, net and rod fisheries are undertaken sequentially (the net fisheries exploit the returning fish first), and over different time periods (fishing seasons). Rod fisheries are active over a longer period and typically extend into the early autumn after net fisheries have ceased to fish. Thus, changes in patterns of run-timing may have contrasting effects on CPUE values in the different fisheries. In addition, angler capture efficiency varies markedly both within and between rivers, which is further influenced by the angling method used, and interactions between these factors impact CPUE.

- **Nets** – Regional CPUE data for net fisheries for the period between 1997 and 2019 are presented in Table 20. These data are based on the number of tides fished by netters, except in the North East Region where the number of days fished has been used. To provide comparable time series, the data only include fishing gears that have operated in a consistent manner over the full period. Plots of the standardised CPUE Z-scores for the various regions and for net fisheries overall (expressed as a 2-year moving average) are provided in Figure 21.
- **Rods** – Regional CPUE data for rod fisheries for the period since 1997 (expressed as the number of salmon caught per 100 days fished) are presented in Table 21. Plots of the standardised CPUE Z-scores for the various regional rod fisheries and the overall rod CPUE for England and Wales are provided in Figure 22 for the same period. Individual CPUE data for all the major salmon rivers in England and Wales are reported in the annual catch statistics reports (e.g., Environment Agency, 2022). The trends in rod CPUE for the different regions show a reasonable degree of coherence and available evidence from selected rivers where we have estimates of returning stock size, as well as CPUE, suggest that rod CPUE values provide a reasonable indicator of stock abundance (Figure 23).

Overview of CPUE in 2022

There has been no fishing effort for salmon by nets and fixed engines in England since 2019 and in Wales since 2020, and therefore the CPUE time series for salmon net fisheries ended in 2019 (Table 20). Normalised CPUE values (Z-scores) for the various former regions and an overall average (Figure 21) indicate that CPUE, and by inference abundance, peaked during the period 2000-2002, then declined steadily until 2009, increasing again between 2010 and 2011, and then oscillating in the years up to 2018. In 2019, it was the lowest of the time series because CPUE data were only available from Wales. An earlier analysis of net CPUE and river flow suggests above average flows in July (when a high proportion of the net catch typically occurs) tend to result in reduced CPUE values.

Rod CPUE in 2022 increased on 2021 but was below the previous 5-year mean in all regions, except the North East and Wales (Table 21). Normalised CPUE values (Z-scores) for rod fisheries (Figure 22) indicate a largely positive trend between 1997 and 2012, and by inference increasing abundance (given the positive relationship between returning stock estimates and rod CPUE shown in Figure 23). However, overall CPUE decreased from 2013 to 2015, followed by an increase until 2017, and then a decline until 2019. Overall CPUE in 2020 and 2021 was slightly above the long-term average of the time series. In 2022, overall rod CPUE was below the long-term average.

Table 20. Mean catch per unit effort (CPUE) for salmon net fisheries, 1997-2019.

Year	Environment Agency Region					NRW Wales	England & Wales total
	NE drift nets (June–August)	NE	SW	Midlands	NW		
1997	6.48	4.40	0.70	0.23	0.63	0.07	1.23
1998	5.92	3.81	1.25	0.24	0.46	0.08	1.17
1999	8.06	4.88	0.79	0.31	0.52	0.20	1.35
2000	13.06	8.11	1.01	0.33	1.05	0.18	2.19
2001	10.34	6.83	0.71	0.33	0.71	0.16	1.77
2002	8.55	5.59	1.03	0.53	0.90	0.23	1.66
2003	7.13	4.82	1.24	0.60	0.62	0.11	1.43
2004	8.17	5.88	1.17	0.36	0.69	0.11	1.65
2005	7.23	4.13	0.60	0.60	1.28	0.09	1.35
2006	5.60	3.20	0.66	0.51	0.82	0.09	1.04
2007	7.24	4.17	0.33	0.51	0.75	0.05	1.14
2008	5.41	3.59	0.63	0.64	0.34	0.06	0.96
2009	4.76	3.08	0.53	0.64	0.51	0.04	0.89
2010	17.03	8.56	0.99	0.26	0.47	0.09	2.08
2011	19.25	9.93	0.63	0.14	0.34	0.10	2.25
2012	6.80	5.35	0.69	n/a	0.31	0.21	1.36
2013	11.06	8.22	0.54	n/a	0.39	0.08	1.89
2014	10.30	6.12	0.43	n/a	0.31	0.07	1.42
2015	12.93	7.22	0.64	n/a	0.39	0.08	1.71
2016	10.95	9.98	0.78	n/a	0.38	0.10	2.38
2017	7.58	5.64	0.58	n/a	0.26	0.15	1.41
2018	6.27	6.05	1.07	n/a	0.92	0.15	1.68
2019	n/a	n/a	n/a	n/a	n/a	0.15	0.15
Mean (2014–18)	9.61	7.00	0.70	n/a	0.45	0.11	1.72
No. fisheries						4	4
% change (2019 on 5-yr mean)						+34	-91

Notes: ***Since 2020, no CPUE for net fisheries was available because there was no fishing effort for salmon.***
Fisheries were selected on the basis that they were fished consistently during the period. Data are expressed as catch per licence-tide, except for the North East, for which data are recorded as catch per licence-day.
From 2012, the fishery operating in the Severn (Midlands Region) has been limited by a catch limit (cap); the Midlands data have therefore been removed from the combined E&W total for the whole time series.
CPUE estimates in recent years include small numbers of fish that were subsequently released.

Table 21. Mean catch per unit effort (CPUE) for salmon rod fisheries in each Region, 1997-2022.

Year	Environment Agency Region						NRW Wales	England & Wales
	NE	Thames	Southern	SW	Midlands	NW		
1997	5.0	0.6	3.1	5.2	1.7	5.3	2.6	4.0
1998	6.5	0.0	5.9	7.5	1.3	8.6	3.9	6.0
1999	7.4	0.3	3.1	6.3	2.1	7.4	3.5	5.5
2000	9.2	0.0	5.2	8.8	4.9	11.7	4.4	7.9
2001	11.3	0.0	11.0	6.6	5.4	15.4	5.5	8.7
2002	9.4	0.0	18.3	6.0	3.5	10.0	3.6	6.8
2003	9.7	0.0	8.8	4.7	5.2	8.3	2.9	5.7
2004	14.7	0.0	18.8	9.6	5.5	17.4	6.6	11.4
2005	12.4	0.0	12.7	6.2	6.6	13.9	4.5	9.0
2006	14.2	0.0	15.6	8.7	6.6	13.3	5.9	10.1
2007	11.7	0.0	18.0	8.7	5.7	14.2	6.0	9.6
2008	12.7	0.0	21.8	10.9	5.8	15.3	7.3	10.5
2009	9.5	0.0	13.7	5.7	3.6	9.3	3.6	6.6
2010	16.7	2.8	17.1	9.9	4.3	14.1	6.5	10.2
2011	17.5	0.0	14.5	9.4	6.5	11.4	6.0	10.9
2012	15.4	0.0	17.3	9.2	6.3	9.1	6.5	10.6
2013	16.7	0.0	10.0	5.9	7.9	7.7	5.7	8.9
2014	12.1	0.0	11.9	4.8	5.0	6.9	4.4	7.1
2015	8.7	0.0	16.6	8.8	9.0	7.0	4.8	7.1
2016	13.5	0.0	16.8	7.8	9.5	8.5	6.4	9.1
2017	13.5	0.0	13.6	8.7	8.0	9.3	6.6	9.4
2018	10.5	0.0	5.0	4.9	6.7	9.0	4.0	7.2
2019	12.0	1.6	6.6	4.2	5.4	7.7	3.4	7.0
2020	13.2	0.0	13.7	6.6	10.4	7.0	12.5	10.4
2021	9.1	0.0	7.6	5.6	5.7	6.4	3.9	6.3
2022	13.8	0.0	7.4	4.7	4.8	4.3	8.7	8.5
Mean (2017–21)	11.7	0.3	9.3	6.0	7.2	7.9	6.1	8.1
% change:								
2022 on 2021	+52		-2	-15	-15	-33	+120	+34
2022 on 5-yr mean	+19		-20	-22	-34	-45	+43	+5

Notes: Based only on catch returns for which effort data have been reported.
CPUE is expressed as number of salmon (including released fish) caught per 100 days fished.
Data for 2022 are provisional.

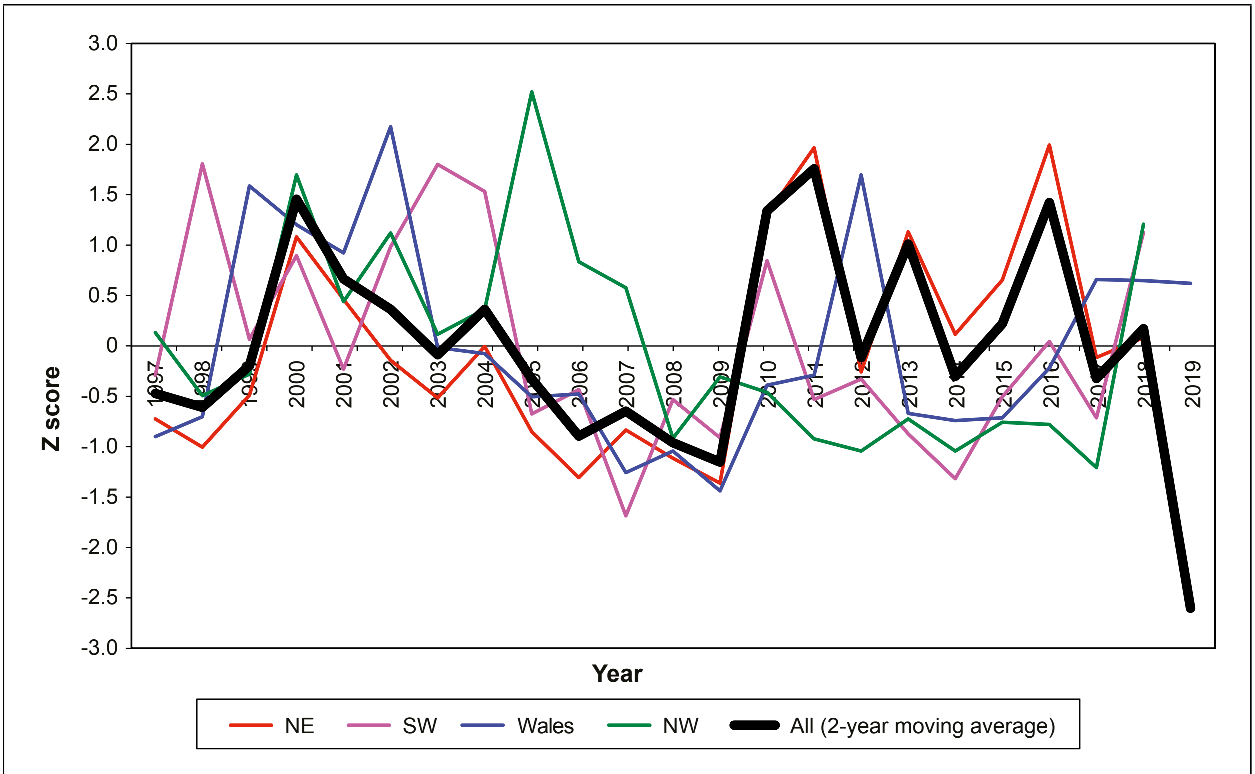


Figure 21. Normalised catch per unit effort (CPUE) (Z-score) for salmon net fisheries, 1997-2019. (N.B. since 2020, no data shown on the figure because net CPUE was not available due to a lack of fishing effort for salmon).

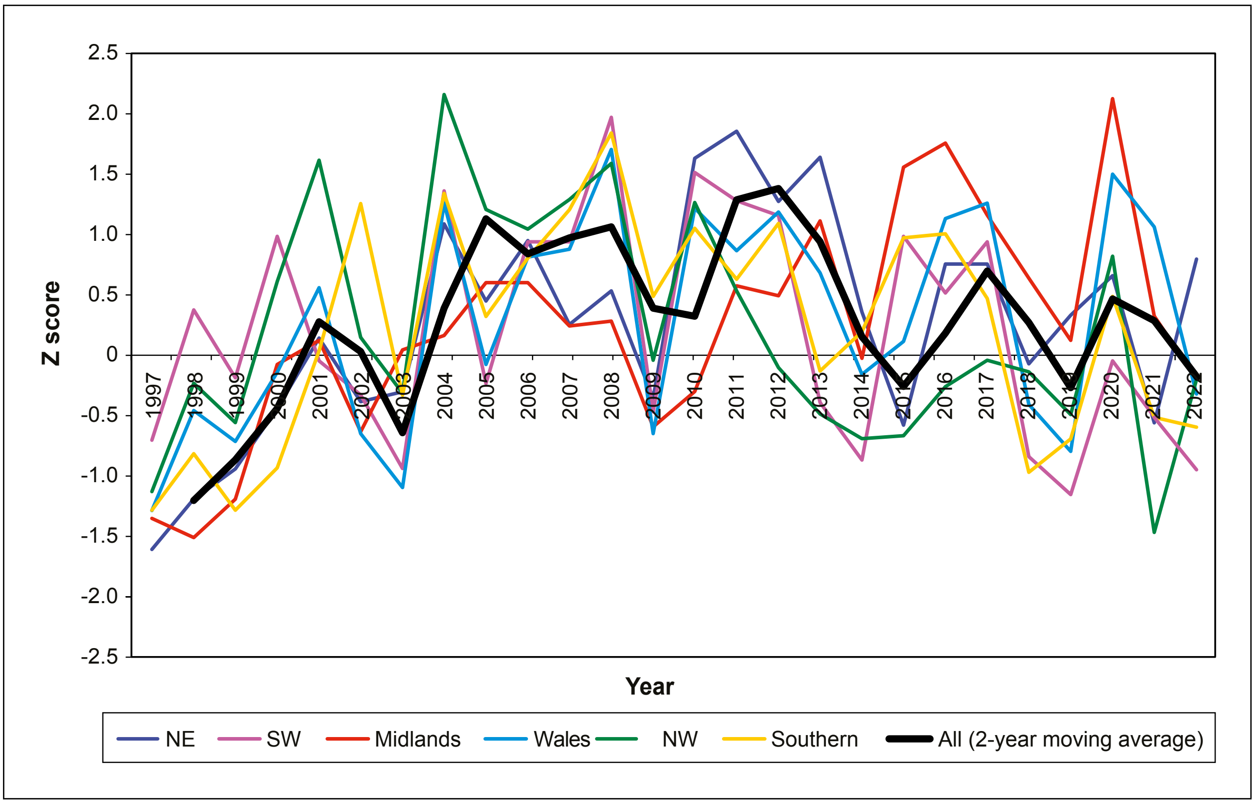


Figure 22. Normalised catch per unit effort (CPUE) (Z-score) for salmon rod fisheries, 1997-2022.

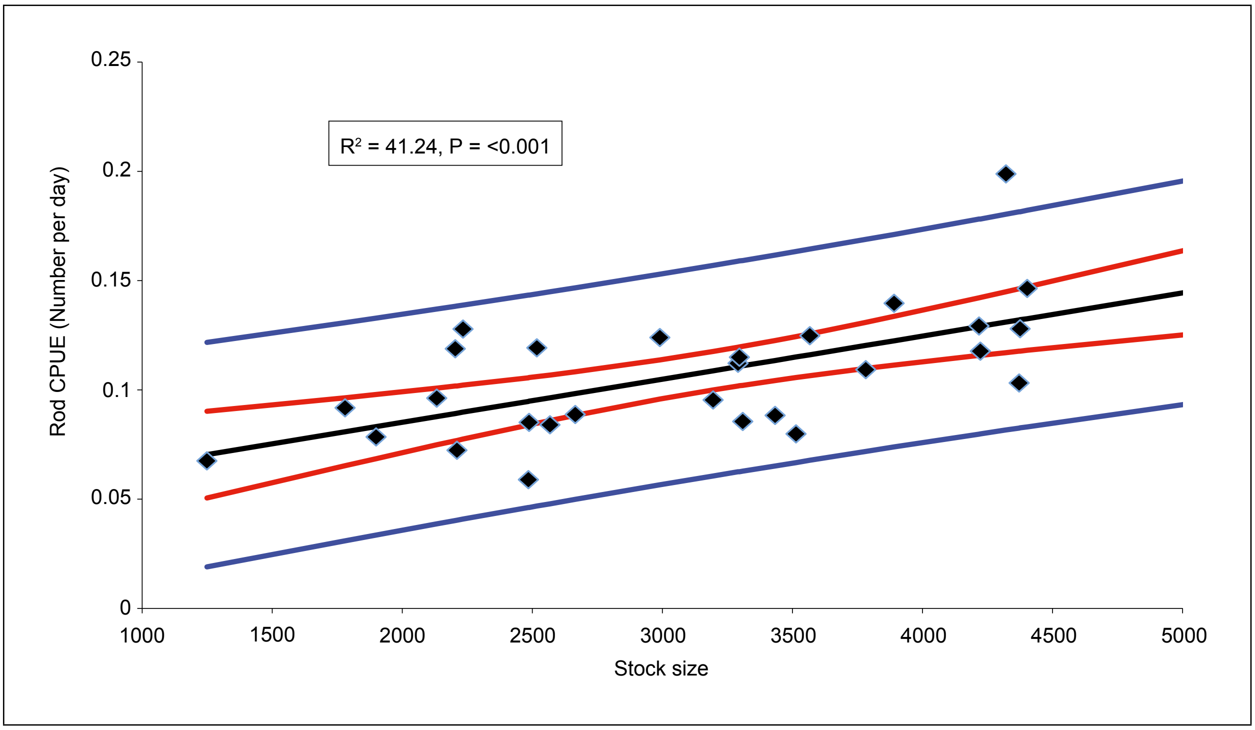


Figure 23. The relationship between mean rod CPUE and mean stock size for the Rivers Frome, Tamar, Fowey, Dee, Lune, and Kent, 1994-2022 (black line). Note: the red lines are 95% confidence intervals and blue lines are 95% prediction intervals.

6. EXPLOITATION RATES

Care is required in trying to draw general conclusions about current stock status from catches alone. The actual relationship between catch and stock abundance depends upon exploitation rates (i.e., the proportion of the salmon population taken in the catch – both retained fish and those released), although it is important to remember that fishing effort and catchability (the proportion of the stock taken per unit of fishing effort) can be influenced by factors such as river flow, angler competency, and changes in run-timing (see discussion in Section 5 above). Exploitation rates can be estimated where there is a fishery-independent measure of the salmon run, such as that obtained from fish counters and traps (Table 23 and Figure 28), and these fish counter and trap data can then be compared against the catch (both total catch and retained fish) to estimate exploitation rates (Table 22 and Figure 24).

Overview of exploitation rates in 2022

Total exploitation rates (derived from total catch, including retained and released fish) for rod fisheries on more than half (60%) of the 'counted' rivers in 2022 were below those in 2021 and on most (70%) counted rivers exploitation rates were less than the average of the previous five years, although values remain highly variable among rivers. Decreases in total exploitation rates compared to those estimated for 2021 were reported on six rivers (Frome, Tamar, Hampshire Avon, Dee for MSW salmon, Tyne, and Teifi), and the values were below the 5-year mean in all these rivers. In contrast, increases in total exploitation rates compared to those estimated for 2021 were reported on four rivers (Itchen, Fowey, Dee for 1SW salmon, and Test), and the values were above the 5-year mean in all these rivers, except the Dee. While total exploitation rates remain quite high on some 'counted' rivers, the 'true' exploitation rates (i.e., fish retained) have declined over time in almost all rivers. This is attributable to C&R, which has increased from 10% to 96% over the past three decades. The 'true' exploitation rates for the net fisheries, where estimates have been possible, have reduced to zero due to regulatory measures which have closed fisheries or require the release of any salmon caught.

The total exploitation rates are used to derive estimates of the number of adult salmon returning to rivers without fish counters and/or traps from rod catches, whereas the 'true' exploitation rates provide invaluable information on the proportion of the stock retained by anglers.

Assessment of national trend in exploitation

Estimates of aggregated national exploitation rates, split by sea-age class, are required for use in the ICES annual assessment of stock status to estimate numbers of fish returning to homewaters. The procedures used in deriving these estimates of 'true' exploitation rates for fish caught and retained are described in the Background Report (Cefas, Environment Agency and Natural Resources Wales, 2023). The overall trends in national 'true' exploitation rates derived from this process are provided in Figure 25. These indicate that 'true' exploitation rates have fallen from about 50% for 1SW fish and 35-40% for MSW fish at the start of the period to 0.4% and 0.2%, respectively, currently, due to the measures taken to control both legal and illegal fisheries.

Table 22. Estimated exploitation rates (%) for selected rod and net fisheries, where validated counts and run estimates of adult salmon are available, in England and Wales, 1988-2022.

	Rod Fisheries																										Net Fisheries			
Region/NRW	NE		Southern				SW								NW						Wales						NW			Wales
River	Tyne [c]		Test		Itchen		Hampshire/Avon		Frome [a]		Tamar		Fowey		Kent		Leven		Lune		Dee [b]		Dee [b]		Teifi		Kent	Leven	Lune	Dee
Wild/Hatchery	W		W/H		W		W		W		W		W		W		W		W		W (1SW)		W (MSW)		W		W	W	W	W
Year	Total	True	Total	True	Total	True	Total	True	Total	True	Total	True	Total	True	Total	True	Total	True	Total	True	Total	True	Total	True	Total	True	True	True	True	True
1988			40.0	40.0	33.6	33.6			12.4	12.4																				
1989			29.1	29.1	45.4	45.4			8.2	8.2					36.8	37.0			28.9	29.0							25.9		44.1	
1990			37.0	37.0	52.6	52.6			11.9	11.9					27.7	28.0			45.1	45.0							9.0		35.9	
1991			26.2	26.2	67.8	67.8			9.2	9.2					51.6	52.0			50.6	51.0							10.6		30.7	
1992			53.3	53.3	85.2	85.2			13.0	13.0					42.7	43.0			54.2	54.0	14.1	14.1	18.4	18.4			4.0		29.1	15.0
1993			37.0	33.8	30.5	29.6			12.0	7.0					52.5	47.2			46.8	40.7	10.9	10.2	14.6	12.9			7.0		29.5	10.6
1994			39.8	31.2	58.8	53.7			14.7	14.2	13.0	11.6			35.7	31.1			33.6	28.5	14.8	13.0	21.3	18.9			4.2		34.5	21.8
1995			25.8	21.2	27.4	9.1			10.1	8.7	7.8	6.8	15.9	11.8	22.0	18.0			23.0	17.1	8.3	6.7	13.5	11.9			4.1		26.9	18.5
1996			23.4	14.9	60.3	46.7			15.6	12.8	7.7	6.6	20.6	13.6	15.4	12.4			22.4	16.5	8.8	7.2	10.5	8.1			1.5		23.9	17.0
1997			13.6	0.6	38.6	13.8			8.1	6.2	5.8	4.3	29.6	16.5	22.0	17.8			24.1	17.6	8.4	6.8	9.4	5.8			6.7		28.3	17.2
1998			22.7	12.6	35.5	6.6			8.9	6.0	9.8	5.8	24.6	10.7	37.5	26.7			21.4	11.6	9.5	6.7	9.7	5.4			1.0		12.0	15.4
1999			18.3	9.9	43.2	13.1			16.1	6.9	6.8	3.3	13.2	5.6	23.9	14.7			23.0	11.7	13.0	9.8	10.3	4.5			5.4		15.3	22.1
2000			24.7	8.4	80.8	9.1			14.1	7.7	7.1	4.0	21.9	10.5	25.8	15.8	5.9	0.6	18.9	8.4	7.5	4.9	19.9	13.0			3.5	10.3	16.9	12.8
2001			52.4	1.2	87.6	1.4			16.0	9.3	2.8	1.9	16.3	8.1	9.5	6.2			10.0	3.6	15.1	10.7	11.9	5.4			5.6		16.7	13.6
2002			32.7	0.2	78.7	0.4			14.0	6.0	2.4	1.5	23.3	9.6	11.9	6.2	2.7	0.7	16.3	6.3	6.6	3.9	4.9	0.4			1.1	1.7	18.3	11.6
2003			44.7	0.0	35.1	0.0			11.2	3.1	2.4	1.4	15.2	5.4	8.8	5.0	4.1	0.1	13.1	5.5	9.6	6.9	8.0	2.1			1.5	0.9	11.5	13.0
2004	22.5	10.2	39.8	0.0	36.3	0.0			9.3	3.6	6.7	2.8	12.6	6.1	20.8	12.3			16.3	6.4	16.6	10.8	17.0	9.7			0.3		5.7	9.0
2005	28.5	12.1	31.0	0.0	21.2	0.0			11.9	4.1	2.3	0.8	23.1	8.3	20.0	11.0			17.0	7.0	15.2	8.4	20.4	7.4			3.0		19.0	13.0
2006	24.3	10.0	19.8	0.0	28.9	0.0	11.7	0.0	8.0	0.3	3.6	1.2	27.3	9.6	20.0	12.0			17.0	8.0	11.2	6.2	14.1	5.4			3.0	9.5	15.0	8.0
2007	32.8	15.9	38.9	0.0	74.2	0.0	10.5	0.3	10.0	0.0	7.3	3.2	14.3	5.0	19.0	12.0	7.9	0.0	11.0	4.0	12.1	6.6	16.9	6.0			0.2	0.9	7.0	8.0
2008	38.8	20.1	28.5	0.0	46.3	0.0	8.7	0.0	5.1	0.2	6.9	1.8	22.3	7.3	51.6	30.2	12.0	1.0	15.2	6.8	12.9	5.2	25.6	15.3			0.0	0.3	3.4	0.8
2009	37.9	15.9	20.5	0.0	74.3	0.0	10.5	0.3	6.4	1.3	8.6	2.9	15.0	5.5	40.5	21.1	26.0	0.0	10.1	4.0	10.2	4.3	12.2	6.5			2.5	1.9	4.6	0.0
2010	26.4	10.7	27.0	0.0	47.7	0.0	8.0	0.9	4.5	0.0	7.6	2.3	27.5	6.8	30.8	16.1	18.0	1.2	13.9	5.8	15.2	8.0	17.3	3.8	16.7	9.6	1.0	0.3	5.0	0.0
2011	33.7	12.5	31.8	0.0	42.3	0.0	18.6	0.3	6.7	0.2	8.2	2.3	20.5	6.0	n/a	n/a	41.1	1.7	17.8	7.2	15.9	6.0	19.7	10.3	16.1	8.6	n/a	0.0	4.0	0.0
2012	40.6	16.3	30.9	0.0	60.0	0.0	8.6	0.0	13.0	0.0	9.1	2.6	20.5	7.5	n/a	n/a	25.8	0.0	15.2	6.6	18.1	6.3	19.9	4.1	18.5	9.8	n/a	0.5	3.5	0.0
2013	26.6	8.3	31.7	0.0	32.2	0.0	12.9	0.0	22.7	0.0	8.3	1.8	11.7	4.0	n/a	n/a	18.9	0.0	10.0	4.4	8.7	2.5	12.9	1.6	17.3	7.1	n/a	0.7	4.9	0.0
2014	21.7	5.7	23.5	0.0	34.5	0.0	8.5	0.0	13.4	0.7	4.9	1.4	19.3	4.8	n/a	n/a	n/a	n/a	10.5	2.1	9.5	1.8	9.6	0.8	17.4	4.9	n/a	0.3	6.0	0.0
2015	12.9	3.7	24.9	0.0	37.8	0.0	30.2	0.0	18.2	0.6	8.6	1.4	25.3	7.2	n/a	n/a	n/a	n/a	12.2	3.5	10.6	2.1	10.7	1.3	23.0	8.7	n/a	0.3	7.0	0.0
2016	19.8	4.9	24.2	0.0	86.7	0.0	25.3	0.1	12.5	0.4	7.0	1.2	34.6	9.0	n/a	n/a	n/a	n/a	n/a	n/a	9.5	1.3	14.1	1.9	20.0	6.8	n/a	0.4	n/a	0.0
2017	27.4	5.8	18.1	0.0	51.2	0.0	19.1	0.0	10.2	1.2	11.2	1.5	44.7	10.0	n/a	n/a	n/a	n/a	n/a	n/a	13.8	1.3	15.4	1.5	26.3	7.5	n/a	0.0	n/a	0.0
2018	19.0	3.4	24.9	0.0	39.4	0.0	12.6	0.0	10.7	0.0	4.2	0.3	30.9	0.0	n/a	n/a	n/a	n/a	n/a	n/a	4.8	0.5	8.2	0.4	16.1	2.4	n/a	n/a	9.8	0.0
2019	35.9	5.0	19.6	0.0	34.1	0.0	4.8	0.0	12.9	0.0	5.2	0.5	25.0	0.5	n/a	n/a	n/a	n/a	n/a	n/a	12.5	1.1	16.2	0.8	11.8	3.3	n/a	n/a	n/a	0.0
2020	28.8	3.3	12.5	0.0	31.7	0.0	9.4	0.0	7.6	0.0	2.6	0.3	21.3	1.1	n/a	n/a	n/a	n/a	n/a	n/a	4.8	0.0	8.5	0.0	15.9	0.0	n/a	n/a	n/a	0.0
2021	17.7	1.3	26.3	0.0	38.1	0.0	9.2	0.0	10.1	0.0	5.8	0.5	20.0	0.4	n/a	n/a	n/a	n/a	n/a	n/a	4.3	0.0	6.8	0.0	7.7	0.0	n/a	n/a	n/a	0.0
2022	16.8	1.1	26.7	0.0	68.4	0.0	6.3	0.0	4.2	0.0	3.0	0.1	30.4	0.7	n/a	n/a	n/a	n/a	n/a	n/a	4.7	0.0	5.9	0.0	7.5	0.0	n/a	n/a	n/a	0.0
Mean (2017–21)	25.7	3.8	20.3	0.0	38.9	0.0	11.0	0.0	10.3	0.2	5.8	0.6	28.4	2.4							8.0	0.6	11.0	0.5	15.6	2.6		0.0	9.8	0.0
% change																														
2022 on 2021	-5	-19	+2		+80		-31		-58		-49	-74	+52	+70							+11		-14		-3					
2022 on 5-yr mean	-35	-72	+32		+76		-43		-59		-49	-79	+7	-70							-41		-47		-52					

Notes: *It is unclear to what extent total rod exploitation rate has been affected by catch-and-release and the repeat capture of fish; no correction factor has been applied.*
Prior to 2019, the entire catch from net fisheries was assumed retained.
Data for 2022 are provisional.

Key:
[a] *Data based on Game & Wildlife Conservation Trust counter at East Stoke, and supplied courtesy of GWCT.*
[b] *Data derived from mark recapture investigation.*
[c] *Tyne values are provisional; work is ongoing with Newcastle University to further refine RSEs.*

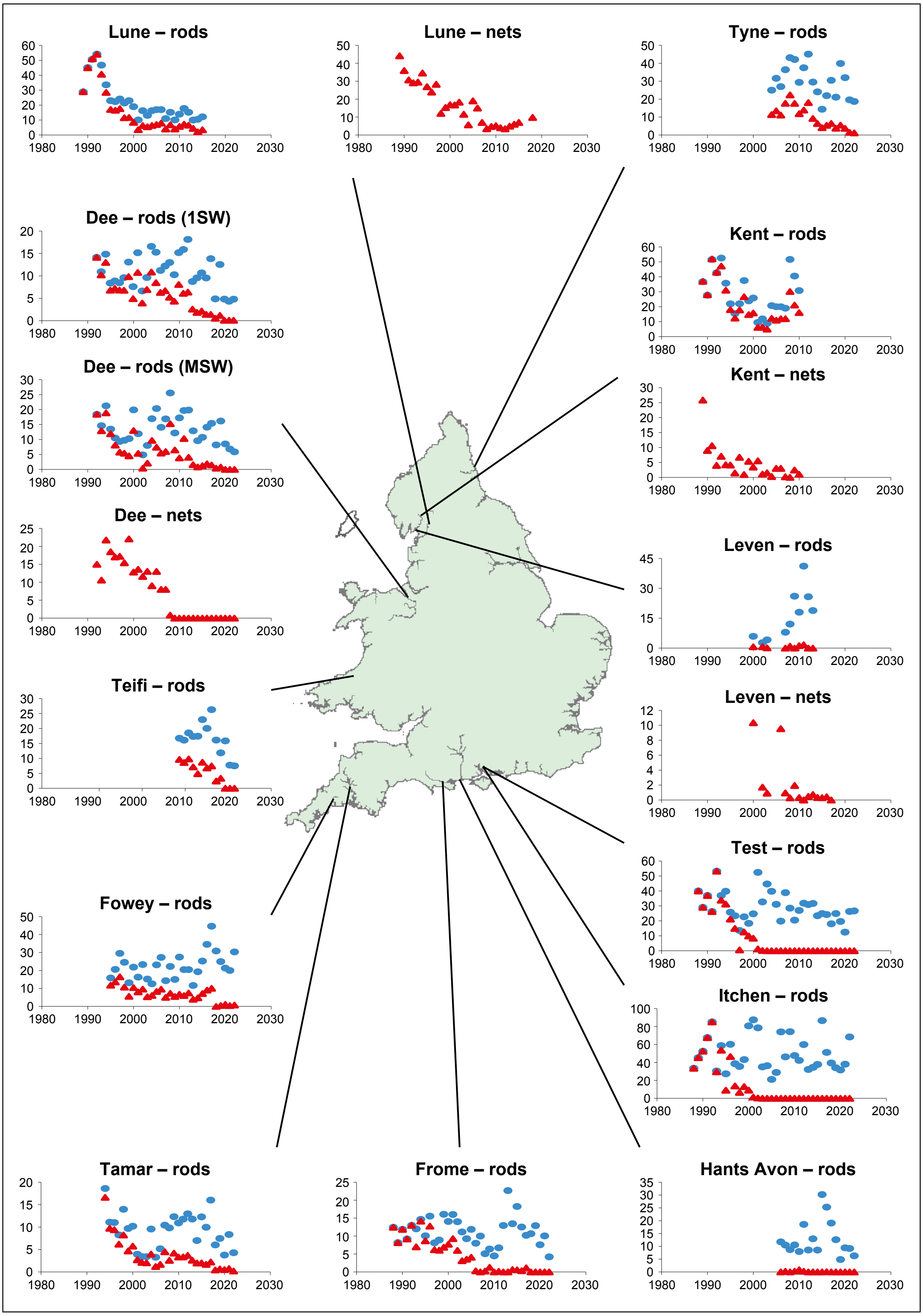


Figure 24. Estimated exploitation rates (%) for selected rod and net fisheries in England and Wales, 1988-2022. For rod fisheries, the figures display total exploitation rates (blue dots, all fish caught including those released) and 'true' exploitation rates (red triangles, fish caught and retained only). Note that estimates for the Dee rods have been split by sea age class (1SW and MSW); all other estimates are combined for all ages. Data for net fisheries are for retained fish only, i.e. are 'true' exploitation rates.

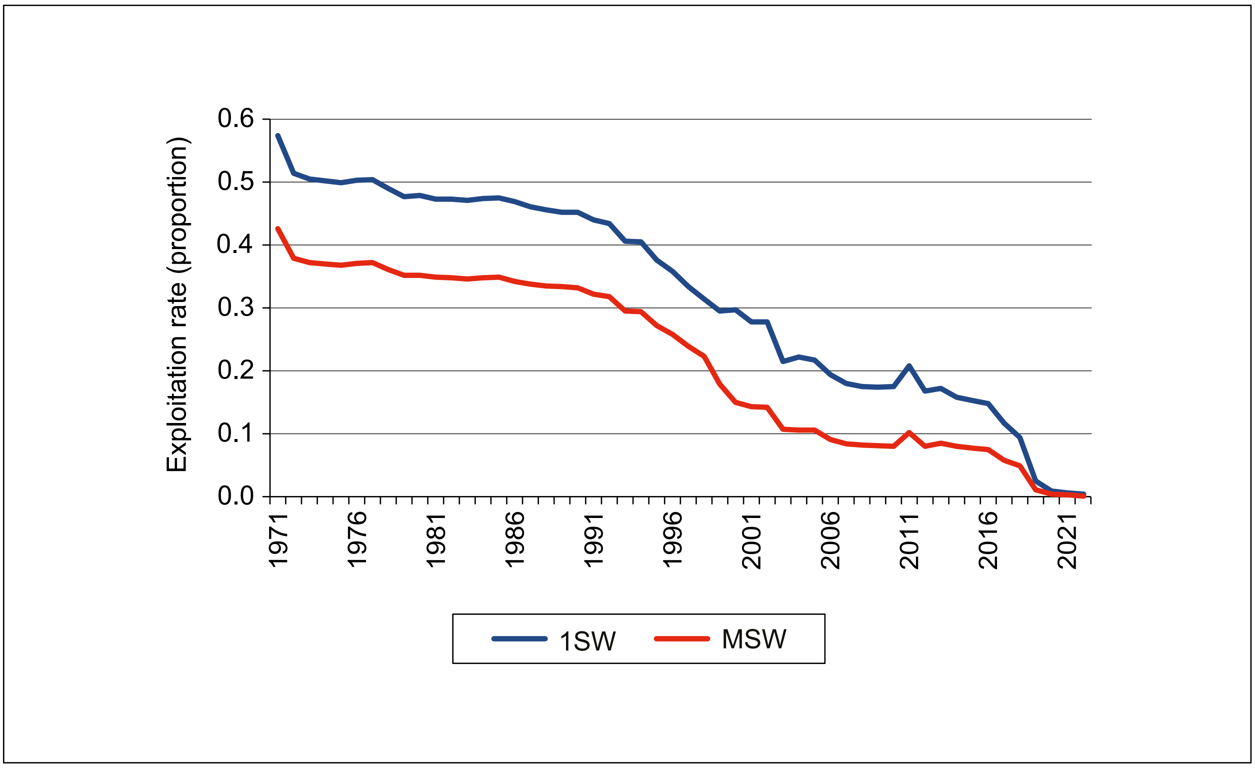


Figure 25. Estimated 'true' national exploitation rates for 1SW and MSW salmon caught in England and Wales (fish caught and retained only), including estimated non-reported catch, 1971-2022, as used in the ICES PFA assessment.

REPORT ON STATUS OF STOCKS IN 2022

7. STOCK MONITORING

The Environment Agency and NRW monitor both stock and fishery performance in most rivers supporting salmon stocks in England and Wales, respectively. This includes collecting fishery statistics, operating counters, conducting tagging investigations, and undertaking electrofishing surveys of juvenile fish. These data provide the basis for assessing stock status and informing management decisions. In addition to protecting the abundance of stocks, managers need to maintain the diversity of stocks in terms of their biological characteristics. Measures of stock diversity potentially encompass a wide range of biological characteristics, but those of greatest significance for the management of stocks are the population structure within the river, the river-age of the emigrating smolts, and the run-timing and sea-age composition of the returning adult stock. Such data tend to be derived from a small number of 'monitored' rivers (previously referred to as Index rivers). Further details on the various monitoring programmes are provided in the Background Report (Cefas, Environment Agency and Natural Resources Wales, 2023).

Upstream counts of adult salmon

Electronic fish counters and/or traps are operated on several catchments to provide estimates of the upstream run of adult salmon and sea trout. Where it is possible to separate the species, the counts are adjusted to provide estimates of the numbers of returning salmon. For some rivers (e.g., the River Tyne), the time-consuming validation procedures mean that data may not be available for the most recent year. Available time series, including those that have been recently discontinued, are presented in Table 23 and Figure 28.

In most rivers, particularly those flowing to the South West and North West coasts of England and in Wales (Figure 28), there is evidence of a marked decline in the numbers of returning salmon over the last decade. For a number of rivers in southern England, however, stocks had stabilised and then more recently shown signs of recovery.

Returning stock estimates and counts for most (73%) rivers in 2022 were below the levels recorded in 2021 and lower than the recent 5-year means. On two rivers (Itchen and Taff), the estimates were the lowest in the time series. Increases in returns compared to those reported in 2021 were observed on three rivers (Teifi, Tyne, and Frome), and the values were above the 5-year means in all these rivers.

Tagging investigations

Tagging studies have often been undertaken to monitor stocks and to evaluate the outcome of different management initiatives, although tagging effort has declined in recent years. Table 24 contains details of the fish tagged in England and Wales in 2022. In 2022, 6,216 salmon smolts of wild origin were microtagged and released in England and Wales to assess return rates to rivers, and all these fish were also adipose fin-clipped. Passive Integrated Transponder (PIT) tags were implanted in 8,779 wild parr and 115 wild smolts. Acoustic tags were inserted into 160 wild smolts and 25 wild adult salmon for use in tracking investigations. In addition, 638 wild adult salmon were tagged with Floy tags to aid in the assessment of returning stocks. Details of the tagged and marked salmon released each year around the whole North Atlantic are compiled annually by ICES and reported to NASCO.

Return rates to rivers

Evidence from monitored rivers around the North Atlantic indicates that the survival of salmon during the marine phase of their life-cycle has declined in recent decades. Time series of percentage return rates for the Rivers Corrib and Burishoole (Republic of Ireland), River Bush (Northern Ireland), and River North Esk (Scotland) are shown in Table 25. Shorter time series for the rivers Dee (Wales), Tamar, and Frome (Table 25 and Figure 29) indicate similarly low levels of marine survival in recent years. It was not possible to monitor adult returns on the River Tamar in 2014, nor to undertake any smolt tagging, so there are therefore gaps in this time series. However, this programme resumed in 2015. In 2020, COVID-19 prevented trapping and tagging of emigrating smolts on the River Tamar and constrained this work on the River Dee, therefore the return estimates for the 2020 smolt cohort are missing from these time series. In addition, adverse weather conditions had a similar effect on smolt trapping activity on the Dee in 2021, and thus the 2021 smolt cohort is also not included in the time series for this river.

For the River Frome, the return rates of 1SW fish in 2022 (from the 2021 smolt cohort) were lower than the previous year but remained within the range previously observed (back to 2002). The return rates for 2SW salmon on the Frome in 2022 (from the 2020 smolt cohort) were the highest in the last five data years. For the River Dee, no recaptures of salmon in 2021 and 2022 meant that it was not possible to derive return rate estimates for 1SW and MSW fish in 2021 or 2022. However, the most recent return rate of 1SW fish (in 2019) was the highest in the last five years, and that for 2SW fish (in 2018) was the second highest in the time series. For the River Tamar, the return rates of 1SW fish (from the 2021 smolt cohort) were the third lowest in the time series and the most recent value for MSW fish was the fourth lowest on record.

Juvenile surveys (salmon fry and parr)

A programme of juvenile salmonid monitoring – undertaken using electrofishing methods – is carried out annually to identify spatial variation in fry and parr populations and temporal trends in their abundance. A classification scheme is applied to identify the percentage of electrofishing sites falling into different salmon abundance classes (Classes A to F) and provide a measure of the health of juvenile salmon populations for each river. Figure 26 presents the percentage of sites in each catchment that fall into the top three categories (Classes A to C) over the period 2017 to 2022. Thus, for catchments shaded red, 25% or fewer sites fall within this category, while for those shaded green more than 75% of sites are at or above average. Overall, more than half (58%) of the sites surveyed over the period were in the lowest two classes (Classes E or F). It should be noted that COVID-19 restrictions prevented any notable juvenile salmonid monitoring in 2020.

Figure 27 presents annual estimates of the overall percentage of sites within Principal Salmon Rivers falling within classes A to C viewed over the available time series (2005-2022). It should be noted that not all the same sites are sampled every year and so the data are not directly comparable from one year to the next. Nonetheless, these data provide a general indication of overall changes in juvenile recruitment throughout England and Wales over the period. The data show considerable variability in the percentage of sites falling within classes A to C, ranging from 53% in 2009 to a low of 23% in 2016. The latter reflected the poor juvenile recruitment observed throughout England and Wales in that year (Section 10). There was a small improvement in the percentage of sites falling within classes A to C from 2017 to 2019, with the value for 2019 (36%) just below the average of the time-series (37%). The percentage of sites within classes A to C in 2022 was 35%.

Table 23. Validated counts and run estimates of salmon smolts and adults in selected monitored rivers, 1986-2022.

Stage:	Smolts		Adults															
Region/NRW:	Southern	SW	NE		Thames	Southern			SW			NW				Wales		
River:	Test [a]	Frome [d]	Tyne [b]	Tees	Thames [c]	Test	Itchen	Hants Avon	Frome [d]	Tamar [e]	Fowey [f]	Lune	Kent	Leven	Caldew	Dee	Teifi	Taff
Method:	Run estimate		RSE¹	T [g]	T	RSE¹	RSE¹	RSE¹	RSE¹	RSE¹	C	RSE¹	RSE¹	C	T [h]	RSE²	RSE¹	C [s]
1986					81													
1987					41													
1988					288	1,507	1,336		3,614									
1989					91	1,730	791		3,156			5,246	1,137					
1990					63	790	367		1,917			5,650	2,216					
1991					36	538	152		861			5,614	1,736					
1992	11,967				247	488	305		871			4,166	1,816			4,643		
1993	7,131				259	920	646		1,291			8,070	1,526			9,757		
1994	3,381				143	618	311		1,141	6,295		6,351	2,072		1,461	5,285		
1995	6,853			87	162	517	798		1,102	5,581	756	4,720	2,762		1,456	5,703		
1996	4,712			98	122	515	386		1,499	3,948	669	4,899	3,246		1,202	4,931		
1997	7,229			125	25	317	232		1,207	2,959	467	3,320	1,473		831	5,496		
1998	14,672			224	6	748	412		1,307	4,134	521	7,933	2,166		1,042	6,661		
1999	4,085			141	35	777	207		827	3,552	713	5,155	1,023		969	3,664		
2000	3,516			152	53	537	204		660	3,503	745	8,789	2,354	321	1,288	3,751		
2001	2,625			163	9	408	214		672	4,142	717	6,590	2,882	n/a		4,766		
2002	2,190	9,300		239	22	1,046	239		883	5,993	935	8,088	3,149	285	1,231	7,216		
2003	7,585	11,200		126	18	367	169		582	4,792	741	7,335	2,741	323	759	4,915		
2004	5,024	8,300	20,131	571	7	1,129	410		715	4,725	1,301	13,684	2,982	n/a	1,579	7,123		
2005	7,580		13,868	171	0	1,117	411		550	5,730	1,046	10,451	3,082	n/a	1,031	5,435		
2006	6,118	9,689	17,180	209	0	1,058	419	1,319	754	5,484	930	7,918	2,625	n/a	1,242	5,663		
2007	13,400	13,429	10,363	423	1	664	301	1,135	655	3,865	796	11,879	2,304	420	1,017	5,839		
2008	3,498	13,654	9,597	529	9	1,487	500	810	994	7,247	938	9,932	1,147	347	1,026	5,707		
2009	n/a	10,885	8,911	225	4	903	276	759	602	3,726	717	8,829	995	152	539	5,006		
2010	n/a	13,022	21,268	229	4	833	757	609	1,058	7,230	1,220	8,866	2,468	622	637	5,615	6,056	361
2011	n/a	9,787	18,334	400	4	980 [j]	697 [k]	782	1,406	4,145	675	6,802	n/a	326	236	4,831	3,940	1,211
2012	15,378	6,310	10,851	1,661	15	949 [j]	622	762	458 [m]	5,225	515	4,671	n/a	209	84	4,096	2,619	
2013	7,387	13,369	15,999	1,161	3	1,020	478	789 [n]	383 [m]	2,733	886	4,802	n/a	408	245	4,044	2,201	867
2014	Decommissioned	9,010	13,666	430	Decommissioned	1,001	779	683 [n]	335 [m]	3,004	501	3,690	n/a	n/a [q]	Decommissioned	3,530	1,901	687
2015		6,912	15,914	367		2,007	903	1,181	829	4,554	683	3479 [p]	n/a	n/a		3,051	1,297	787
2016		9,539	17,331	498		1,454	361	1,331 [n]	748	4,407	336	n/a	n/a	n/a		3,330	1,436	476
2017		4,381	13,448	297		1,850	640	1,037	991	4,424	484	n/a	n/a	n/a		3,043	1,182	315
2018		11,875	n/a	217		683	355	736 [n]	524	2,892	388	n/a	n/a	n/a		3,796	937	150
2019		9,347	7,766	204		984	475	704 [o]	451	2,763	229	n/a	n/a	n/a		1,551	1,317	180
2020		13,062	10.706	328		2,947	717	1,495	653	4,939	484	n/a	n/a	n/a		4,575	1,185	[r]
2021		6,635	9,328	305		704	318	1,057	459	4,356	516	[s]	n/a	n/a		3,207	853	215
2022		10,430	13,023	266		506	133	837	628	3,234	304	[s]	n/a	n/a		2,956	1,586	89
Mean (2017–2021)		9,060	11,258	270		1,434	501	1,006	616	3,875	422			142		3,238	1,095	215

Key to methods:
T = adult trap.
C = adult salmon count.
RSE¹ = returning stock estimate (validated count + catch below counter).
RSE² = returning stock estimate (mark/recapture estimate).

Notes: *Data for 2022 are provisional.*

Key:
- [a] *Smolt run estimates from 2010 are from a new trapping location further upstream, so shouldn't be compared directly with the earlier time series.*
- [b] *Tyne RSEs have been updated based on video validation, but remain provisional pending work to further develop analytical methods for count speciation.*
- [c] *Denotes stock originally supported by large-scale stocking from hatchery programme.*
- [d] *Data based on Game & Wildlife Conservation Trust monitoring facilities at East Stoke, and supplied courtesy of GWCT.*
- [e] *Data for some years revised in 2014 to take account of high summer flows and reduced counter efficiency.*
- [f] *Count relates to period from 1 March to end of February.*
- [g] *Index of run only- based on adult trap in barrage. Trap not operated after 2010; new counter now in place but provides combined salmon & sea trout count and there is marked leakage.*
- [h] *Data adjusted for multiple entry (re-entry rate of 6.6% in 2002). Data relate to spawning year, i.e. 12 month period from March to February. Trap no longer operative from 2014.*
- [j] *Due to counter malfunction, estimates for 2011-12 based on relationship between rod catch and RSE for the period 1990-2010.*
- [k] *Slight under-estimate due to counter malfunction during May/June.*
- [m] *Estimates informed by return rate of PIT tagged fish in addition to adult counter.*
- [n] *Due to significant resistivity counter downtime, estimates based on a correlation between rod exploitation rate and validated counter estimates (from 2006 – 2012).*
- [o] *Minimum estimate due to an unknown number of fish potentially bypassing the counter through an open weir between the end of September and December 2019.*
- [p] *Minimum estimate because the counter was damaged by high flows at the end of the year and the new fish pass and counter were not adequately validated.*
- [q] *No count available from 2014 due to the loss of a conductivity probe which affected the capability of the counter to size fish and speciate accurately.*
- [r] *No count available due to COVID-19 restrictions preventing essential counter maintenance during the main part of the salmon run.*
- [s] *Tracking studies from 2000 to 2005 indicate that minimal numbers of salmon enter the river via non-counted routes.*

Table 24. Compilation of microtag, fin clip, and external tag releases in England and Wales in 2022.

Marking season: 2022

Country: UK (England and Wales)

Totals	Origin	Primary Tag or Mark			Other internal [a]	Total
		Microtag	External Mark	Adipose Clip		
	Hatchery Adult					0
	Hatchery Juvenile					0
	Wild Adult		638		25	663
	Wild Juvenile	6,216			9,054	15,270
	Total fish marked	**6,216**	**638**	**0**	**9,079**	**15,933**

Marking Agency	Age	Life Stage	H/W	Stock Origin	Primary Tag or Mark	Number marked	Code or Serial	Secondary Tag or Mark	Release date	Release Location
EA North East	Various	Adult	W	Tyne	Floy tag	24	Green 3101–3117, 3144–3150	None	Dec 2022	North Tyne
EA South West	Various	Smolt	W	Tamar	CWT	4,094	A42/01/96	Adipose clip	Apr–May 2022	Tamar – Leighwood Croy
Natural Resources Wales	Various	Adult	W	Dee	Acoustic	25	Various	Floy tag	Mar–Aug 2022	Dee – Chester
Natural Resources Wales	1+ & 2+	Smolt	W	Dee	Acoustic	60	Various	None	Mar–Apr 2022	Dee – Little Dee
Natural Resources Wales	Various	Adult	W	Dee	Floy tag	614	Various	None	Mar–Oct 2022	Dee – Chester
Natural Resources Wales	Various	Smolt	W	Dee	CWT	2,122	01/42/34; 01/42/48	Adipose clip	Apr–May 2022	Dee – Ceiriog and Worthenbury/Chester
Natural Resources Wales	1+ & 2+	Smolt	W	Usk	Acoustic	100	Various	None	Mar–Apr 2022	Usk – Upper
GWCT	0+	Parr	W	Frome	PIT tag	8,334	PIT codes starting 3DD.003xxxxxx	Adipose clip	Aug–Sep 2022	Frome
GWCT	1+	Parr	W	Frome	PIT tag	340	PIT codes starting 3DD.003xxxxxx	Adipose clip	Aug–Sep 2022	Frome
GWCT	2+	Parr	W	Frome	PIT tag	1	PIT codes starting 3DD.003xxxxxx	Adipose clip	Aug–Sep 2022	Frome
University of Glasgow	1+ & 2+	Smolt	W	Dewent	PIT tag	115	Various	None	Apr–May 2022	Derwent
Bournemouth University	1+ & 2+	Parr	W	Teign	PIT tag	104	Various	Adipose clip	Sep 2022	Teign

Notes: [a] *Includes PIT and radio/acoustic tags.*

Table 25. Estimated survival of wild smolts (%) returning to index rivers in the UK and Ireland (data from the Environment Agency, NRW, Cefas, GWCT, Marine Institute Ireland, Agri-Food and Biosciences Institute Northern Ireland, and Marine Scotland) for 1984 to 2021 smolt years.

Smolt migration	Ireland			UK (N. Ireland)	UK (Scotland)		UK (England and Wales)									
year	River Corrib		Burishoole	River Bush [a]	River North Esk [b]		Dee [c]				Tamar				Frome [d]	
	1SW	2SW	1SW	1SW	1SW	MSW	1SW	95% CL	MSW	95% CL	1SW	95% CL	MSW	95% CL	1SW	MSW
1984	26.2	2.0	19.8		6.0	4.0										
1985	18.9	1.8	19.3		13.7	5.3										
1986			20.0	31.3												
1987	16.6	0.7	26.9	35.1	10.5	3.9										
1988	14.6	0.7	22.9	36.2												
1989	6.7	0.7	7.1	25.0	6.7	4.1										
1990	5.0	0.6	16.0	34.7	6.0	3.1										
1991	7.3	1.3	21.7	27.8	7.6	3.0										
1992	7.3		15.9	29.0	11.0	6.4										
1993	10.8	0.1	23.9		14.5	6.1	6.3	3.6	2.5	2.2						
1994	9.8	1.4	26.9	27.1	10.9	3.6	1.3	1.2	1.2	1.3						
1995	8.4	0.1	14.6		8.4	3.8	2.7	1.8	0.4	0.7						
1996	6.5	1.2	18.3	31.0	6.1	2.7	4.8	1.7	2.1	1.3						
1997	12.7	0.8	15.6	19.8	7.2	4.2	6.2	2.9	3.4	1.9						
1998	5.5	1.1	12.4	13.4	2.6	1.3	2.3	2.4	3.7	3.6						
1999	6.4	0.9	14.9	16.5	6.8	3.7	5.0	8.3	12.4	11.8						
2000	9.4		22.5	10.1	6.1	2.7	2.0	1.1	0.9	0.8						
2001	7.2	1.1	16.6	12.4	4.7	2.9	4.3	5.1								
2002	6.0	0.5	12.3	11.3	2.3	1.9	2.9	1.4	0.7	0.9	3.6	2.1	1.4	0.9	5.6	1.7
2003	8.3	2.1	19.4	6.8			2.6	1.7	0.4	0.4	6.1	2.0	1.8	1.1	4.8	0.9
2004	6.3	0.8	12.8	6.8			4.5	1.1	1.0	0.5	6.0	2.3	1.5	1.0	5.3	2.9
2005			8.1	5.9	6.7	2.7	5.1	1.6	0.5	0.4	6.4	1.6	1.2	0.8		
2006	3.6	0.7	12.9	14.0	3.3	3.4	4.3	1.2	1.5	0.9	3.8	1.3	5.3	2.5	5.1	2.2
2007	1.3	1.6	8.4	8.3	5.0	3.9	1.3	1.1	0.9	0.7	7.6	3.8	3.3	2.0	5.7	1.3
2008	1.7	1.0	8.2	4.0	6.5	5.3	2.5	2.0	1.3	1.5	1.6	0.9	0.9	0.7	3.1	1.6
2009	6.0	1.0	8.9	5.9	9.0	8.6	4.8	2.1	1.1	1.0	8.2	2.1	1.9	0.9	7.7	2.6
2010	2.9	1.2	7.5	4.0			1.9	1.9	0.7	1.3	3.4	1.5	5.0	3.1	8.6	2.8
2011	2.4		10.8	2.7					0.3	0.5	1.1	1.6	1.9	1.2	1.2	1.7
2012	1.5		9.4	11.7			4.8	4.9			2.5	1.4			3.1	2.0
2013	2.2	0.6	4.5	4.6			1.9	1.7	1.4	1.3			4.7	2.6	1.5	2.1
2014	2.8	0.2	8.0	2.9					0.5	1.1					2.0	2.7
2015	5.5	0.6	7.8	6.7			0.5	1.1	1.8	1.6	4.2	2.1	2.3	1.9	5.9	3.0
2016	6.9	0.2	7.5	3.8			0.4	0.7	3.9	3.0	3.5	2.6	1.6	1.4	4.4	2.0
2017	3.6	0.4	7.1	3.2							4.9	2.8	5.2	3.4	2.6	1.9
2018	2.3	2.2	8.0	2.8			1.0	2.0	6.2	6.8	3.7	1.8	3.2	1.8	1.6	1.9
2019	2.5	1.4	8.2	7.1			1.9	2.9			6.3	2.9	1.5	2.1	4.7	1.8
2020	4.7	2.8	8.0	4.6											2.2	2.5
2021			7.8	2.9							2.4	1.8			1.7	
Mean (2016-2020)	4.0	1.4	7.8	4.3			1.1		5.0		4.6		2.9		3.1	2.0
Mean (2011-2020)	3.4	1.0	7.9	5.0			1.8		2.3		3.7		2.9		2.9	2.2

Key:
[a] *Based on microtagging, corrected for tagging mortality.*
[b] *Based on tagging with Carlin tags, not corrected for tagging mortality*
[c] *Based on microtagging with a 90% tag retention rate, not corrected for tagging mortality.*
[d] *Data based on Game & Wildlife Conservation Trust monitoring facilities at East Stoke, and supplied courtesy of GWCT.*

Notes: Data for 2021 smolt migration year are provisional.

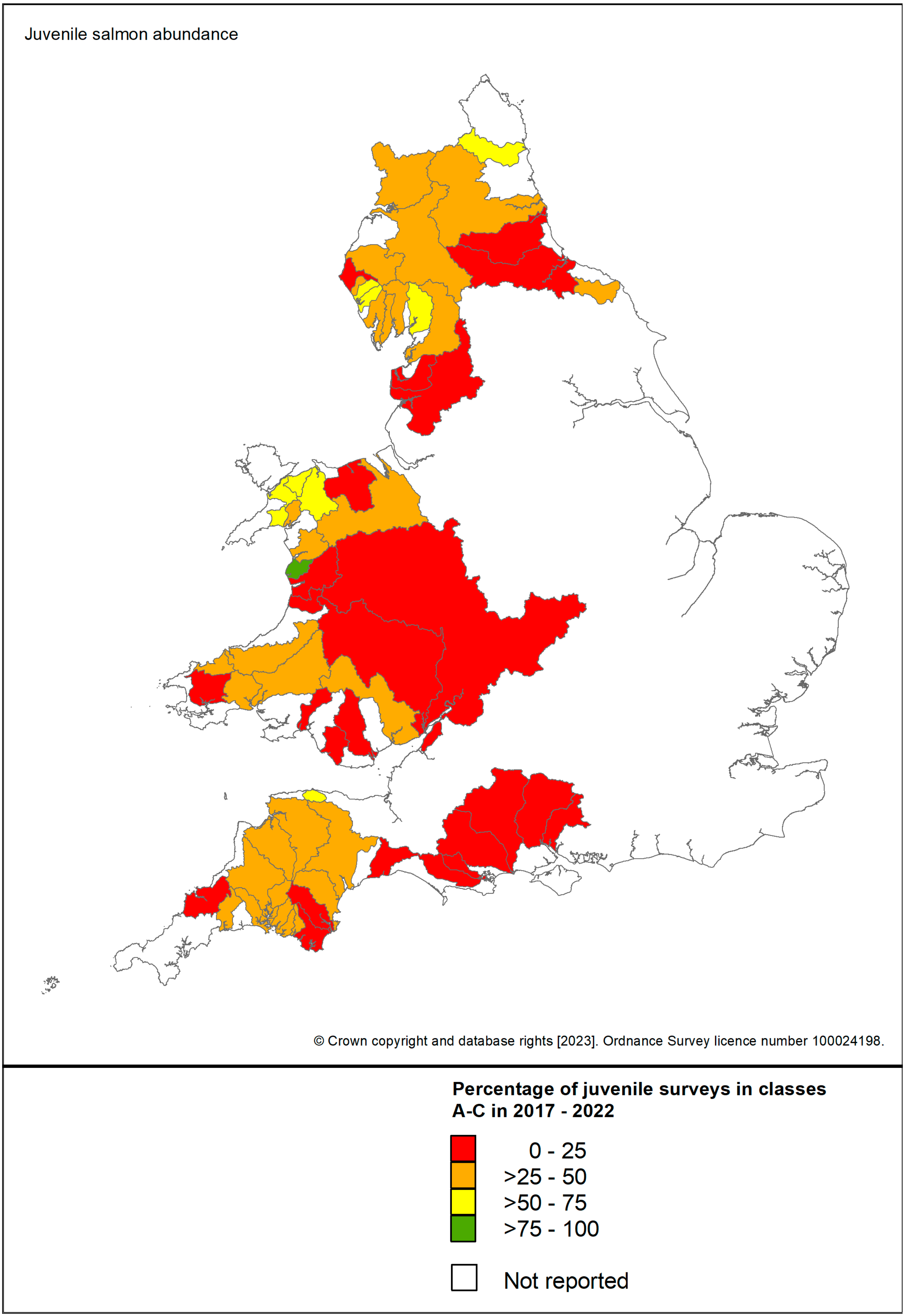


Figure 26. Juvenile salmon abundance indices for each catchment, presented as the percentage of electrofishing survey sites in classes A to C only, 2017-2022. N.B. no 2020 data shown on the figure because COVID-19 access and movement restrictions prevented any notable juvenile salmonid monitoring.

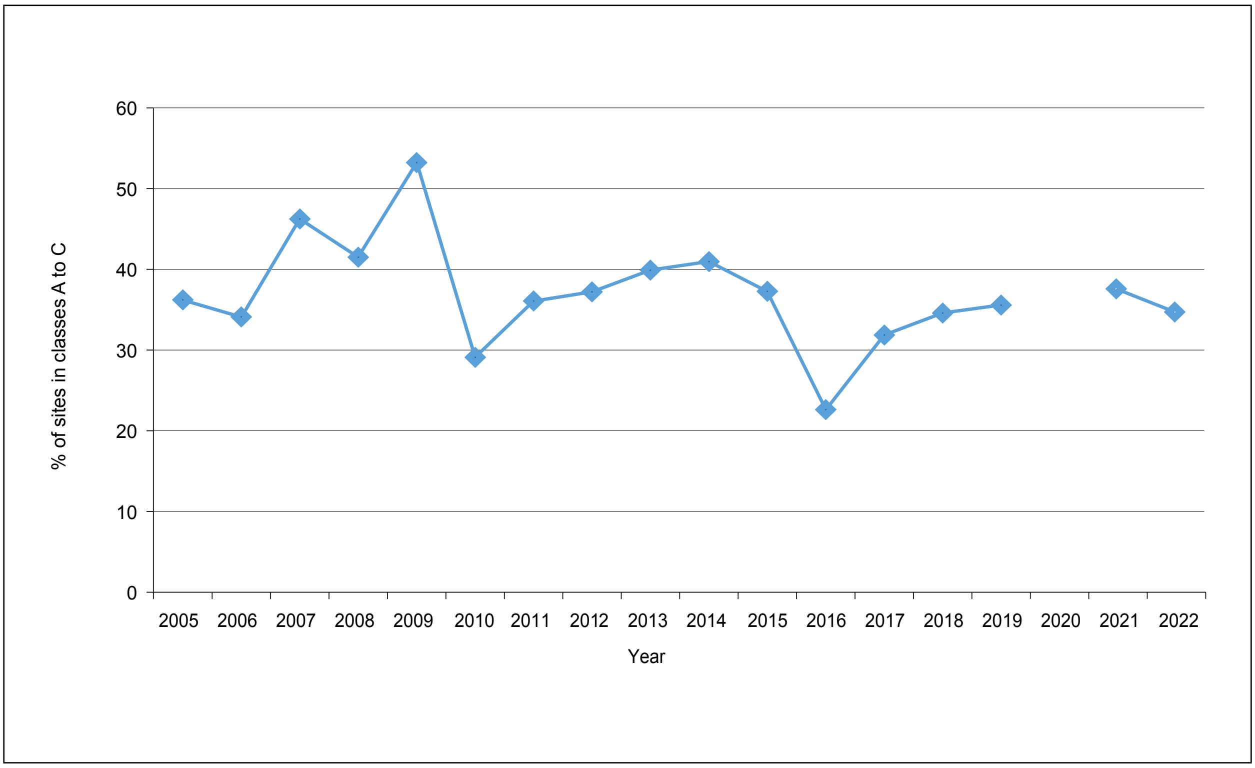


Figure 27. Overall percentage of juvenile electrofishing survey sites in England and Wales in classes A to C, 2005-2022. Data include all surveys conducted in a single year from Principal Salmon Rivers only. N.B. no 2020 data shown on the figure because COVID-19 access and movement restrictions prevented any notable juvenile salmonid monitoring.

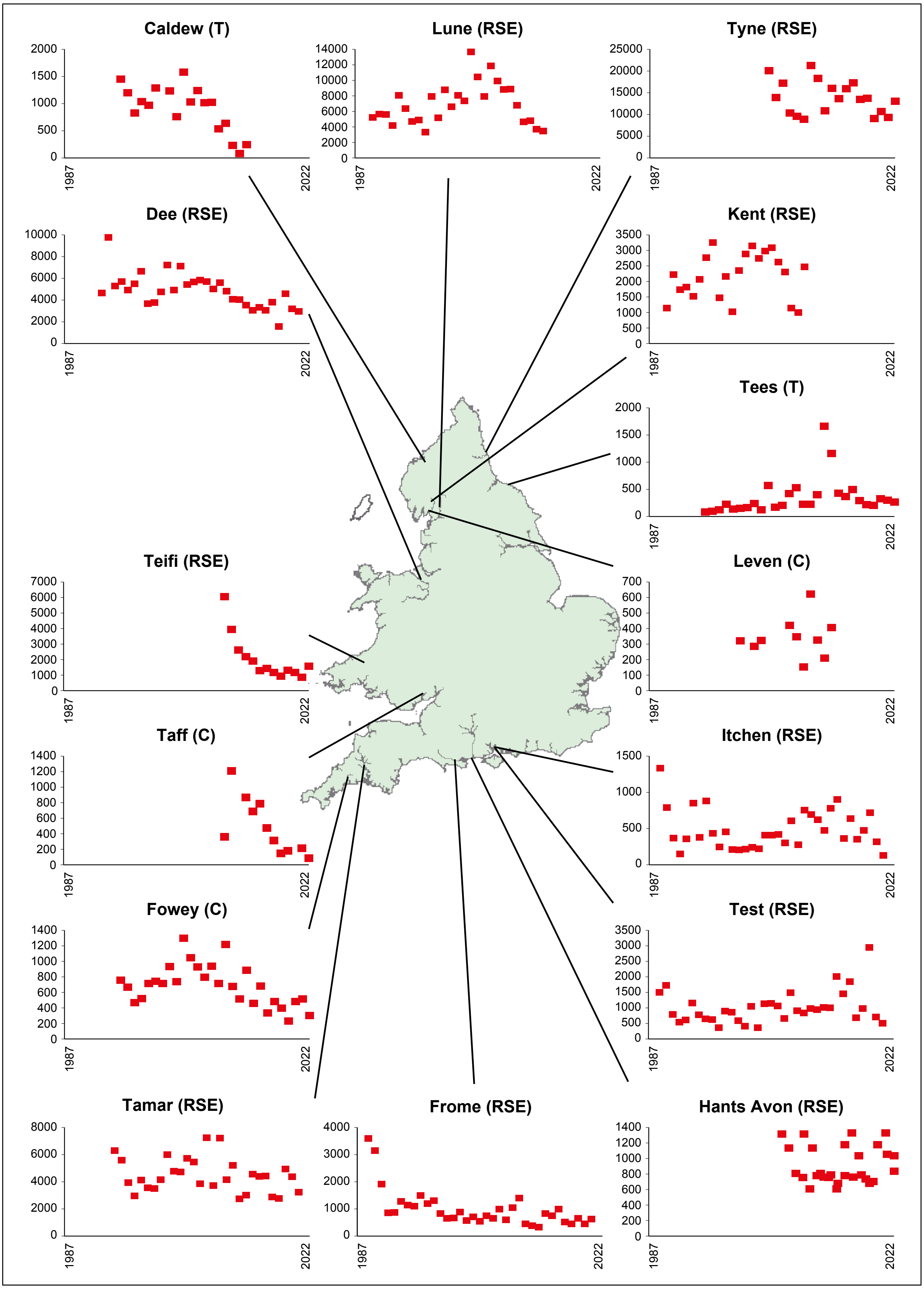


Figure 28. Counts from electronic counters (C) and traps (T), and returning stock estimates (RSE) (based on trapping and tagging, or validated counts plus catch below counter) for selected salmon stocks, which have validated counts and run estimates of adult salmon available, in England and Wales, 1988-2022.

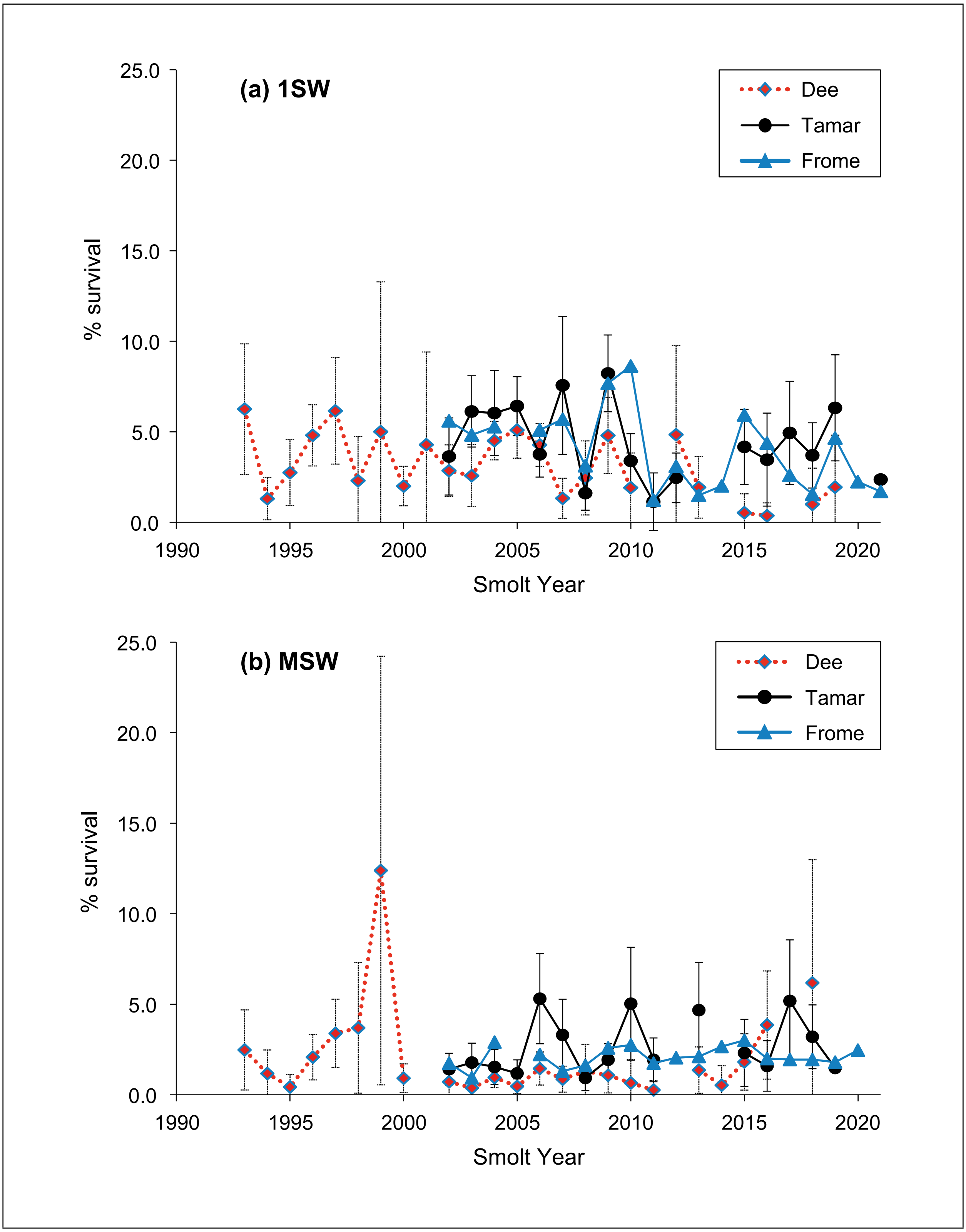


Figure 29. Estimated survival (±95 Confidence Limits where available) of wild smolts (%) returning to the Rivers Dee, Tamar, and Frome for (a) 1SW and (b) MSW salmon.

8. ASSESSMENT OF STOCK STATUS

The status of individual river stocks in England and Wales is evaluated annually against Conservation Limits (CLs) and Management Targets (MTs) in line with the requirements of ICES and NASCO. An assessment of the status of the national salmon resource in England and Wales is also undertaken annually, using the pre-fishery abundance (PFA) and National Conservation Limit Models (Potter *et al.*, 2004), and reported to ICES to assist with the development of management advice for the distant water fisheries. Full details of these assessment approaches are provided in the Background Report (Cefas, Environment Agency and Natural Resources Wales, 2023).

Status of river stocks in 2022

Egg deposition estimates for 2022 have been calculated for Principal Salmon Rivers using validated counts and run estimates or declared rod catch data in England and Wales and values, expressed as the percentage of the CL attained, are provided in Table 26 and illustrated in Figure 30. It should be noted that egg deposition estimates in 2020 were adjusted to account for the influence of the COVID-19 pandemic on rod catches (see Background Report (Cefas, Environment Agency and Natural Resources Wales, 2023) for further details).

Eight rivers (14%) were provisionally assessed as meeting their CL in 2022 (Table 27), a decrease on 2021 (from 11 rivers) and the lowest in the 30-year time series (Figure 31). A total of thirty-nine rivers (66%) were below 50% of their CL in 2022, compared with 37 rivers (60%) in 2021. However, it should be noted that it was not possible to calculate the percentage of the CL attained in 2022 for the Axe, Yealm, Ogmore, Rheidol, and Dysinni because all these rivers had declared rod catches of zero meaning no estimates of egg deposition could be made. River-to-river variation in the percentage of the CL attained in 2022 (Figure 30) indicates that rivers where egg deposition levels were below the CL were widely distributed throughout England and Wales.

In 2022, additional egg deposition resulting from fish that were caught and released is estimated at about 12 million eggs (assuming 80% adult survival from release to spawning (compared to 90% survival for fish not caught), 50% females and an average of 5,000 eggs per female). This represents about 7.5% of the total estimated egg deposition in England and Wales in 2022.

Compliance with the Management Objective

The 'Management Objective' (MO) for salmon stocks in England and Wales is that they should meet or exceed their CLs in at least four years out of five (i.e., at least 80% of the time). Compliance with this objective takes trends in egg deposition estimates into account and has been calculated for all 64 Principal Salmon River stocks in England and Wales for 2022 and projected to 2027 (Table 26 and Figure 32).

The latest compliance assessment indicates that just one Principal Salmon River (Tyne) in England and Wales was classified as 'not at risk' in the current year (2022) – i.e., having a high probability ($p \geq 95\%$) of achieving the MO. This is the third consecutive year that the Tyne has been classified as 'not at risk', and this is projected to continue to apply for this river in 2027 if the trend persists for the next five years. In 2022, 51 rivers (80%) were classified as 'at risk' – having a low probability ($p \leq 5\%$) of achieving the MO, the same number as 2021, but 46 rivers (72%) are projected to be 'at risk' in 2027 if the trends continue for the next five years. Just 5 rivers (8%) are classified as 'probably not at risk' ($50\% \leq p < 95\%$) in 2022. Seven rivers (11%) in 2022 are classified as 'probably at risk' (5% < p < 50% of achieving the MO); this is projected to rise to 12 rivers (19%) in 2027 if recent trends continue. The compliance figures are summarised, separately, for rivers in England and Wales below:

Rivers in England

Stock status category	Probability of meeting the Management Objective	2022		2027	
		Number of rivers	%	Number of rivers	%
Not at risk	>95%	1	2	1	2
Probably not at risk	50–95%	5	12	5	12
Probably at risk	5–50%	6	14	11	26
At risk	<5%	30	71	25	60

Rivers in Wales

Stock status category	Probability of meeting the Management Objective	2022		2027	
		Number of rivers	%	Number of rivers	%
Not at risk	>95%	0	0	0	0
Probably not at risk	50–95%	0	0	0	0
Probably at risk	5–50%	1	5	1	5
At risk	<5%	21	95	21	95

In England (Figure 33a), the percentage of Principal Salmon Rivers regarded as 'at risk' has generally increased over the past 15 years. In 2022, the percentage of rivers classified as 'at risk' was the second highest in the time series and would be projected to continue at a relatively high level if recent trends continue. The percentage of rivers classified as 'not at risk' was relatively stable, at about 20%, over the early part of the time series, but just one river has been assessed as 'not at risk' over the last nine years, and this river would be projected to retain this classification to 2027 if recent trends persist for the next five years. One more river was classified as 'probably not at risk' in 2022 (5) compared to 2021 (4). Nearly three-quarters of the rivers (71%) are assessed as 'at risk', which exceeds all other years in the time series, except 2021 (74%). The 2022 assessment suggests that the majority (86%) of English rivers would be projected to fall in the 'probably at risk' and 'at risk' categories in 2027 if recent trends continue.

For Wales (Figure 33b), the percentage of Principal Salmon Rivers falling into the 'at risk' category has generally increased over time and very few rivers (≤2) have been classed as 'not at risk' throughout the time series. In 2022, all the rivers are classified as either 'at risk' (95%) or 'probably at risk' (5%). The projected trends suggest that all rivers will continue to fall in these same two categories in 2027, with the vast majority (95%) classed as 'at risk'.

The latest assessment therefore indicates that most salmon stocks in England and Wales remain in a depleted state.

ICES assessment of pre-fishery abundance (PFA) for England and Wales

Each year, ICES assesses the status of the salmon stocks in the North-East Atlantic Commission (NEAC) area as a basis for advising managers and providing catch advice for the distant water fisheries. A key part of this assessment is the estimation of the PFA of all NEAC stocks, which is defined as the number of fish alive in the sea on January 1 in their first winter at sea. This is split between maturing (potential 1SW) and non-maturing (potential MSW) fish. The PFA estimates for the period since 1971 provide ICES' best interpretation of what the catch and effort data tell us about changes in the status of the total national stocks of salmon over this time period.

The estimated PFA of salmon from England and Wales has declined by around 46% from the early 1970s to the present time (Figure 34). Over much of the period, the decrease has tended to be somewhat steeper for the non-maturing (i.e., potential MSW) component of the PFA than the maturing 1SW (i.e., potential grilse) component. However, there has been a marked reduction in the PFA of 1SW salmon in the last twelve years, and the decline in PFA between the start and the end of the time series is now steeper for 1SW fish (65%) than for MSW salmon (37%). It should be noted that these national, age-specific trends mask conflicting changes in individual river stocks for all ages combined. Many rivers have experienced more serious declines, but these are obscured by the very substantial improvements and recovery in others (e.g., the River Tyne) over the entire ~50-year time series. The results also suggest that there was a marked decline in PFA around 1990, which is consistent with the general perception of a decrease in the marine survival for many stocks around the North Atlantic at about that time.

The estimated numbers of salmon returning to England and Wales (i.e., prior to exploitation in homewater fisheries) are also derived from the ICES national assessment, based on homewater fishery catches corrected for under-reporting and raised by exploitation rates. These estimates show a similar downward trend to the PFA (Figure 35), although the decrease is less marked due to the reduction in net exploitation in distant water fisheries. Thus, the numbers of returning fish are estimated to have declined by about 38% between the early 1970s and the present time. As with the PFA, the decline in returning MSW fish has tended to be steeper than that of the 1SW returns over much of the time period. However, a higher percentage of MSW fish has been observed in the last twelve years and the percentage reduction in returning fish between the start and the end of the times series is now substantially greater for 1SW (64%) than MSW (15%) fish.

The difference between the estimated numbers of returning fish and those surviving to spawn has reduced progressively over the time series (Figure 35), reflecting the marked reduction in retained catches in homewater fisheries and increasing use of C&R. The total spawning escapement has remained relatively constant with no significant trend over the period. In 2022, the estimated number of returning fish was the eighteenth lowest of the time series and total spawning escapement was (8%) above the average of the previous five-years. The recent upturn in MSW returns means that MSW spawner numbers for the international assessment used by ICES and NASCO are now estimated to be above those at the start of the time period. This will be expected to have a disproportionately large effect on egg deposition, given the substantially higher fecundity of these larger fish. Again, it should be noted, however, that these national 'pooled' estimates of age-specific spawner numbers in England and Wales mask the status of individual river stocks for all ages combined, which, in the main, are assessed as being in a depleted state.

Table 26. Conservation Limits (CL) and the percentage of the CL attained for the Principal Salmon Rivers in England and Wales, 2013-2022. Current compliance against the Management Objective (MO) and projected compliance in 2027 are shown in the right-hand columns (see Background report for details).

EA Region/NRW River	Accessible wetted area (ha)	CL eggs / 100m	CL eggs (x106)	Mgmt Target eggs (x106)	2022 egg deposition (x106)	Percentage of Conservation Limit attained (%) [a]										Current compliance [b] 2022	Projected compliance [b] in 2027
						2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
NE																	
Coquet	144	218	3.14	4.89	5.87	228	134	93	160	190	96	213	312	137	187	PNaR	PNaR
Tyne [c]	542	208	11.25	20.11	41.19	449	419	444	559	440	370	273	289	265	366	NaR	NaR
Wear	232	250	5.80	11.32	12.57	526	351	196	228	310	225	183	233	124	217	PNaR	PaR
Tees	620	240	14.90	15.75	0.76	23	4	8	13	21	5	9	5	9	5	AR	AR
Esk-Yorks	86	236	2.02	2.74	0.48	101	81	75	102	174	53	62	73	35	24	AR	AR
Southern																	
Test	138	246	3.40	4.73	1.68	68	68	137	99	128	59	69	194	60	49	AR	PaR
Itchen	69	234	1.63	2.07	0.33	67	109	125	45	86	59	55	88	44	20	AR	AR
SW																	
Avon-Hants	369	175	6.48	7.35	4.38	61	37	59	79	63	59	59	92	88	68	AR	PaR
Stour	142	149	2.12	2.17	0.29	12	8	12	16	13	12	12	18	18	14	AR	AR
Piddle	18	177	0.31	0.37	0.27	31	28	73	70	82	67	41	82	57	87	PaR	PaR
Frome	88	171	1.50	2.04	2.71	57	52	133	125	151	123	90	168	122	181	PNaR	PNaR
Axe	83	175	1.45	1.61	n/a	26	16	37	37	16	2	11	5	n/a	n/a	AR	AR
Exe	282	253	7.14	9.04	1.39	70	48	130	86	108	60	53	84	63	20	AR	AR
Teign	98	251	2.47	3.02	1.20	123	100	121	72	105	80	66	57	66	49	AR	AR
Dart	137	218	2.98	3.39	0.04	37	18	23	52	43	13	20	16	7	1	AR	AR
Avon-Devon	35	202	0.70	0.85	0.09	50	69	63	64	59	44	33	52	114	13	AR	AR
Erme	20	180	0.37	0.54	0.03	76	13	19	31	175	127	7	11	58	9	AR	AR
Yealm	11	212	0.24	0.27	n/a	49	29	24	23	11	32	n/a	8	n/a	n/a	AR	AR
Plym	29	188	0.55	0.61	0.01	24	35	31	7	29	18	12	29	6	3	AR	AR
Tavy	68	201	1.37	1.74	0.31	64	45	126	35	85	29	26	47	46	23	AR	AR
Tamar	293	395	11.56	13.28	12.37	74	77	108	83	104	89	78	113	124	107	PaR	PNaR
Lynher	29	233	0.68	1.18	0.56	150	75	262	163	293	46	45	84	119	82	PaR	PaR
Fowey	42	207	0.86	1.29	0.99	279	139	221	93	147	134	83	121	130	115	PaR	PaR
Camel	56	176	0.98	1.28	0.57	158	88	80	105	93	82	46	51	35	58	AR	AR
Taw	274	211	5.78	9.56	2.57	52	109	253	139	251	62	74	127	60	44	AR	PaR
Torridge	198	207	4.10	5.20	0.72	58	49	91	83	106	48	19	28	21	18	AR	AR
Lyn	27	359	0.97	1.63	0.38	85	103	95	60	258	39	208	192	212	40	PaR	PaR
Midlands																	
Severn	898	143	12.85	17.19	2.12	95	55	149	107	102	66	51	63	27	17	AR	AR
NW																	
Ribble	351	202	7.10	9.89	3.41	129	134	147	117	189	80	83	117	36	48	AR	AR
Wyre	67	73	0.49	0.52	0.09	12	13	22	3	27	11	n/a	23	4	19	AR	AR
Lune	423	237	10.01	13.28	3.45	112	94	115	112	132	67	48	101	19	35	AR	AR
Kent	68	223	1.52	1.99	0.55	138	70	55	105	113	108	76	102	25	36	AR	AR

Leven	46	182	0.83	1.24	0.29	119	170	186	62	125	156	78	85	17	35	AR	AR
Crake	16	194	0.32	0.38	0.13	91	45	29	13	60	77	23	31	23	41	AR	AR
Duddon (& Lickle)	26	121	0.31	0.64	0.61	316	177	230	342	548	352	194	380	115	196	PNaR	PNaR
Esk	20	181	0.37	0.44	0.57	156	147	98	120	169	124	110	142	128	155	PNaR	PNaR
Irt	35	198	0.69	0.94	0.58	164	42	44	63	87	57	58	154	81	84	PaR	PaR
Ehen	41	230	0.94	1.51	0.57	279	162	75	116	181	110	105	227	77	61	AR	AR
Calder	13	261	0.33	0.41	0.18	91	34	22	16	42	24	40	103	54	55	AR	PaR
Derwent	213	185	3.93	5.30	2.41	144	82	58	90	162	68	49	107	35	61	AR	AR
Eden	688	200	13.75	16.68	6.66	65	52	99	114	93	83	58	105	47	48	AR	AR
Esk-Border [d]	306	255	7.79	10.22	4.59	67	68	71	90	81	172	68	120	43	59	AR	PaR
Wales																	
Wye	1,721	224	38.57	49.44	19.58	79	43	95	132	96	50	29	47	32	51	AR	AR
Usk	407	248	10.11	16.24	4.30	122	97	168	228	238	61	64	83	53	43	AR	AR
Taff & Ely	146	219	3.19	3.51	0.15	30	15	43	26	17	8	10	17	12	5	AR	AR
Ogmore	61	180	1.10	1.23	n/a	17	36	32	27	25	6	13	39	4	n/a	AR	AR
Tawe	88	211	1.85	2.04	0.09	37	24	26	28	31	12	10	11	3	5	AR	AR
Tywi	500	226	11.30	14.18	3.62	84	41	52	82	119	65	31	97	39	32	AR	AR
Taf	90	189	1.70	2.02	0.13	58	53	85	31	54	48	36	32	14	8	AR	AR
E&W Cleddau	87	179	1.55	1.72	0.21	37	35	45	24	48	21	19	18	19	14	AR	AR
Teifi	326	265	8.65	9.40	3.33	53	47	30	33	28	22	31	28	20	39	AR	AR
Rheidol	31	222	0.68	0.80	n/a	66	35	24	30	6	10	14	7	3	n/a	AR	AR
Nevern	19	259	0.48	0.65	0.08	81	89	127	72	117	39	14	66	13	17	AR	AR
Dyfi	179	235	4.21	4.71	0.69	24	16	29	50	56	44	41	40	22	16	AR	AR
Dysinni	31	216	0.68	0.72	n/a	18	6	17	24	11	11	7	7	11	n/a	AR	AR
Mawddach	57	242	1.37	1.71	1.07	73	75	106	143	154	96	122	120	82	78	PaR	PaR
Dwyryd	9	201	0.19	0.26	0.05	56	74	83	48	186	58	16	98	21	29	AR	AR
Glaslyn	25	191	0.48	0.72	0.06	193	104	147	68	88	50	47	16	18	13	AR	AR
Dwyfawr	33	258	0.86	0.94	0.01	19	30	15	38	4	8	22	12	13	2	AR	AR
Seiont	21	226	0.48	0.56	0.08	49	21	15	37	41	8	49	73	4	16	AR	AR
Ogwen	24	362	0.87	1.39	0.06	112	39	135	101	270	109	153	150	69	7	AR	AR
Conwy	63	185	1.17	1.74	0.37	107	76	100	134	221	162	145	122	33	32	AR	AR
Clwyd	84	237	1.99	2.20	0.20	33	15	14	17	48	10	24	16	7	10	AR	AR
Dee	617	248	15.30	17.39	8.96	79	80	68	66	73	91	33	86	66	59	AR	AR
E & W Total			**262.75**	**342.25**	**161.02**												

Key to compliance assessments: **NaR** *Not at risk* **PNaR** *Probably not at risk* **PaR** *Probably at risk* **AR** *At risk*

Key:
[a] *Estimates include eggs contributed by rod-released fish.*
[b] *Basis for current and predicted compliance explained in the Background Report (see text for details).*
[c] *Provisional salmon counts now used on the Tyne to estimate egg deposition.*
[d] *Prior to 1 April 2005, B order Esk egg deposition estimates were based only on English rod catch and likely to be underestimates.*

Notes: Some entries in this table have been updated from that presented in previous reports as a result of river-specific refinements and corrections.
On some rivers, catch returns from fishery owners (rather than declared catches) or data from counters/traps have been used to derive estimates of egg deposition where these are considered to provide the most complete record of the returning stock.
n/a refers to instances where it was not possible to derive egg deposition estimates and calculate the percentage of the Conservation Limit attained because of declared rod catches of zero.
Data for 2022 are provisional.

Table 27. Number and percentage of salmon river stocks above their Conservation Limit (CL), between 50% and 100% of the CL, and less than 50% of the CL, 1993-2022.

Year	>CL		50-100% CL		<50% CL	
	No.	%	No.	%	No.	%
1993	32	52	14	23	15	25
1994	42	67	13	21	8	13
1995	26	41	22	35	15	24
1996	33	52	13	21	17	27
1997	21	33	26	41	17	27
1998	31	48	22	34	11	17
1999	21	33	22	34	21	33
2000	26	41	24	38	14	22
2001 [a]	20	34	19	33	19	33
2002	27	42	20	31	17	27
2003	20	31	16	25	28	44
2004	41	64	15	23	8	13
2005	31	48	18	28	15	23
2006	37	58	15	23	12	19
2007	32	50	17	27	15	23
2008	42	66	16	25	6	9
2009	23	36	24	38	17	27
2010	38	59	16	25	10	16
2011	39	61	16	25	9	14
2012	34	53	17	27	13	20
2013	20	31	27	42	17	27
2014	14	22	20	31	30	47
2015	23	36	19	30	22	34
2016	22	34	18	28	24	38
2017	30	47	16	25	18	28
2018	13	20	22	34	29	45
2019 [b]	10	16	18	29	34	55
2020	23	36	17	27	24	38
2021 [b]	11	18	14	23	37	60
2022 [c]	8	14	12	20	39	66
Average % 1993-2022		41		29		30

Key: [a] *No CL compliance assessment possible for 6 rivers due to the impact of foot and mouth disease.*
[b] *No CL compliance assessment possible for 2 rivers due to declared rod catches of zero meaning no estimates of egg deposition could be made.*
[c] *No CL compliance assessment possible for 5 rivers due to declared rod catches of zero meaning no estimates of egg deposition could be made.*

Notes: Data for 2022 are provisonal.

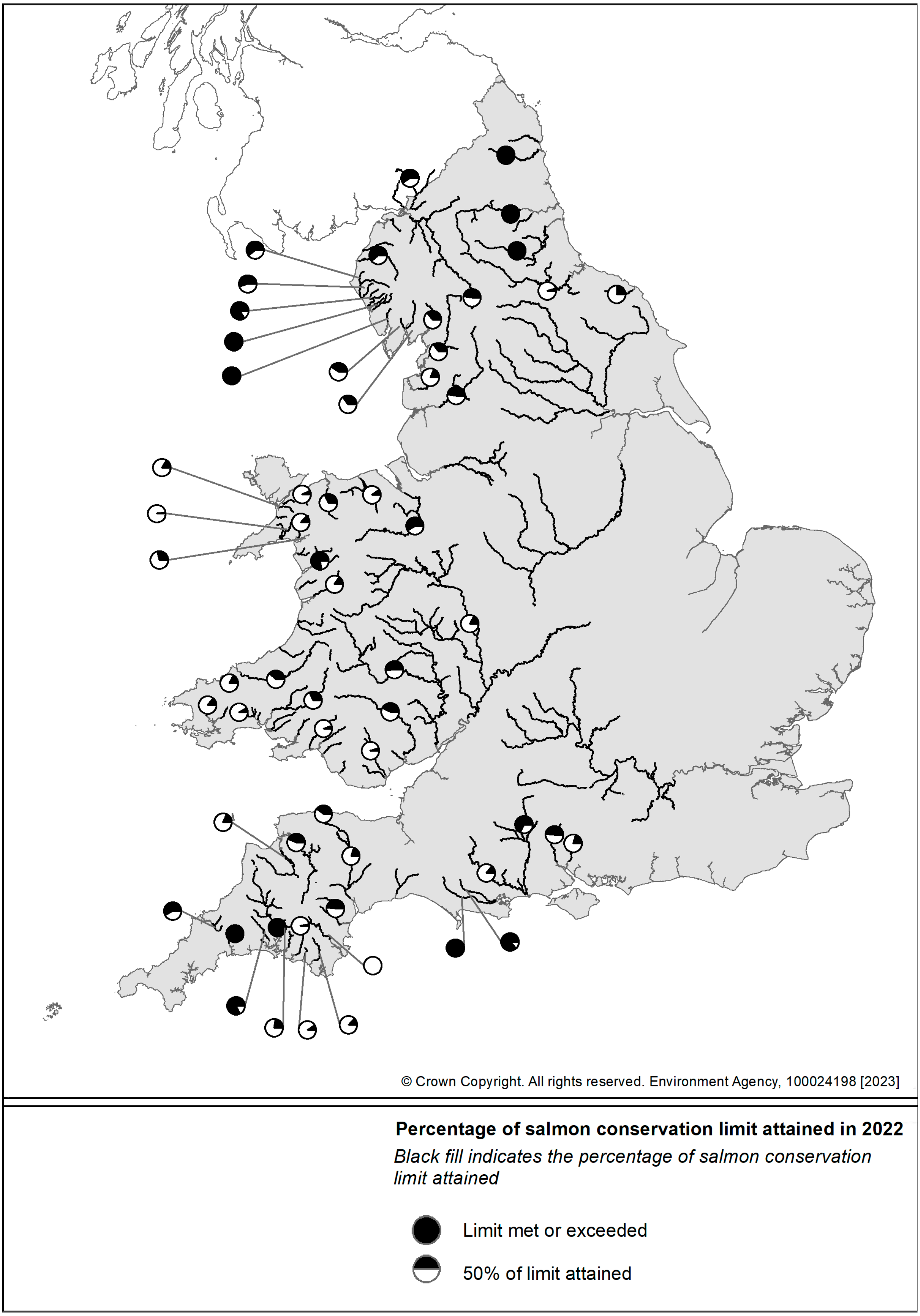


Figure 30. Pie charts for individual rivers for which Conservation Limits (CLs) have been set showing the percentage of the CLs attained in 2022. A black circle indicates that the limit was met or exceeded.

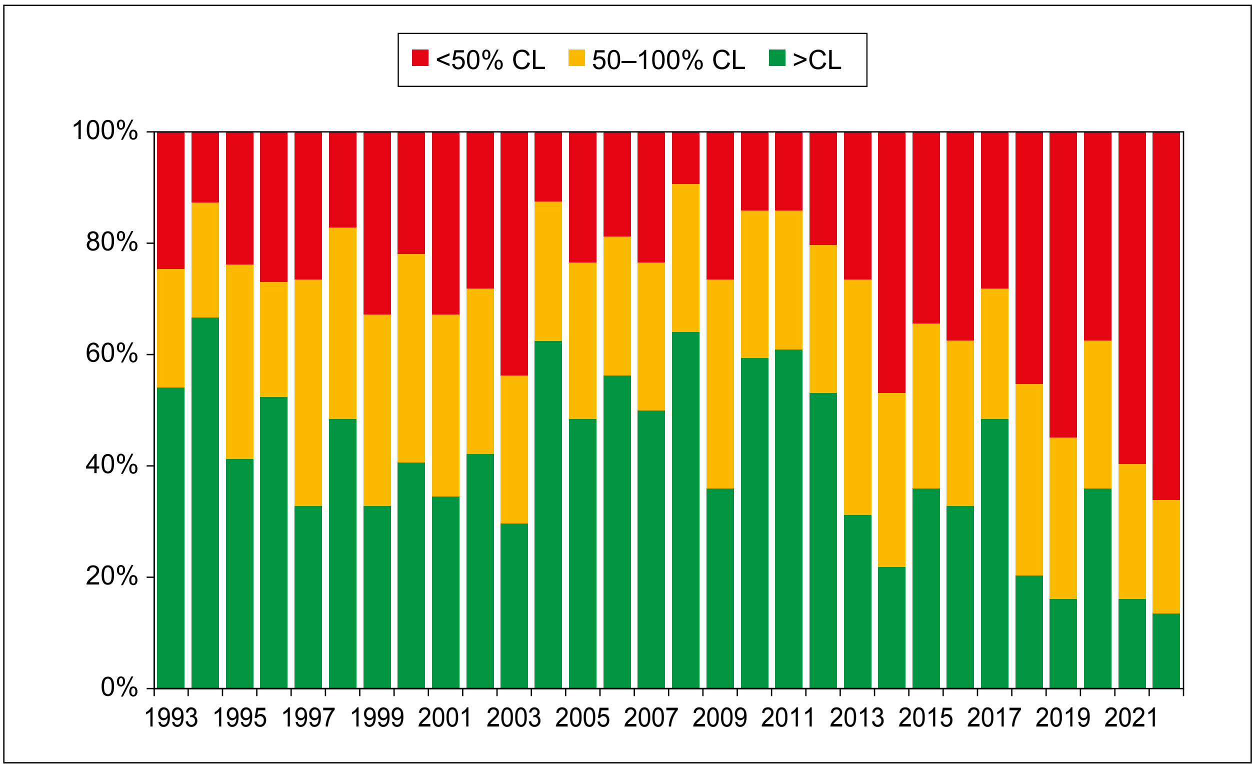


Figure 31. Percentage of salmon river stocks exceeding their Conservation Limit (CL), between 50% and 100% of the CL, and less than 50% of the CL, 1993-2022.

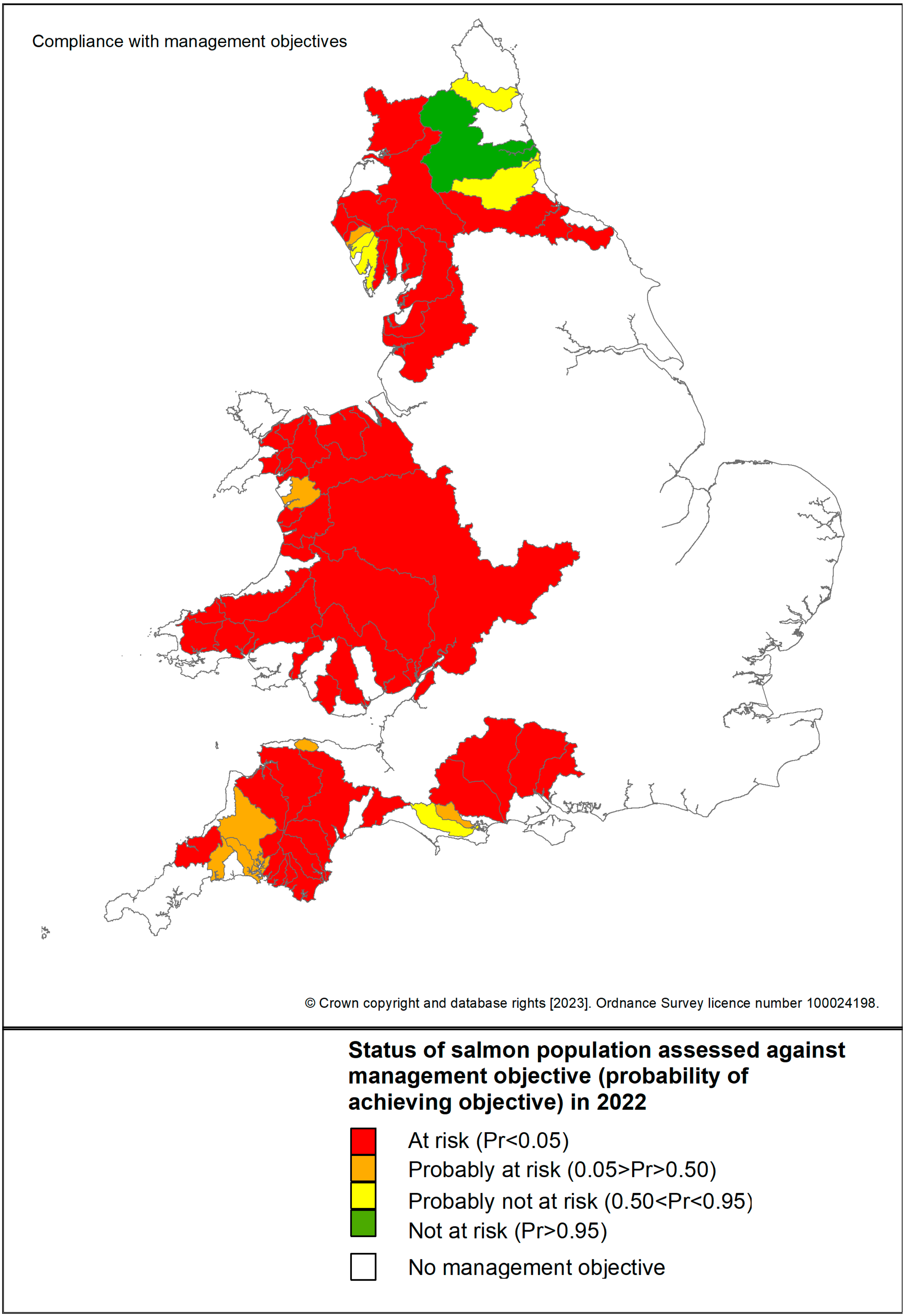


Figure 32. Status of river catchments in 2022 assessed against the Management Objective (i.e., that the Conservation Limit is met or exceeded in at least 4 years out of 5, on average).

Figure 33. Percentage of Principal Salmon Rivers in each risk category, assessed against the Management Objective, for 2008-2022, and as projected for 2027 for rivers in (a) England and (b) Wales.

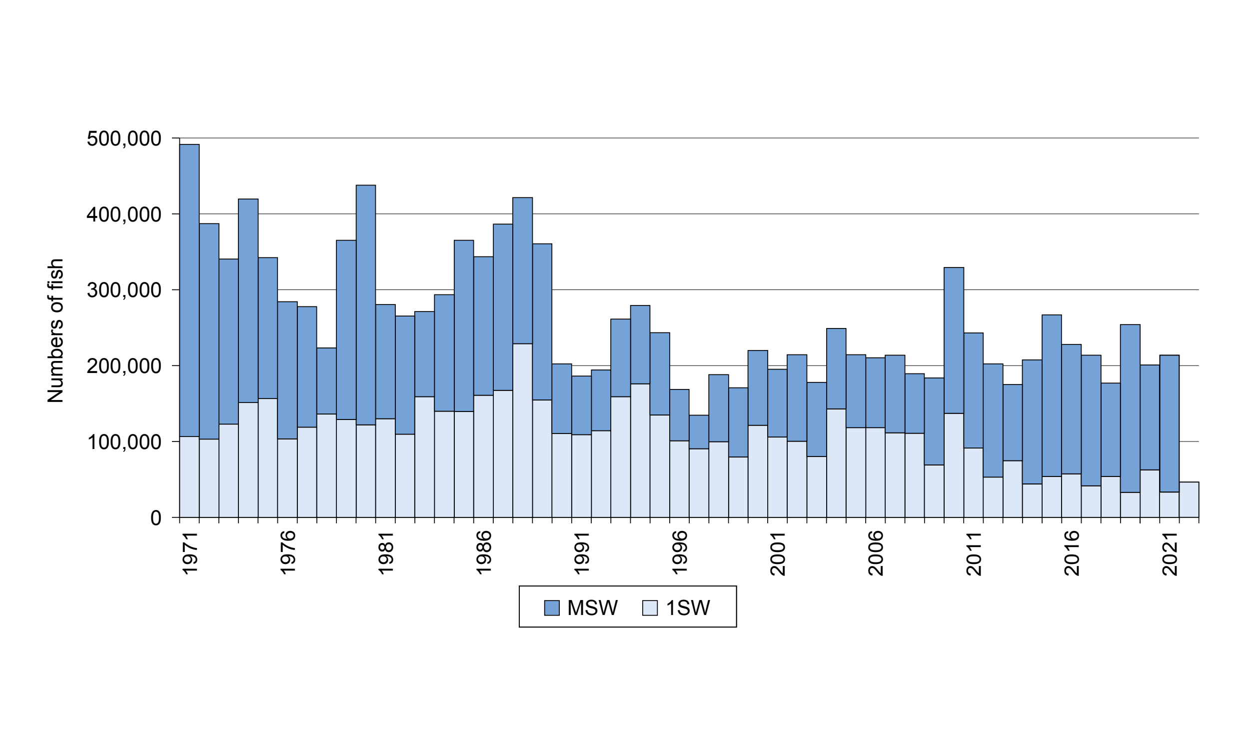


Figure 34. Estimated pre-fishery abundance (PFA) of salmon from UK (England and Wales), as derived from the ICES-NEAC PFA model, 2023. N.B. the model cannot provide an estimate of PFA of potential MSW fish for the most recent year, as this relies on an assessment of the returns to homewaters of these fish, which will not occur until the subsequent year.

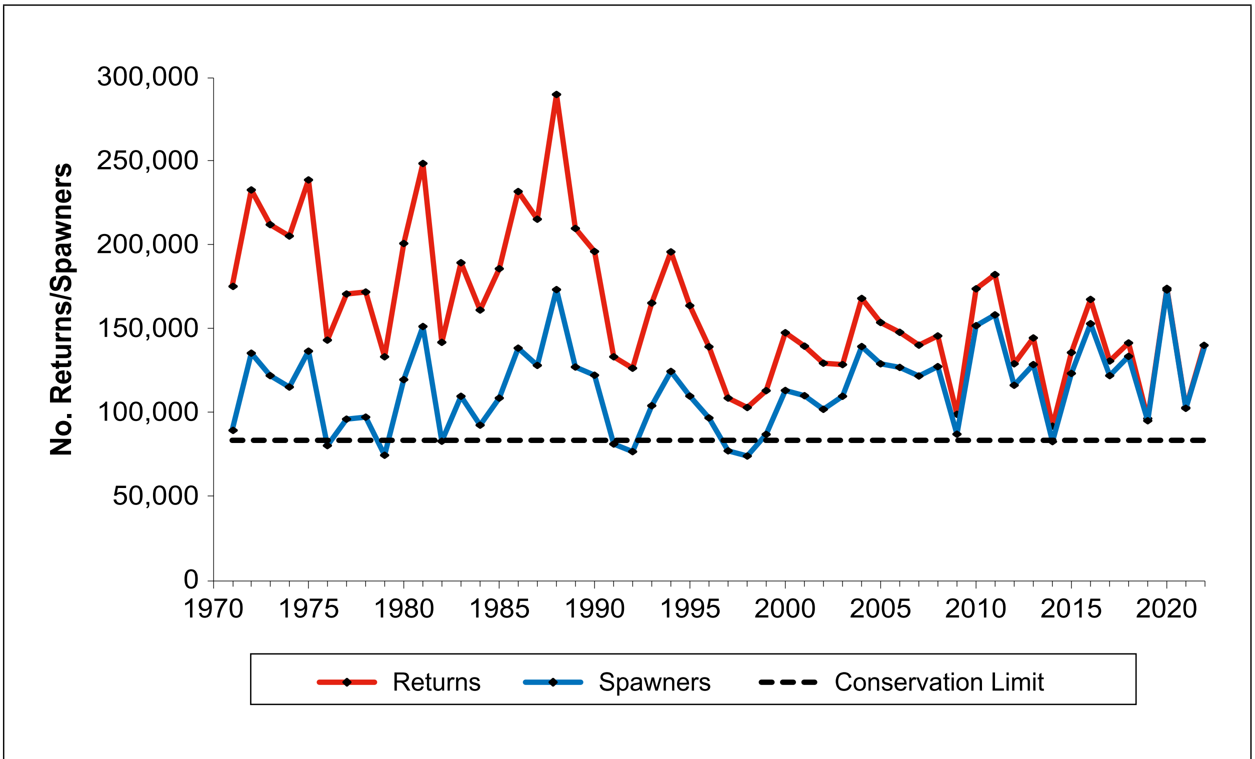


Figure 35. Estimated total numbers of returning and spawning salmon to the UK (England and Wales), 1971-2022, as derived from the ICES-NEAC PFA model, 2023, together with the national Conservation Limit (derived from the sum of river-specific CLs).

9. FACTORS AFFECTING STOCKS, FISHERIES, AND CATCHES

9.1 *Management measures*

Viewed against historic data, current stock estimates and catches provide ongoing cause for concern, hence the conservation of salmon remains a priority. As a result, the Environment Agency and NRW have developed a range of measures to protect salmon stocks in England and Wales, respectively. These followed initial consultations to better understand how further regulation of salmon fishing might help to safeguard stocks. Salmon and Sea Trout Protection byelaws came into effect in England in 2019 for a 10-year period, subject to a mid-term review. The measures included the closure of most salmon net fisheries (with the need to release any salmon caught where a fishery is authorised to continue to operate for sea trout), a requirement for Principal Salmon Rivers that were in the 'probably at risk' category to achieve a higher level of voluntary C&R (>90%) in rod fisheries within 3 years, and the implementation of mandatory C&R on 3 Principal Salmon Rivers that were classed as being 'at risk' in the 2017 assessment.

In Wales, new measures were approved in late 2019 (following extensive public consultation beginning in 2017 – including a Local Inquiry). These measures came into force in January 2020 for 10 years (with a 5-year mid-term review) and include the mandatory C&R of salmon by net and rod fisheries across Wales, as well as restrictions on angling methods (e.g., the number, size, and type of hooks) to help maximise the survival of released fish. Full details of the new provisions are provided in the Background Report (Cefas, Environment Agency and Natural Resources Wales, 2023).

As well as further controls on exploitation, a range of other actions are being taken forward in both England and Wales by the Environment Agency, NRW, and a wide range of other partner organisations who are committed to protecting and improving salmon stock performance and the habitats in which they live. Progress on these actions is summarised in the England and Wales Annual Progress Reports (APRs) to NASCO, available at: https://nasco.int/conservation/third-reporting-cycle-2.

In addition to the above, several measures aimed at better management of this valuable resource have been implemented or strengthened in England and Wales in recent years. The following provides a brief overview:

- The number of licences issued for nets and fixed engines to fish for salmon and sea trout in England and Wales has continued to decline because of measures taken to reduce levels of exploitation and the declining commercial viability of some fisheries. Overall, the number of net licences has decreased by 88% since 1971. No net licences have been issued for salmon fishing since 2020.
- The national spring salmon measures introduced in 1999 and carried over into new legislation have reduced the percentage of the net catch taken before 1 June from a 5-year average of 6.7% in the mid-1990's to 2.1%, on average, from 1999 to 2022; these latter fish are all required to be released.
- Several net fisheries have been phased out because they exploit migratory salmonids returning to more than one river (i.e., mixed stock fisheries). From 2019, the two remaining coastal mixed stock fisheries in England were prevented from landing salmon. The drift net fishery on the north east coast was closed and fishing by T & J nets was restricted to sea trout, with mandatory C&R required for all salmon caught.

Mandatory C&R was also required for all salmon taken in the Anglian coastal fishery. In Wales, the implementation of new fishery byelaws in 2020 required the release of all net caught salmon. Since 2020, all net caught salmon have therefore been required to be released in England and Wales.

- Previous arrangements have also been made to reduce netting effort in some fisheries by either compensating netters not to fish for a particular period (buy-offs), or through voluntary agreement to return salmon alive. Catch limits have also been imposed on some rod fisheries and these are expected to continue to apply.
- The national spring salmon measures (carried over into new legislation) have also affected rod fisheries. The percentage of the rod catch taken before 1 June fell from a mean of 10.9% over the period 1994–1998 to a mean of 7.0% for the period since 1999, and these fish are required to be released.
- Rod fishing C&R has represented an increasingly important measure for stock conservation. The percentage of salmon released by anglers has increased steadily from 10% in 1993 to 96%, provisionally, in 2022, which is the highest in the time series. Tracking studies suggest that, if salmon are captured using appropriate angling methods and handled carefully, most released salmon go on to spawn successfully. The measures that recently came into force in England and Wales seek to further increase levels of C&R in all net and rod fisheries because of the poor status of stocks. River-specific mandatory measures have been implemented since 2019 on a number of other rivers in England where specific concerns have arisen in relation to stock status and sustainability. These include the rivers Camel, Severn, Lune, Eden, and Border Esk.
- A range of non-mandatory restrictions on methods and fishing areas have also been imposed by fishery owners and angling associations. These include measures such as weekly and seasonal bag limits, method restrictions, and spawning sanctuaries aimed at improving the survival and spawning success of fish after C&R.

9.2 *Other factors*

Other, non-regulatory, factors may also have contributed to changes in stocks and catches, for example, the condition of returning fish, weather conditions, water quality, and extreme river flow events. Further information on these factors is provided in the Background Report (Cefas, Environment Agency and Natural Resources Wales, 2023). The following provides brief details of factors pertinent to 2022:

The effect of river flows on angler effort and catches

For the majority of salmon rod fisheries, river flow is a key factor influencing angler effort because it is widely recognised to stimulate salmon migration both into and within river catchments as well as affect the availability and catchability of the fish. Periodic freshets are also important for stimulating river entry and upstream migration of salmon and generally create conditions more amenable to angling.

In 2022, median river flows were below the long-term average in all months of the fishing season, except for February (Figure 36). As such, the prolonged low flow conditions in 2022 may have delayed or even prevented migration of fish into or within rivers and perhaps resulted in reduced angling effort and success compared to wetter years. Whilst low flows in 2022 perhaps made catch a less informative indicator of stock than usual, the evidence from the counted rivers (Section 7) indicates that returns of salmon in 2022 were poor on the majority of rivers.

Monthly rod catch data for most of the rivers featured in Figure 36, expressed in the same format as the flow data, as a percentage of the long-term average, are presented in Figure 37. The long-term average for the rod data has only been extended back as far as 1999, which is when the national measures were introduced imposing compulsory C&R in the early part of the season. Fishing patterns are likely to have been different prior to this time. The monthly rod catch data have also been restricted to the period February to October, since for most rivers fishing seasons do not extend outside this period.

Median monthly rod catches in 2022 were below the long-term average over the entire fishing season from February to October. In all months, median catches were less than 50% of the long-term average, except for in April. Comparing the low catches in February and March with river flow conditions needs to be treated with caution since there is relatively little fishing at this time of year, catches are typically very small, and fishing is restricted to only some rivers. The low abundance of 1SW salmon (Figure 19) is likely to have been an important factor affecting the relatively poor late season catches. It is important to remember that differing proportions of 1SW and MSW fish in the runs and the timing of the return migrations of these fish (many MSW fish return earlier in the season) will have an impact on catch rates, in addition to river flows.

Above average temperatures

Warm summer conditions during 2022 resulted in above average water temperatures in some river catchments. Elevated temperatures can affect the survival of salmon, particularly those subject to C&R, and measures to prevent this can substantially reduce angling effort. For example, there is a voluntary agreement not to fish on the Hampshire Avon when the river temperature, measured at 09:00 at a fish counter site (Knapp Mill), exceeds 19°C. In 2022, anglers voluntarily ceased salmon fishing for 45 days when this threshold was exceeded during the fishing season. Similar voluntary restrictions on angling were applied on four other catchments (Test, Itchen, Wye, and Usk), which affected effort and catches.

Coronavirus (COVID-19) pandemic

Angling opportunities for salmon in 2020 were affected by the outbreak of the COVID-19 pandemic and the resulting access and movement restrictions imposed to prevent its spread throughout England and Wales. Examination of angling returns for 2020 indicated that COVID-19 restrictions likely constrained fishing effort and rod catch to some extent in the early part of the season, but similar effects were not evident thereafter (fishing effort comparisons were restricted by established reporting formats that collate data 'before 16 June' as a proxy for the early season and '16 June onward' for the remainder of the season). Similarly, given that, on most rivers, early season effort and catch comprise a relatively small proportion of the total, whole season effects were also not marked (including exploitation rates estimated on the counted rivers) compared to the preceding six years (i.e., 2014-2019 – the start of this period being the first year in which fishing effort was recorded before 16 June). Following an investigation into the potential impacts of the COVID-19 pandemic on angling, it was determined that, under this exceptional case, specific adjustments were required to the 2020 assessment to account for these. A full description of this procedure is provided in the Background Report (Cefas, Environment Agency and Natural Resources Wales, 2023).

As no lockdown periods occurred during the 2021 and 2022 fishing seasons, no adjustment was applied to the 2021 or 2022 assessments for COVID-19 effects.

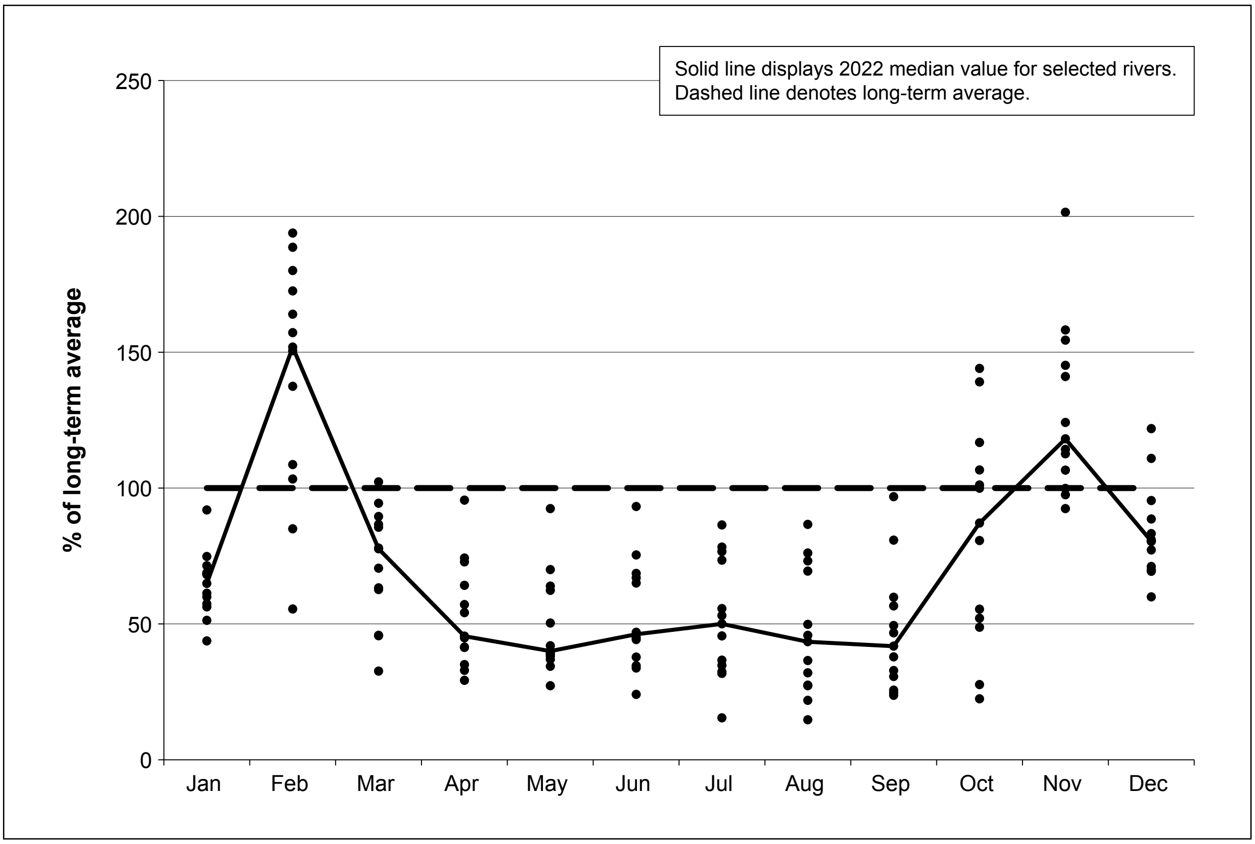


Figure 36. Monthly mean river flows (cubic metres per second) in 2022 for 12 rivers (South Tyne, Itchen, Avon, Exe, Taw, Severn, Wye, Cynon, Teifi, Dee, Lune, and Eden) in England and Wales, expressed as a percentage of the long-term average on each river for the same month. The long-term average is calculated for the available time series, which varies from river to river, but is in the range of 25-40 years. Data supplied by the National River Flow Archive at the UK Centre for Ecology and Hydrology.

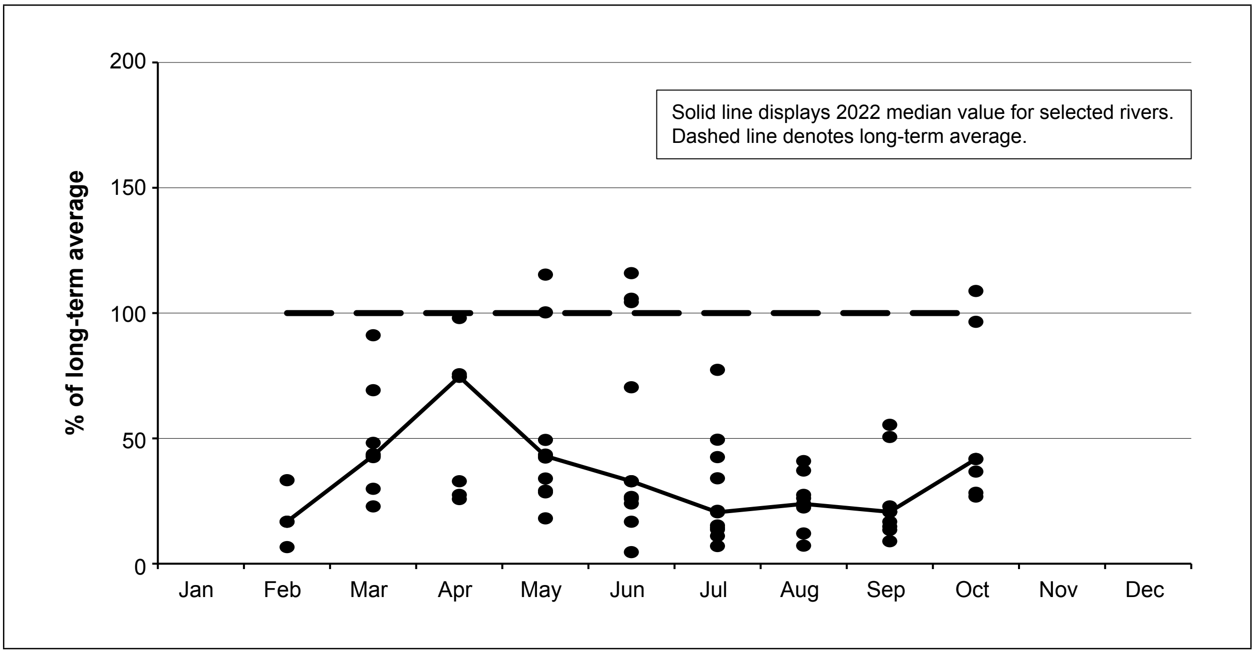


Figure 37. Monthly rod catches in 2022 for 11 rivers (Tyne, Itchen, Avon, Exe, Taw, Severn, Wye, Teifi, Dee, Lune, and Eden) in England and Wales, expressed as a percentage of the long-term average on each river for the same month. The long-term average is derived from the data for the period since 1999.

10. EXISTING AND EMERGING THREATS TO SALMON POPULATIONS

Further information on the various factors impacting salmon stocks in England and Wales, and progress with actions to protect and enhance these stocks, is reported in the NASCO Implementation Plan and in the annual progress reports to NASCO. These reports are available at: https://nasco.int/conservation/third-reporting-cycle-2. Some additional information is also available in the Background Report (Cefas, Environment Agency and Natural Resources Wales, 2023). The following provides brief details on four issues:

Red Vent Syndrome and other diseases

Salmon have been observed returning to rivers in England and Wales with swollen and/or bleeding vents since 2004. The condition, referred to as Red Vent Syndrome (RVS), has been subject to ongoing monitoring. Monitoring programmes on salmon 'index' rivers provide the most consistent measure of the prevalence and severity of RVS. Since 2007, this consistency has been improved through the introduction of a system whereby symptoms have been classified according to their apparent severity, with samplers referring to a set of standard photographs and descriptions to assist their judgement. Available time series of RVS incidence in returning fish are presented in Table 28 for the Rivers Tyne, Tamar, Dee, Lune, and Caldew (a tributary of the River Eden). However, no sampling has taken place on the Caldew over the last nine years because there is no longer an operational fish trap on the river and sampling effort has been substantially reduced at two other sites. Furthermore, no monitoring of RVS incidence has been carried out on the River Lune since 2020. In 2022, the incidence of RVS was the highest in the time series (since 2004) in the River Dee and around the long-term average in the Rivers Tamar and Tyne. Fish affected by RVS show a degree of recovery in freshwater and appear to be able to spawn successfully.

In response to increased reports of fungal (*Saprolegnia*) infections in salmon (and sea trout), the Environment Agency and NRW continue to monitor for disease problems in all the major salmon rivers across England and Wales. Since 2010, increased incidences of *Saprolegnia* infections have been reported in England and Wales. In some rivers, resulting mortalities have been above those considered usual from this disease. The Environment Agency has part funded a collaborative project with Cardiff University to further improve the understanding of *Saprolegnia* and to help identify potential drivers for infection that could explain recent observations. This work has included genetic comparisons of samples obtained over the last five years and collating environmental data to help identify the diversity and behaviour of this fungal pathogen in rivers and to improve existing methods and develop novel approaches for disease surveillance.

Reports of *Saprolegnia* infections have substantially reduced over the last five years. Nationally, 2022 was a relatively quiet year for *Saprolegnia*, with the numbers of reported infections comparable to those since 2019. From a small number of rivers, short-term events involving elevated infection and associated mortalities among early runs of salmon were reported, but these events were considered to be within natural levels for this disease and not a cause of serious concern.

Reports have been made since 2019 of salmon returning to rivers in Scandinavia, the Russian Federation, the Republic of Ireland, and Scotland displaying signs of ventral haemorrhaging. This condition has been termed Red Skin Disease (RSD) and efforts are ongoing to monitor its occurrence, confirm the exact characteristics of the skin lesions, and identify the cause. Since the symptoms were first reported internationally, the Environment Agency and NRW have monitored the situation in all the major salmon rivers across England and Wales. Guidance on the symptoms and current understanding of RSD has been issued to raise awareness of the condition, allay concerns, and encourage reporting among anglers and stakeholders. Significant cases of ventral lesions consistent with RSD were first observed in England and Wales in the summer of 2021. Monitoring was undertaken on salmon 'index' rivers to establish the prevalence and severity of cases, with the samples obtained during summer in 2021 and 2022 for diagnostic examination providing valuable insights into disease characteristics. Despite these efforts, the cause of RSD remains unclear and further detailed diagnostic tests are ongoing. A severity field guide has been developed in collaboration with Marine Scotland and Inland Fisheries Ireland to better characterise RSD and standardise reporting of this condition across the UK and the Republic of Ireland by defining the symptoms and distinguishing it from other, common skin ailments experienced by salmon.

Poor juvenile recruitment in 2016

The densities of juvenile salmon, and age 0+ salmon fry in particular, were very low in English and Welsh rivers in 2016 and well below long-term averages. Abnormal conditions associated with severe storms and high winter temperatures, as well as low numbers of spawners, particularly in rivers where 1SW fish normally comprise the main component of the run, are believed to have been contributory factors. A more detailed appraisal of this issue was included in an earlier report (Cefas, Environment Agency and Natural Resources Wales, 2017) and, in Wales, a follow-up investigation commissioned by NRW – the findings of which have been published (Bewes *et al*., 2019; Gregory *et al*., 2020). Concerns over the effects of this event on the status of salmon stocks are ongoing. The smolt run estimate for the River Frome in 2017 (Table 23), where almost all smolts migrate at one year old, was the lowest in the time series, consistent with the poor juvenile recruitment in 2016. Adult returns on the Frome in 2018 and 2019 were also the sixth and third lowest, respectively, in the available time series (Table 23). For rivers where the majority of smolts migrate as two-year-olds, smolt output may well have been below average in 2018 and this is expected to have affected the numbers of returning 1SW adults in 2019 and MSW adults in 2020, 2021, and 2022.

Pink salmon (*Oncorhynchus gorbuscha*)

Occasional reports of captures of Pacific pink salmon (*Oncorhynchus gorbuscha*) in England and Wales have been made in previous years. Most recent reports have occurred in odd years (e.g., 2007, 2009, and 2015) consistent with the fish originating from established populations of pink salmon in northern parts of the Russian Federation and northern Norway. Pink salmon have a strict two-year life-cycle and thus have distinct populations breeding in even and odd years. It is principally only odd year populations that have established in these areas.

In 2017, there were widespread reports of pink salmon captures across North Atlantic countries (ICES, 2018). Relatively large numbers of pink salmon (around 200) were taken in the English north east coast fishery and there were also reports of fish being captured in a number of river systems across the country. In 2019, far fewer pink salmon captures were reported in England and Wales, with three captured in the north east coast fishery and one at the Chester Weir fish trap on the River Dee. No reported captures of pink salmon were made in 2020. In 2021, there were 26 reported captures of pink salmon in England but none in Wales. All pink salmon were captured in North East England in 2021, except for one recorded at the Gunnislake fish trap on the River Tamar, which is the most southerly capture on record for England and Wales since 2007. One credible, but unconfirmed, reported capture of pink salmon in England and Wales was made on the River Lune in 2022.

Escaped farmed salmon

Concerns have been expressed about the potential impact of escaped farmed salmon on wild salmon stocks in England and Wales. Escaped farmed salmon can negatively impact wild salmon stocks through genetic introgression due to interbreeding, transmission of sea lice, and competition for resources. On the 20 August 2020, 48,834 farmed salmon escaped from Mowi (Scotland) Limited's farm at Carradale North in the Firth of Clyde on the west coast of Scotland due to a mooring failing after adverse weather conditions during Storm Ellen. Following this event, anglers reported nine confirmed captures of escaped farmed salmon on five rivers (Lune, Ehen, Derwent, Eden, and Border Esk) in North West England that were verified by scale reading. Anglers also made unverified anecdotal reports of around 50 additional captures of escaped farmed salmon. It should be noted that the escaped farmed salmon were not sexually mature, and therefore were unlikely to reproduce in the winter of 2020. This was confirmed by autopsy of five farmed salmon carcasses that were found to contain no viable gonads. Subsequent genetic analysis of salmon fry and parr from the affected rivers, undertaken by Marine Scotland, identified no obvious introgression by farmed salmon in these areas. No reported captures of escaped farmed salmon in England and Wales have been made since 2020. The Environment Agency and NRW continue to monitor the situation to ascertain the impact of the escaped farmed salmon on wild salmon stocks in England and Wales.

Table 28. Percentage of returning salmon showing signs of Red Vent Syndrome in monitored rivers in England and Wales, 2004-2022.

River	Tyne #	Tamar	Dee	Lune	Caldew #
Region/NRW	NE	SW	N. Wales	NW	NW
Sample source	Upper river broodstock	Lower river trap	Lower river trap	Lower river trap	Sub-catchment trap
	% incidence of RVS in returning fish				
2004			0.4		
2005			3.2	0	
2006			9.2	1.4	
2007	1.4	60.2	29.9	23.1	5.3 [a]
2008	0.8	45.3	20.9	24.7	0.3 [a]
2009	3.4	41.5	28.2	21.2	10.2
2010	5.3	57.1	23.7	18.8	5.1
2011	3.8	45.6	10.9	16.3	6.4
2012	5.2	26.1	13.2	0 [a]	6.1
2013	10.1	44.5 #	20.5	41.6	0.8 [a]
2014	7.5	n/a	25.3	9.5 #	n/a
2015	10.3	35.5 #	24.4	13.6 #	n/a
2016	3.5	24.6 #	21.7	19.0 #	n/a
2017	4.9	17.7 #	22.5	60.2 # [b]	n/a
2018	7.4	38.9 #	34.7	60.8 # [b]	n/a
2019	6.5	45.0 #	36.9	21.2 #	n/a
2020	12.5 *	57.0 #	24.3	52.2 **	n/a
2021	10.5 ***	54.4 #	32.5	n/a	Decommissioned
2022	n/a	48.4 #	38.9	n/a	

Note: *Except where indicated (#), these estimates are based on fish sampled over a common (June–October) period and have been weighted according to monthly run totals. Three of the traps (not the Caldew) are located at or close to head-of-tide. Tyne estimates, from 2012, are based on fish captured up river for use as broodstock.*

[a] *Considered minimum values.*

[b] *A high proportion of returns had mild symptoms in 2017 and 2018.*

* *In 2020, only a small sample of returns were checked for RVS because broodstock collection was substantially impacted by COVID-19 restrictions.*

** *In 2020, only a small sample of returns were checked for RVS because COVID-19 restrictions limited trap operation.*

*** *In 2021, restrictions placed on broodstock collection operations resulted in only a small number of salmon captured and subsequently checked for incidences of RVS.*

11. REFERENCES

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Annex 1. NASCO's request for scientific advice from ICES in 2023

1. With respect to Atlantic salmon in the North Atlantic area:

1.1 provide an overview of salmon catches and landings by country, including unreported catches and catch and release, and production of farmed and ranched Atlantic salmon in 2021 and 2022[1];

1.2 report on significant new or emerging threats to, or opportunities for, salmon conservation and management[2];

1.3 provide information on causes of variability in return rates between rivers within regions in the North Atlantic;

1.4 provide a summary of the most recent findings of ongoing research projects investigating the marine phase of Atlantic salmon (e.g. SeaSalar, SeaMonitor, SAMARCH, satellite tagging at Greenland);

1.5 provide a summary of the current state of knowledge on freshwater and marine predation by cormorants and impact on stocks;

1.6 provide a compilation of tag releases by country in 2021 and 2022; and,

1.7 identify relevant data deficiencies, monitoring needs and research requirements.

2. With respect to Atlantic salmon in the North-East Atlantic Commission area:

2.1 describe the key events of the 2021 and 2022 fisheries[3];

2.2 review and report on the development of age-specific stock conservation limits, including updating the time-series of the number of river stocks with established CLs by jurisdiction;

2.3 describe the status of the stocks, including updating the time-series of trends in the number of river stocks meeting CLs by jurisdiction;

2.4 advise on the risks of salmon bycatch occurring in pelagic and coastal fisheries, and report on effectiveness and adequacy of current bycatch monitoring programs; and,

2.5 In the event that NASCO informs ICES (response requested by 31 January) that the Framework of Indicators (FWI) indicates that reassessment is required:

2.6 provide catch options or alternative management advice for the 2023/2024- 2025/2026 fishing seasons, with an assessment of risks relative to the objective of exceeding stock conservation limits, or pre-defined NASCO Management Objectives, and advise on the implications of these options for stock rebuilding[4]; and,

2.7 update the Framework of Indicators used to identify any significant change in the previously provided multi-annual management advice.

3. With respect to Atlantic salmon in the North American Commission area:

3.1 describe the key events of the 2021 and 2022 fisheries (including the fishery at St Pierre and Miquelon)[3];

3.2 update age-specific stock conservation limits based on new information as available, including updating the time-series of the number of river stocks with established CLs by jurisdiction; and,

3.3 describe the status of the stocks, including updating the time-series of trends in the number of river stocks meeting CLs by jurisdiction.

4. With respect to Atlantic salmon in the West Greenland Commission area:

4.1 describe the key events of the 2021 and 2022 fisheries[3]; and,

4.2 describe the status of the stocks[5].

Notes:

1. *With regard to ToR 1.1, for the estimates of unreported catch the information provided should, where possible, indicate the location of the unreported catch in the following categories: in-river; estuarine; and coastal. Numbers of salmon caught and released in recreational fisheries should be provided.*

2. *With regard to ToR 1.2, ICES is requested to include reports on any significant advances in understanding of the biology of Atlantic salmon that is pertinent to NASCO.*

3. *In the responses to ToRs 2.1, 3.1 and 4.1, ICES is asked to provide details of catch, gear, effort, composition and origin of the catch and rates of exploitation. For homewater fisheries, the information provided should indicate the location of the catch in the following categories: in-river; estuarine; and coastal. Information on any other sources of fishing mortality for salmon is also requested. For ToR 4.1, if any new surveys are conducted and reported to ICES, ICES should review the results and advise on the appropriateness of incorporating resulting estimates into the assessment process.*

4 *In response to ToR 2.5 provide a detailed explanation and critical examination of any changes to the models used to provide catch advice and report on any developments in relation to incorporating environmental variables in these models. Also provide a detailed explanation and critical examination of any concerns with salmon data collected in 2022 which may affect the catch advice considering the restrictions on data collection programmes and fisheries due to the COVID-19 pandemic.*

5. *In response to ToR 4.2, ICES is requested to provide a brief summary of the status of North American and North-East Atlantic salmon stocks. The detailed information on the status of these stocks should be provided in response to ToRs 2.3 and 3.3.*

Annex 2. Net Limitation Orders applying to salmon net fisheries in England and Wales

EA Region / NRW	Area	Net Limitation Order	End date	Welsh rivers in Wales 'all areas' NLO	NLO licence provision	
					Type	Number
Anglian	Coastal	Anglian Coast 2015	2022		Drift net & non-drift net	0 [a, f]
North East	Coastal	North East Coast 2012	2022		T and J nets	40 [f]
					Drift net- Northumbria and Yorkshire	0 [a]
North West	North	River Lune Estuary 2021	2031		Drift	7 [a]
North West	North	River Lune Estuary 2021	2031		Haaf	12 [f]
North West	North	River Ribble Estuary 2017	2027		Drift (hang or whammel) nets	4 [a]
North West	North	River Kent Estuary 2013	2023		Lave net	6 [f]
North West	North	River Leven Estuary 2013	2023		Lave net	2 [f]
North West	North	Solway Firth 2018	2028		Heave or Haaf net	75 [b, f]
Southern	Solent & S Downs	Southern Region Byelaw 2018	n/a		Seine	1 [c, f]
South West	Cornwall	Camel Estuary 2013	2028		Draft, seine, drift or hang net	0 [a, f]
South West	Wessex	Christchurch Harbour 2012 (Hants Avon & Stour)	2022		Draft or seine net	0
South West	Wessex	Poole Harbour 2017 (Piddle & Frome)	2027		Seine net	0 [d, f, g]
South West	Devon	River Dart 2015	2025		Draft or seine net	0
South West	Devon	Exe Estuary 2011	2028		Draft nets	0 [a]
South West	Cornwall	River Fowey 2018	2028		Draft or seine net	0 [a, e, f]
South West	Cornwall	River Lynher 2014	2028		Draft or seine net	0 [a]
South West	Cornwall	River Tamar 2014	2028		Draft or seine net	0 [a]
South West	Cornwall	River Tavy 2014	2028		Draft or seine net	0 [a]
South West	Cornwall	Rivers Taw and Torridge 2012	2028		Draft or seine net	0 [a]
South West	Devon	River Teign 2021	2026		Draft or seine net	3 [f]
Midlands	Severn Estuary	River Severn 2021	2031		Lave net	22 [f]
Wales	All areas	Wales 2017	2028	Nevern	Draft or seine net	1 [f]
				Taf	Coracle net	1 [f]
				Taf	Wade net	1 [f]
				Dyfi	Draft or seine net	3 [f]
				Dysynni	Draft or seine net	1 [f]
				Glaslyn & Dwyryd	Draft or seine net	0
				Mawddach	Draft or seine net	3 [f]
				Conwy	Draft or seine net	3 [f]
				Cleddau	Compass nets	6 [f]
				Teifi	Coracle net	12 [f]
				Teifi	Draft or seine net	3 [f]
				Tywi	Draft or seine net	3 [f]
				Tywi	Coracle net	8 [f]
Wales	North	River Dee 2015	2025		Draft or seine net	0
					Trammel nets	0

Notes: Table does not include historical installation fisheries which operate under Certificates of Privilege or the private lave net fishery on the River Wye.
Some fisheries are also subject to seasonal catch limits- see Table 2 for details.

Key:
[a] All salmon net fisheries closed in England in 2019 following the introduction of the National Salmon and Sea Trout Protection byelaws rather than through NLOs.
[b] Byelaw also introduced for Solway (Eden & Esk) on 24 May 2018 requiring mandatory release of all salmon caught; byelaw in force for 10 years.
[c] Southern Region NLO replaced in 2018 by byelaw (not time-limited). This precludes all netting for salmon and sea trout in the Region with the exception of a single seine net authorised by the Environment Agency for the capture of sea trout only in the estuary of the River Beaulieu.
[d] Poole Harbour NLO worded as: "Such number as is equal to the number of applicants who in the preceding year held a fishing licence for salmon and sea trout in Poole Harbour". Under the previous NLO a single licence applied and only one net has operated in recent years.
[e] River Fowey seine net compensated not to fish in recent years. A new NLO is currently pending confirmation; this would be be a zero NLO accompanied by a buy-out of the one remaining licensee. This would mean that there would no net fishing on the river for the duration of the new NLO (10 years).
[f] Net and fixed engine licences are issued for sea trout and salmon fisheries, but all net caught salmon are required to be released.
[g] Net no longer fishing and NLO subsequently drops to zero for 2022 season and remainder of NLO.

Annex 3. Byelaws applying to salmon rod fisheries in England and Wales

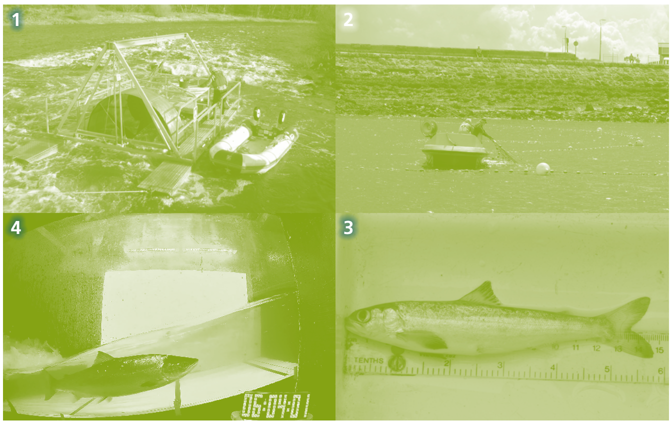
EA Region / NRW	River	Salmon Season (inclusive dates)	*Method Restrictions	*Bag limits/Catch-and-release etc.	Effective from (date); expires (date)
NE	Aln	1 Feb-31 Oct	a) Limits on hook size when night fishing (all season). b) Prohibition on fishing near certain obstructions at night 1 Sept-30 Nov and at all times at certain named obstructions.	Mandatory catch-and-release for all salmon – National byelaws applying to recovering salmon rivers.	All Area byelaws effective from 11 May 2001- no end date.
	Coquet	1 Feb-31 Oct	As above.	Salmon catch-and-release 100% before 16 Jun. Restrictions on night fishing.	
	Tyne	1 Feb-31 Oct	As above.	Salmon catch-and-release 100% before 16 Jun.	
	Wear	1 Feb-31 Oct	As above.	Salmon catch-and-release 100% before 16 Jun.	
	Tees	1 Feb-31 Oct	As above.	Salmon catch-and-release 100% before 16 Jun.	
	Esk (Yorks.)	6 Apr-31 Oct	Fishing for salmon and sea trout from Ruswarp Weir to Eskside Wharfe in Whitby is prohibited.	Salmon catch-and-release 100% before 16 Jun.	
	Ouse (Yorks.)	6 Apr-31 Oct		Mandatory catch-and-release for all salmon – National byelaws applying to recovering salmon rivers.	
Anglian	Region-wide	1 Mar-28 Sept		Salmon catch-and-release 100% before 16 Jun.	
Thames	Thames	1 Apr-30 Sept		Mandatory catch-and-release for all salmon – National byelaws applying to recovering salmon rivers.	
SW	Avon (Hants.)	1 Feb-31 Aug	Artificial fly only before 15 May (Byelaw dis-applied during 2022 to facilitate spinning trial; anglers able to fish with artificial lure with fishery owner's permission 1 Mar 2022 to 15 May 2022, subject to specific conditions).	Salmon catch-and-release 100% before 16 Jun.	
	Piddle	1 Mar-31 Aug	Artificial fly only before 15 May. Mandatory catch-and-release of all salmon- National byelaw applying to At Risk rivers.	Salmon catch-and-release 100% before 16 Jun.	
	Frome	1 Mar-31 Aug	Artificial fly only before 15 May.	Salmon catch-and-release 100% before 16 Jun.	
	Stour	1 Feb-31 Aug	Artificial fly only before 15 May. Mandatory catch-and-release of all salmon – National byelaw applying to At Risk rivers.	Mandatory catch-and-release of all salmon- National byelaw applying to At Risk rivers.	
	Axe	15 Mar-31 Oct	No shrimp, prawn, worm or maggot. Fly only after 31 Jul below Axbridge, Colyford.	Salmon catch-and-release 100% before 16 Jun.	
	Exe	14 Feb-30 Sept	No worm or maggot.	Salmon catch-and-release 100% before 16 Jun. Fly only and mandatory catch-and-release during trial extension period.	
	Teign	1 Feb-30 Sept	Artificial fly and artificial lure only after 31 Aug	Salmon catch-and-release 100% before 16 Jun.	
	Dart	1 Feb-30 Sept	No worm or maggot. No shrimp/ prawn except below Staverton Bridge.	Salmon catch-and-release 100% before 16 Jun.	
	Avon (Devon)	15 Apr-30 Nov	No worm or maggot.	Salmon catch-and-release 100% before 16 Jun.	
	Plym	1 Apr-15 Dec	No worm, maggot, shrimp or prawn after 31 Aug.	Salmon catch-and-release 100% before 16 Jun.	
	Tavy	1 Mar-14 Oct	No worm, maggot, shrimp or prawn after 31 Aug.	Salmon catch-and-release 100% before 16 Jun.	

EA Region / NRW	River	Salmon Season (inclusive dates)	*Method Restrictions	*Bag limits/Catch-and-release etc.	Effective from (date); expires (date)
SW	Tamar	1 Mar-14 Oct	No worm, maggot, shrimp or prawn after 31 Aug.	Salmon catch-and-release 100% before 16 Jun.	
	Lynher	1 Mar-14 Oct	No worm, maggot, shrimp or prawn after 31 Aug.	Salmon catch-and-release 100% before 16 Jun.	
	Fowey	1 Apr-15 Dec	Salmon voluntary measures agreed in NLO 2018: First salmon to be returned and then a limit of one salmon per season. Barbless, single hooks for bait fishing, lures and spinners from 31 Aug. No treble hooks with a gape in excess of 8 mm. Worm fishing to the end of Aug only, voluntary salmon season reduction to 30 Nov (currently ends on 15 Dec). All measures to be reviewed annually.	Salmon catch-and-release 100% before 16 Jun. Salmon voluntary measures agreed in NLO 2018: First salmon to be returned and then a limit of one salmon per season.	
	Camel	1 Apr-15 Dec	No worming for salmon. Prawn and bait to be used with single, barbless hooks to be no larger than 13 mm. Single worms used only for trout on barbless hooks no larger than 13 mm. Artificial lures and spinners must have a single barbless hook no larger than 13 mm or barbless treble hooks no larger than 8 mm. Use of all treble hooks associated with artificial lures or spinners prohibited after 30 Sept. Treble and double hooks used on artificial flies to be barbless and not exceed 8mm. Single hooks used on an artificial fly to not exceed 13 mm.	Mandatory catch-and-release applies as well as bait and method restrictions.	3 Oct 2019-3 Oct 2024
	Taw	1 Mar-30 Sept	No shrimp, prawn, worm or maggot. Fly only 1 Apr to 30 Sept.	Salmon catch-and-release 100% before 16 Jun.	
	Torridge	1 Mar-30 Sept	No shrimp, prawn, worm or maggot. Fly only 1 Apr to 30 Sept.	Salmon catch-and-release 100% before 16 Jun.	
	Lyn	1 Feb-31 Oct	No worm or maggot before 16 Jun.	Salmon catch-and-release 100% before 16 Jun.	
	Yealm	1 Apr-15 Dec	No worm, maggot, shrimp or prawn after 31 Aug.	Mandatory catch-and-release of all salmon- National byelaw applying to At Risk rivers.	
Midlands	Severn	1 Feb-7 Oct	No float fishing with lure or bait. No bait fishing (2021 byelaw). All hooks must be barbless or de-barbed (2021 byelaw). Artificial lures can have only one single hook with a gape of 13 mm or less (2021 byelaw). Plugs can have a maximum of three single hooks, each with a gape of 13 mm or less (2021 byelaw).	Mandatory catch-and-release applies to salmon and sea trout under (2021) byelaw.	1 Sept 2021-31 Aug 2031
	Severn (in Wales)		No bait fishing (2021 byelaw). All hooks must be barbless or de-barbed (2021 byelaw). Artificial lures can have only one single hook with a gape of 13 mm or less. Plugs can have a maximum of three single hooks, each with a gape of 13 mm or less.	Mandatory catch-and-release applies under (2021) byelaw (Wales).	1 Mar 2022-28 Feb 2032
Wales	Wye	3 Mar-17 Oct	Fly: 3 Mar-17 Oct; Spin: 3 Mar-31 Aug; No bait fishing.	Mandatory catch-and-release of salmon and sea trout all season.	1 Mar 2022-31 Dec 2029
	Usk	3 Mar-17 Oct	Fly: 3 Mar-17 Oct; Spin: 1 Jun-17 Oct; Shrimp and prawn: 1 Sept-15 Sept.	All other rivers in Wales.	1 Mar 2022-31 Dec 2029
	Taff & Ely	20 Mar-17 Oct	Fly 20 Mar-17 Oct; Spin 20 Mar-17 Oct; Shrimp/Prawn 1 Sept-30 Sept.	Mandatory catch-and-release of salmon all season.	1 Jan 2020-31 Dec 2029
	Ogmore	20 Mar-17 Oct	Fly 20 Mar-17 Oct, Spin 20 Mar-17 Oct, Shrimp/Prawn 1 Sept-30 Sept.	No bait fishing with worm.	1 Jan 2020-31 Dec 2029

EA Region / NRW	River	Salmon Season (inclusive dates)	*Method Restrictions	*Bag limits/Catch-and-release etc.	Effective from (date); expires (date)
	Afan	20 Mar-17 Oct	Fly 20 Mar-17 Oct, Spin 20 Mar-17 Oct, Shrimp/Prawn 1 Sept-30 Sept.	All hooks must be barbless or de-barbed.	1 Jan 2020-31 Dec 2029
	Neath	20 Mar-17 Oct	Fly 20 Mar-17 Oct, Spin 20 Mar-17 Oct, Shrimp/Prawn 1 Sept-30 Sept.	Flies with a hook gape greater than 7 mm, hooks are restricted to singles or doubles.	1 Jan 2020-31 Dec 2029
	Tawe	20 Mar-17 Oct	Fly 20 Mar-17 Oct, Spin 20 Mar-17 Oct, Shrimp/Prawn 1 Sept-30 Sept.	No treble or double hooks are permitted on lures used for spinning.	1 Jan 2020-31 Dec 2029
	Loughor	20 Mar-17 Oct	Fly 20 Mar-17 Oct, Spin 20 Mar-17 Oct, Shrimp/Prawn 1 Sept-30 Sept.	Spinners and spoons can have only one single hook with a gape of 13 mm or less.	1 Jan 2020-31 Dec 2029
	Tywi	1 Apr-17 Oct	Fly 1 Apr-17 Oct, Spin 1 Apr-17 Oct, Shrimp/Prawn 1 Sept-7 Oct.	Plugs can have a maximum of three single hooks, each with a gape of 13 mm or less.	1 Jan 2020-31 Dec 2029
	Taf	1 Apr-17 Oct	Fly 1 Apr-17 Oct, Spin 1 Apr-17 Oct, Shrimp/Prawn 1 Sept-7 Oct.	Shrimp and prawn fishing for salmon is allowed from the 1 Sept until end of specified bait period (varied) with the use of a barbless, single treble hook with a gape of less than 7 mm.	1 Jan 2020-31 Dec 2029
	E+W. Cleddau	1 Apr-17 Oct	Fly 1 Apr-17 Oct, Spin 1 Apr-17 Oct, Shrimp/Prawn 1 Sept-7 Oct.		1 Jan 2020-31 Dec 2029
	Nevern	1 Apr-17 Oct	Fly 1 Apr-17 Oct, Spin 1 Apr-17 Oct, Shrimp/Prawn 1 Sept-7 Oct.		1 Jan 2020-31 Dec 2029
	Teifi	1 Apr-17 Oct	Fly 1 Apr-17 Oct, Spin 1 Apr-17 Oct, Shrimp/Prawn 1 Sept-7 Oct.		1 Jan 2020-31 Dec 2029
	Aeron	1 Apr-17 Oct	Fly 1 Apr-17 Oct, Spin 1 Apr-17 Oct, Shrimp/Prawn 1 Sept-7 Oct.		1 Jan 2020-31 Dec 2029
	Ystwyth	1 Apr-17 Oct	Fly 1 Apr-17 Oct, Spin 1 Apr-17 Oct, Shrimp/Prawn 1 Sept-7 Oct.		1 Jan 2020-31 Dec 2029
	Rheidol	1 Apr-17 Oct	Fly 1 Apr-17 Oct, Spin 1 Apr-17 Oct, Shrimp/Prawn 1 Sept-7 Oct.		1 Jan 2020-31 Dec 2029
Wales	Dyfi	20 Mar-17 Oct (some sections to 31 Oct**)	Fly 20 Mar-17 Oct (31 Oct**), Spin 20 Mar-17 Oct (31 Oct**), Shrimp/Prawn 1 Sept-7 Oct.		1 Jan 2020-31 Dec 2029
	Dysynni	20 Mar-17 Oct	Fly 20 Mar-17 Oct, Spin 20 Mar-17 Oct, Shrimp/Prawn 1 Sept-7 Oct.		1 Jan 2020-31 Dec 2029
	Mawddach	20 Mar-17 Oct	Fly 20 Mar-17 Oct, Spin 20 Mar-17 Oct, Shrimp/Prawn 1 Sept-7 Oct.		1 Jan 2020-31 Dec 2029
	Artro	20 Mar-17 Oct	Fly 20 Mar-17 Oct, Spin 20 Mar-17 Oct, Shrimp/Prawn 1 Sept-7 Oct.		1 Jan 2020-31 Dec 2029
	Dwyryd	20 Mar-17 Oct (some sections to 31 Oct**)	Fly 20 Mar-17 Oct (31 Oct**), Spin 20 Mar-17 Oct (31 Oct**), Shrimp/Prawn 1 Sept-7 Oct.		1 Jan 2020-31 Dec 2029
	Glaslyn	20 Mar-17 Oct	Fly 20 Mar-17 Oct, Spin 20 Mar-17 Oct, Shrimp/Prawn 1 Sept-7 Oct.		1 Jan 2020-31 Dec 2029
	Dwyfawr	20 Mar-17 Oct	Fly 20 Mar-17 Oct, Spin 20 Mar-17 Oct, Shrimp/Prawn 1 Sept-7 Oct.		1 Jan 2020-31 Dec 2029
	Llyfni	20 Mar-17 Oct	Fly 20 Mar-17 Oct, Spin 20 Mar-17 Oct, Shrimp/Prawn 1 Sept-7 Oct.		1 Jan 2020-31 Dec 2029
	Gwyrfai	20 Mar-17 Oct	Fly 20 Mar-17 Oct, Spin 20 Mar-17 Oct, Shrimp/Prawn 1 Sept-7 Oct.		1 Jan 2020-31 Dec 2029
	Seiont	20 Mar-17 Oct (some sections to 31 Oct**)	Fly 20 Mar-17 Oct (31 Oct**), Spin 20 Mar-17 Oct (31 Oct**), Shrimp/Prawn 1 Sept-7 Oct.		1 Jan 2020-31 Dec 2029
	Ogwen	20 Mar-17 Oct (some sections to 31 Oct**)	Fly 20 Mar-17 Oct (31 Oct**), Spin 20 Mar-17 Oct (31 Oct**), Shrimp/Prawn 1 Sept-7 Oct.		1 Jan 2020-31 Dec 2029
	Conwy	20 Mar-17 Oct (some sections to 31 Oct**)	Fly 20 Mar-17 Oct (31 Oct**), Spin 20 Mar-17 Oct (31 Oct**), Shrimp/Prawn 1 Sept-7 Oct.		1 Jan 2020-31 Dec 2029
	Clwyd	20 Mar-17 Oct	Fly 20 Mar-17 Oct, Spin 20 Mar-17 Oct, Shrimp/Prawn 1 Sept-30 Sept.		1 Jan 2020-31 Dec 2029
	Dee	3 Mar-17 Oct	Fly 3 Mar-17 Oct, Spin 1 Jun-17 Oct, Shrimp/Prawn 1 Sept-30 Sept.		31 Jan 2020-31 Dec 2029

EA Region / NRW	River	Salmon Season (inclusive dates)	*Method Restrictions	*Bag limits/Catch-and-release etc.	Effective from (date); expires (date)
NW	Ribble	1 Feb-31 Oct		Byelaw - no more than two salmon may be killed between 16 Jun and 31 Oct.	20 Jun 2017-19 Jun 2027
	Wyre	1 Feb-31 Oct			
	Lune	1 Feb-31 Oct		Byelaw requires that all salmon be released immediately between 16 Jun and 31 Oct.	11 Jun 2021-10 Jun 2031
	Kent	1 Feb-31 Oct			
	Leven	1 Feb-31 Oct		Byelaw requiring release of all salmon after capture unless marked with a carcass tag. Number of tags available is based on the previous year's salmon stock assessment (currently 3 for whole season).	10 Jun 2016-09 Jun 2023
	Crake	1 Feb-31 Oct		Byelaw requiring release of all salmon after capture unless marked with a carcass tag. Number of tags available is based on the previous year's salmon stock assessment (currently 3 for whole season).	11 Jun 2016-09 Jun 2023
	Duddon	1 Feb-31 Oct			
	Esk (Cumb.)	1 Feb-31 Oct			
	Irt	1 Feb-31 Oct			
	Calder	1 Feb-31 Oct		Mandatory catch-and-release of all salmon - National byelaw applying to At Risk rivers.	
	Ehen	1 Feb-31 Oct			
	Derwent	1 Feb-31 Oct		Byelaw - two salmon per angler per day bag limit between 16 Jun and 31 Oct; all female salmon caught between 01 Oct and 31 Oct to be returned.	25 Jul 2013-24 Jul 2023
	Ellen	1 Feb-31 Oct		Mandatory catch-and-release for all salmon – National byelaws applying to recovering salmon rivers.	
	Eden	15 Jan-14 Oct		Byelaw requires that all salmon be released immediately between 16 Jun and 14 Oct.	24 May 2018-23 May 2028
	Esk (Border)	1 Feb-31 Oct		Byelaw requires that all salmon be released immediately between 16 Jun and 31 Oct.	24 May 2018-23 May 2028
	Others	1 Feb-31 Oct [a]			

Notes: [a] *Applies to all other watercourses in the North West not named specifically above.*
** National spring salmon byelaws apply.*
*** Natural Resources Wales – variations apply to Anglesey and the Llŷn Peninsula (check local byelaws).*
Always check local byelaws before fishing.



Front cover images (clockwise from top left)

1 – Rotary screw trap on the River Tyne (photo courtesy of Environment Agency)
2 – T net at South Shields (photo courtesy of Environment Agency)
3 – Salmon smolt from the River Frome (photo courtesy of Game and Wildlife Conservation Trust)
4 – A salmon swimming over the Gaters Mill fish counter on the River Itchen (photo courtesy of Dom Longley, Environment Agency)

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