

## European eel (*Anguilla anguilla*) throughout its natural range

### ICES advice on fishing opportunities

ICES advises that when the precautionary approach is applied, there should be zero catches in all habitats in 2024. This applies to both recreational and commercial catches and includes catches of glass eels for restocking and aquaculture.

### ICES advice on conservation aspects

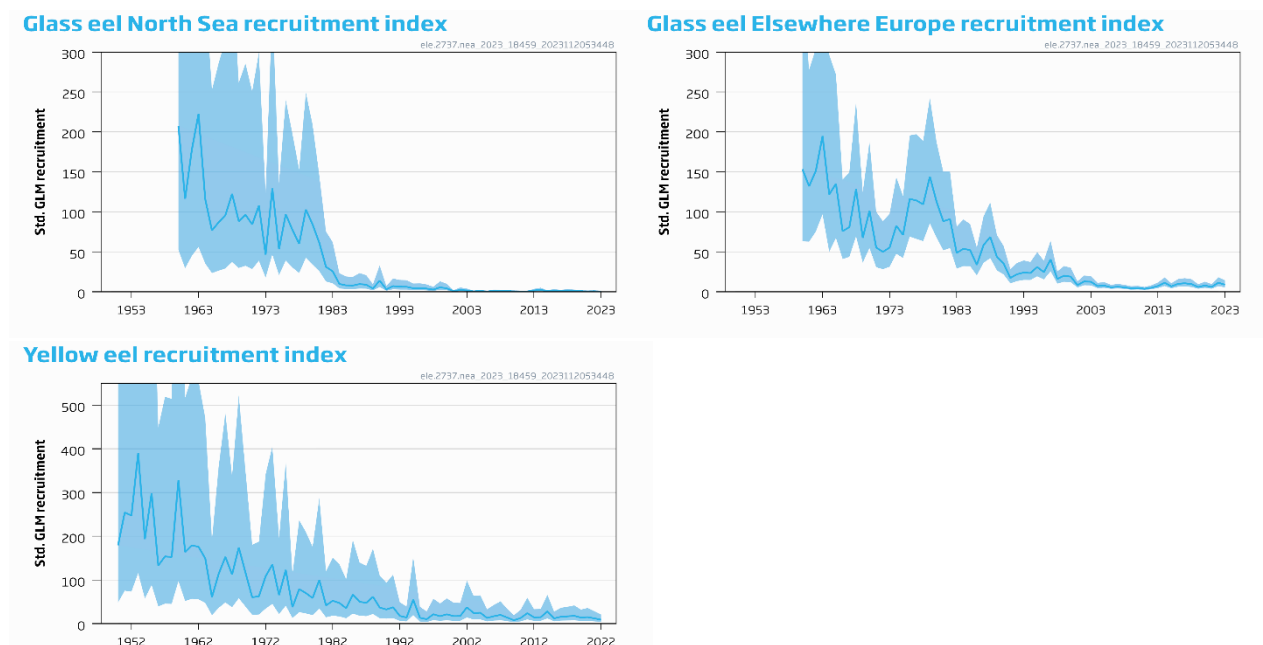
Based on ecosystem-based management considerations, ICES advises that:

- all non-fisheries related anthropogenic mortalities should be zero.
- the quantity and quality of eel habitats should be restored; this includes restoring connectivity and the physical, chemical, and biological properties of the habitats.

### Stock development over time

The status of European eel remains critical. Indices of both glass and yellow eel recruitment strongly declined from 1980 to 2011. Index values correspond to the recruitment as a percentage of the 1960–1979 geometric mean. Glass eel recruitment in the “North Sea” index area was 0.4% in 2023 (provisional) and 0.7% in 2022 (final). In the “Elsewhere Europe” index series it was 8.8% in 2023 (provisional) and 11.3% in 2022 (final). The yellow eel recruitment index for 2022 was 9% (final) of the 1960–1979 geometric mean. Time-series from 1980 to 2023 show that eel recruitment remains at a very low level.

ICES cannot assess the exploitation status relative to maximum sustainable yield (MSY) or precautionary approach (PA) reference points because the reference points are undefined. The 1960–1979 geometric mean recruitment is considered a likely limit reference point ( $R_{lim}$ ). Given that the current recruitment estimate has been below  $R_{lim}$  for many years, it is assumed that current biomass is below a potential  $B_{lim}$ . Therefore, while stock-size reference points are also undefined, it is considered that the stock size is well below potential biological limit reference points.



**Figure 1<sup>†</sup>** European eel. Indices, geometric mean of estimated glass eel recruitment for the continental “North Sea” (top-left panel) and “Elsewhere Europe” (top-right panel) series. A statistical model was fitted to 60 time-series comprising

<sup>†</sup> Version 2: Figure 1 updated.

either pure glass eel or a mixture of glass and yellow eels (34 “North Sea” and 26 “Elsewhere Europe”). The results were scaled in percentage to the 1960–1979 geometric mean. The “North Sea” series are from Norway, Sweden, Germany, Denmark, the Netherlands, UK, and Belgium; the “Elsewhere” series are from UK, Ireland, France, Spain, Portugal, and Italy. In the Baltic area, recruitment occurs at the yellow eel stage only, and series are thus not included in the glass eel recruitment index. Bottom panel: estimated yellow eel recruitment trends for Europe. A statistical model was fitted to 21 yellow eel time-series and scaled in percentage to the 1960–1979 geometric mean. The series are from Denmark, Germany, Ireland, Sweden, France, and UK. The horizontal blue line on each panel represents the likely  $R_{lim}$  (calculated from the 1960–1979 geometric mean). Ribbons show 95% prediction interval of the GLM ( $1.96 \times$  standard error).

## Conservation status

Non-fisheries related anthropogenic mortalities are not reliably quantified (ICES, 2022a), and no reference points are defined.

The European eel (*Anguilla anguilla*) has been categorized on the IUCN Red List as Critically Endangered since 2008 and was last evaluated in 2018 (Pike *et al.*, 2020).

## Catch scenarios

ICES is not in a position to provide catch scenarios in the absence of accurate catch information.

## Basis of the advice

**Table 1a** The basis of the advice for **fishing opportunities**

Advice basis	Precautionary approach
Management plan	<p>A management framework for eel within the EU was established in 2007 by Council Regulation (EC) No. 1100/2007 (EU, 2007) with the objective of achieving at least 40% of pristine silver eel escapement. The General Fisheries Commission for the Mediterranean (GFCM) adopted Recommendation GFCM/42/2018/1 (GFCM, 2018), establishing management measures for European eel (<i>Anguilla anguilla</i>) in the Mediterranean Sea, which was amended in GFCM/45/2022/1 (GFCM, 2022).</p> <p>These management plans have not been evaluated by ICES for their conformity with the precautionary approach and, for this reason, have not been used as the basis for the advice.</p> <p>Eel fisheries in EU waters are further regulated in Council Regulation (EU) No 2023/194 on ‘Fishing Opportunities’ (EU Council, 2023) and in the Commission Implementing Decision (EU) No 2018/1986 ‘Specific Control and Inspection Programme’ (EC, 2018; amended by Commission Implementing Decision [EU] 2020/1320).</p>

**Table 1b** The basis of the advice for **conservation aspects**

Advice basis	Ecosystem-based management (EBM) considerations
Existing conservation measures	<p>The European eel (<i>Anguilla anguilla</i>) has been listed as Critically Endangered on the IUCN Red List since 2008 (Pike <i>et al.</i>, 2020.), in the CITES Appendix II since 2007 (CITES, 2007, 2022), and in the EU implementation of CITES rules (Annex B to Council Regulation [EC] No 338/97; EU Council, 1996) since 2009.</p> <p>European eel was added to Appendix II of the Convention on the Conservation of Migratory Species of Wild Animals (CMS) in 2014 (CMS, 2018).</p> <p>European eel was included on the OSPAR List of Threatened and/or Declining Species and Habitats in 2008. In 2014, the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention) issued a recommendation to strengthen the protection of the European eel at all life stages (OSPAR, 2014). The status of European eel is still very poor in all OSPAR regions (OSPAR, 2022).</p> <p>The Baltic Sea Action Plan (BSAP) of the Baltic Marine Environment Protection Commission (HELCOM) contains several targets for the European eel (HELCOM, 2007; updated 2021).</p> <p>National conservation measures are in the report on the technical evaluation of EU Member State progress reports for submission in 2021 (WKEMP), Eel Management Plan progress reports, and WGEEL country reports (ICES, 2022a, 2023a); ICES is not aware of any information for countries not listed in these reports.</p> <p>Other international legislation relevant to eel conservation:</p> <ul style="list-style-type: none"> <li>• Directive 2000/60/EC, known as the Water Framework Directive (WFD; EU, 2000)</li> <li>• Directive 2008/56/EC, known as the Marine Strategy Framework Directive (MSFD; EU, 2008).</li> <li>• Council Directive 92/43/EEC, known as the Habitats Directive (EU, 1992)</li> <li>• The Ramsar Convention on Wetlands (UN, 1976) aims to stem the loss of and progressive encroachment on wetlands, an important European eel habitat.</li> </ul>

### Quality of the assessment

The assessment is based on two glass eel recruitment indices and a yellow eel recruitment index, each comprising multiple time-series. The indices are fitted based on data from fisheries and scientific surveys, forming the longest and most reliable time-series that constitute an index of abundance.

In the absence of precise quantitative information on the spatial distribution of recruitment, the model does not weigh time-series. As a consequence, a time-series collected in a zone with low recruitment has the same weight as one collected in a zone of higher recruitment. Moreover, in the absence of weighting, regions with numerous time-series have a greater weight than data-limited regions in the resulting recruitment index.

Total landings and effort data are incomplete. In addition, a great heterogeneity is present among the time-series of landings owing to inconsistencies in reporting by, and between, countries. Changes in eel management practices have also affected commercial and non-commercial/recreational fisheries and the reporting of these fisheries.

Data deficiencies in reports on recreational fisheries are described by ICES (2016a). Although this has improved, landings in recreational fisheries remain largely unquantified. Estimates from countries, where available, show that landings of yellow and silver eels from recreational fisheries can be of the same order of magnitude as those of commercial fisheries.

The annual eel data call, issued for the first time in 2017, has substantially improved the coverage and completeness of the data being reported to ICES. National estimates of biomass indicators, mortality rates, and associated data are requested once every third year, in line with reporting on Eel Management Plan (EMP) implementation progress to the European Commission. The most recent call was issued in 2023 (ICES, 2023b). Data on eel, fisheries, and other anthropogenic impacts across the whole stock, however, remain incomplete because there is no single international legislative requirement to collect and provide data that cover the entire stock area.

## Issues relevant for the advice

### On fishing opportunities

#### Restocking

ICES notes that the restocking of eels (the practice of moving eels from one waterbody to another) is intended as a *conservation measure* in EU Council Regulation (EC) No. 1100/2007 (EU Council, 2007) and is implemented in many eel management plans. Restocking is reliant on a glass eel catch, which is in contradiction with the current advice.

The net benefit of restocking to the reproductive potential of the eel stock is unknown. It requires information on e.g. the carrying capacity of glass eel source estuaries, reliable mortality estimates at each step of the restocking process, and the spawning potential of stocked vs. non-stocked eels. While a local increase in eel production may be apparent (ICES, 2016b), an assessment of net benefit to the spawning stock was unquantifiable. When constrained by the above-mentioned uncertainties and potential harmful effects, while following the precautionary approach, no catch for restocking should be allowed.

#### Assisted migration

ICES acknowledges that catches for the purpose of subsequent release to improve survival may be part of temporary conservation measures. For example, where dams exist and prevent downstream or upstream migration of silver and glass eel, transfer across barriers within the same waterbody could be considered if it is likely that the associated mortality is less than that in the absence of such measures. Upstream assisted migration should only be applied if the future escapement of silver eels is ensured. In such conditions, the current advice does not apply to these catches.

#### Aquaculture

Since cultured eels are always wild caught and either permanently removed from the stock (for consumption) or used for restocking (and hence not for conservation purposes following the definition above), no catch for aquaculture purposes should be allowed.

### On conservation aspects

#### Other anthropogenic impacts

Non-fisheries anthropogenic impacts are substantial (ICES, 2019, 2020, 2021a, 2022b) and can be grouped into the following: (a) hydropower, pumping stations, and other water intakes; (b) habitat loss or degradation; (c) pollution, diseases, and parasites; and (d) other management actions that may affect levels of predation (e.g. conservation of predators vs. control of predators). These impacts vary over a range of temporal and spatial scales. There are effects from climate change, but these are not well understood.

The implementation of environmental legislation (e.g. the EU Water Framework [WFD] and the Marine Strategy Framework directives [MSFD]) aims to improve the continental environment in marine, transitional, and freshwaters and could have a positive effect on the reproductive potential of silver eel.

At present, ICES is not able to quantify the level and the relative impact of non-fisheries anthropogenic factors on the reproductive capacity of the stock. However, given the state of the stock, all other anthropogenic impacts (e.g. those caused by hydropower, pumping stations, and pollution) that decrease production and escapement of silver eels should be zero.

#### Other aspects

Illegal, unreported, and unregulated (IUU) fishing is known to occur, and customs seizures indicate that the illegal export of glass eel could be substantial. Some countries have reported the level of misreporting and illegal fisheries (i.e. the seizure of illegal nets as well as the illegal trade of glass eels from countries both inside and outside the EU) to ICES, EIFAAC, or

GFCM. However, there are insufficient data available to quantify their effect on the total stock size or status with any level of certainty.

Total landings of yellow and silver eel are still currently high, around 2000 tonnes in 2022, with several countries reporting landings over 100 tonnes *per year* in the latest decade.

## Reference points

No biomass or fishing mortality reference points are formally defined for this stock. For the time being, the 1960–1979 recruitment is considered a potential limit reference point ( $R_{lim}$ ; ICES, 2021b)

## Basis of the assessment

**Table 2** European eel. Basis of the assessment.

ICES stock data category	3 ( <a href="#">ICES, 2023c</a> )
Assessment type	Trend analysis, GLM of glass and yellow eel recruitment indices
Input data	Glass eel and yellow eel recruitment indices (informed by 60 glass eel and 21 yellow eel) time-series)
Discards and bycatch	Not included
Indicators	None
Other information	None
Working group	Joint EIFAAC/ICES/GFCM Working Group on Eels ( <a href="#">WGEEL</a> )

## History of the advice, catch, and management

**Table 3** European eel. History of ICES advice.

Year	ICES advice	Predicted catch corresponding to the advice	TAC*	ICES catch**
1999	Recovery plan	-	-	-
2000	No fishery and a recovery plan	0	-	-
2001	A recovery plan should be implemented for the eel stock, and fishing mortality should be reduced to the lowest possible level until such a plan is agreed upon and implemented	-	-	-
2002	Exploitation should be reduced to the lowest possible level until a recovery plan is agreed upon and implemented	-	-	-
2003	All anthropogenic mortality as close to zero as possible until a recovery plan is agreed upon and implemented	-	-	-
2004	-	-	-	-
2005	-	-	-	-
2006	All anthropogenic mortality as close to zero as possible until a recovery plan is agreed upon and implemented	-	-	-
2007	All exploitation and other anthropogenic impacts should be reduced to a level as close to zero as possible, and a recovery plan for the whole stock should be implemented urgently	-	-	-
2008	All exploitation and other anthropogenic impacts should be reduced to as low as possible until there are clear signs of recovery	-	-	-
2009	All exploitation and other anthropogenic impacts should be reduced to as close to zero as possible	-	-	-
2010	All anthropogenic impacts should be reduced to as close to zero as possible until stock recovery is achieved	-	-	-
2011	All anthropogenic mortality as close to zero as possible until there is clear evidence that the stock is increasing	-	-	-
2012	All anthropogenic mortality as close to zero as possible until there is clear evidence that both recruitment and the adult stock are increasing	-	-	-
2013	All anthropogenic mortality as close to zero as possible until there is clear evidence that both recruitment and the adult stock are increasing	-	-	-
2014	All anthropogenic mortality as close to zero as possible until there is clear evidence of sustained increase in both recruitment and the adult stock	-	-	-

Year	ICES advice	Predicted catch corresponding to the advice	TAC*	ICES catch**
2015	All anthropogenic mortality as close to zero as possible	-	-	-
2016	All anthropogenic mortality as close to zero as possible	-	-	-
2017	All anthropogenic impacts as close to zero as possible	-	-	-
2018	All anthropogenic impacts as close to zero as possible	-	-	-
2019	All anthropogenic impacts as close to zero as possible	-	-	-
2020	All anthropogenic impacts as close to zero as possible	-	-	-
2021	All anthropogenic impacts as close to zero as possible	-	-	-
2022	Precautionary approach	0		
2023	Precautionary approach	0		
2024	Precautionary approach	0		

\* There has never been a TAC for this stock.

\*\* There are no ICES catch estimates for the entire stock.

### History of catch and landings

Landings data are not complete for the entire natural range of the European eel.

**Table 4** European eel. Commercial landings (tonnes) of glass eel (1945–2023), as reported to ICES by EU Member States (France [FR], Spain [ES], Portugal [PT], and Italy [IT]) and United Kingdom (GB), combining information from the 2023 data call and the WGEEL database. Empty cell = no data, data not collected, or data not pertinent.

Year	GB	FR	ES	PT	IT	Total
1945			119.2			119.2
1946			71.9			71.9
1947			100.1			100.1
1948			110.6			110.6
1949			9.3			9.3
1950			3.8			3.8
1951			2.1			2.1
1953			2.5			2.5
1954			5.9			5.9
1955			0.9			0.9
1956			0.9			0.9
1957			2.8			2.8
1958			0.4			0.4
1959			6.6			6.6
1960			9.5			9.5
1961			16.7			16.7
1962			11.1			11.1
1963			8			8
1964			11			11
1965			4			4
1966			6			6
1967			5			5
1968			4			4
1969			4			4
1970			5			5
1971			1			1
1972	16.7		1			17.7
1973	28.2		1			29.2
1974	57.5		2	1.6		61.1
1975	10.5		2.6	5.6		18.7
1976	13.1		11.6	12.5		37.2
1977	38.6		17.5	22.6		78.7
1978	61.2	1393	21.6	7.3		1483.1
1979	67	1850	17.3	8.8		1943.1

Year	GB	FR	ES	PT	IT	Total
1980	40.1	1491	15.4	10.1		1556.6
1981	36.9	890	13	18.1		958
1982	48	866	19.3	22.2		955.5
1983	16.9	791	10.3	6.7		825
1984	25	528	16.4	16.1		585.5
1985	20	444	18.3	14.8		497.1
1986	19	423	6.4	7		455.4
1987	21.3	461	9.4	9.5		501.2
1988	21.4	504	9.9	2.6		537.8
1989	20.6	410	9.9	2.8		443.3
1990	20.9	325	5.3	4.5		355.7
1991	1.1	179	6.8	2.8		189.7
1992	5	183	3.7	4.5		196.1
1993	5.7	329	5.2	3.6		343.6
1994	9.5	329	2.4	2.9		343.8
1995	11.9	413	4.9	5.3		435.1
1996	18.8	262	14.5	8.7		304
1997	8.7	287	12	4.4		312.1
1998	11.2	195	14.1	4.5		224.8
1999		242	13.9	3.6		259.5
2000		206	11	3		220
2001	0.8	101	12	1.1		115
2002	0.5	202	8.6	0.8		211.9
2003	1.7	151	10	1.5		164.1
2004	1	89	5.1	0.8		95.9
2005	1.7	89	6.4	1.2		98.3
2006	1.3	67	4.1	2.7		75.2
2007	2.1	77	5.2	0.9		85.2
2008	0.8	79	5.1	0.8		85.7
2009	0.3		3.7	1.4		5.3
2010	1.3	41	6.5	2.4		51.2
2011	2.3	31.3	5.2	1.1		39.8
2012	2.8	34.3	5.3	0.8		43.2
2013	5.9	33.6	7.2	1.1		47.8
2014	12	35.3	11.3	1.2	0.4	60.3
2015	2.8	36.1	8.8	1.3	0.2	49.1
2016	4	46.4	6.6	0.4	0.1	57.5
2017	3.3	43.2	11.1	2.2	0.1	59.9
2018	4.2	53.4	4.5	1	0.2	63.4
2019	6.6	50	4.3	0.6	0.2	61.7
2020	3.4	47.8	6.3	0.9		58.4
2021	0.1	46	4.5	1.2		51.9
2022	1.1	53.4	4.7	0.9		60.1
2023*	0.9	48.6	3.6	0.5		53.6

\*Preliminary data

**Table 5a** European eel. Official commercial landings (tonnes) of yellow and silver eel (1908–2022) in Norway (NO), Sweden (SE), Finland (FI), Estonia (EE), Latvia (LV), Lithuania (LT), Poland (PL), Germany (DE), Denmark (DK), Netherlands\* (NL), and Belgium (BE), combining information from the 2023 data call and the WGEEL database. Empty cell = no data, data not collected, or data not pertinent.

	NO	SE	FI	EE	LV	LT	PL	DE	DK	NL*	BE
1908	268.1										
1909	326.6										
1910	303.1										
1911	383.8										
1912	187.3										
1913	212.7										

	NO	SE	FI	EE	LV	LT	PL	DE	DK	NL*	BE
1914	282	1460.6									
1915	143	996.9									
1916	117	1078.2									
1917	44	1283.6									
1918	35	884.4									
1919	64	1145.4									
1920	80	969.6							3413		
1921	79	1072.4							3443		
1922	94	925.9							3760		
1923	140	947.7							3396		
1924	290	1201.1							4130		
1925	325	1714.2							4880		
1926	341	1707.3							4726		
1927	354	2011.5							4648		
1928	325	1040.1							4117		
1929	425	1393.7							4375		
1930	450	1528.8							4773		
1931	329	1794.8							4195		
1932	518	1588.7							5088		
1933	694	1494							5014		
1934	674	1768.7							5171		
1935	564	1950.9							4316		
1936	631	1654.5							4332		
1937	603	1725.1							4329		
1938	526	1870.5							3849		
1939	434	1774.4							4662		
1940	143	1625.7							3709		
1941	174	1821.8							3717		
1942	131	1226.5							3140		
1943	136	1827.8							3917		
1944	150	2319.8							4245		
1945	102	1906.1							4169	2668	
1946	167	1744.6							4269	3492	
1947	268	2346.8			10	8			4784	4502	
1948	293	2211.9			10	14			4386	4799	
1949	214	2329			50	21			4492	3873	
1950	282	2628			10	29			4500	4152	
1951	312	2311			10	32			4400	3661	
1952	178	1848			10	39			3900	3978	
1953	371	2756			20	80			4300	3157	
1954	327	2459			20	147	609		3800	2085	
1955	451	3338			40	163	732		4800	1651	
1956	293	1702			20	131	656		3700	1817	
1957	430	2494			20	168	616		3600	2509	
1958	437	2024			20	149	635		3300	2674	
1959	409	3522			24	155	566		4000	3413	
1960	430	1905			37	165	733		4937	2999	
1961	449	2387			43	139	640		4110	2452	
1962	356	2171			41	155	663		4122	1443	
1963	503	2334			56	260	762		4166	1618	
1964	440	2612		3	37	225	884		3505	2068	
1965	523	2051		0.3	35	125	682		3402	2268	
1966	510	2219		1.9	33	238	804		3901	2339	
1967	491	1835		2.7	39	153	906		3679	2524	
1968	569	2052		2.9	28	165	943		4476	2209	
1969	522	1922		49	36	134	935		3878	2389	
1970	422	1209		61.5	29	118	847		3558	1111	



	NO	SE	FI	EE	LV	LT	PL	DE	DK	NL*	BE
1971	415	1391		59.5	29	124	722		3378	853	
1972	422	1204		73.4	25	126	696		3429	857	
1973	409	1212		69	27	120	644.7		3656	823	
1974	368	1034		51.1	20	86	691.1		2977	840	
1975	407	1391		82.1	19	114	809.7		3485	1000	
1976	386	935		71.6	24	88	760.5		3054	1172	
1977	352	989		65.8	16	68	867.8		2502	783	
1978	347	1076		63.2	18	70	910.4		2492	719	
1979	374	954		28.5	21	57	978.9		1904	530	
1980	387	1112		25.7	9	45	1214		2288	664	
1981	369	887		21.9	10	27	943.5		2227	722	
1982	385	1161		13.9	12	28	911.3		2541	842	
1983	324	1212		28.8	9	23	868		2119	937	
1984	310	963		72.2	12	27	819.4		1871	691	
1985	352	1029		75.1	18	29	1022.5	1096.7	1630	679	
1986	272	827.7		61.1	19	32	920.7	1118.7	1672	721	
1987	282	699.4		66.7	25	20	886.6	1031	1279	538	
1988	513	932.7		109.7	15	23	943.3	1018	1878	425	
1989	313	902		54.8	13	21	812.8	963.6	1696	526	
1990	336	916.2		61.3	13	19	768.1	829.7	1675	472	
1991	323	1058.5		52.4	14	16	669.7	724.7	1465	573	
1992	372	1152.5		39.4	17	12	638.2	761.7	1451	548	
1993	340	1119.4		59.2	19	10	568	790.1	1080	293	
1994	472	1262		46.9	19	12	635.1	833.1	1200	330	
1995	454	948		45.4	38	9.4	641.9	777.9	892	354	
1996	353	1053.3		55.1	24	8.6	629	603	751.5	300	
1997	467	1065		59.1	25	10.7	526	616.2	797	285	
1998	331	646.4		44.2	30	17.1	544.4	566.9	597	323	
1999	447	701.6		64.8	26	17.9	599.1	645.1	717	357	
2000	281	530.9		67	13.7	22	443.6	591.2	628	370.1	2.9
2001	304	643.2		67	17.4	23	434.5	569	707	439.5	2.9
2002	311	591.4		49.9	9.6	25.6	372.9	543.9	614	370.2	2.9
2003	240	565.1		48.6	10.3	23.5	365.5	497.9	648	309.8	2.9
2004	237	583.2		39.2	11.3	32	337.2	475.3	546	310.2	2.9
2005	249	675.8		30.7	10.3	44.6	219.9	454.8	534	255.2	2.9
2006	293	732.3		33.4	7.9	31.6	184.4	472.2	596	240.3	
2007	194	702.5		31.1	9.6	29.8	180.7	423.6	537	197	
2008	211	671.4	1	30.6	12.9	27	159.7	406.1	466	147.6	
2009	69	514.1	1.8	22.1	4.9	17.2	160.6	374.6	467	108	
2010	32	525.1	2.3	18.9	8.9	37.6	173.2	367.1	422	445	
2011	0	450.4	1.5	16.2	6	22.6	118.8	278.9	370	370.6	
2012	0	340	1.5	17.7	6.3	15.8	119.3	245.4	317	351.7	
2013	0	374.4	1.3	17.4	4.7	28.4	137.4	264.8	356	318.9	
2014	0	324.2	1	16.7	4.4	15.4	116.8	232.9	346	320.3	
2015	0	246.5	0.6	14.2	5.2	11.8	102.4	226.1	282	293	
2016	3	279.5	1.3	15.2	4.2	28.4	138.4	206.8	265	312.5	
2017	10.9	245	1.1	15.7	8.6	24.3	172.6	241.7	257.3	421.3	0
2018	3.4	251	1.1	18.3	5.8	20.3	146.5	226.9	181.8	476.9	
2019	4	188.2	0.4	21.7	6.1	4.6	167.5	209.1	183.3	484	
2020	4	194.4	0.4	38.8	6.7	6.8	103.6		182.2	475.5	
2021	5	170.5	0.4	47.9	6.4	9.9	126.6		232.8	523.7	
2022	4	114.6	0.3	1.6	6.1	11.6	115.3		163.1	538.1	

\* Landings from the Netherlands are incomplete before 2010.

**Table 5b** European eel. Official commercial landings (tonnes) of yellow and silver eel (1951–2022) in Ireland (IE), United Kingdom (GB), France (FR), Spain (ES), Portugal (PT), Italy (IT), and Slovenia (SL), combining information from the 2023

data call and the WGEEL database. Empty cell = no data, data not collected, or data not pertinent. No data before 1951 for any of the countries

Year	IE	GB	FR	ES	PT	IT	SL
1951				90			
1952				102.2			
1953				80.2			
1954				97.7			
1955				102.9			
1956				106.1			
1957				80			
1958				115			
1959				100			
1960		771.7		98			
1961		768.4		153.8			
1962		696.1		114.9			
1963		787.8		136.9			
1964		548.9		91.5			
1965		783.8		130.4			
1966		881		191.5			
1967		568.7		163.8			
1968		585.6		175.6			
1969		605.6		136.4		2469	
1970	200	752.1		119.4		2300	
1971	200	842.2		107.4		2113	
1972	200	632.6		119.4		1997	
1973	91	723.2		100.2		588	
1974	67	765		93.4		2122	
1975	79	762.2		78		2886	
1976	150	621.7		82.7		2596	
1977	108	690.5		79.9		2390	
1978	76	823.6		67		2172	
1979	110	1045		96.8		2354	
1980	75	912.2		89.8		2198	
1981	94	907.1		97.7		2270	
1982	144	942.5		19.9		2025	0.8
1983	117	866.4		18.4		2013	0.7
1984	88	973.4		11		2050	1.2
1985	87	750		16.5		2135	2.5
1986	87	650.8	1944	13.4		2134	2.7
1987	230	684.1	2062	21.2		2265	1.6
1988	215	933.6	2265	13.9		2027	1.5
1989	400	874.7	1746	5.3	13.5	1243	1.3
1990	256	783.9	1778	8.7	13	1088	1.9
1991	245	736.9	1645	49.8	23.5	1097	1.4
1992	234	715.4	1321	54.3	29.7	1084	0.1
1993	260	670.7	1280	66.5	33.9	782	0.1
1994	300	777.8	1280	50.7	26.6	771	0.7
1995		899.6	1280	69.4	23.7	1047	0
1996		805.2	1280	61.7	25.6	953	0
1997		730.7	1223	61.5	24.7	727	0
1998		693.4	1150	43.6	23.3	666	0
1999	250	667.8	1005	48.3	23.1	634	
2000	250	587.2	1008.8	55.3	21.8	588	0
2001	98	582.7	1024.1	130.2	15	520	0
2002	123	551.1	30.4	105.6	26.9	415	0
2003	111	552.3	21.4	95.6	10.6	446	
2004	136	471.7	12.5	85.3	8.8	379	
2005	101	477.2	7.8	88	7	75	0

Year	IE	GB	FR	ES	PT	IT	SL
2006	133	383.5	15	115.6	10.1	56	0
2007	114	450.4	26.1	82.1	10.5	277	0
2008	108.3	400.6	31.4	65.6	7	56	0
2009	0	462.4	42	89.2	8.2	329.9	0
2010	0	461.1	20.2	104.6	11	265.1	0
2011	0	455.9	368	93.6	5.9	189.7	0
2012	0	415.1	472.6	121.6	3.8	182.4	0
2013	0	426.5	504.1	132.7	2.7	172.2	0
2014	0	392.8	434.4	130.4	3.3	184.6	0
2015	0	341	356.9	92	2.9	170.3	0
2016	0	347.2	442.6	115.1	2.4	205	0
2017	0	321.8	434.1	98.2	1.5	213.8	
2018	0	366.9	617.4	57.8	3.6	123.5	
2019	0	295.6	312.7	58	1.9	126.6	
2020	0	182.2	347.9	81.8	3.2	89.5	
2021	0	244	293.6	69.6	2.4	50	
2022	0	166.7	265.4	66.1	1.7	95.7	

**Table 5c** European eel. Official commercial landings (tonnes) of yellow and silver eel (1908–2022) in Croatia (HR), Albania (AL) Greece (GR), Turkey (TR), Libya (LY), Tunisia (TN), Algeria (DZ), and Morocco (MA), combining information from the 2023 data call and the WGEEL database. Empty cell = no data, data not collected, or data not pertinent. The total column is the yearly sum for all countries included in tables 5a, 5b, and 5c and not just the countries listed in this particular table.

Year	HR	AL	GR	TR	LY	TN	DZ	MA	Total
1908									268.1
1909									326.6
1910									303.1
1911									383.8
1912									187.3
1913									212.7
1914									1742.6
1915									1139.9
1916									1195.2
1917									1327.6
1918									919.4
1919									1209.4
1920									4462.6
1921									4594.4
1922									4779.9
1923									4483.7
1924									5621.1
1925									6919.2
1926									6774.3
1927									7013.5
1928									5482.1
1929									6193.7
1930									6751.8
1931									6318.8
1932									7194.7
1933									7202
1934									7613.7
1935									6830.9
1936									6617.5
1937									6657.1
1938									6245.5
1939									6870.4
1940									5477.7

Year	HR	AL	GR	TR	LY	TN	DZ	MA	Total
1941									5712.8
1942									4497.5
1943									5880.8
1944									6714.8
1945									8845.1
1946									9672.6
1947									11918.8
1948									11713.9
1949									10979
1950									11601
1951									10816
1952									10055.2
1953									10764.2
1954									9544.7
1955									11277.9
1956									8425.1
1957									9917
1958									9354
1959									12189
1960									12075.7
1961									11142.2
1962									9762
1963									10623.7
1964									10414.4
1965									10000.5
1966			14.9						11133.3
1967			19						10381.2
1968			4.9						11211
1969			2.9	342					13420.9
1970			0	441					11168
1971			0	460					10694.1
1972			4.3	220					10005.7
1973			15.5	315					8793.6
1974			129.8	588					9832.4
1975			133.8	448					11694.8
1976			158.7	499					10599.2
1977			89.2	282					9283.2
1978			225.3	283					9342.5
1979			185.5	396					9034.7
1980			226.9	224					9470.6
1981			250.6	374					9200.8
1982			255.2	424					9705.6
1983			200.8	588					9325.1
1984			285.4	616					8790.6
1985			189.6	583					9694.9
1986			151.6	517					11144.7
1987			266.3	543					10900.9
1988			268.1	756					12337.8
1989			155.6	472					10213.6
1990			194.2	230					9444
1991			209.4	262					9166.3
1992			184.8	245					8860.1
1993			181.9	261					7814.8
1994			200.5	329					8546.4
1995			201.4	390					8071.7
1996			151.3	342					7396.3
1997			136.5	400					7154.4

Year	HR	AL	GR	TR	LY	TN	DZ	MA	Total
1998			87.6	300					6063.9
1999			80.7	200			20.4		6504.8
2000			88.1	176		109.9	17.2		5852.7
2001			93.4	122		144.1	44.5		5981.5
2002			136.3	147		204.4	25.4		4656.5
2003			76.5	158		171.7	25.2		4379.9
2004			58.1	165		132.5	29		4052.2
2005			116.1	176		197	7.6		3729.9
2006			77.1	162		266.3	2.7		3812.4
2007			89.7	179		296.5	14.6		3845.2
2008			71.1	171		316.7	13.9		3374.9
2009			78.5	158		122.2	14.2		3043.9
2010			58.6	182		92.6	3.4		3230.7
2011			83.2	28.3		79.6			2939.2
2012			55.2	38		55	0.4		2758.8
2013		47	38	48.2		149.6	3	23	3050.3
2014	0.5	43	58.3	56		83.6	6	23	2793.6
2015	0.1	50	60.2	71		81.4	3	4	2414.6
2016	0.6	41	60.9	75		250.4	2	7	2803.5
2017	0.6	47	48.3	81		153	10.6	2	2810.4
2018	0.6	60	42.8	111		166.3	33	2	2916.9
2019	0.4	70	20.4	330	1.3	107	25.2		2618
2020	0.4	40	27.9	232.8	1.9	129.9	18		2167.9
2021	0.4	22	19.2	267.3	0.2	105.3	4.7		2201.9
2022	0.3	17	17.5	275.8	2.1	105			1968

**Table 6** European eel. Recreational landings (tonnes) of glass eel (1978–2023) in countries where fisheries exist, i.e. France (FR) and Spain (ES), combining information from the 2023 data call and the WGEEL database. Empty cell = no data, data not collected, or data not pertinent.

Year	FR	ES	Total
1978	647		647
1979	697		697
1980	1303		1303
1981	904		904
1982	219		219
1983	161		161
1984	156		156
1985	71		71
1986	87		87
1987	172		172
1988	40		40
1989	110		110
1990	54		54
1991	87		87
1992	77		77
1993	130		130
1994	74		74
1995	113		113
1996	25		25
1997	39		39
1998	6		6
1999	6		6
2000	2		2
2001	1		1
2002	37		37
2004		0.9	0.9
2005	0	1.2	1.2

Year	FR	ES	Total
2006	1	1.7	2.7
2007	0	1.3	1.3
2008	0	1.6	1.6
2009	0	0.4	0.4
2010	0	0.8	0.8
2011	0	0.4	0.4
2012	0	1.1	1.1
2013	0	1.6	1.6
2014	0	2.4	2.4
2015	0	2.3	2.3
2016	0	1.7	1.7
2017	0	1.5	1.5
2018	0	1.7	1.7
2019	0	0.9	0.9
2020	0	0.7	0.7
2022		0.7	0.7
2023*		1.3	1.3

\* Preliminary data

**Table 7a** European eel. Recreational landings (tonnes) of yellow and silver eel (1980–2023) in Finland (FI), Estonia (EE), Latvia (LV), Lithuania (LT), Poland (PL), Czechia (CZ), Germany (DE), Denmark (DK), Netherlands (NL), Belgium (BE), and Ireland (IE), combining information from the 2023 data call and the WGEEL database. Countries omitted in tables 7a and 7b include those where recreational landings are prohibited and those that have not reported.

Year	FI	EE	LV	LT	PL	CZ	DE	DK	NL	BE	IE
1980											
1981											
1982											
1983											
1984											
1985							582				
1986							563				
1987							546				
1988							559				
1989							543				
1990							501				
1991							498				
1992							489				
1993							486				
1994							493				
1995							452				
1996							416				
1997							424				
1998							431				
1999							425				
2000			2				429			34	
2001			1				426			34	
2002			1				417			34	
2003			0				428			34	
2004			1				414			34	
2005		2	3				398			34	
2006		1	0				399			34	
2007		1	0				375			34	
2008	17	1	0				326			34	
2009		1	1				310	108		34	
2010	10	1	0				277	126	111	30	
2011		1	0				272	79.5		30	
2012	5	1	0	1	32	17	263	52.3	59	30	

Year	FI	EE	LV	LT	PL	CZ	DE	DK	NL	BE	IE
2013		1	1	3	27	15	265	50.3		30	
2014	20	1	1	2	30	19	270	57	70	30	
2015		1	1	5	27	12	271	118		30	
2016	8	1	0	2	34	12	275	164	24	30	
2017		1	1	3	40	17	276	117		30	
2018	2	1	0	1	45	12	271	105	24	30	
2019		1	0	6	42	12	276	110		30	
2020	2	1	1	1	50			98.9	24	30	
2021		1	0	7	65			79		30	
2022		0	0		26			160	16		0

\* Preliminary data

**Table 7b** European eel. Recreational landings (tonnes) of yellow and silver eel (1980–2023) in France (FR), Spain (ES), Italy (IT), Slovenia (SL), and Turkey (TR), combining information from the 2023 data call and the WGEEL database. Countries omitted in tables 7a and 7b include those where recreational landings are prohibited and those that have not reported. Empty cell = no data, data not collected, or data not pertinent.

Year	FR	ES	IT	SL	HR	TR	LY	Total
1980				0				0
1981				0				0
1982				0				0
1983				0				0
1984				0				0
1985				0				581.6
1986				0.1				562.9
1987				0.1				546.4
1988				0.1				558.6
1989				0.1				542.6
1990				0.1				501.4
1991				0.1				498.2
1992				0.1				488.6
1993				0.1				485.7
1994				0				492.9
1995				0				452.2
1996				0.1				416.4
1997				0.2				423.9
1998				0.1				430.6
1999				0				424.8
2000	20.9			0				485.1
2001	19.9			0				480.6
2002	19			0				471
2003	14.7			0				476.6
2004	16.8			0				465
2005	12.9			0				448.9
2006	683.9			0				1117.9
2007	14.6			0				424.9
2008	14.9			0				393.2
2009	7.1			0				460.6
2010	4.9		149.5	0				709
2011	3.2		60.6	0				446.5
2012	4.6		73.6	0				539
2013	4.7	1	69.7	0				467.3
2014	4.3	1	69.8	0				573.3
2015	3.5	1	60.2	0	10.1			538.2
2016	3.1	0.8	56.8	0	8.9			619
2017	2.9	0.1	41.3		7.6			535.1
2018	3.3	0.9	42.3		6.8			543.3
2019	3.2	2.2	33.7		5.7		0.1	521.9

Year	FR	ES	IT	SL	HR	TR	LY	Total
2020	1.5		24.5		5	87.2	0.1	325.5
2021	1.8		12.6		1.9	41.7	0	239.6
2022	1.3		17.1		1.9	24.2		247
2023*							0.1	0.1

\* Preliminary data

## Summary of the assessment

**Table 8**

European eel. Recruitment indices: geometric means ("Value") of estimated (GLM) recruitment for glass eel, with 95% prediction intervals ("Lower" and "Upper") in the continental "North Sea" and "Elsewhere Europe", and recruitment of yellow eel in Europe. The glass eel GLM (predicting recruitment as a function of area, year, and site) was fitted to 57 time-series, comprising either pure glass eel or a mixture of glass eels and yellow eels and scaled to the 1960–1979 geometric mean so that values correspond to the recruitment as a percentage of the 1960–1979 geometric mean. The yellow eel GLM (predicting recruitment as a function of year and site) was fitted to 22 yellow eel time-series and scaled to the 1960–1979 geometric mean so that values correspond to the recruitment as a percentage of the 1960–1979 geometric mean. These indices are updated on an annual basis and, as they are presented in relative terms, may change the historical values.

Year	Elsewhere Europe index (%)			North Sea index (%)			Yellow eel Europe index (%)		
	Lower	Value	Upper	Lower	Value	Upper	Lower	Value	Upper
1950							48.2	179.1	665.5
1951							75.3	254.3	858.6
1952							73.2	247.3	834.9
1953							115.6	390.2	1317.7
1954							57.2	193.3	652.6
1955							88.3	298.3	1007.4
1956							39.4	133.0	449.0
1957							45.5	153.7	518.9
1958							45.1	152.3	514.3
1959							97.1	327.8	1107.1
1960	63.0	153.5	373.8	52.3	207.6	823.5	51.9	163.7	516.7
1961	62.7	132.1	278.0	29.3	116.4	461.6	56.7	179.1	565.3
1962	75.2	151.3	304.3	44.8	177.7	704.7	55.7	175.8	555.0
1963	96.9	194.8	391.7	56.1	222.7	883.2	47.2	149.1	470.7
1964	50.0	121.8	296.7	35.2	116.0	381.6	19.2	60.7	191.6
1965	67.3	135.3	272.0	23.3	76.7	252.6	36.1	113.9	359.4
1966	40.9	75.8	140.4	26.4	87.0	286.3	48.4	152.7	481.9
1967	43.7	80.9	149.8	29.1	95.8	315.2	37.5	112.4	336.9
1968	69.4	128.4	237.7	37.2	122.6	403.3	58.1	174.2	522.3
1969	36.4	67.4	124.8	29.8	88.3	261.7	38.9	116.5	349.2
1970	54.8	101.5	187.9	32.5	96.4	285.8	20.1	60.2	180.5
1971	30.7	55.4	100.0	28.3	84.3	250.8	20.9	62.6	187.7
1972	28.3	50.0	88.4	38.9	108.0	299.6	34.3	108.3	341.9
1973	31.3	55.3	97.7	17.6	46.5	122.8	45.1	135.2	405.4
1974	47.6	82.6	143.4	46.7	129.5	359.4	21.8	65.4	196.2
1975	42.3	71.2	119.9	20.9	53.3	136.0	41.0	122.9	368.6
1976	69.0	116.2	195.7	39.1	96.9	240.4	12.6	37.7	113.0
1977	66.1	114.2	197.3	30.3	77.5	197.8	26.3	78.9	236.5
1978	63.4	109.4	189.0	23.5	60.0	153.1	23.3	69.9	209.7
1979	85.6	144.1	242.8	42.5	102.9	249.6	19.5	58.6	175.6
1980	67.7	112.7	187.4	34.0	84.4	209.3	34.6	99.8	287.5
1981	51.9	88.3	150.3	25.8	61.3	145.9	14.5	41.7	120.1
1982	54.8	90.9	151.0	12.9	31.2	75.6	18.2	52.3	150.8
1983	28.9	48.6	81.7	10.6	25.6	62.1	16.4	47.2	136.1
1984	32.1	53.9	90.6	4.1	9.8	23.3	12.2	35.3	101.6
1985	32.0	52.1	84.9	3.4	8.1	19.2	23.1	66.5	191.3
1986	20.5	33.7	55.4	3.3	7.9	18.7	18.0	50.2	139.9



Year	Elsewhere Europe index (%)			North Sea index (%)			Yellow eel Europe index (%)		
	Lower	Value	Upper	Lower	Value	Upper	Lower	Value	Upper
1987	36.2	58.4	94.4	4.0	9.7	23.5	17.0	47.5	132.4
1988	42.1	68.7	111.9	3.8	8.9	20.8	22.1	61.5	171.5
1989	26.7	43.6	71.0	1.7	4.0	9.4	12.3	36.9	110.4
1990	21.6	35.2	57.3	5.9	14.0	33.1	11.3	32.5	93.5
1991	10.5	17.3	28.5	1.3	3.1	7.4	12.5	37.5	112.2
1992	13.4	22.0	36.1	3.1	7.1	16.6	6.3	17.6	49.1
1993	14.8	24.1	39.2	2.7	6.4	14.8	5.1	14.1	39.2
1994	14.8	23.5	37.3	2.7	6.3	14.6	19.7	54.8	152.5
1995	19.3	31.0	49.6	1.9	4.4	10.4	4.7	13.4	38.5
1996	15.4	24.6	39.0	2.0	4.6	10.6	3.6	10.1	28.1
1997	25.7	40.5	64.0	1.7	4.0	9.3	8.1	21.5	57.1
1998	10.2	16.1	25.4	1.2	2.7	6.3	6.3	17.1	46.2
1999	12.6	20.1	32.2	2.3	5.5	13.1	7.9	21.3	57.7
2000	11.9	19.0	30.2	1.8	4.3	10.0	6.2	17.4	48.3
2001	5.3	8.4	13.1	0.4	0.9	2.0	6.5	17.5	47.4
2002	8.2	12.9	20.4	1.0	2.3	5.4	14.0	37.2	98.6
2003	8.0	12.5	19.6	0.7	1.7	4.1	9.4	24.4	63.5
2004	4.5	7.1	11.2	0.3	0.6	1.4	9.6	24.9	64.8
2005	4.9	7.7	12.1	0.4	1.0	2.3	5.2	13.0	32.8
2006	3.6	5.6	8.7	0.2	0.5	1.0	6.7	16.9	42.6
2007	4.1	6.4	9.9	0.5	1.2	2.6	7.9	20.1	51.2
2008	3.6	5.6	8.8	0.5	1.1	2.4	5.7	13.9	34.2
2009	2.6	4.3	7.0	0.4	0.8	1.7	3.1	7.7	19.1
2010	2.9	4.6	7.5	0.3	0.7	1.5	5.1	12.8	31.7
2011	2.3	3.7	6.0	0.2	0.5	1.0	9.6	23.9	59.2
2012	3.1	5.0	8.1	0.2	0.5	1.0	6.2	14.4	33.2
2013	4.6	7.3	11.6	0.8	1.7	3.6	6.4	14.7	33.8
2014	7.2	11.3	18.0	1.1	2.4	5.1	11.9	28.0	66.1
2015	4.3	6.8	10.7	0.4	0.8	1.8	5.3	12.0	27.5
2016	6.3	10.0	15.9	0.8	1.6	3.5	6.8	15.7	36.3
2017	6.6	10.7	17.1	0.5	1.1	2.2	7.3	16.7	38.7
2018	5.9	9.7	15.8	0.8	1.7	3.5	7.7	17.9	41.7
2019	3.7	5.9	9.5	0.6	1.3	2.7	6.0	13.9	32.3
2020	4.9	7.9	12.6	0.4	0.8	1.7	6.2	14.9	36.0
2021	3.7	6.0	9.7	0.3	0.6	1.3	5.1	12.1	28.5
2022	7.0	11.3	18.3	0.4	0.7	1.6	3.8	8.9	20.9
2023*	5.4	8.8	14.4	0.2	0.4	0.6			

Figures in the table are rounded

\* Preliminary data

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