

Norway lobster (*Nephrops norvegicus*) in Division 7.a, Functional Unit 15 (Irish Sea, West)

ICES advice on fishing opportunities

ICES advises that when the MSY approach is applied, and assuming that discard rates and fishery selection patterns do not change from the average of the years 2018–2020, catches in 2022 should be no more than 11 785 tonnes.

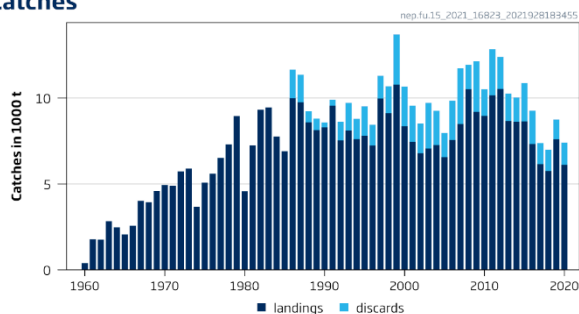
To ensure that the stock in Functional Unit (FU) 15 is exploited sustainably, management should be implemented at the FU level.

ICES notes the existence of a management plan, developed and adopted by one of the relevant management authorities for Subarea 7. ICES considers this plan to be precautionary when implemented at the FU level.

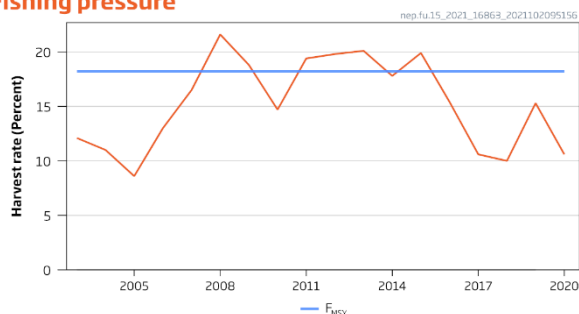
Stock development over time

Fishing pressure on the stock is below F_{MSY} , and stock size is above $MSY B_{trigger}$.

Catches



Fishing pressure



Stock size

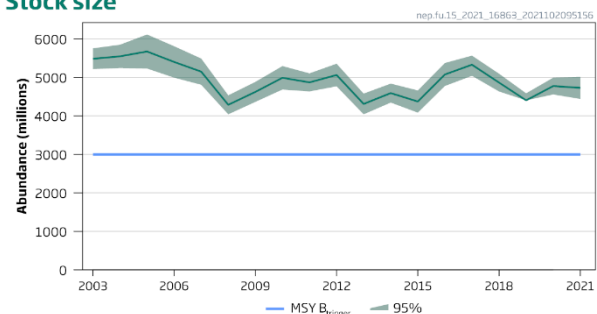


Figure 1 Norway lobster in Division 7.a, Functional Unit 15. Summary of the stock assessment. Catches (discard data are only available from 1986), harvest rate (sum of landings and dead discards in numbers, divided by stock abundance), and stock abundance (underwater TV survey). Harvest rates between 2003 and 2006 may be underestimated because of underreporting of landings.

Catch scenarios

Table 1 Norway lobster in Division 7.a, Functional Unit 15. The basis for the catch scenarios.

Variable	Value	Notes
Stock abundance (2022)	4733	UWTV survey 2021; numbers of individuals in millions
Mean weight in projected landings	15.26	Average 2018–2020; in grammes
Mean weight in projected discards	7.87	Average 2018–2020; in grammes
Projected discard rate	26.7	Average 2018–2020; percentage by number of the total catch
Discard survival rate	10.0	Percentage by number of the discards

Table 2 Norway lobster in Division 7.a, Functional Unit 15. Annual catch advice and scenarios. All weights are in tonnes. The figures in the table are rounded. Calculations were done with unrounded inputs, and computed values may not match exactly when calculated using the rounded figures in the table.

Catch scenarios assuming recent discard rates

Basis	Total catch	Dead removals	Projected landings	Projected dead discards	Projected surviving discards	% harvest rate*	% advice change**
	PL + PDD + PSD	PL + PDD	PL	PDD	PSD	for PL + PDD	
ICES advice basis							
MSY approach	11785	11599	9924	1674	186	18.2	0.80
Other scenarios							
EU MAP: $F_{MSY} = F_{MSY\ upper}$	11785	11599	9924	1674	186	18.2	0.80
EU MAP: $F_{MSY\ Lower}$	8029	7902	6762	1141	127	12.4	-31
$F_{2018-2020}$	7770	7647	6543	1104	123	12.0	-34
F_{2020}	6928	6819	5835	984	109	10.7	-41

* By number.

** Advice values for 2022 are relative to the 2021 advice (MAP F_{MSY} advice of 11 691 tonnes).

The catch advice is close to what was advised last year due to a small reduction in the stock abundance estimate combined with a small increase in the mean weights of the landings.

Basis of the advice

Table 3 Norway lobster in Division 7.a, Functional Unit 15. The basis of the advice.

Advice basis	MSY approach
Management plan	ICES is aware of the EU multiannual management plan (MAP) that has been agreed for this stock (EU, 2019) and considers it to be precautionary when implemented at the FU level. There is no agreement with UK regarding this plan, and it is not used as the basis of the advice for this stock. ICES provides catch scenarios consistent with the F_{MSY} ranges in the MAP.

Quality of the assessment

The quality of input data and level of sampling for this stock are considered to be good. Levels of catch sampling in 2020 were reduced due to the COVID-19 pandemic. Sampling in quarter 2 was insufficient to characterize the fishery. To mitigate against this, samples from quarter 1 were allocated to the quarter 2. A comparison of these quarters from previous years was carried out to ensure the appropriateness of this procedure.

An annual underwater TV survey (UWTV) has taken place since 2003, which gives abundance estimates for FU 15 (Figure 2) with high precision. In 2021, 95 of the 100 sample stations were completed. Although this is a reduced survey effort compared to recent years, this is considered to have had minimal impact on the abundance estimate and quality of the survey, based on burrow densities in adjoining areas surrounding the unsampled area and comparing coefficients of variation from the current and previous survey years.

In 2021, the survey camera system and reviewing method changed. Comparison of the previous and new type of system in FU 16 has shown no significant difference in density estimates. Previous assumptions relating to correction factors are still applied.

Issues relevant for the advice

During 2016–2020, the EU landing obligation was applied to all catches of Norway lobster fisheries in ICES Subarea 7 with exemptions for high survival. In 2021, this stock is still under a landing obligation and there are still exemptions in place. Observations from the 2018–2020 fishery indicate that some discarding above the minimum conservation reference size (MCRS) continues (Figure 3). Consequently, ICES is providing advice for 2022 assuming average discard rates as observed over the last three years. This is considered to be the most realistic assumption. In a situation where all catch is landed, there would be no surviving discards, and the total catch advice and MSY harvest rate would be lower than those given in the catch scenario table (Table 2). However, reducing the catch of smaller Norway lobster would allow an increase in landings above those given in the catch scenario table.

The survival rate of discards of 10% assumed for FUs 15 and 14 is lower than that for other stocks because the fishery is largely a spring/summer fishery during which time catch is exposed to warmer temperatures and fishing practices are associated with long sorting times.

The density of Norway lobster in FU 15 is considered to be high (average density 0.78 individuals m^{-2} in 2021) compared to other FUs. A harvest rate consistent with a combined-sex F_{MAX} of 18.2% is considered an appropriate proxy for F_{MSY} . Whilst harvest rates had previously been above F_{MSY} and the stock size has been stable at a high level, harvest rates since 2016 have been below F_{MSY} .

A single TAC covers the entire ICES Subarea 7. Management should be implemented at the FU level to ensure that fishing opportunities are in line with the scale of the resource for each of the stocks and consistent with an MSY approach.

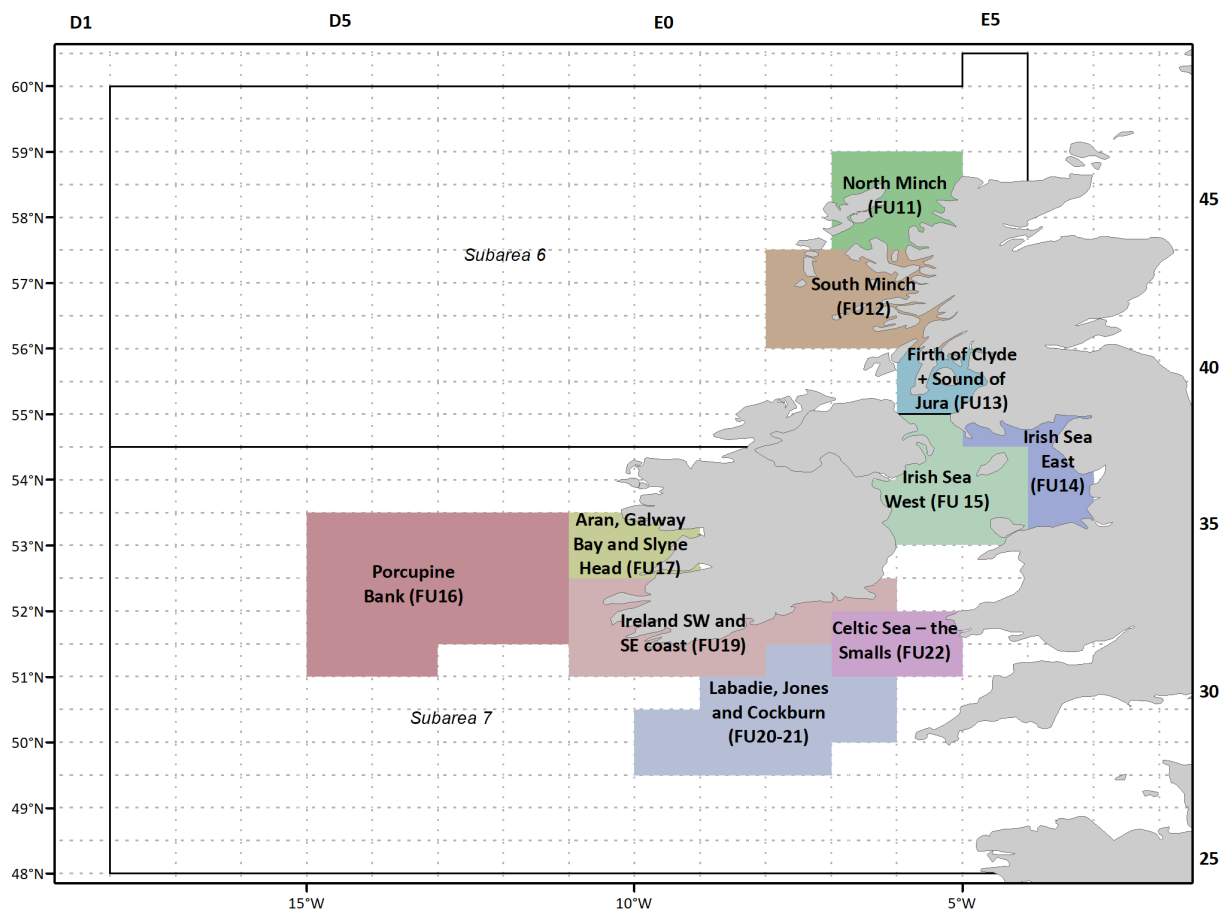


Figure 2 Norway lobster Functional Units (FU) in subareas 6 and 7.

Reference points

Table 4 Norway lobster in Division 7.a, Functional Unit 15. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger}$	3000	Minimum abundance observed based on a scaled trawl survey index; individuals in millions	ICES (2016)
	F_{MSY}	18.2	Proxy harvest rate equivalent to F_{max} for combined sexes, derived from a length-based per recruit analysis; percentage by number	ICES (2016)
Precautionary approach	B_{lim}	Not defined		
	B_{pa}	Not defined		
	F_{lim}	Not defined		
	F_{pa}	Not defined		
EU Management plan (EU, 2019)	MAP MSY $B_{trigger}$	3000	MSY $B_{trigger}$; individuals in millions	ICES (2016)
	MAP B_{lim}	Not defined		
	MAP F_{MSY}	18.2	Harvest rate equivalent to F_{MSY} ; percentage by number	ICES (2016)
	MAP range F_{lower}	12.4–18.2	Harvest rate consistent with ranges provided by ICES resulting in no more than 5% reduction in long-term yield compared with MSY; percentage by number	ICES (2016)
	MAP range F_{upper}	18.2–18.2	Harvest rate, F_{MSY} upper value capped at F_{MSY} because it has not been possible to evaluate the probability of $SSB < B_{lim}$ as no B_{lim} is defined; percentage by number	ICES (2016)

Basis of the assessment

Table 5 Norway lobster in Division 7.a, Functional Unit 15. Basis of the assessment and advice.

ICES stock data category	1 (ICES, 2021a)
Assessment type	Underwater TV survey (ICES, 2021b)
Input data	One survey index (UWTV-FU 15 [U5543]); commercial catches (international landings, length frequencies from catch sampling); fixed maturity ogive based on survey sampling, fixed natural mortality; discard survival rate
Discards and bycatch	Included in the assessment since 2003
Indicators	Length–frequency distributions of the catches by sex. CPUE from <i>Nephrops</i> trawl survey.
Other information	The latest benchmark (based on the UWTV survey) was performed in 2009 (ICES, 2009)
Working group	Working Group for the Celtic Seas Ecoregion (WGCSE)

History of the advice, catch, and management

Table 6 Norway lobster in Division 7.a, Functional Unit (FU) 15. ICES advice, landings, and discards. All weights are in tonnes.

Year	ICES advice	Landings advice	Catch advice*	Recommended landings (FUs 14 + 15)	ICES landings	Total discards**
1989					8128	673
1990					8300	276
1991					9554	345
1992				8900	7541	1079
1993				9400	8102	1622
1994				9400	7606	1185
1995				9400	7796	1724
1996				9400	7247	1202
1997				9400	9971	1330
1998				9400	9128	1560
1999				9400	10786	2913
2000				9400	8370	2293
2001				9400	7441	2112
2002	Set TAC in line with 1995–1999 landings			9550	6793	1732
2003	Set TAC in line with 1995–1999 landings			9550	7065	2659
2004	Set TAC in line with 1995–1999 landings			9550	7270	1993
2005	Set TAC in line with 1995–1999 landings			9550	6554	1412
2006	No increase in effort			9550	7561	2285
2007	No increase in effort				8491	3246
2008	No increase in effort				10508	1421
2009	No increase in effort and landings	< 8500			9198	2934
2010	Harvest rate no greater than the equivalent to fishing at $F_{0.1}$	< 5500			8963	1539
2011	Transition scheme towards ICES MSY framework	< 9500			10162	2683
2012	MSY approach	< 9800			10529	1871
2013	MSY approach	< 9300			8672	1590
2014	MSY approach	< 8200			8613	1418
2015	MSY approach	< 8223			8643	2228
2016	MSY approach		$\leq 8682^{***}$		7327	1939
2017	MSY approach		≤ 11248		6150	1222
2018	MSY approach		≤ 11807		5756	1231
2019	MSY approach		≤ 11107		7591	1159
2020	Management plan		10377 (range 7070–10377)		6115	1294
2021	Management plan		11691 (range 7965–11691)			
2022	MSY approach		≤ 11785			

* Assuming recent discard rates from 2017 onwards.

** Dead + surviving discards.

*** Assuming all catches are landed.

History of the catch and landings

Table 7 Norway lobster in Division 7.a, Functional Unit 15. Catch distribution by fleet in 2020 as estimated by ICES.

Catch		Landings		Discards	
98% dead	2% surviving	99.7% <i>Nephrops</i> otter trawls (70–99 mm)		90% dead	10% surviving
7409 tonnes		6115 tonnes		1294 tonnes	

Table 8 Norway lobster in Division 7.a, Functional Unit 15. History of ICES estimates of landings by country and discards. All weights are in tonnes.

Year	Ireland	UK	UK (E&W)	UK (NI)	UK (Scotland)	UK (Isle of Man)**	Total landings	Discards*
1965		1018					1018	
1966		1701					1701	
1967		2077					2077	
1968		1987					1987	
1969	1011	2803					3814	
1970	1392	3001					4393	
1971	1384	3190					4574	
1972	1604	4120					5724	
1973	1863	4031					5894	
1974	982	2689					3671	
1975	909	4165					5074	
1976	1614	3989					5603	
1977	2469	4045					6514	
1978	2921	4375					7296	
1979	3436	5512					8948	
1980	1709	2869					4578	
1981	3202	4047					7249	
1982	4398	4917					9315	
1983	4324	5124					9448	
1984	3306	4454					7760	
1985	2421	4480					6901	
1986	4682	5296					9978	1680
1987	4639	5114					9753	1608
1988	3201	5385					8586	639
1989	2477	5651					8128	673
1990	2710	5590					8300	276
1991	3371	6183					9554	345
1992	2370	5171					7541	1079
1993	2715	5387					8102	1622
1994	1768	5838					7606	1185
1995	2259	5538					7796	1724
1996	1574	5673					7247	1202
1997	3349	6622					9971	1330
1998	3101	6027					9128	1560
1999	4582	6198				6	10786	2913
2000	3433	4937				0	8370	2293
2001	2689	4749				3	7441	2112
2002	2291	4501				1	6793	1732
2003	2709	4352				4	7065	2659
2004	2786	4470				13	7270	1993
2005	2133	4420				0	6554	1412
2006	2051		56	5429	23	1	7561	2285
2007	2767		102	5585	36	0	8491	3246
2008	3132		131	7166	26	50	10508	1421
2009	2343		200	6622	32	1	9198	2934
2010	2578		100	6251	33	0	8963	1539

Year	Ireland	UK	UK (E&W)	UK (NI)	UK (Scotland)	UK (Isle of Man)**	Total landings	Discards*
2011	3575		88	6444	52	2	10162	2683
2012	3794		106	6586	39	3	10529	1871
2013	2465		56	6069	50	31	8672	1590
2014	2938		88	5558	29	-	8613	1418
2015	2202		26	6404	11	-	8643	2228
2016	1609		52	5638	25	-	7327	1939
2017	1253		81	4789	26	-	6150	1222
2018	1387		69	4293	7	-	5756	1231
2019***	1859		138	5539	54		7590	1159
2020***	1555		4	4550	6		6115	1294

* Dead + surviving discards.

** Since 2014 included in UK (E&W) landings.

***Landing values are preliminary.

Summary of the assessment

Table 9 Norway lobster in Division 7.a, Functional Unit 15. Assessment summary.

Year	UWTV abundance estimate	± 95% confidence interval	Landings in number	Total discards in number*	Removals in number	Harvest rate (by number)	Landings	Total discards*	Discard rate (by number)	Dead discard rate (by number)	Mean weight in landings	Mean weight in discards
	millions		millions	millions		%	tonnes	tonnes	%	%	grammes	grammes
2003	5485	255	404	291	666	12.1	7065	2659	42	39	17.5	9.14
2004	5547	237	416	218	612	11.0	7270	1993	34	32	17.5	9.14
2005	5673	327	346	157	488	8.6	6554	1412	31	29	18.9	8.99
2006	5402	314	467	261	701	13.0	7561	2285	36	33	16.2	8.75
2007	5150	228	511	375	848	16.5	8491	3246	42	40	16.6	8.66
2008	4288	144	755	191	927	22	10508	1421	20	18.6	13.9	7.44
2009	4623	190	567	335	868	18.8	9198	2934	37	35	16.2	8.76
2010	4990	198	572	180	733	14.7	8963	1539	24	22	15.7	8.55
2011	4871	176	644	332	943	19.4	10162	2683	34	32	15.8	8.08
2012	5062	249	771	258	1003	19.8	10529	1871	25	23	13.7	7.25
2013	4310	174	662	229	867	20	8672	1590	26	24	13.1	6.94
2014	4593	161	641	198	819	17.8	8613	1418	24	22	13.4	7.16
2015	4373	202	620	280	872	19.9	8643	2228	31	29	13.9	7.96
2016	5076	232	562	245	783	15.4	7327	1939	30	28	13.0	7.91
2017	5312	267	426	152	563	10.6	6150	1222	26	24	14.4	8.04
2018	4932	188	360	145	491	10.0	5756	1231	29	27	16.1	7.43
2019	4404	183	536	154	675	15.3	7591	1159	22	21	14.2	7.54
2020	4775	291	371	153	509	10.6	6115	1294	27	25	15.5	8.64
2021	4733	281										

* Dead + surviving discards.

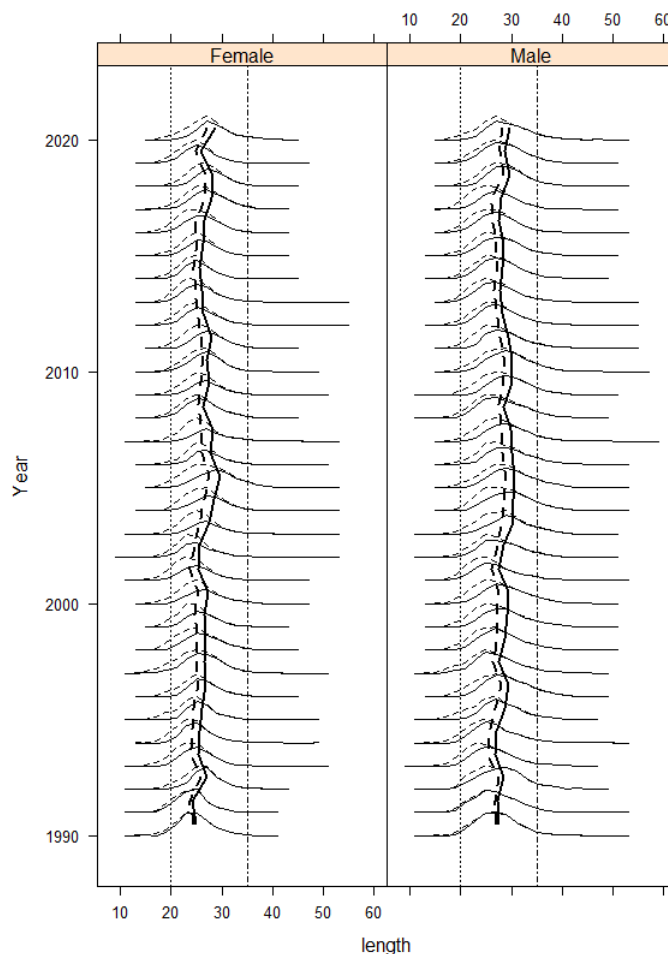


Figure 3 Norway lobster in Division 7.a, Functional Unit 15. The dashed lines represent catches while the solid lines represent landings. Annual length–frequency distributions are shown on the horizontal, the vertical bold lines represent mean lengths. Minimum conservation reference size (20 mm) and 35 mm visual reference levels indicated. All lengths are shown in carapace length (mm).

Sources and references

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[Download the stock assessment data and figures.](#)

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