

Norway lobster (*Nephrops norvegicus*) in Division 7.a, Functional Unit 14 (Irish Sea, East)

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 2017–2019, catches in 2022 should be no more than 835 tonnes.

To ensure that the stock in Functional Unit (FU) 14 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 $MSY B_{trigger}$.

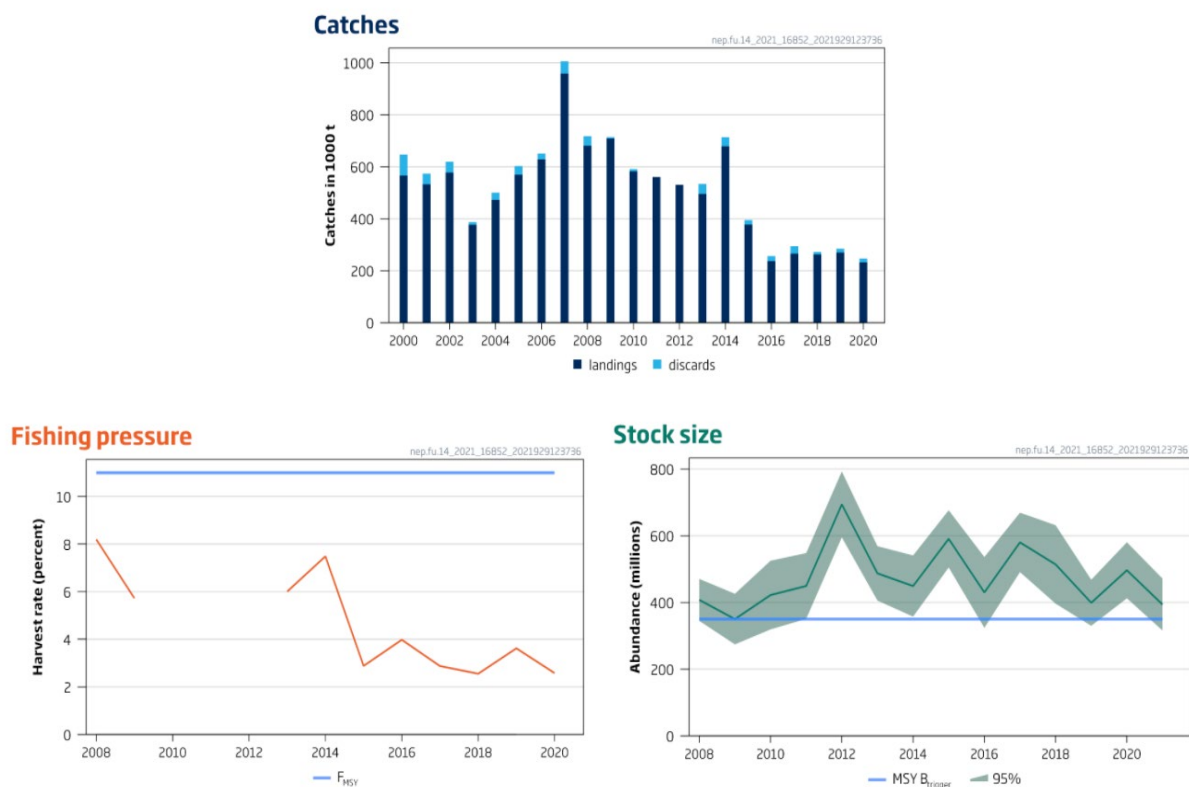


Figure 1 Norway lobster in Division 7.a, Functional Unit 14. Summary of the stock assessment. Catches, harvest rate (sum of landings and dead discards in numbers, divided by stock abundance), and stock abundance (underwater TV survey). No reliable harvest rate estimates exist for the period 2010–2012 because of insufficient catch sampling. The harvest rate in 2020 is derived from 2017–2019 sampling.

Catch scenarios

Table 1 Norway lobster in Division 7.a, Functional Unit 14. The basis for the catch scenarios.

Variable	Value	Notes
Stock abundance (2022)	393	UWTV survey 2021; individuals in millions
Mean weight in projected landings*	20.43	Average 2017-2019; in grammes
Mean weight in projected discards*	9.23	Average 2017-2019; in grammes
Projected discard rate*	12.3	Average 2017-2019; percentage by number of the total catch
Discard survival rate	10.0	Percentage by number of the discards

* 2017–2019 averages due to lack of sampling in 2020.

Table 2 Norway lobster in Division 7.a, Functional Unit 14. 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	835	830	785	45	5	11.0	-21
Other scenarios							
F _{MSY upper} ***	835	830	785	45	5	11.0	-21
F _{MSY lower}	691	687	650	37	4	9.1	-34
F ₂₀₂₀	196	195	184	10	1	2.6	-81

* By number.

** Advice values for 2022 are relative to the 2021 advice (MAP F_{MSY} advice of 1053 tonnes).

*** F_{MSY upper} = F_{MSY} for this stock.

The decrease in total catch advice is the result of the lower observed stock abundance in 2021.

Basis of the advice

Table 3 Norway lobster in Division 7.a, Functional Unit 14. The basis of the advice.

Advice basis	MSY approach
Management plan	ICES is aware of the EU multiannual 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 for the advice for this stock. ICES provides catch scenarios consistent with the F_{MSY} ranges in the MAP.

Quality of the assessment

From 2013 onwards sampling information has improved, but it remains poor. Sampling was impacted by the COVID-19 pandemic with no catch samples available for 2020. Estimates of mean sizes and discard rates 2017–2019 were therefore used in the assessment (ICES, 2020). These are in line with historical observed ranges in the fishery.

Since 2008 the underwater television survey (UWTV) has provided abundance estimates for FU 14 (Figure 2) with acceptable precision. In 2021, the survey camera system and reviewing method changed. Comparison of the old and new systems in FU 16 has shown no significant difference in density estimates. Previous assumptions relating to correction factors are still applied.

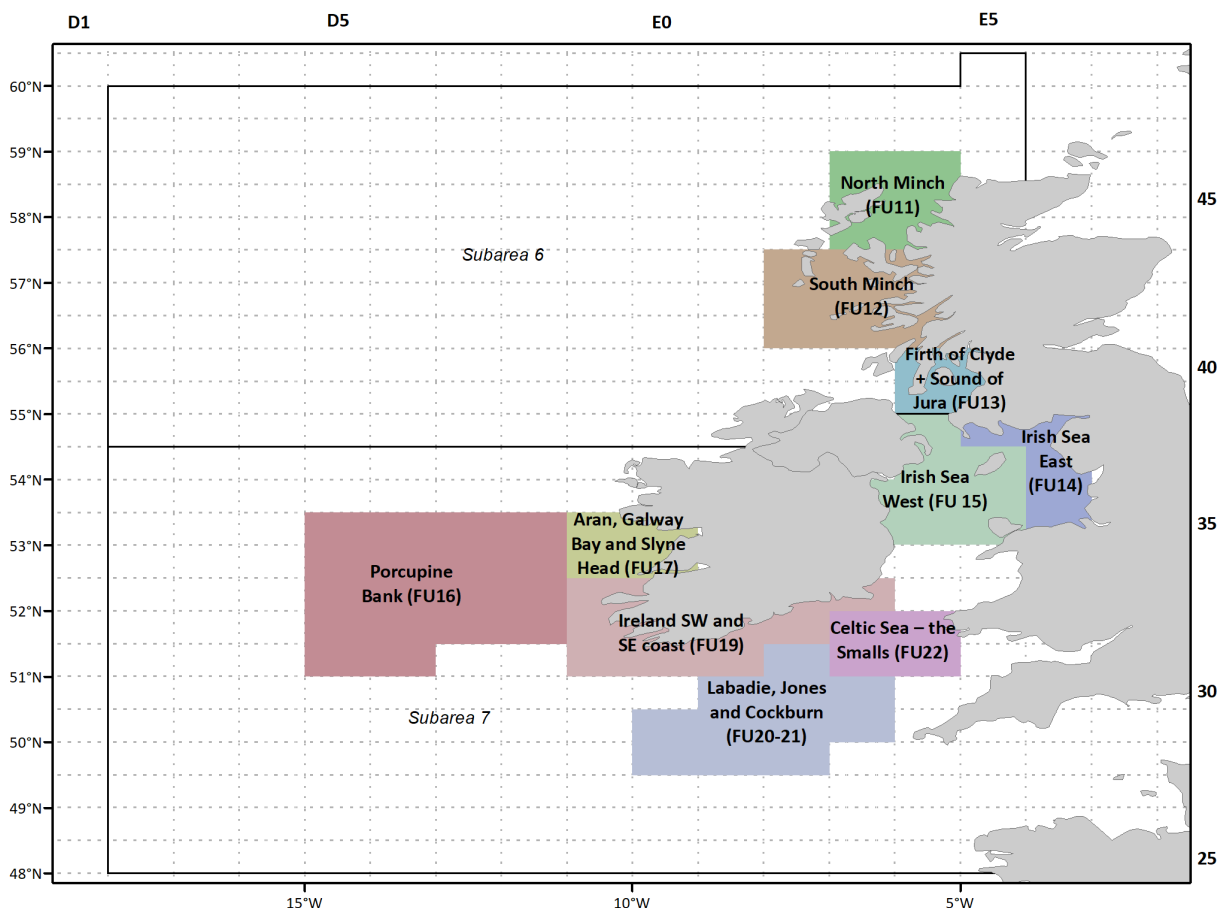


Figure 2 Norway lobster functional units in subareas 6 and 7.

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 fishery indicate 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 period 2017–2019. 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 14 and 15 is lower than that for other stocks because these are largely spring/summer fisheries 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 14 is considered medium (~ 0.46 burrow m^{-2} , average 2012–2021) compared with other FUs. Some biological parameters are poorly known, and the sampling levels in the recent past have been low and variable. Harvest rate estimates have been below $F_{0.1}$ for combined sexes; therefore ICES considers that $F_{0.1}$ is a suitable F_{MSY} proxy for this stock (ICES, 2016a).

A single TAC covers the entire ICES Subarea 7. Management should be implemented at 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.

Reference points

Table 4 Norway lobster in Division 7.a, Functional Unit 14. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger}$	350	The lowest observed abundance estimate from the UWTV survey time-series; individuals in millions.	ICES (2016b)
	F_{MSY}	11.0	Proxy harvest rate equivalent to $F_{35\%SPR}$ for combined sexes, derived from a length-based per recruit analysis; percentage by numbers.	ICES (2016b)
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 $B_{trigger}$	350	MSY $B_{trigger}$; individuals in millions	ICES (2016b)
	MAP B_{lim}	Not defined		
	MAP F_{MSY}	11.0	Harvest rate equivalent to F_{MSY} ; percentage by numbers	ICES (2016b)
	MAP range F_{lower}	9.1–11.0	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 (2016b)
	MAP range F_{upper}	11.0–11.0	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 (2016b)

Basis of the assessment

Table 5 Norway lobster in Division 7.a, Functional Unit 14. Basis of the assessment and advice.

ICES stock data category	1 (ICES 2021)
Assessment type	Underwater TV survey (ICES, 2020)
Input data	One survey index (FU14-UWTV [U3016]); commercial catches (international landings); length frequencies from the fishery; maturity data; natural mortalities from Brander and Bennett (1986, 1989); discard survival rate
Discards and bycatch	Included in the assessment since 2000, data series from the majority of the fleets/main fleets
Indicators	Sex ratio, length frequencies
Other information	The latest benchmark was performed in 2015 (IBPNeph; ICES, 2016a)
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 14. 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					400	
1990					560	
1991					750	
1992				8900	430	
1993				9400	520	
1994				9400	450	
1995				9400	580	
1996				9400	480	
1997				9400	570	
1998				9400	390	
1999				9400	620	
2000				9400	567	80
2001				9400	532	42
2002	Set TAC in line with 1995–1999 landings			9550	577	42
2003	Set TAC in line with 1995–1999 landings			9550	377	11
2004	Set TAC in line with 1995–1999 landings			9550	472	28
2005	Set TAC in line with 1995–1999 landings			9550	570	33
2006	No increase in effort			9550	628	22
2007	No increase in effort			-	959	47
2008	As for 2007			-	681	37
2009	No increase in effort and landings (2007)	< 1000		-	708	6
2010	No new advice, same as for 2009	< 1000		-	582	NA
2011	Transition towards ICES MSY framework	< 680		-	561	NA
2012	MSY approach	< 960		-	530	NA
2013	MSY approach	< 880		-	495	39
2014	MSY approach	< 951		-	679	32
2015	MSY approach	< 662		-	378	18
2016	MSY approach		≤ 1272 ***	-	237	20
2017	MSY approach		≤ 995	-	265	29
2018	MSY approach		≤ 1281		263	9
2019	MSY approach		≤ 922		270	15
2020	Management plan		779 (range 644–779)		232	15
2021	Management plan		1053 (range 871–1053)			
2022	MSY approach		≤ 835			

* Dead + surviving discards.

** Assuming recent discarding rates (from 2017)

*** Assuming all catches are landed in 2016

NA = not available.

History of the catch and landings

Table 7 Norway lobster in Division 7.a, Functional Unit 14. Catch distribution by fleet in 2020 as estimated by ICES.

Catch		Landings	Discards	
99% dead	1% surviving	Taken almost entirely in the <i>Nephrops</i> directed trawl fisheries (70–99 mm)	90% dead	10% surviving
247 tonnes			15 tonnes	
		232 tonnes		

Table 8 Norway lobster in Division 7.a, Functional Unit 14. History of landings and discards; ICES estimated landings are presented for each country. All weights are in tonnes. The figures in the table are rounded and therefore the total landings may not match.

Year	Republic of Ireland	UK	Other countries	Total landings	Discards*
2000	114	451	2	567	80
2001	26	506	0	532	42
2002	203	373	1	577	42
2003	69	306	1	377	11
2004	62	409	1	472	28
2005	34	536	0	570	33
2006	34	594	0	628	22
2007	86	873	0	959	47
2008	29	652	0	681	37
2009	16	692	0	708	6
2010	45	538	0	582	NA
2011	31	530	0	561	NA
2012	53	478	0	530	NA
2013	35	460	0	495	39
2014	31	648	0	679	32
2015	88	290	0	378	18
2016	21	216	0	237	20
2017	7	258	0	265	29
2018	5	263	0	263	9
2019**	9	260	0	270	15
2020**	23	209	0	232	15

* Dead + surviving discards.

**Landing values are preliminary

NA = not available.

Summary of the assessment

Table 9 Norway lobster in Division 7.a, Functional Unit 14. Assessment summary.

Year	UWTV abundance estimate	± 95% confidence interval	Landings in numbers	Total discards in numbers*	Removals in numbers	Harvest rate (by numbers)	Landings	Discards	Mean weight in landings	Mean weight in discards	Discard rate (by numbers)	Dead discard rate (by numbers)
2000			30	11	40		567	80	19.1	7.5	26	24
2001			26	5	31		532	42	20.9	8.0	17.0	15.5
2002			26	5	30		577	42	22.4	9.0	15.4	14.1
2003			13	1	14		377	11	29.4	7.6	9.9	9.0
2004			22	4	25		472	28	21.9	7.6	14.8	13.5
2005			27	4	30		570	33	21.5	8.4	13.0	11.8
2006			25	3	28		628	22	25.1	8.0	10.1	9.2
2007			40	6	46		959	47	23.9	7.3	13.8	12.5
2008	408	63	30	4	34	8.2	681	37	22.9	8.5	12.7	11.6
2009	350	76	19	1	20	5.7	708	6	36.5	8.6	3.7	3.3
2010**	422	103					582					
2011**	449	99					561					
2012**	694	99					530					
2013	487	82	25	5	30	6.0	495	39	19.9	7.9	16.4	15.0
2014	449	92	30	4	34	7.5	679	32	22.4	9.6	10.8	9.8
2015	591	86	15	2	17	2.9	378	18	25.2	7.8	13.0	11.9
2016	433	106	15	2	17	4.0	237	20	15.8	8.4	13.6	12.4
2017	580	89	14	3	17	2.9	265	29	19.0	9.5	17.6	16.2
2018	514	118	12	1	13	2.6	263	9	21.4	9.8	7.0	6.3
2019	399	69	13	2	14	3.6	270	15	21.0	8.4	12.2	11.1
2020***	496	84	11	2	13	2.6	232	15	20.4	9.2	12.3	11.2
2021	393	78										

* Dead + surviving discards.

** No estimates for 2010–2012 because of insufficient sampling.

*** Mean weights, discard rates and discard numbers for 2020 estimated from average of 2017–2019 values

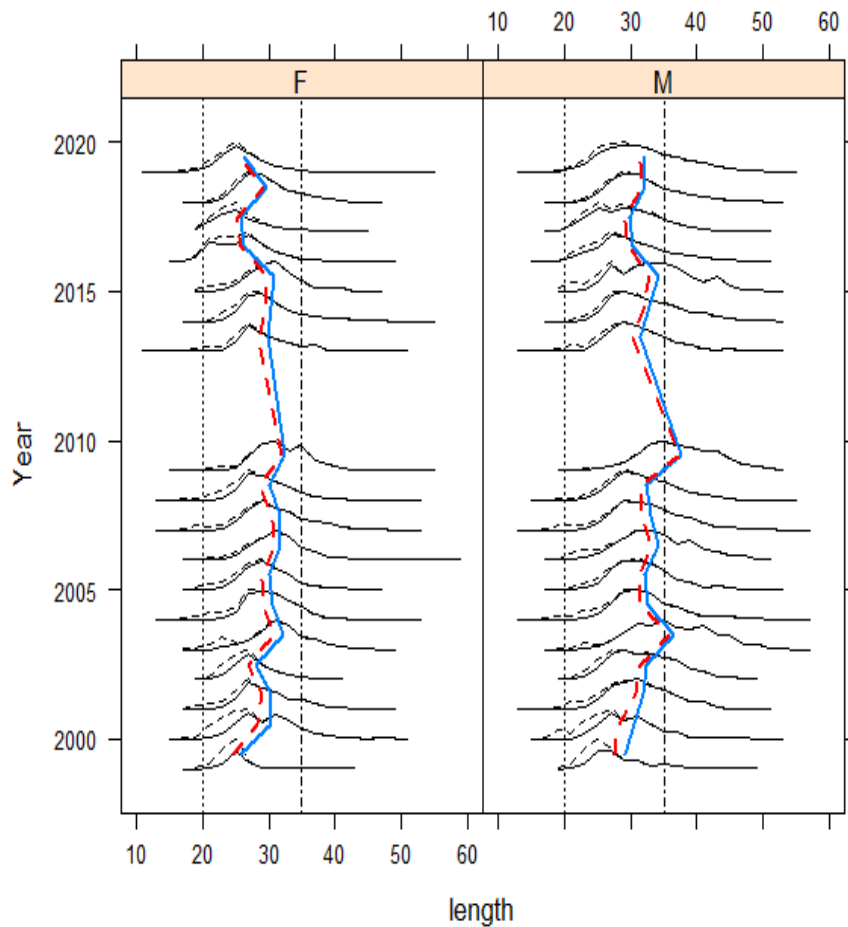


Figure 3 Norway lobster in Division 7.a, Functional Unit 14. The dashed lines represent catches while the solid lines represent landings. Annual length–frequency distributions are shown on the horizontal, the vertical bold lines represent mean lengths. Minimum conservation reference size (20 mm) and 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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