

5.3.47 Norway lobster (*Nephrops norvegicus*) in divisions 7.g and 7.h – FUs 20 and 21 (Celtic Sea)

ICES stock advice

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 2013–2015, catches in 2017 should be no more than 3552 tonnes. This implies landings of no more than 2727 tonnes.

To ensure that the stock in functional units (FUs) 20 and 21 is exploited sustainably, management should be implemented at the functional unit level.

Stock development over time

The stock has been relatively stable. The harvest rate, calculated as (landings + dead discards) (abundance estimate)⁻¹, is well below F_{MSY} .

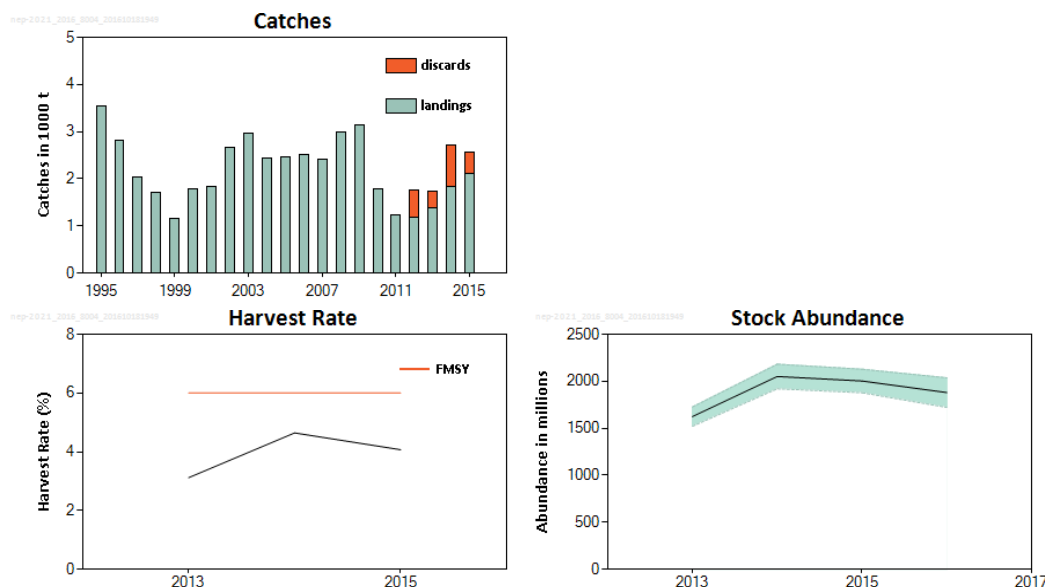


Figure 5.3.47.1 Norway lobster in divisions 7.g and 7.h – FUs 20 and 21. Catches (thousand tonnes), harvest rate (fishing mortality proxy), survey abundance (Underwater TV, millions; SSB proxy; 95% confidence intervals). The orange line represents $MSY B_{trigger}$.

Stock and exploitation status

Table 5.3.47.1 Norway lobster in Division 7.g and 7.h – FUs 20 and 21. State of the stock and fishery relative to reference points.

		Fishing pressure				Stock size		
		2013	2014	2015		2014	2015	2016
Maximum sustainable yield	F_{MSY}	✓	✓	✓	Below	MSY	?	?
Precautionary approach	F_{pa} , F_{lim}	✓	✓	✓	Below possible reference points	$B_{trigger}$?	?
Management plan	F_{MGT}	-	-	-	Not applicable	B_{pa} , B_{lim}	?	?
Qualitative evaluation						SSB_{MGT}	-	-
							→	→
							→	↘
								Decreasing

Catch options

Table 5.3.47.2 Norway lobster in divisions 7.g and 7.h – FUs 20 and 21. The basis for the catch options.

Variable	Value	Source	Notes
Stock abundance	1879 million individuals	ICES (2016a)	UWTV survey 2016.
Mean weight in landings	36.7 g	ICES (2016a)	Average 2013–2015.
Mean weight in discards	16.1 g	ICES (2016a)	Average 2013–2015.
Discard rate	40.5%	ICES (2016a)	Average 2013–2015 (by number). Calculated as discards divided by landings + discards.
Discard survival rate	25%	ICES (2016a)	Only applies in scenarios where discarding is allowed.
Dead discard rate	34.1%	ICES (2016a)	Average 2013–2015 (by number). Calculated as dead discards divided by dead removals (landings + dead discards). Only applies in scenarios where discarding is allowed.

Table 5.3.47.3 Norway lobster in divisions 7.g and 7.h – FUs 20 and 21. The catch options. All weights are in tonnes.

Catch options assuming zero discards

Rationale	Basis	Total catch	Wanted catch*	Unwanted catch*	Harvest rate**
MSY approach	MSY approach	3197	2462	735	6.0%
Other option	F ₂₀₁₅	2183	1684	499	4.1%

* “Wanted” and “unwanted” catch are used to describe *Nephrops* that would be landed and discarded in the absence of the EU landing obligation, based on the average estimated discard rates for 2013–2015.

** Applied to total catch.

Catch options assuming discarding is allowed

Rationale	Basis	Total catches	Dead removals	Landings	Dead discards	Surviving discards	Harvest rate*
		L+DD+SD	L+DD	L	DD	SD	for L+DD
MSY approach	MSY approach	3552	3346	2727	619	206	6.0%

* Applied to dead removals.

All harvest rates are calculated in numbers and refer to dead removals. The difference in catch weights between catch options with the same harvest rates is related to the fact that, in the scenario allowing for discarding, a proportion of the discards is assumed to survive.

Basis of the advice

Table 5.3.47.4 Norway lobster in divisions 7.g and 7.h – FUs 20 and 21. The basis of the advice.

Advice basis	MSY approach.
Management plan	There is no management plan for Norway lobster in this area.

Quality of the assessment

Since 2012 a dedicated annual UWTV survey has provided abundance estimates of adequate quality. Sampling of landings and discards remains very low. In addition, some samples could not be accurately allocated to FUs in the Celtic Sea. Discarding of *Nephrops* is substantial (around 40% by number for the last four years). Discarding prior to 2012 is unknown. The current assessment makes use of the recent discard estimates to calculate total catch advice.

The length distributions in the catches (landings and discards) since 2012 were considered of adequate quality to estimate F_{MSY} for the first time, and also to be used in the calculation on catch options.

Issues relevant for the advice

From 2016, fisheries catching *Nephrops* in Subarea 7 are covered by the EU landings obligation (EU, 2015). Creel fisheries are exempted from the landings obligation, with a *de minimis* exemption consisting of a 7% discard rate by weight for the trawl fishery in 2016 and 2017. The average discard rate by weight in the fisheries for FUs 20 and 21 over the last three years is 23%. The catch advice assumes that the discard rate will be 23.2% by weight in 2017 for the entire fishery.

An F_{MSY} proxy was estimated this year for the first time (ICES, 2016a), using the same method as for other *Nephrops* stocks at WKMSYREF4 (ICES, 2016b). For FUs 20 and 21, the absolute density observed in the UWTV survey is low compared to other *Nephrops* FUs, with an average of around 0.2 individuals m^{-2} . Therefore, a relatively low harvest rate, such as $F_{0.1}$, is appropriate.

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

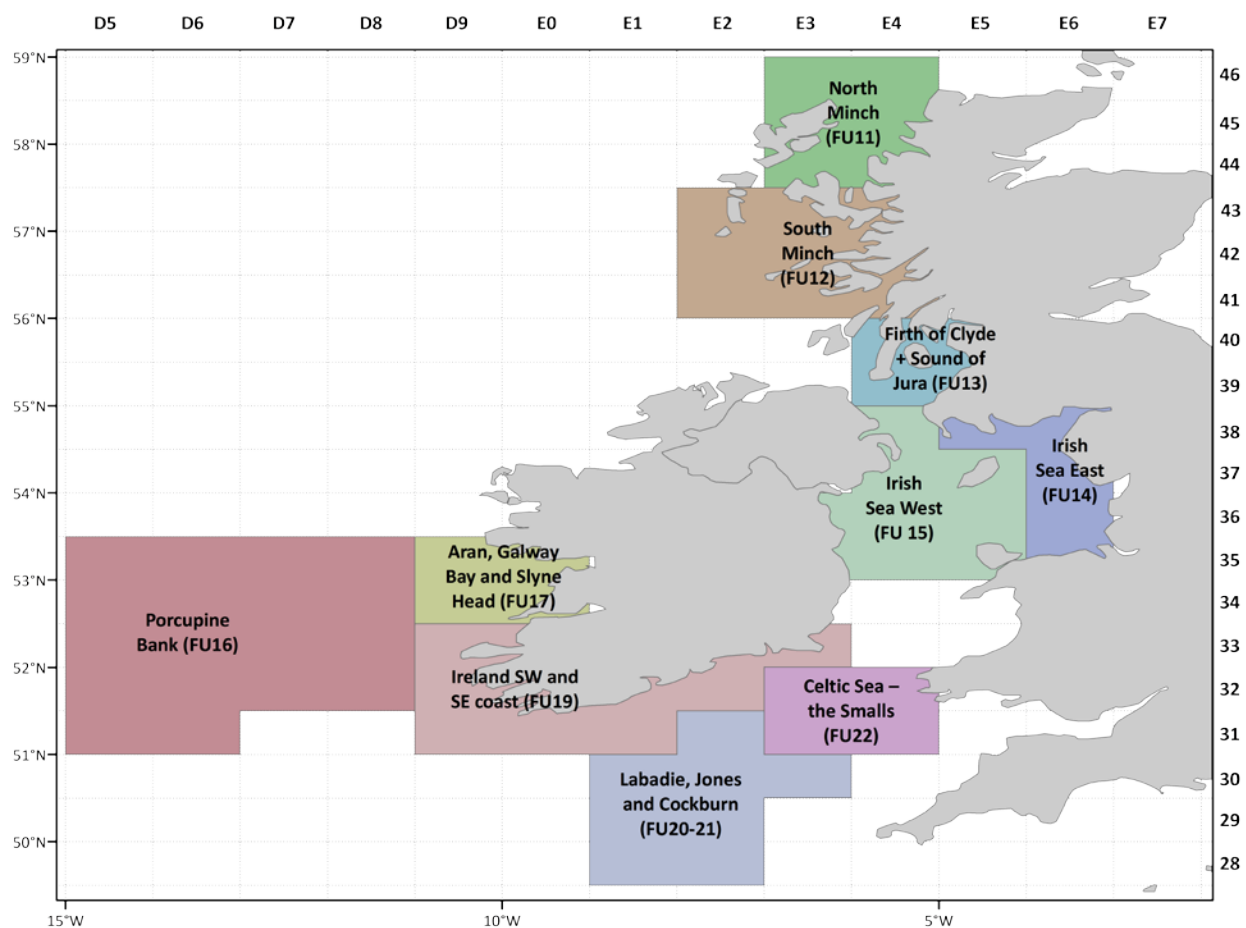


Figure 5.3.47.2 *Nephrops* functional units in Division 6.a and Subarea 7.

Reference points

Table 5.3.47.5 Norway lobster in divisions 7.g and 7.h – FUs 20 and 21. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY B_{trigger} proxy	Not defined		ICES (2016a)
	F_{MSY} proxy	6.0% harvest rate	F_{MSY} proxy, equivalent to $F_{0.1}$ for combined sexes.	ICES (2016a)
Precautionary approach	B_{lim}	Not defined		
	B_{pa}	Not defined		
	F_{lim}	Not defined		
	F_{pa}	Not defined		
Management plan	SSB_{MGT}	Not applicable		
	F_{MGT}	Not applicable		

Basis of the assessment

Table 5.3.47.6 Norway lobster in divisions 7.g and 7.h – FUs 20 and 21. The basis of the assessment.

ICES stock data category	1 (ICES, 2016c).
Assessment type	Underwater TV survey combined with yield-per-recruit analysis from length data.
Input data	One survey index (UWTV-FU 2021), commercial catches (international landings (Ireland, France, and UK), length frequencies from Irish and French catch and discard sampling); maturity data (from commercial catch sampling and during surveys), fixed natural mortality. Discard survival rate.
Discards and bycatch	Included in the assessment since 2012.
Indicators	Mean sizes in the catches. Two bottom trawl surveys (IGFS-WIBTS-Q4 and EVHOE-WIBTS-Q4).
Other information	This stock was benchmarked in 2014 (WKCELT; ICES, 2014).
Working group	Working Group for the Celtic Seas Ecoregion (WGCSE).

Information from stakeholders

There is no available information.

History of the advice, catch, and management

Table 5.3.47.7 Norway lobster in divisions 7.g and 7.h – FUs 20 and 21. History of ICES advice, and ICES estimates of landings. Weights are in thousand tonnes.

Year	ICES advice *	Landings advice	Catch advice	ICES landings FUs 20–22	ICES landings FUs 20–21	ICES discards** FUs 20–21
1987				3.4		
1988				3.2		
1989				4		
1990				4.3		
1991				3.3		
1992		~3.8		4.2		
1993		3.8		4.8		
1994		3.8		4.9		
1995		3.8		5.2		
1996		3.8		4.6		
1997		3.8		4		
1998		3.8		3.8		
1999		3.8		2.9	1.2	
2000		3.8		4.7	1.8	
2001		3.8		4.8	1.8	
2002		3.8		4.7	2.7	
2003		3.8		5.0	3.0	
2004	Adjust TAC in line with landings of most recent 10 years	4.6		4.3	2.4	
2005	Adjust TAC in line with landings of most recent 10 years	4.6		4.9	2.5	
2006	Recent average landings 2000–2002	4.6		4.3	2.5	
2007	No increase in effort	-		5.3	2.4	
2008	No increase in effort	< 5.3		6.4	3.0	
2009	No increase in effort	< 5.3		5.8	3.1	
2010	No new advice, same as for 2009	< 5.3		4.9	1.8	
2011	See scenarios; MSY reduce catch or PA < 5.3	-		2.9	1.2	
2012	Reduce catch	-			1.2	0.6
2013	Average landings (last 10 years)	< 2.5			1.4	0.3
2014	No new advice, same as for 2013	< 2.5			1.8	0.8
2015	Same as for 2013	< 2.5			2.1	0.5
2016	Precautionary approach (harvest rate consistent with previous advice)		≤ 3.045			
2017	MSY approach		≤ 3.552***			

* Advice prior to 2013 applies to FUs 20–22.

** Dead + surviving discards.

*** Assuming discarding at average rates (2013–2015).

History of catch and landings

Table 5.3.47.8 Norway lobster in divisions 7.g and 7.h – FUs 20 and 21. Catch distribution by fleet in 2015 as estimated by ICES.

Total catch		Total landings	Total discards	
95.4% dead	4.4% surviving	Almost 100% otter trawl (both 70–99 and > 100mm)	75% dead	25% surviving
2568 t		2116 t	452 t	

Table 5.3.47.9 Norway lobster in divisions 7.g and 7.h – FUs 20 and 21. History of ICES estimates of landings are presented by area for each country participating in the fishery. All weights are in tonnes.

Year	France	Rep. of Ireland	UK	Total landings	Total discards**
1995	3419	117	na	3536	
1996	2721	101	na	2822	
1997	1957	81	na	2038	
1998	1583	130	na	1713	
1999	1051	83	18	1152	
2000	1661	107	10	1778	
2001	1750	69	14	1833	
2002	2559	104	11	2674	
2003	2796	148	9	2953	
2004	2140	299	4	2443	
2005	2008	455	6	2469	
2006	2066	450	7	2523	
2007	1816	600	3	2419	
2008	2036	937	7	2980	
2009	1930	1202	13	3145	
2010	975	756	62	1793	
2011	566	637	34	1237	
2012	453	708	28	1189	565
2013	486	844	57	1387	347
2014	465	1342	29	1836	886
2015*	355	1620	141	2116	452

* Preliminary.

** Dead + surviving discards.

Summary of the assessment

Table 5.3.47.10 Norway lobster in divisions 7.g and 7.h – FUs 20 and 21. Assessment summary.

Year	Landings in number	Total discards in number*	Removals in number	UWTV abundance estimates	95% Conf. intervals	Harvest rate	Mean weight in landings	Mean weight in discards	Discard rate	Dead discard rate
	millions	millions	millions	millions	millions	%	grammes	grammes	%	%
2012	38.9	37.1	66.7				30.6	15.2	49%	42%
2013	35.6	20.0	50.6	1624	103	3.1%	38.9	17.3	36%	30%
2014	51.4	58.4	95.2	2051	131	4.6%	35.7	15.2	53%	46%
2015	59.9	28.8	81.5	2003	120	4.1%	35.3	15.7	32%	26%
2016				1879	175					

* Dead + surviving discards.

Sources and references

- EU. 2015. COMMISSION DELEGATED REGULATION (EU) 2015/2438 of 12 October 2015 establishing a discard plan for certain demersal fisheries in north-western waters. Official Journal of the European Union, L 336/29.
<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015R2438&from=EN>.
- ICES. 2014. Report of the Benchmark Workshop on Celtic Sea Stocks (WKCELT), 3–7 February 2014, ICES Headquarters, Copenhagen, Denmark. ICES CM 2014\ACOM:42. 194 pp.
- ICES. 2016a. Report of the Working Group for the Celtic Seas Ecoregion (WGCSE), 4–13 May 2016, ICES Headquarters, Copenhagen, Denmark. ICES CM 2016/ACOM:13. 1031 pp.
- ICES. 2016b. Report of the Workshop to consider FMSY ranges for stocks in ICES categories 1 and 2 in Western Waters (WKMSYREF4), 13–16 October 2015, Brest, France. ICES CM 2015/ACOM:58. 187 pp.
- ICES. 2016c. General context of ICES advice. *In* Report of the ICES Advisory Committee, 2016. ICES Advice 2016, Book 1, Section 1.2.