

5.3.46 Norway lobster (*Nephrops norvegicus*) in divisions 7.g and 7.f – FU 22 (Celtic Sea, Bristol Channel)

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 2063 tonnes. This implies landings of no more than 1807 tonnes.

To ensure that the stock in functional unit (FU) 22 is exploited sustainably, management should be implemented at the functional unit level.

Stock development over time

The historical harvest rates, calculated as (landings + dead discards) (abundance estimate)⁻¹, have decreased since 2007 and have been below F_{MSY} since 2011. The stock abundance has declined below $MSY B_{trigger}$ in 2016.

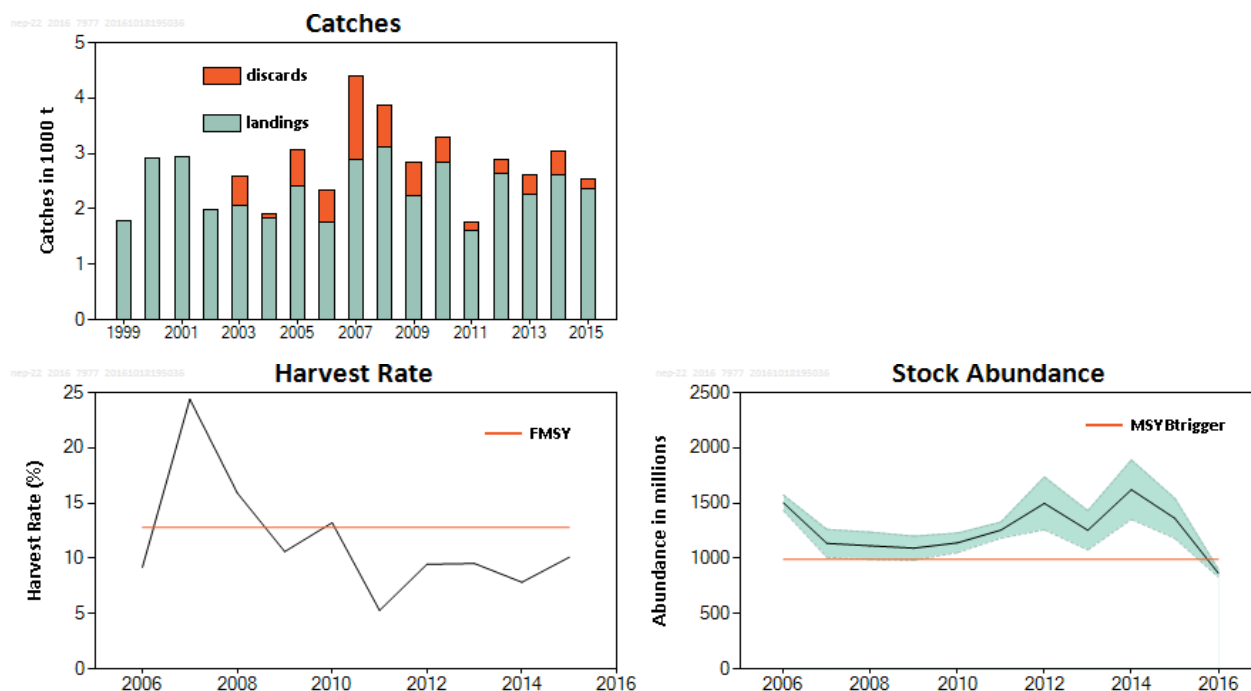


Figure 5.3.46.1 Norway lobster in divisions 7.g and 7.f – FU 22. Catches (thousand tonnes), harvest rate (fishing mortality proxy), survey abundance (Underwater TV, millions; SSB proxy; 95% confidence intervals). Orange lines represent $MSY B_{trigger}$ and the F_{MSY} harvest rate proxy.

Stock and exploitation status

Table 5.3.46.1 Norway lobster in divisions 7.g and 7.f – FU 22. 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		
Precautionary approach	F_{pa} , F_{lim}	✓	✓	✓	Below		
Management plan	F_{MGT}	-	-	-	Not applicable		
					$MSY B_{trigger}$	✓	✓
					B_{pa} , B_{lim}	✓	✓
					SSB_{MGT}	-	-
							✗ Below
							? Undefined
							- Not applicable

Catch options

The latest estimate of stock abundance (value from the August 2016 survey, 866 million) is below the MSY $B_{trigger}$ (990 million).

The ICES MSY approach states that under such conditions the F_{MSY} harvest rate (12.8% for FU 22 Norway lobster) should be reduced by multiplying it by the ratio of the current abundance to MSY $B_{trigger}$. This corresponds to a harvest rate of $12.8 \times 866 \div 990 = 11.2\%$ for the advice in 2017.

Table 5.3.46.2 Norway lobster in divisions 7.g and 7.f – FU 22. The basis for the catch options.

Variable	Value	Source	Notes
Stock abundance	866 millions	ICES (2016a)	UWTV 2016.
Mean weight in landings	22.2 g	ICES (2016a)	Average 2003–2015.
Mean weight in discards	12.4 g	ICES (2016a)	Average 2003–2015.
Discard rate	20.3%	ICES (2016a)	Average 2013–2015 (by number). Calculated as discards divided by landings + discards.
Discard survival rate	25.0%	ICES (2016a)	Only applies in scenarios where discarding is allowed.
Dead discard rate	16.0%	ICES (2016a)	Average 2013–2015 (by number). Calculated as dead discards divided by removals (landings + dead discards). Only applies in scenarios where discarding is allowed.

Table 5.3.46.3 Norway lobster in divisions 7.g and 7.f – FU 22. The catch options. All weights are in tonnes. Catch options assuming zero discards.

Catch options assuming zero discards

Rationale	Basis	Total catch	Wanted catch*	Unwanted catch*	Harvest rate**
MSY approach	MSY approach	1959	1717	242	11.2%
Other options	F_{MSY}	2239	1962	277	12.8%
	F_{2015}	1748	1531	218	10.0%

* “Wanted” and “unwanted” catch are used to described *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	2063	1999	1807	192	64	11.2%
Other option	F_{MSY}	2358	2285	2065	220	73	12.8%

* Applied to dead removals.

All harvest rates are calculated in numbers and refer to the 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 5.3.46.4 Norway lobster in divisions 7.g and 7.f – FU 22. 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 2006 a dedicated annual UWTV survey has taken place which gives abundance estimates for the Smalls Grounds with high precision. Sampling of this stock is adequate.

The long-term average (rather than a three-year average) was considered to be more appropriate as input for the mean weight in landings and discards in the calculation of catch options, to account for interannual variation.

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 trawl fishery for FU 22 over the last three years is 11.5%. The catch advice assumes that the discard rate will be 12.4% by weight in 2017 for the entire fishery.

For FU 22, the absolute density observed during the UWTV survey is medium (~ 0.4 individuals m^{-2}). The fishery in this area has been in existence since the 1960s and has been relatively stable for many years. Harvest rates around the $F_{35\%SPR}$ are expected to deliver high long-term yield with a low probability of recruitment overfishing and are used as F_{MSY} for FU 22. MSY reference points were recalculated at WKMSYREF4 (ICES, 2016b). Previous reference points ($F_{0.1}$ and F_{max}) were not recalculated and hence not included in the catch option table.

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 in each of the stocks.

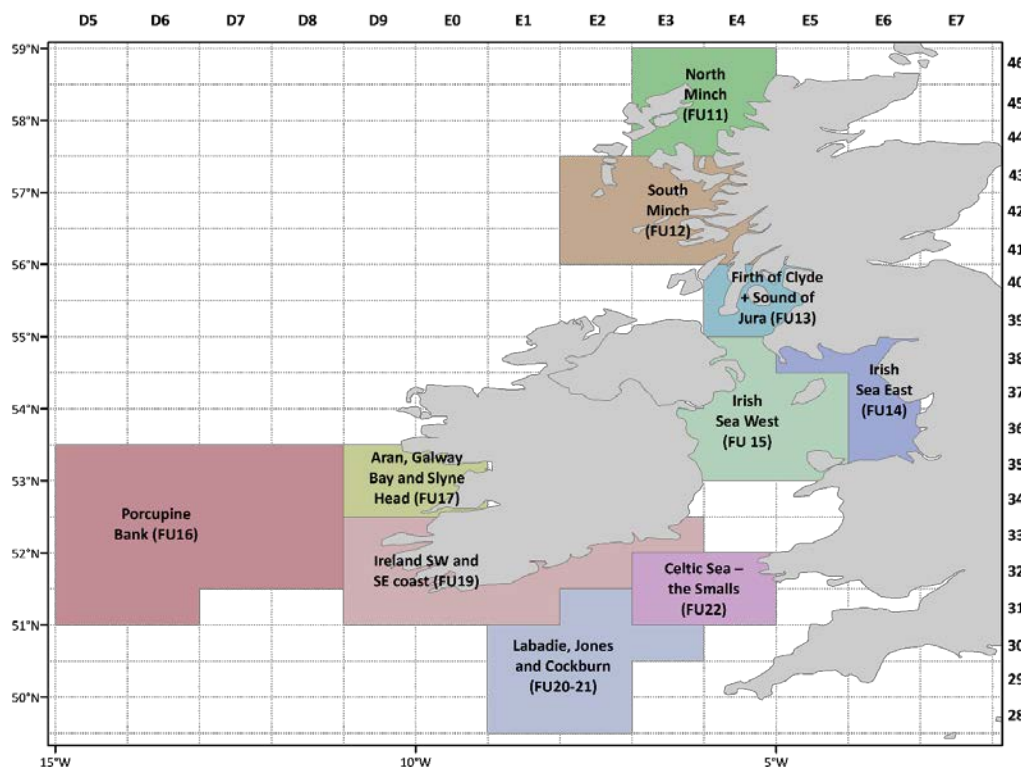


Figure 5.3.46.2 *Nephrops* functional units in Division 6.a and Subarea 7.

Reference points

Table 5.3.46.5 Norway lobster in divisions 7.g and 7.f – FU 22. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger}$	990 million individuals	5% interval on the probability distribution of abundance for the time-series 2006–2015, assuming a normal distribution.	ICES (2016b)
	F_{MSY}	12.8% harvest rate	F_{MSY} proxy equivalent to $F_{35\%SPR}$ for combined sexes.	ICES (2016b)
Precautionary approach	B_{lim}	Not defined.		
	B_{pa}	Not defined.		
	F_{lim}	Not defined.		
	F_{pa}	Not defined.		
Management plan	SSB_{MGT}	Not defined.		
	F_{MGT}	Not defined.		

Basis of the assessment

Table 5.3.46.6 Norway lobster in divisions 7.g and 7.f – FU 22. 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 22), commercial catches (international landings), length frequencies (from 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 2003.
Indicators	IBTS Q4 survey; length–frequency distributions of the catches by sex.
Other information	This stock was benchmarked in 2014 at 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 5.3.46.7 Norway lobster in divisions 7.g and 7.f – FU 22. History of ICES advice and ICES estimates of landings. Weights are in thousand tonnes.

Year	ICES advice*	Landings advice*	Catch advice	ICES landings FU 22	Total discards** FU 22
1992		~3.8			
1993		3.8			
1994		3.8			
1995		3.8			
1996		3.8			
1997		3.8			
1998		3.8			
1999				1.8	
2000		3.8		2.9	
2001		3.8		2.9	
2002		3.8		2	
2003		3.8		2.1	0.5
2004	Adjust TAC in line with landings of most recent 10 years	4.6		1.8	0.1
2005	Adjust TAC in line with landings of most recent 10 years	4.6		2.4	0.6
2006	Recent average landings 2000–2002	4.6		1.8	0.6
2007	No increase in effort	-		2.9	1.5
2008	No increase in effort	< 5.3		3.1	0.8
2009	No increase in effort	< 5.3		2.2	0.6
2010	No new advice, same as for 2009	< 5.3		2.8	0.4
2011	See scenarios; MSY reduce catch or PA < 5.3	-		1.6	0.1
2012	MSY approach	2.3		2.6	0.3
2013	MSY approach (updated November 2012)	3.1		2.3	0.4
2014	MSY approach	2.674		2.6	0.4
2015	MSY approach	3.409		2.3^	0.2^
2016	MSY approach		≤ 3.027***		
2017	MSY approach		≤ 2.063^^		

* Advice prior to 2012 applies to FUs 20–22.

** Dead + surviving discards.

*** Assuming all catches are landed.

^ Preliminary.

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

History of catch and landings

Table 5.3.46.8 Norway lobster in divisions 7.g and 7.f – FU 22. Catch distribution by fleet in 2015 as estimated by ICES.

Total catch		Landings	Total discards	
98.2% dead	1.8% surviving	Almost 100% otter trawl	75% dead	25% surviving
2547 t		2368 t	179 t	

Table 5.3.46.9 Norway lobster in divisions 7.g and 7.f – FU 22. History of ICES landings estimated values are presented for each country participating in the fishery. Weights are in tonnes.

Year	France	Rep. of Ireland	UK	Belgium	Total landings	Total discards
1999	1027	741	20		1788	
2000	1186	1687	34		2907	
2001	876	2054	5		2935	
2002	595	1392	3		1990	
2003	799	1241	10		2050	535
2004	465	1330	33		1827	76
2005	494	1931	0		2425	647
2006	302	1398	52		1752	593
2007	218	2614	48		2881	1513
2008	312	2474	328		3114	764
2009	235	1642	368		2245	589
2010	136	2353	351		2840	439
2011	54	1548	15		1617	144
2012	65	2509	59		2633	256
2013	83	2079	86	7	2255	362
2014	29	2443	134	8	2615	415
2015*	9	2258	97	5	2368	179

* Preliminary.

Summary of the assessment

Table 5.3.46.10 Norway lobster in divisions 7.g and 7.f – FU 22. 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	%	%
2003	96	54	136				21.4	9.9	36%	30%
2004	72	9	78				25.5	8.9	11%	8%
2005	115	91	183				21.1	7.1	44%	37%
2006	97	55	138	1503	70	9%	18.0	10.8	36%	30%
2007	165	150	277	1136	126	24%	17.5	10.1	48%	41%
2008	132	61	177	1114	123	16%	23.6	12.6	31%	26%
2009	93	31	116	1093	108	11%	24.2	19.0	25%	20%
2010	130	28	151	1141	88	13%	21.9	15.5	18%	14%
2011	62	7	67	1256	72	5%	26.3	21.7	10%	7%
2012	124	24	142	1498	239	9%	21.3	10.7	16%	13%
2013	97	31	120	1254	177	10%	23.3	11.8	24%	19%
2014	105	30	127	1622	268	8%	25.0	13.7	23%	18%
2015	123	20	138	1363	180	10%	19.3	8.9	14%	11%
2016				866	35					

* Dead + surviving discards.

Sources and references

- Anon. 2011. Atlas of Demersal Discarding, Scientific Observations and Potential Solutions. Marine Institute, Bord Iascaigh Mhara, September 2011. ISBN 978-1-902895-50-5. 82 pp.
- 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), 04–13 May 2016, ICES Headquarters, Copenhagen, Denmark. ICES CM 2016/ACOM:13. 1031 pp.
- ICES. 2016b. EU request to ICES to provide F_{MSY} ranges for selected stocks in ICES subareas 5 to 10. *In* Report of the ICES Advisory Committee, 2016. ICES Advice 2016, Book 5, Section 5.2.3.1.
- ICES. 2016c. General context of ICES advice. *In* Report of the ICES Advisory Committee, 2016. ICES Advice 2016, Book 1, Section 1.2.