

5.3.42 Norway lobster (*Nephrops norvegicus*) in Division 7.a – FU 15 (Irish Sea, West)

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 11248 tonnes. This implies landings of no more than 9376 tonnes.

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

Stock development over time

Since 2003, stock abundance has been above MSY $B_{trigger}$. With the exception of 2014 the harvest rates, calculated as (landings + dead discards) (abundance estimate)⁻¹ have been above F_{MSY} since 2011.

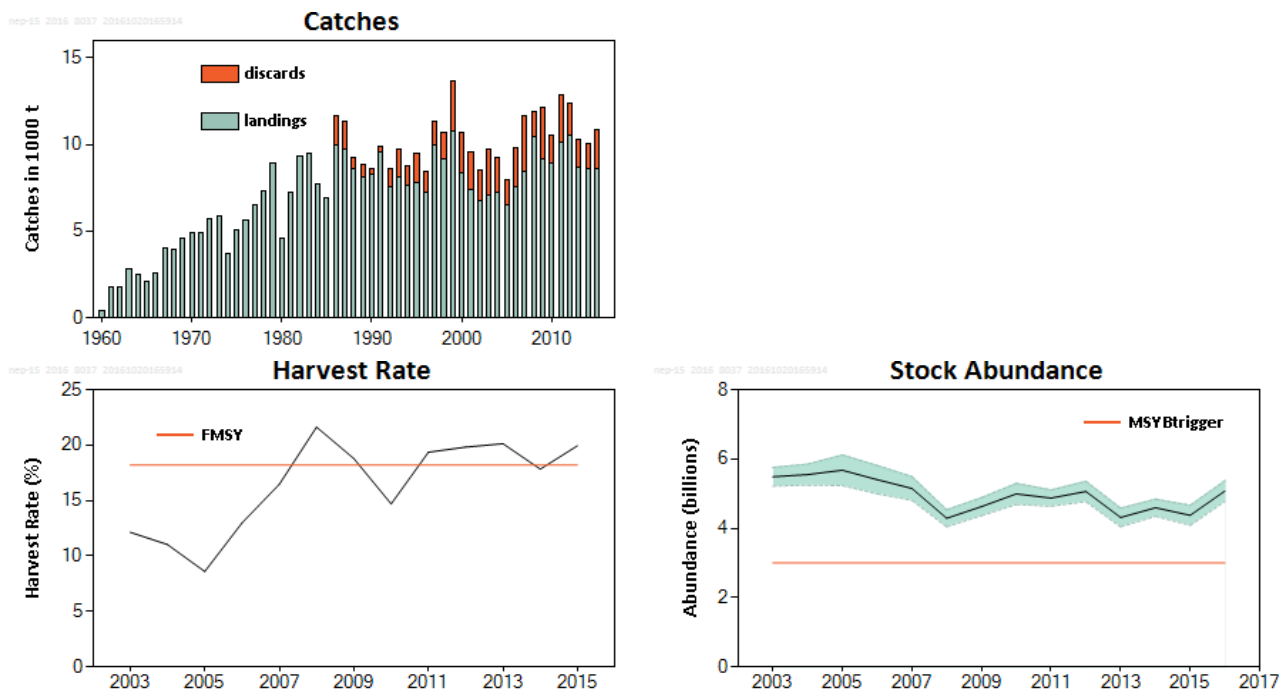


Figure 5.3.42.1 Norway lobster in Division 7.a, FU 15. Catches (thousand tonnes), harvest rate (fishing mortality proxy), survey abundance (Underwater TV, millions; SSB proxy; 95% confidence intervals). Harvest rates between 2003 and 2006 may be unreliable because of underreporting of landings. Orange lines represent MSY $B_{trigger}$ and the F_{MSY} harvest rate proxy.

Stock and exploitation status

Table 5.3.42.1 Norway lobster in Division 7.a, FU 15. 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}	✘	✔	✘ Above	MSY	✔	✔ Above trigger
Precautionary approach	F_{pa} , F_{lim}	?	✔	? Undefined	B_{pa} , B_{lim}	✔	✔ Above possible reference points
Management plan	F_{MGT}	-	-	- Not applicable	SSB_{MGT}	-	- Not applicable

Catch options

Table 5.3.42.2 Norway lobster in Division 7.a, FU 15. The basis for the catch options.

Variable	Value	Source	Notes
Stock abundance	5.076 billion individuals	ICES (2016a)	UWTV survey 2016.
Mean weight in landings	13.50 g	ICES (2016a)	Average 2013–2015.
Mean weight in discards	7.36 g	ICES (2016a)	Average 2013–2015.
Discard rate	26.8%	ICES (2016a)	Average 2013–2015 (by number). Calculated as discards divided by landings + discards.
Discard survival rate	10%	ICES (2016a)	Only applies in scenarios where discarding is allowed.
Dead discard rate	24.8%	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 5.3.42.3 Norway lobster in Division 7.a, FU 15. The catch options. All weights are in tonnes.

Catch options assuming zero discards

Rationale	Basis	Total catches	Wanted catches*	Unwanted catches*	Harvest rate**
MSY approach	MSY approach	10947	9126	1822	18.2%
Other option	F ₂₀₁₅	11997	10001	1996	19.9%

* “Wanted” and “unwanted” catches 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	11248	11061	9376	1685	187	18.2%

* 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 5.3.42.4 Norway lobster in Division 7.a, FU 15. 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

An annual UWTV survey has taken place since 2003 which gives abundance estimates for the FU with high precision. The quality of input data and level of sampling are good for this stock.

Issues relevant for the advice

From 2016, fisheries catching *Nephrops* in Division 7.a 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 15 over the last three years is 16.6%. The catch advice assumes that the discard rate will be 16.6% by weight in 2017 for the entire fishery.

The density of *Nephrops* in FU 15 is considered very high (average density 0.9 individuals m⁻²) compared to other FUs. Recent harvest rates have been high (around F_{max}) and the stock size has been stable at a high level. The exploitation rate between the sexes is similar. A harvest rate consistent with a combined sex F_{max} of 18.2% is considered an appropriate proxy for F_{MSY}.

MSY reference points were recalculated at WKMSYREF4 (ICES, 2016b). Previous reference points (F_{0.1}, F_{SPR35%}) were not recalculated and hence not included in the catch options 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 for each of the stocks and the corresponding MSY approach.

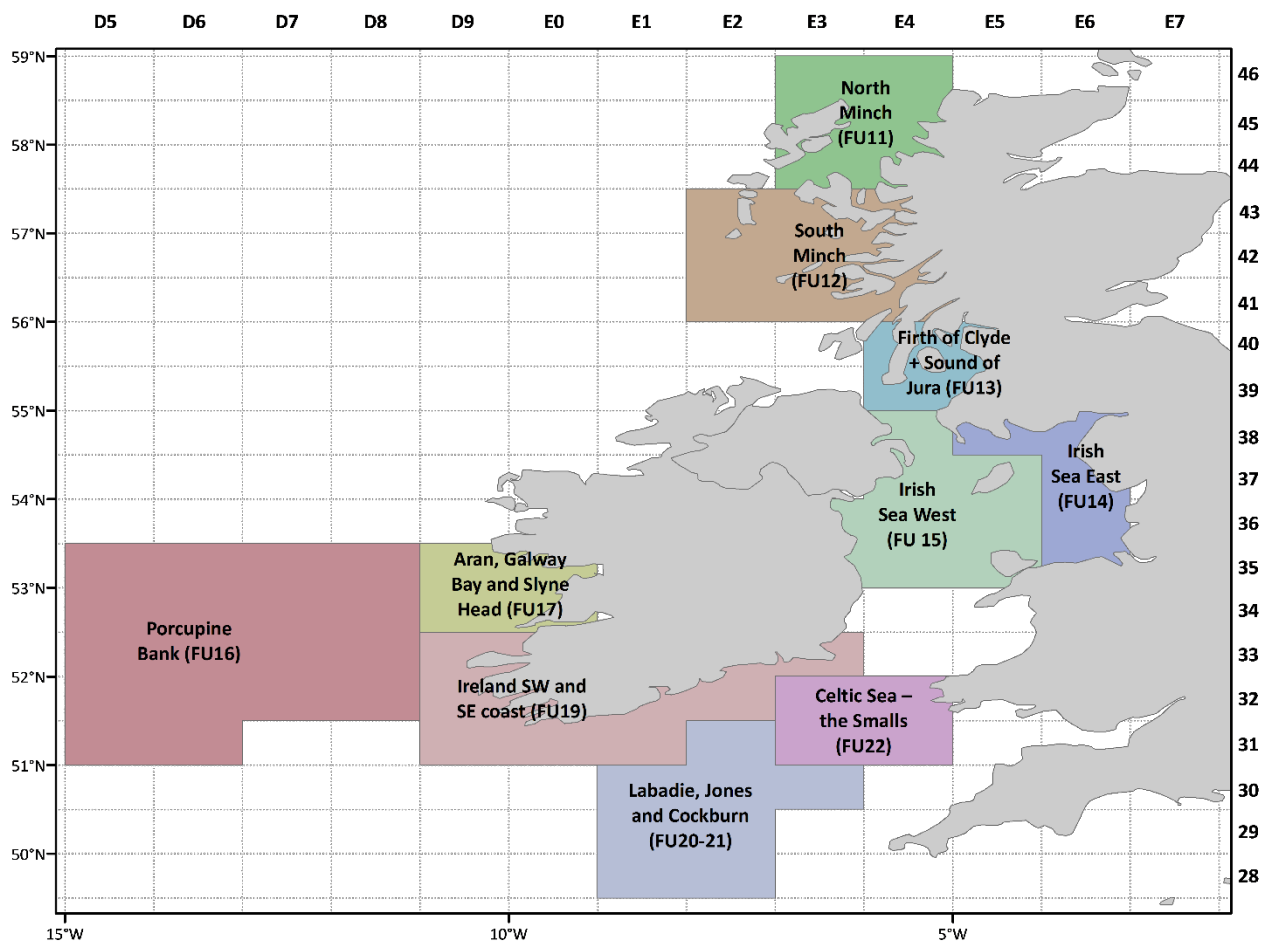


Figure 5.3.42.2 *Nephrops* functional units in Division 6.a and Subarea 7.

Reference points

Table 5.3.42.5 Norway lobster in Division 7.a, FU 15. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY B_{trigger}	3 billion individuals	Minimum abundance observed based on a scaled trawl survey index.	ICES (2016c)
	F_{MSY}	18.2% harvest rate	F_{MSY} proxy equivalent to F_{max} for combined sexes.	ICES (2016c)
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 5.3.42.6 Norway lobster in Division 7.a, FU 15. The basis of the assessment.

ICES stock data category	1 (ICES, 2016d).
Assessment type	Underwater TV survey combined with yield-per-recruit analysis from length data.
Input data	One survey index (UWTV in FUs 14–15); 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.
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).

Information from stakeholders

There is no available information.

History of the advice, catch, and management

Table 5.3.42.7 Norway lobster in Division 7.a, FU 15. History of ICES advice, the agreed TAC, and ICES estimates of landings.

Year	ICES advice	Landings advice	Catch advice	Recommended landings (FUs 14 + 15)	ICES landings	Total discards**
1989					8.1	0.7
1990					8.3	0.3
1991					9.6	0.3
1992				8.9	7.5	1.1
1993				9.4	8.1	1.6
1994				9.4	7.6	1.2
1995				9.4	7.8	1.7
1996				9.4	7.3	1.2
1997				9.4	10.0	1.3
1998				9.4	9.1	1.6
1999				9.4	10.8	2.9
2000				9.4	8.4	2.3
2001				9.4	7.4	2.1
2002	Set TAC in line with 1995–99 landings			9.55	6.8	1.7
2003	Set TAC in line with 1995–99 landings			9.55	7.1	2.7
2004	Set TAC in line with 1995–99 landings			9.55	7.3	2.0
2005	Set TAC in line with 1995–99 landings			9.55	6.5	1.4
2006	No increase in effort			9.55	7.5	2.3
2007	No increase in effort		-	-	8.4	3.2
2008	No increase in effort		-	-	10.5	1.4
2009	No increase in effort and landings	< 8.5			9.2	2.9
2010	Harvest rate no greater than the equivalent to fishing at F _{0.1}	< 5.5			9.0	1.5
2011	Transition scheme towards the ICES MSY framework	< 9.5			10.2	2.7
2012	MSY approach	< 9.8			10.5	1.9
2013	MSY approach	< 9.3			8.7	1.6
2014	MSY approach	< 8.2			8.6	1.4
2015	MSY approach	< 8.223			8.6^	2.2^
2016	MSY approach		≤ 8.682*			
2017	MSY approach		≤ 11.248***			

* Assuming all catches are landed and selection patterns do not change.

** Dead + surviving discards.

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

^ Preliminary.

History of catch and landings

Table 5.3.42.8 Norway lobster in Division 7.a, FU 15. Catch distribution by fleet in 2015 as estimated by ICES.

Total catch		Landings		Total discards*	
98% dead	2% surviving	~100% <i>Nephrops</i> otter trawls (70–99 mm)	< 0.2% creels	90% dead	10% surviving
10871 t		8643 t		2228 t	

* Dead + surviving discards.

Table 5.3.42.9 Norway lobster in Division 7.a, FU 15. History of commercial catch and landings; ICES estimated values are presented by country participating in the fishery. All weights are in thousand tonnes.

Year	Ireland	UK	UK (E&W)	UK (NI)	UK (Scotland)	UK (Isle of Man)	Total landings	Total discards***
1965		1.018					1.018	
1966		1.701					1.701	
1967		2.077					2.077	
1968		1.987					1.987	
1969	1.011	2.803					3.814	
1970	1.392	3.001					4.393	
1971	1.384	3.190					4.574	
1972	1.604	4.120					5.724	
1973	1.863	4.031					5.894	
1974	982	2.689					3.671	
1975	909	4.165					5.074	
1976	1.614	3.989					5.603	
1977	2.469	4.045					6.514	
1978	2.921	4.375					7.296	
1979	3.436	5.512					8.948	
1980	1.709	2.869					4.578	
1981	3.202	4.047					7.249	
1982	4.398	4.917					9.315	
1983	4.324	5.124					9.448	
1984	3.306	4.454					7.760	
1985	2.421	4.480					6.901	
1986	4.682	5.296					9.978	1.680
1987	4.639	5.114					9.753	1.608
1988	3.201	5.385					8.586	639
1989	2.477	5.651					8.128	673
1990	2.710	5.590					8.300	276
1991	3.371	6.183					9.554	345
1992	2.370	5.171					7.541	1.079
1993	2.715	5.387					8.102	1.622
1994	1.768	5.838					7.606	1.185
1995	2.259	5.538					7.796	1.724
1996	1.574	5.673					7.247	1.202
1997	3.349	6.622					9.971	1.330
1998	3.101	6.027					9.128	1.560
1999	4.582	6.198				6	10.786	2.913
2000	3.433	4.937				0	8.370	2.293
2001	2.689	4.749				3	7.441	2.112
2002	2.291	4.501				1	6.793	1.732
2003	2.709	4.352				4	7.065	2.659
2004	2.786	4.470				13	7.270	1.993
2005	2.133	4.420				0	6.554	1.412

Year	Ireland	UK	UK (E&W)	UK (NI)	UK (Scotland)	UK (Isle of Man)	Total landings	Total discards***
2006	2.051		56	5.429	23	1	7.561	2.285
2007	2.767		102	5.585	36	0	8.491	3.246
2008	3.132		131	7.166	26	50	10.508	1.421
2009	2.343		200	6.622	32	1	9.198	2.934
2010	2.578		100	6.251	33	0	8.963	1.539
2011	3.575		88	6.444	52	2	10.162	2.683
2012	3.794		106	6.586	39	3	10.529	1.871
2013	2.465		56	6.069	50	31	8.672	1.590
2014	2.938		88	5.558	29	**	8.613	1.418
2015*	2.202		26	6.404	11	**	8.643	2.228

* Preliminary.

** Included in UK (E&W) landings.

*** Dead + surviving discards.

Summary of the assessment

Table 5.3.42.10 Norway lobster in Division 7.a, FU 15. 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 by number	Dead discard rate
	millions	millions	millions	billions	millions	%	grammes	grammes	%	%
2003	404	291	666	5.5	0.27	12.1	17.5	9.1	42%	39%
2004	416	218	612	5.5	0.3	11.0	17.5	9.1	34%	32%
2005	346	157	488	5.7	0.44	8.6	18.9	9.0	31%	29%
2006	467	261	701	5.4	0.41	13.0	16.1	8.8	36%	33%
2007	511	375	848	5.1	0.34	16.5	16.5	8.7	42%	40%
2008	755	191	927	4.3	0.25	21.6	13.9	7.4	20%	19%
2009	567	335	868	4.6	0.26	18.8	16.2	8.8	37%	35%
2010	572	180	733	5.0	0.31	14.7	15.7	8.6	24%	22%
2011	644	332	943	4.9	0.23	19.4	15.8	8.1	34%	32%
2012	771	258	1003	5.1	0.29	19.8	13.7	7.2	25%	23%
2013	662	229	867	4.3	0.27	20.1	13.1	7.0	26%	24%
2014	641	198	819	4.6	0.25	17.8	13.4	7.2	24%	22%
2015	620	280	872	4.4	0.29	19.9	13.9	7.9	31%	29%
2016				5.1	0.30					

*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. 2009. Report of the Benchmark Workshop on *Nephrops* (WKNEPH), 2–6 March 2009, Aberdeen, UK. ICES CM 2009/ACOM:33. 156 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. Report of the Workshop to consider F_{MSY} 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. 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 5.4.1.
- ICES. 2016d. General context of ICES advice. *In* Report of the ICES Advisory Committee, 2016. ICES Advice 2016, Book 1, Section 1.2.