

Norway lobster (*Nephrops norvegicus*) in divisions 7.g and 7.h, functional units 20 and 21 (Celtic Sea)

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 2015–2017, catches in 2019 should be no more than 5320 tonnes.

To ensure that the stock in functional units 20 and 21 is exploited sustainably, management should be implemented at the level of the combined functional units 20 and 21.

Stock development over time

The historical harvest rate is below F_{MSY} for the time-series. Stock abundance decreased in 2018.



Figure 1 Norway lobster in divisions 7.g and 7.h, functional units 20 and 21. Summary of the stock assessment. Catches (discard data only available from 2012), harvest rate (sum of landings and dead discards in numbers divided by total abundance), survey abundance (Underwater TV, millions; SSB proxy; 95% confidence intervals). The orange line represents the F_{MSY} harvest rate.

Stock and exploitation status

ICES assesses that fishing pressure on the stock is below F_{MSY} ; no reference points for stock size have been defined for this stock.

Table 1 Norway lobster in divisions 7.g and 7.h, functional units 20 and 21. State of the stock and fishery relative to reference points.

	Fishing pressure					Stock size					
		2015	2016		2017	_		2016	2017	2018	
Maximum sustainable yield	F _{MSY}	0	0	0	Below		MSY B _{trigger}	2	?	? Undefined	
Precautionary approach	F _{pa} ,F _{lim}	0	0	0	Below potential reference points		B _{pa} ,B _{lim}	?	?	? Undefined	
Management plan	F _{MGT}	_	-	_	Not applicable		B _{MGT}	-	-	— Not applica	ble

Catch scenarios

Table 2 Norway lobster in divisi	ons 7.g and 7.h, functional units 20) and 21. The basis for the catch advice and scenarios.
Variable	Value	Notes
Stock abundance (2019)	2721 million	UWTV survey 2018 (number of individuals).
Mean weight in wanted catch	35.7 g	Average 2015–2017.
Mean weight in unwanted catch	17.7 g	Average 2015–2017.
Unwanted catch	31.6%	Average 2015–2017 (proportion by number).
Discards survival	25%	Proportion by number.
Dead unwanted catch	25.8%	Average 2015–2017 (proportion by number).

Table 3Norway lobster in divisions 7.g and 7.h, functional units 20 and 21. Annual catch advice and scenarios; discarding is
assumed to continue at recent average. All weights are in tonnes.

Basis	Total catch	Dead removals	Wanted catch	Dead unwanted catch	Surviving unwanted catch	Harvest rate* %	% advice
	WC+DUC+SUC	WC+DUC	WC	DUC	SUC	for WC+DUC	**
ICES advice basis							
MSY approach	5320	5071	4325	746	249	6.0	-38.7
Other options							
F _{MSY lower}	5239	4994	4260	734	245	5.9	-39.6
F _{MSY upper}	5320	5071	4325	746	249	6.0	-38.7
F ₂₀₁₇	1492	1422	1213	209	70	1.7	-82.8

* By number.

** Advice value for 2019 relative to the advice value for 2018.

The decrease in total catch advice is a result of the decrease in both the observed stock abundance in 2018 and the assumed mean weight in the wanted catch.

Basis of the advice

Table 4 Norwa	lobster in divisions 7.g and 7.h, functional units 20 and 21. The basis of the advice.
Advice basis	MSY approach.
Management plan	The EU has proposed a multiannual management plan for the Western Waters, which is not yet finalized (EU, 2018).

Quality of the assessment

Since 2013 a dedicated annual UWTV survey has provided abundance estimates of adequate quality, but the time-series is still too short to provide an MSY B_{trigger}

Sampling of landings and discards remains very low. In addition, some samples could not be accurately allocated to functional units (FUs) in the Celtic Sea.

Issues relevant for the advice

The decrease in catch advice for 2019 compared to previous years was directly linked to the reduced estimate of stock abundance in 2018. This abundance decrease is most likely linked to recruitment although there is no additional information to support this. Advised catches are still much higher than the highest historical landings (3536 t in 1995).

Discarding of Nephrops is substantial (around 40% by number for the last five years).

From 2016 the EU landing obligation was applied to all catches of Norway lobster fisheries in ICES Subarea 7, with several exemptions. Observations from the 2016–2017 fishery indicate that discarding above the minimum conservation reference size (MCRS) continues and has not changed markedly (Figure 3). Consequently, ICES is providing advice for 2019 assuming average discard rates as observed over the last three years, which is considered to be a more realistic assumption.

A single TAC covers the entire ICES Subarea 7. If the advice for this FU is implemented, and catches in 2019 are below the advised level, this may result in displacement of unused catch opportunities to other FUs in the TAC area. This could result in non-precautionary exploitations of those FUs. Management should be implemented at the functional unit level (the combined FU 20 and 21 for this stock) to ensure that fishing opportunities are in line with the scale of the resource for each of the stocks and the corresponding MSY approach.



Reference points

Table 5

Norway lobster in divisions 7.g and 7.h, functional units 20 and 21. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
	MSY B _{trigger}	Not defined		
MSY approach	F _{MSY}	6.0% harvest rate	F _{MSY} proxy, equivalent to F _{0.1} for combined sexes, derived from length-based per recruit analysis.	ICES (2016)
	B _{lim}	Not defined		
Precautionary	B_{pa}	Not defined		
approach	F _{lim}	Not defined		
	F _{pa}	Not defined		
Management plan*	MAP MSY B _{trigger}	Not defined		EU (2018)
	MAP B _{lim}	Not defined		
	MAP F _{MSY}	6.0% harvest rate	F _{MSY}	EU (2018)
	MAP range F _{lower}	5.9–6.0% harvest rate	Consistent with ranges provided by ICES (2016), resulting in no more than 5% reduction in long-term yield compared with MSY.	EU (2018)
	MAP range F _{upper}	6.0–6.0% harvest rate	$F_{MSY upper}$ value capped at F_{MSY} because it has not been possible to evaluate the probability of SSB < B_{lim} (ICES, 2016).	EU (2018)

* Proposed EU multiannual plan (MAP) for the Western Waters (EU, 2018).

Basis of the assessment

Table 6 Norway lo	bster in divisions 7.g and 7.h, functional units 20 and 21. Basis of the assessment and advice.
ICES stock data category	1 (<u>ICES, 2018a</u>).
Assessment type	Underwater TV survey.
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 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 last benchmarked in 2014 (<u>WKCELT</u> ; ICES, 2014).
Working group	Working Group for the Celtic Seas Ecoregion (WGCSE)

Information from stakeholders

No additional information is available for this stock.

History of the advice, catch, and management

 Table 7
 Norway lobster in divisions 7.g and 7.h, functional units 20 and 21. ICES advice, landings, and discards. All weights are in tonnes.

	are in connes:				
Year	ICES advice *	Landings advice	Catch advice	ICES landings	ICES discards**
1992		~3800			
1993		3800			
1994		3800			
1995		3800		3536	
1996		3800		2822	
1997		3800		2038	
1998		3800		1713	
1999		3800		1152	
2000		3800		1778	
2001		3800		1833	
2002		3800		2674	
2003		3800		2953	
2004	Adjust TAC in line with landings of most recent 10 years	4600		2443	
2005	Adjust TAC in line with landings of most recent 10 years	4600		2469	
2006	Recent average landings 2000–2002	4600		2523	
2007	No increase in effort	-		2419	
2008	No increase in effort	< 5300		2980	
2009	No increase in effort	< 5300		3145	
2010	No new advice, same as for 2009	< 5300		1793	
2011	See scenarios; MSY reduce catch or PA < 5.3	-		1237	
2012	Reduce catch	-		1189	542
2013	Average landings (last 10 years)	< 2500		1387	327
2014	No new advice, same as for 2013	< 2500		1837	834
2015	Same as for 2013	< 2500		2116	442
2016	Precautionary approach (harvest rate consistent with previous advice)		≤ 3045***	2453	801
2017	MSY approach		≤ 3552^	1849	306
2018	MSY approach		≤ 8673^		
2019	MSY approach		≤ 5320^		

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

** Dead + surviving discards.

***Assuming all catches are landed.

^ Assuming recent discard rates.

History of the catch and landings

Table 8

Norway lobster in divisions 7.g and 7.h, functional units 20 and 21. Catch distribution by fleet in 2017 as estimated by ICES.

Ca	tch	Total landings	Total discards		
96.4% dead	3.6% surviving	~ 100% otter trawl (both 70–99 mm and > 100 mm)	75% dead	25% surviving	
215	55 t	1849 t	306 t		

Table 9

Norway lobster in divisions 7.g and 7.h, functional units 20 and 21. History of ICES estimates of landings by country and total discards. 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	542
2013	486	844	57	1387	327
2014	465	1342	29	1836	834
2015	355	1620	141	2116	442
2016	477	1531	445	2453	801
2017	341	1113	395	1849	306

* Dead + surviving discards.

Summary of the assessment

Table 10 Norway lobsler in divisions 7.8 and 7.11, functional units 20 and 21. Assessment summary	Table 10	Norway lobster in divisions 7.g and 7.h, functional units 20 and 21. Assessment summary.
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Year	Landings (in numbers)	Total discards (in numbers)*	Removals (in number)	UWTV abundance estimates	95% Conf. intervals	Harvest rate	Landings	Discards	Mean weight in Iandings	Mean weight in discards	Discard proportion (by number)	Dead discard proportion (by number)
		n	nillions			%	ton	nes	gram	nmes		%
2012	38.2	36.1	65.3				1189	542	31.1	15.0	48.5	41.4
2013	34.8	19.2	49.2	1624	103	3.0	1387	327	39.9	17.0	35.6	29.3
2014	50.6	55.5	92.2	2051	131	4.5	1836	834	36.3	15.0	52.3	45.2
2015	59.4	28.1	80.5	2003	118	4.0	2116	442	35.7	15.7	32.2	26.2
2016	60.2	37.5	88.3	1879	147	4.7	2453	801	40.7	21.4	38.4	31.8
2010												
2017	60.1	19.2	74.5	4428	347	1.7	1849	306	30.8	15.9	24.3	19.4

* Dead + surviving discards.





Sources and references

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