

Norway lobster (*Nephrops norvegicus*) in divisions 8.a and 8.b, functional units 23–24 (northern and central Bay of Biscay)

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 2018–2020, catches in 2022 should be no more than 6075 tonnes.

Stock development over time

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

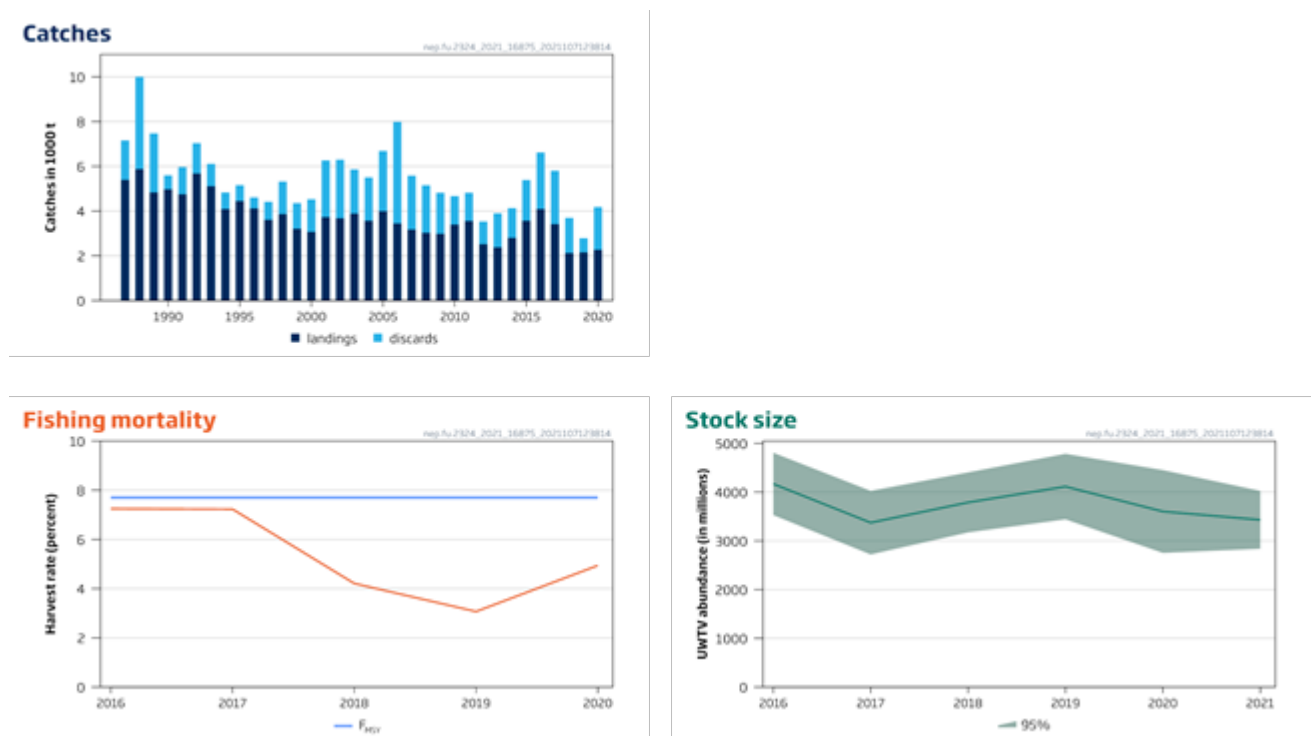


Figure 1 Norway lobster in divisions 8.a and 8.b, functional units 23–24. Summary of the stock assessment. Catches, fishing pressure (sum of landings and dead discards in numbers, divided by stock size), and stock size (underwater television [UWTV] survey, in millions; 95% confidence intervals).

Catch scenarios

Table 1 Norway lobster in divisions 8.a and 8.b, functional units 23–24. The basis for the catch scenarios.

Variable	Value	Notes
Stock abundance (2022)	3431	UWTV survey 2021; individuals in millions.
Mean weight in projected landings	23.42	Average 2018–2020; in grammes.
Mean weight in projected discards	11.14	Average 2018–2020; in grammes.
Projected discard rate	54.3	Average 2018–2020; percentage by number of the total catch.
Discard survival rate	50	Percentage by number of the discards.

Table 2 Norway lobster in divisions 8.a and 8.b, functional units 23–24. Catch scenarios for 2022. 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	PL + PDD	**
ICES advice basis							
MSY approach: F_{MSY}	6075	4978	3880	1098	1098	7.7	-0.50
Other scenarios							
F_{2020}	3897	3193	2489	704	704	4.9	-36
EU MAP \wedge : F_{MSY}	6075	4978	3880	1098	1098	7.7	-0.50

* By number.

** Advice value for 2022 relative to the advice value for 2021 (6105 tonnes).

*** Ranges are not defined for this stock.

\wedge EU multiannual plan (MAP) for the Western Waters and adjacent waters (EU, 2019).

Basis of the advice

Table 3 Norway lobster in divisions 8.a and 8.b, functional units 23–24. The basis of the advice.

Advice basis	MSY approach
Management plan	The EU multiannual plan (MAP) for stocks in the Western Waters and adjacent waters applies to catches of this stock.
	The MAP stipulates that when the F_{MSY} ranges are not available, fishing opportunities should be based on the best available scientific advice.

Quality of the assessment

Poor fits in the length–frequency models normally used for calculating F_{MSY} for category 1 Norway lobster stocks meant that F_{MSY} values could not be estimated for functional units (FUs) 23–24 (Figure 2) using this method. The reasons for this require further investigation.

The F_{MSY} reference point (harvest rate of 7.7%) was established as an intermediate rate between the 10% average realized harvest rates of functional units with an observed history of sustainable exploitation, and the lower harvest rates of 5.5% in FUs 23–24 stock in the recent past under the previously adopted survival rate of 30% for discards (ICES, 2017).

Issues relevant for the advice

ICES provides advice based on the MSY approach because the F_{MSY} range for the EU MAP is not defined.

From 2016, fisheries catching Norway lobster in Subarea 8 are covered by the EU landings obligation (EU, 2015). However, an exemption for high survival has been granted for this fishery since 2016.

Observations from the 2018–2020 fishery indicate that discarding continues. Consequently, ICES is providing advice for 2022 assuming average discard rates as observed over the last three years. 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.

Despite the 50% survival rate of discards, an improved selection pattern would reduce catches of undersized *Nephrops* and result in a higher yield in the long term.

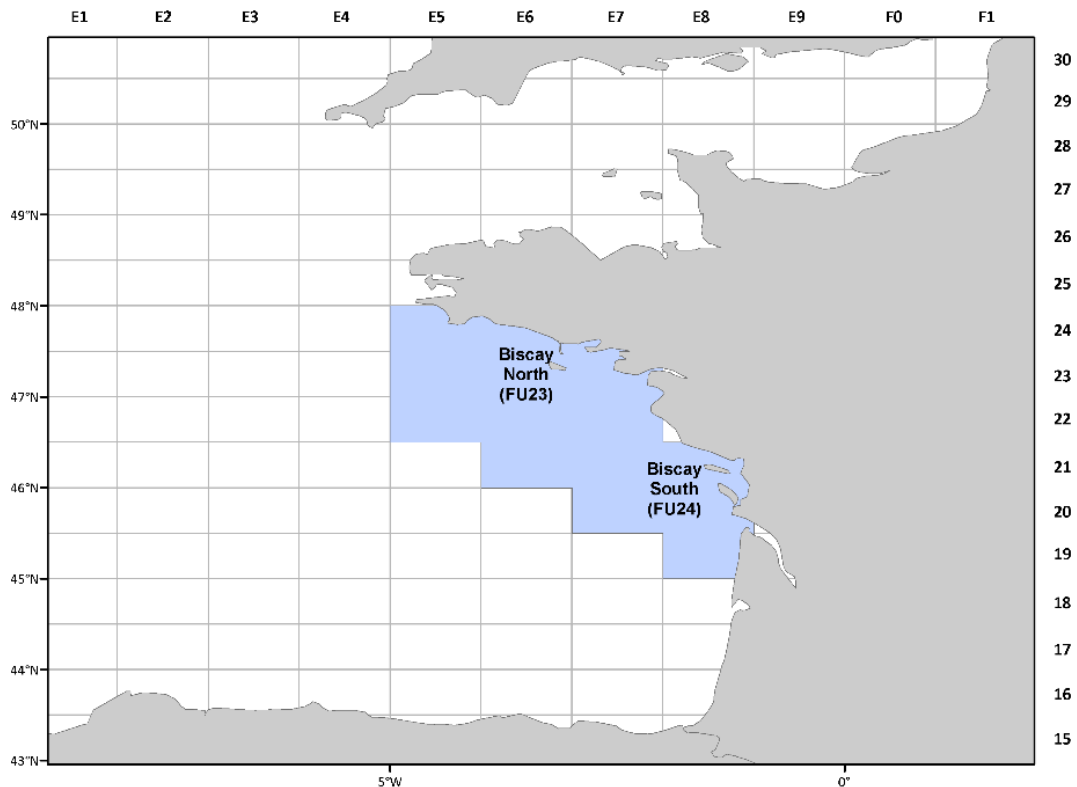


Figure 2 Norway lobster in divisions 8.a and 8.b, functional units 23–24. Functional units (FUs) 23 and 24 constitute a single stock of Norway lobster.

Reference points

Table 4 Norway lobster in divisions 8.a and 8.b, functional units 23–24. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger}$	Not defined		
	F_{MSY}	7.7% harvest rate	F_{MSY} based on the average realized harvest rates of functional units with an observed history of sustainable exploitation, while also taking into account the low harvest rates applied to FUs 23–24 stock in the recent past	ICES (2017)
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		
	MAP MSY $B_{trigger}$	Not defined		
	MAP B_{lim}	Not defined		
	MAP F_{MSY}	7.7% harvest rate	F_{MSY}	EU (2019), ICES (2017)
	MAP range F_{lower}	Not defined		
MAP range F_{upper}	Not defined			

Basis of the assessment

Table 5 Norway lobster in divisions 8.a and 8.b, functional units 23–24. The basis of the assessment.

ICES stock data category	1 (ICES, 2021a).
Assessment type	Underwater television (UWTV) survey (ICES, 2021b).
Input data	One survey index (UWTV-FU 23–24 [U6811]); commercial catches (international landings, length frequencies from sampling); fixed maturity parameters from sampling on board; fixed natural mortalities. Discard survival rate of 30% (Charaua <i>et al.</i> , 1982) up to 2016 stock status, 50% onwards (Mérillet <i>et al.</i> , 2018).
Discards and bycatch	Included in the assessment for the entire time-series (> 50% of catches in number).
Indicators	Length–frequency distributions by sex.
Other information	Last benchmarked in October 2016 (ICES, 2017).
Working group	Working Group for the Bay of Biscay and the Iberian Waters Ecoregion (WGBIE).

History of the advice, catch, and management

Table 6 Norway lobster in divisions 8.a and 8.b, functional units 23–24. History of ICES advice, the agreed TAC, and ICES estimates of landings and discards. All weights are in tonnes.

Year	ICES advice	Landings corresponding to the advice	Catch advice **	Agreed TAC	ICES estimated landings	ICES estimated total discards*
2003	50% reduction of current exploitation rate	2200		3000	3886	1977
2004	20% reduction of current exploitation rate	3300		3150	3571	1932
2005	20% reduction of current exploitation rate	3100		3100	3991	2698
2006	Maintain recent catch	3500		4000	3447	4544
2007	Maintain recent catch	3600		4320	3176	2411
2008	Maintain recent catch	3600		4320	3030	2123
2009	Maintain recent landings (average 2005–2007)	3400		4100	2987	1833
2010	No new advice, same as for 2009	3400		3900	3398	1275
2011	See scenarios			3900	3559	1263
2012	Reduce catch			3900	2520	1013
2013	Decrease landings by 5% (19% increase, followed by 20% PA reduction)	< 3200		3900	2380	1521
2014	Same advice as 2013	< 3200		3900	2807	1326
2015	Increase landings by no more than 14%	< 3214		3900	3569	1822
2016	Same advice as 2015	< 3214		3900	4091	2531
2017	MSY approach	≤ 4160	≤ 6376	4160	3412	2387
2018	MSY approach		≤ 5531	3600	2125	1571
2019	MSY approach		≤ 6221	3878	2154	634
2020	MSY approach		≤ 6573	3886	2273	1908
2021	MSY approach		≤ 6105	3984		
2022	MSY approach		≤ 6075			

* Dead + surviving discards.

** Assuming recent discard rates from 2017 onwards.

History of catch and landings

Table 7 Norway lobster in divisions 8.a and 8.b, functional units 23–24. Catch distribution by fleet in 2020 as estimated by ICES.

Catch	Landings		Discards	
	99% bottom trawl	1% creel	50% dead	50% surviving
4181 tonnes	2273 tonnes		1908 tonnes	

Summary of the assessment

Table 8 Norway lobster in divisions 8.a and 8.b, functional units 23–24. Assessment summary.

Year	UWTV abundance estimate	Confidence interval 97.5%	Confidence interval 2.5%	Landings in number	Total discards* in number	Removals in number**	Harvest rate (by number)	Landings	Total discards	Discard proportion (by number)	Dead discard proportion (by number)	Mean weight in landings	Mean weight in discards
1987				289	268.2	476.7		5397	1767	48.1	39.4	18.68	6.59
1988				324.5	687	805.4		5875	4123	67.9	59.7	18.1	6
1989				244.9	404.2	527.8		4835	2634	62.3	53.6	19.75	6.52
1990				213.8	78.5	268.8		4972	627	26.9	20.5	23.26	7.98
1991				217.4	151.6	323.5		4754	1213	41.1	32.8	21.87	8
1992				274.3	174.4	396.3		5681	1354	38.9	30.8	20.71	7.76
1993				240.6	124.4	327.7		5109	1007	34.1	26.6	21.23	8.09
1994				188.9	88.3	250.7		4092	741	31.8	24.6	21.66	8.39
1995				202.3	84.8	261.6		4452	706	29.5	22.7	22.01	8.33
1996				182	55.3	220.7		4118	495	23.3	17.5	22.62	8.97
1997				188.7	105	262.2		3610	805	35.8	28	19.13	7.67
1998				161.5	151	267.2		3865	1453	48.3	39.6	23.92	9.62
1999				135.3	122.7	221.2		3209	1148	47.6	38.8	23.72	9.35
2000				133.4	163.3	247.7		3069	1455	55	46.2	23.01	8.91
2001				172.8	305.5	386.7		3730	2537	63.9	55.3	21.58	8.3
2002				180.4	329	410.7		3679	2620	64.6	56.1	20.39	7.96
2003				163.8	201.8	305.1		3886	1977	55.2	46.3	23.73	9.8
2004				154.4	222.1	309.9		3571	1932	59	50.2	23.13	8.7
2005				179.8	315.3	400.5		3991	2698	63.7	55.1	22.2	8.56
2006				128.8	487.3	469.9		3447	4544	79.1	72.6	26.76	9.32
2007				117.3	214.8	267.6		3176	2411	64.7	56.2	27.09	11.22
2008				115.3	198	253.9		3030	2123	63.2	54.6	26.29	10.72
2009				123.5	174.5	245.6		2987	1833	58.6	49.7	24.19	10.51
2010				138.1	113.5	217.6		3398	1275	45.1	36.5	24.6	11.23
2011				108	121.6	193.1		3559	1263	53	44.1	32.95	10.39
2012				101.4	117.9	184		2520	1012	53.8	44.9	24.85	8.58
2013				114.9	154.9	223.3		2380	1521	57.4	48.6	20.72	9.82
2014				121.6	117.9	204.1		2807	1326	49.2	40.4	23.08	11.25

Year	UWTV abundance estimate	Confidence interval 97.5%	Confidence interval 2.5%	Landings in number	Total discards* in number	Removals in number**	Harvest rate (by number)	Landings	Total discards	Discard proportion (by number)	Dead discard proportion (by number)	Mean weight in landings	Mean weight in discards
	millions							%	tonnes		%		grammes
2015				138.9	156.4	248.4		3569	1822	53	44.1	25.69	11.65
2016	4167.48	4807.51	3527.45	161.4	201	302.1	7.3	4091	2531	55.5	46.6	25.35	12.6
2017	3372.54	4025.13	2719.95	143.5	200.6	243.8	7.2	3412	2387	58.3	41.1	23.78	11.9
2018	3787.77	4403.75	3171.79	83.5	151.9	159.4	4.2	2125	1571	64.5	47.6	25.46	10.34
2019	4113.42	4786.16	3440.69	96.9	59.1	126.5	3.1	2154	634	37.9	23.4	22.23	10.73
2020	3601.50*	4451.65*	2751.35*	100.7	154.4	177.9	4.9	2273	1908	60.5	43.4	22.57	12.36
2021	3430.99	4024.92	2837.07										

* Basis of ICES advice 2021 was 3425 million (HR = 5.2%) replaced by 3602 million (HR = 4.9%) after revision of the 2020 UWTV survey footage as adopted by ICES (2021b).

** Since 2017, removals are calculated as landings plus dead discards, assuming a 50% survival rate for discards. Before 2017, a 30% survival rate was assumed.

Sources and references

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[Download the stock assessment data and figures.](#)

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