ICES Advice on fishing opportunities, catch, and effort
Bay of Biscay and the Iberian Coast Ecoregion
nep.fu.30

Norway lobster (*Nephrops norvegicus*) in Division 9.a, Functional Unit 30 (Atlantic Iberian waters East and Gulf of Cadiz)

ICES stock advice

ICES advises that when the precautionary approach is applied, catches in 2018 should be no more than 100 tonnes.
[†]

To protect the stock in this functional unit (FU) and to ensure that it is exploited sustainably, ICES advises that management should be implemented at the functional unit level.

Stock development over time

Abundance estimates from underwater TV (UWTV) surveys are available since 2015. Stock abundance is estimated to have increased in 2017. The harvest rate has increased following the lifting of quota restrictions.
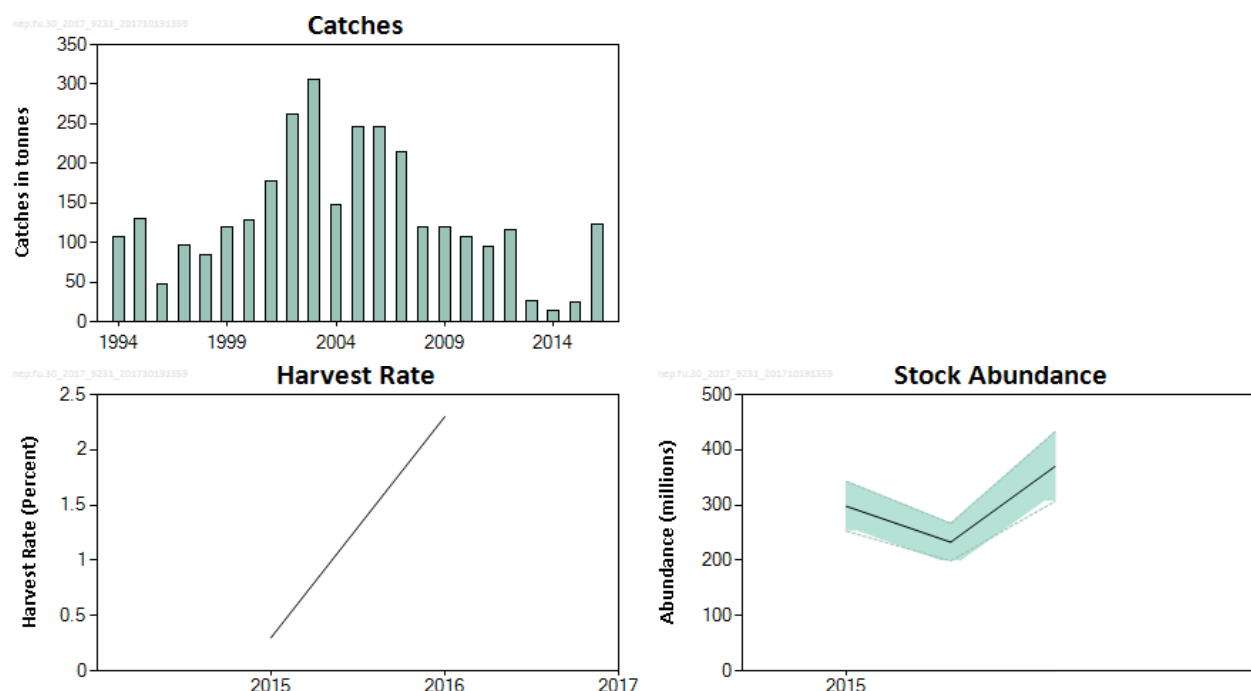

Figure 1   Norway lobster in Division 9.a, Functional Unit 30. Summary of the stock assessment. Upper left: Catches; lower left: Harvest rate (catch in numbers divided by total abundance); lower right: Stock abundance (from underwater TV survey, in millions, with 95% confidence intervals).

[†] Version 2: MSY approach changed to precautionary approach

Stock and exploitation status

Table 1 Norway lobster in Division 9.a, Functional Unit 30. State of the stock and fishery relative to reference points. The state of the stock evaluation is based on reference point proxies (ICES, 2016c) for 2014, and no updated analysis is available for 2015 and 2016.

		Fishing pressure				Stock size			
		2014	2015	2016			2015	2016	2017
Maximum sustainable yield	$F_{MSY\ proxy}$	✔	?	? Undefined	MSY $B_{trigger}$		?	?	? Undefined
Precautionary approach	F_{pa}, F_{lim}	?	?	? Undefined	B_{pa}, B_{lim}		?	?	? Undefined
Management plan	F_{MGT}	—	—	— Not applicable	B_{MGT}		—	—	— Not applicable
Qualitative evaluation	-		?	?	? Unknown	-		?	↘	↗ Unknown

Catch options

The ICES framework for category 4 Norway lobster stocks (ICES, 2012) was applied for this stock. Because of the restrictions imposed on the fishery during the years 2013–2015, the average catch numbers in 2010–2012 were divided by the average UWTV abundance estimates from 2015–2017 and used as the basis of the advice. The corresponding harvest rate is 1.16%. This harvest rate is well below the range of maximum sustainable yield (MSY) harvest rates in all other FUs, and so can be considered conservative.

Table 2 Norway lobster in Division 9.a, Functional Unit 30. The basis for the catch options.

Variable	Value	Source	Notes
Stock abundance (2018)	371 million individuals	ICES (2017)	UWTV survey (2017)
Mean weight in landings	23.20 g	ICES (2017)	Data 2016
Mean weight in discards	-	ICES (2017)	Not relevant
Discard rate	0%	ICES (2017)	Negligible
Discard survival rate	-	ICES (2017)	Not relevant
Dead discard rate	0%	ICES (2017)	Negligible

Table 3 Norway lobster in Division 9.a, Functional Unit 30. Annual catch options for 2018. All weights are in tonnes.

Basis	Total catch	Wanted catch*	Unwanted catch^ *	Harvest rate
ICES advice basis				
Precautionary approach	100	100	0	1.16%
Other options				
F_{2016}	197	197	0	2.29%

^ Based on negligible discarding during observer trips.

* "Wanted" and "unwanted" catch are used to describe Norway lobster that would be landed and discarded in the absence of the EU landing obligation, based on the average estimated discard rates for 2014 –2016.

Basis of the advice

Table 4 Norway lobster in Division 9.a, Functional Unit 30. The basis of the advice.

Advice basis	ICES precautionary approach
Management plan	ICES is not aware of any agreed precautionary management plan for Norway lobster in this area. The recovery plan for southern hake and Norway lobster that was agreed by the EU in 2005 (EU, 2005) does not apply to FU 30.

Quality of the assessment

In the past, ICES advice for Norway lobster in Functional Unit (FU) 30 has been based on the precautionary approach (ICES category 3 advice). An exploratory underwater TV (UWTV) survey was carried out in this FU in 2014, but the abundance estimate series from UWTV surveys is considered since 2015, so the time-series is short. UWTV surveys in FU 30 were evaluated by ICES Benchmark Workshop on *Nephrops* Stocks (WKNEP) in October 2016 (ICES, 2016a), concluding that UWTV surveys in this FU are appropriate for providing scientific advice on the abundance of this stock.

Poor fits in the length-frequency model, normally used for calculating F_{MSY} for category 1 Norway lobster stocks, prevented its application to FU 30. In the absence of stock specific MSY harvest rates, the basis of advice for this stock follows the category 4 approach for Norway lobster stocks.

The mean weight in the period from 2013 to 2015 was relatively high as a result of restrictive quotas. Therefore, these were not considered representative and so were not used in the calculations of the catch advice. The 2016 data was used instead.
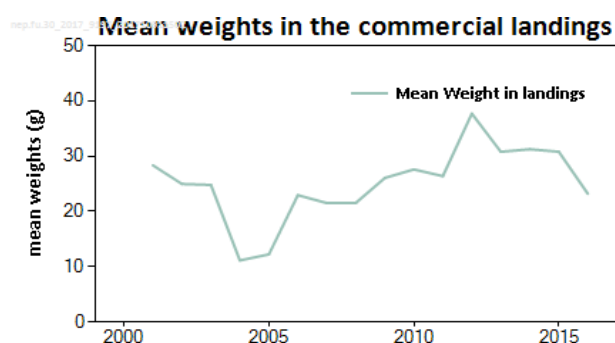

Figure 2   Norway lobster in Division 9.a, Functional Unit 30. Mean weight in the commercial landings.

Issues relevant for the advice

Last year the basis for the advice was category 3, based on landings per unit effort (LPUE) trends. This year the advice is based on UWTV surveys and a precautionary harvest rate according to category 4. In the future, if stock specific F_{MSY} reference points can be estimated, the stock will meet the requirements for category 1 assessment.

A single TAC covers the entire ICES Subarea 9. Management should be implemented at the functional unit level to ensure that fishing opportunities are in line with the scale of the resource and corresponding MSY approach for each of the stocks.
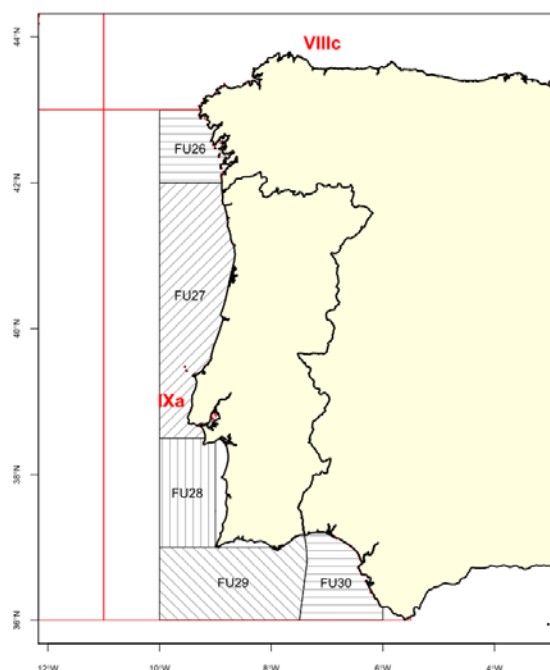
Figure 3   Norway lobster in Division 9.a, Functional Unit 30. Map of functional units.

Reference points

Table 5   Norway lobster in Division 9.a, Functional Unit 30. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger}$	Not defined		
	$F_{MSY\ proxy}$	0.36 males; 0.63 females	F0.1 from a length-based analysis, estimated using the mean-length Z method and assuming knife-edge length selection.	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 6   Norway lobster in Division 9.a, Functional Unit 30. Basis of assessment and advice.

ICES stock data category	4 (ICES, 2016a).
Assessment type	Underwater TV survey
Input data	Survey index (UWTV-FU30, 2015-2017); commercial catches (Spanish 1994–2016 and Portuguese landings 2003–2016)
Discards and bycatch	Not included and considered negligible
Indicators	One abundance survey index (SPGF-cspr/WIBTS-Q1, 1993–2016), mean length in commercial catches (2001–2016). One commercial index (Directed Nephrops Gulf of Cadiz bottom trawl fleet, 1994–2016).
Other information	Landings were revised to include Ayamonte port since 2002. This stock was benchmarked in 2016 (ICES, 2016b)
Working group	Working Group for the Bay of Biscay and the Iberian Waters Ecoregion (WGBIE)

Information from stakeholders

There is no additional available information for this stock.

History of the advice, catch, and management

Table 7 Norway lobster in Division 9.a, Functional Unit 30. ICES advice, TAC and landings. All weights are tonnes.

Year	ICES advice	Predicted catches correspond. to advice	AgreedTAC *	ICES landings
2003	Catch at the lowest recent level	< 50	600	307
2004	Catch at the lowest recent level	< 50	600	147
2005	Catch at the lowest recent level	< 50	540	246
2006	Catch at the lowest recent level	< 50	486	245
2007	Catch at the lowest recent level	< 50	437	214
2008	Catch at the lowest recent level	< 50	415	120
2009	Recent average catches (2005–2007)	< 200	374	120
2010	No new advice, same as for 2009	< 200	337	107
2011	See scenarios	-	303	96
2012	Reduce catch	-	273	116
2013	Reduce catch by 20%	90	243	26
2014	No new advice, same as for 2013	90	221	15
2015	Increase catch by no more than 20%	95	254	25
2016	No new advice, same as for 2015	95	320	124
2017	Precautionary approach	≤ 76	336	
2018	Precautionary approach	≤ 100		

* Subareas 9 and 10; EU waters of CECAF 34.1.1.

History of the catch and landings

Table 8 Norway lobster in Division 9.a, Functional Unit 30. Catch distribution by fleet in 2016 as estimated by ICES.

Catch (2016)	Landings	Discards
124 tonnes	Bottom trawl 100%	Discarding is considered to be negligible
	124 tonnes	

Table 9 Norway lobster in Division 9.a, Functional Unit 30. History of catch and landings; both the official and ICES estimated values are presented by country. All weights are in tonnes.

Year	Official landings		ICES estimated value	Total
	Spain*	Portugal		
1994	108			108
1995	131			131
1996	49			49
1997	97			97
1998	85			85
1999	120			120
2000	129			129
2001	178			178
2002	262			262
2003	303	4		307
2004	143	4		147
2005	243	3		246
2006	242	4		246
2007	211	4		215

Year	Official landings		ICES estimated value	Total
	Spain*	Portugal		
2008	117	3		120
2009	117	2		119
2010	106	1		107
2011	93	3		96
2012	115	1		116
2013	26	< 1		27
2014	14	< 1		15
2015	25	< 1		25
2016	35	< 1	124	124

* Ayamonte landings are included since 2002.

Summary of the assessment

Table 10   Norway lobster in Division 9.a, Functional Unit 30. Assessment summary.

Year	Landings in number	Total discard 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	%	g	g	%	%
2015	0.8	0	0.8	298	45	0.3	30.8	NA	0	0
2016	5.35	0	5.35	233	34	2.3	23.2	NA	0	0
2017				370	63					

* Discards are considered negligible and data are not included in the assessment.

Sources and references

ICES. 2016a. Advice basis. *In* Report of the ICES Advisory Committee, 2016. ICES Advice 2016, Book 1, Section 1.2.

ICES. 2016b. Report of the Benchmark Workshop on *Nephrops* (*Nephrops norvegicus*) (WKNEP), 24–28 October 2016, Cadiz, Spain. ICES CM 2016/ACOM:38.

ICES. 2016c. EU request to provide a framework for the classification of stock status relative to MSY proxies for selected category 3 and category 4 stocks in ICES subareas 5 to 10. *In* Report of the ICES Advisory Committee, 2016. ICES Advice 2016, Book 5, Section 5.4.2. http://ices.dk/sites/pub/Publication%20Reports/Advice/2016/Special_Requests/EU_Western_Waters_MSY_Proxies.pdf.

ICES. 2017. Report of the Working Group for the Bay of Biscay and the Iberian waters Ecoregion (WGBIE), 4-11 May 2017, Cadiz, Spain. ICES CM 2017/ACOM:12. 532 pp.