

## Norway lobster (*Nephrops norvegicus*) in Division 9.a, functional units 28–29 (Atlantic Iberian waters East and southwestern and southern Portugal)

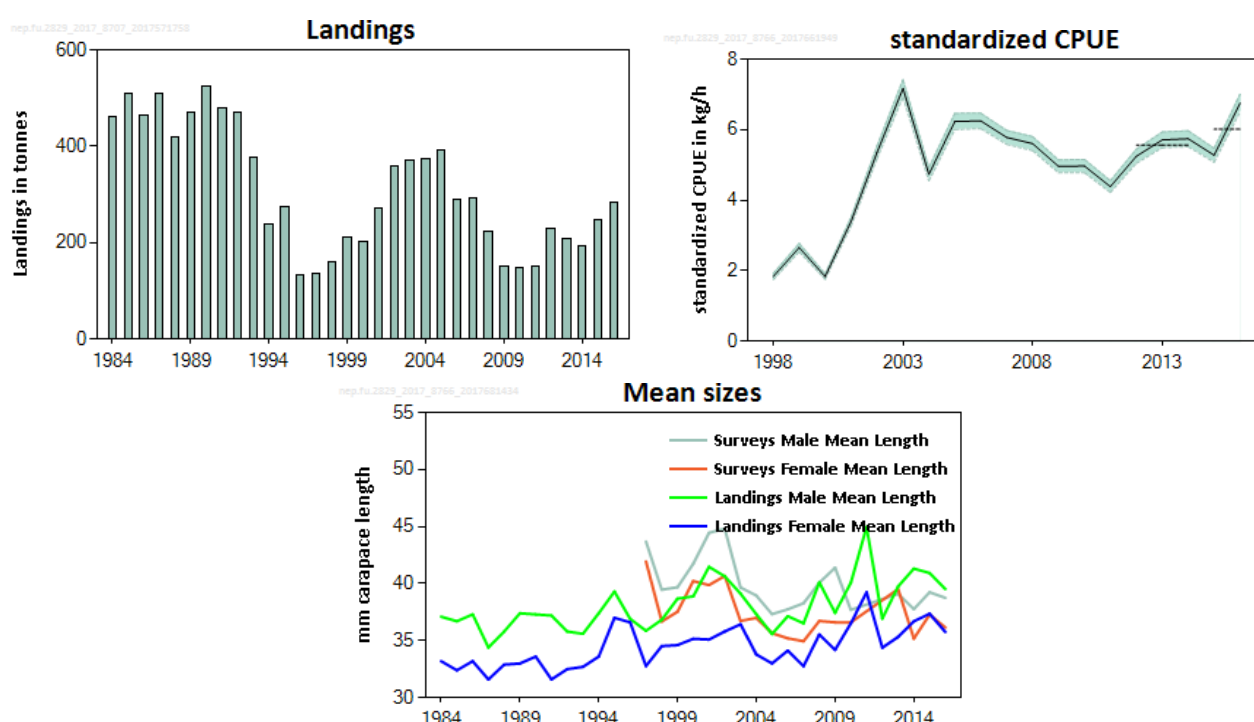
### ICES stock advice

ICES advises that when the precautionary approach is applied, catches in each of the years 2018 and 2019 should be no more than 281 tonnes.

To protect the stock in these functional units, ICES advises that management should be implemented at the functional unit level.

### Stock development over time

Standardized commercial cpue (used as the stock size indicator) has increased since 2011 and the mean size of individuals has been relatively stable over time.

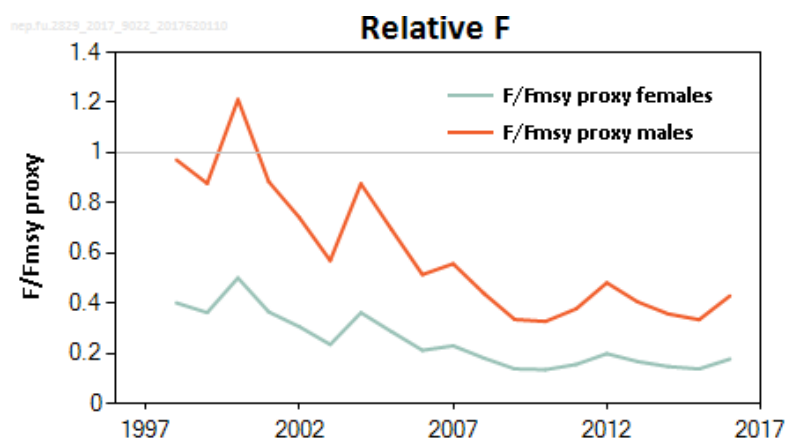


**Figure 1** Norway lobster in Division 9.a, functional units 28–29. Summary of the stock assessment.

### Stock and exploitation status

**Table 1** Norway lobster in Division 9.a, functional units 28–29. State of the stock and fishery relative to reference points. The status evaluation is based on reference point proxies (ICES, 2017).

		Fishing pressure				Stock size			
		2014	2015	2016		2014	2015	2016	
Maximum Sustainable Yield	$F_{MSY}$ proxy	✓	✓	✓	Below	$MSY B_{Trigger}$ proxy	?	?	?
Precautionary Approach	$F_{pa}$ , $F_{lim}$	✓	✓	✓	Below possible reference points	$B_{pa}$ , $B_{lim}$	?	?	?
Management plan	$F_{MGT}$	—	—	—	Not applicable	$SSB_{MGT}$	—	—	—
Qualitative evaluation	-					-	↗	↘	↗



**Figure 2** Norway lobster in Division 9a, functional units 28–29. Index ratio ( $F/F_{MSY\ proxy}$ ) estimated from a length-based analysis. The mean-length Z method (ICES, 2015) is applied, assuming knife-edge length selection.

### Catch options

The ICES framework for category 3 stocks was applied (ICES, 2012). The standardized commercial cpue was used as the index of stock development. The advice is based on a comparison of the two latest index values (index A) with the three preceding values (index B), multiplied by the recent advised catch.

The index is estimated to have increased by less than 20% and thus the uncertainty cap was not applied. Although stock size is unknown, the fishing mortality has been estimated to be well below the MSY reference proxy for over a decade and remains at a low level (Figure 2). Therefore, no additional precautionary buffer was applied.

Discarding is negligible.

**Table 2** Norway lobster in Division 9.a, functional units 28–29. The basis for the catch options.\*

Index A (2015–2016)		6.0 kg h <sup>-1</sup>
Index B (2012–2014)		5.6 kg h <sup>-1</sup>
Index ratio (A/B)		1.08
Uncertainty cap	Not applied	-
Advised catch for 2017		260 tonnes
Discard rate		Negligible
Precautionary buffer	Not applied	-
Catch advice**		281 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.

\*\* [advised catch for 2017] × [index ratio].

### Basis of the advice

**Table 3** Norway lobster in Division 9.a, functional units 28–29. The basis of the advice.

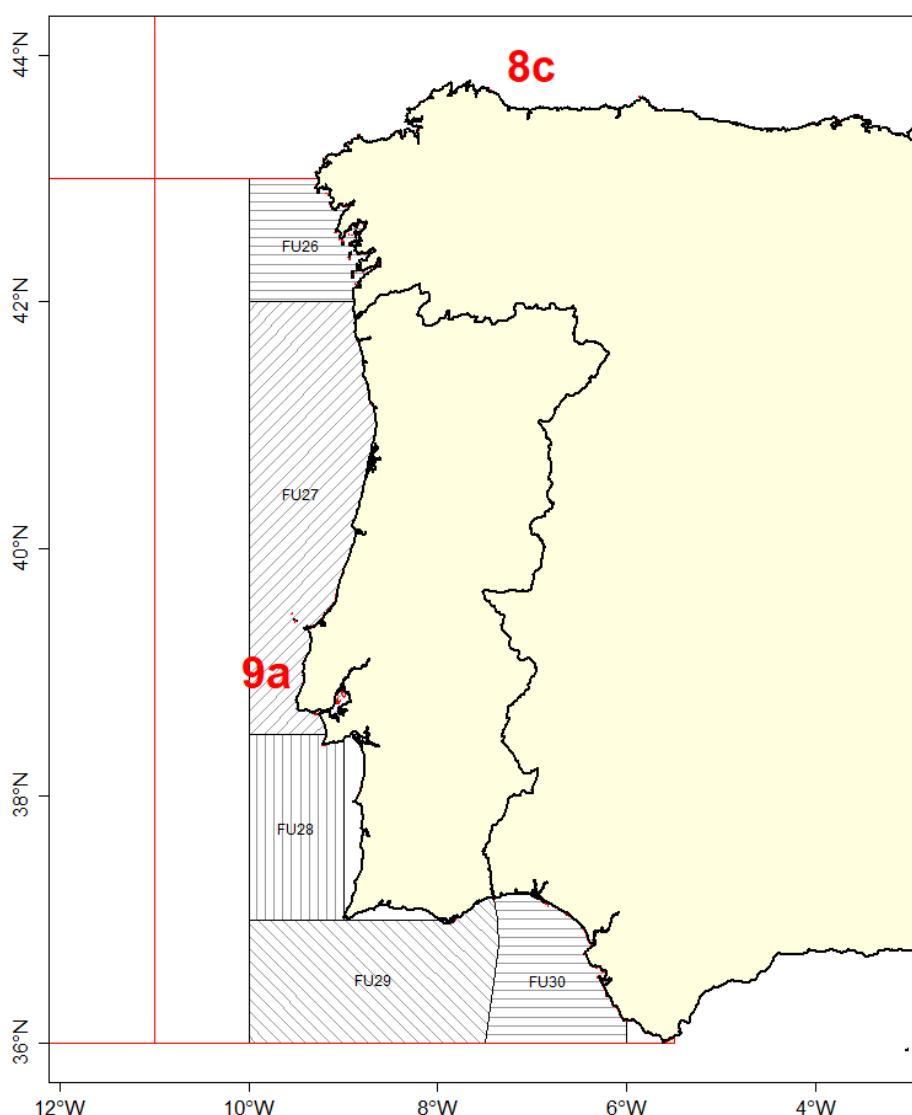
Advice basis	Precautionary approach.
Management plan	A recovery plan for southern hake and Norway lobster was agreed by the EU in 2005 (EU, 2005, Appendix 7.3.7). This plan is based on precautionary reference points for southern hake that are no longer appropriate.

### Quality of the assessment

Spanish vessels have been licensed for crustacean fisheries in these functional units under a bilateral agreement since 2004. Prior to 2011, no data from the operations of these vessels are available. Landings include Spanish official landings since 2011.

### Issues relevant for the advice

ICES advises that the management area should be consistent with the assessment area (Figure 3).



**Figure 3** Norway lobster in Division 9.a, functional units 28–29. Map of functional units.

The analyses on which the proxy reference points are based was reapplied in 2017, with additional data. The natural mortality values used in the analysis were revised; the values used this year ( $M = 0.3$  for males and  $M = 0.2$  for females) correspond to the ones traditionally considered to be most appropriate for this *Nephrops* stock (ICES, 1995). This resulted in updates to the  $F_{MSY}$  proxy values. The new values are presented in Table 4.

## Reference points

**Table 4** Norway lobster in Division 9.a, functional units 28–29. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{\text{trigger proxy}}$	Not defined		
	$F_{\text{MSY proxy}}$	0.23 males; 0.24 females	$F_{0.1}$ from a length-based analysis, estimated using the mean-length Z method and assuming knife-edge length selection.	ICES (2017)
Precautionary approach	$B_{\text{lim}}$	Not defined		
	$B_{\text{pa}}$	Not defined		
	$F_{\text{lim}}$	Not defined		
	$F_{\text{pa}}$	Not defined		
Management plan	$SSB_{\text{mgt}}$	Not defined		
	$F_{\text{mgt}}$	Not defined		

## Basis of the assessment

**Table 5** Norway lobster in Division 9.a, functional units 28–29. Basis of the assessment and advice.

ICES stock data category	3 (ICES, 2016).
Assessment type	Trends from standardized commercial cpue.
Input data	Commercial catches (Portuguese catches 1984–2016 and Spanish catches 2011–2016); one commercial index (standardized cpue from the Portuguese crustacean trawl fleet, 1998–2016).
Discards and bycatch	Not included and considered negligible.
Indicators	Biomass index from the crustacean trawl survey (PT-CTS; 1998–2016), mean length in commercial catches and in surveys.
Other information	The last inter-benchmark protocol (IBP) was conducted in 2012.
Working group	Working Group for the Bay of Biscay and the Iberian Waters Ecoregion ( <a href="#">WGBIE</a> )

## Information from stakeholders

There was no information available.

## History of the advice, catch, and management

**Table 6** Norway lobster in Division 9.a, functional units 28–29. ICES advice and official landings. All weights are in tonnes.

Year	ICES advice	Predicted catches correspond. to advice	Agreed TAC *	ICES landings	ICES discards
2003	Zero catches	0	600	370	0
2004	Zero catches	0	600	375	10
2005	Zero catches	0	540	391	30
2006	Average landings in times when stock was recovering (1996–2002)	< 200	486	291	0
2007	Average landings in times when stock was recovering (1996–2002)	< 200	437	291	0
2008	Average landings in times when stock was recovering (1996–2002)	< 200	415	223	0
2009	Average landings in times when stock was recovering (1996–2002)	< 200	374	151	0
2010	No new advice, same as for 2009	< 200	337	147	0
2011	See scenarios	-	303	150	0
2012	Reduce catch	-	273	229	0
2013	Reduce catch by 14%	110	246	209	3
2014	No new advice, same as for 2013	110	221	193	0
2015	Increase catch by up to 14%	226	254	247	0

Year	ICES advice	Predicted catches correspond. to advice	Agreed TAC *	ICES landings	ICES discards
2016	No new advice, same as for 2015	226	320	283	0
2017	Precautionary approach	≤ 260	336		
2018	Precautionary approach	≤ 281			
2019	Precautionary approach	≤ 281			

\* TAC set for the entire ICES Division 9.a.

### History of the catch and landings

**Table 7** Norway lobster in Division 9.a, functional units 28–29. Catch distribution by fleet in 2016 as estimated by ICES.

Catch (2016)	Landings		Discards
283 tonnes	Trawl 97%	Artisanal 3%	negligible
	283 tonnes		

**Table 8** Norway lobster in Division 9.a, functional units 28–29. History of commercial catch and landings; both the official and ICES estimated values are presented by area for each country participating in the fishery. All weights are in tonnes.

ICES estimated values are presented by area for each country participating in the fishery. All weights are in tonnes.						
Year	Official landings					Total ICES landings
	Spain		Portugal			
	FU 28*	FU 29	FUs 28 and 29			FUs 28 and 29
	Trawl	Trawl	Artisanal	Trawl	Total	
1975	137	1510		34	34	1681
1976	132	1752		30	30	1914
1977	95	1764		15	15	1874
1978	120	1979		45	45	2144
1979	96	1532		102	102	1730
1980	193	1300		147	147	1640
1981	270	1033		128	128	1431
1982	130	1177		86	86	1393
1983				244	244	244
1984				461	461	461
1985				509	509	509
1986				465	465	465
1987			11	498	509	509
1988			15	405	420	420
1989			6	463	469	469
1990			4	520	524	524
1991			5	473	478	478
1992			1	469	470	470
1993			1	376	377	377
1994				237	237	237
1995			1	272	273	273
1996			4	128	132	132
1997			2	134	136	136
1998			2	159	161	161
1999			5	206	211	211
2000			4	197	201	201
2001			2	269	271	271
2002			1	358	359	359
2003			35	335	370	370
2004			31	345	375	375
2005			31	360	391	391

Year	Official landings					Total ICES landings
	Spain		Portugal			
	FU 28*	FU 29	FUs 28 and 29			FUs 28 and 29
	Trawl	Trawl	Artisanal	Trawl	Total	
2006			17	274	291	291
2007			18	274	291	291
2008			35	188	223	223
2009			17	133	151	151
2010			16	131	147	147
2011		17	16	117	133	150
2012	<1	14	3	211	214	229
2013		10	1	198	199	209
2014		8	3	183	186	193
2015		12	4	231	235	247
2016**		21	8	254	262	283

\*Spanish landings in FU 29 include catches in FU 28.

\*\* Preliminary values.

### Summary of the assessment

**Table 9** Norway lobster in Division 9.a, functional units 28–29. Assessment summary.

Year	standardized cpue kg h <sup>-1</sup>	std. cpue + 2 s.d.	std. cpue -2 s.d.	Landings tonnes
1984				461
1985				509
1986				465
1987				509
1988				420
1989				469
1990				524
1991				478
1992				470
1993				377
1994				237
1995				273
1996				132
1997				136
1998	1.83	1.74	1.92	161
1999	2.65	2.53	2.77	211
2000	1.83	1.76	1.91	201
2001	3.39	3.27	3.52	271
2002	5.35	5.17	5.54	359
2003	7.17	6.92	7.42	370
2004	4.73	4.54	4.92	375
2005	6.23	6.00	6.46	391
2006	6.25	6.03	6.47	291
2007	5.78	5.58	5.98	291
2008	5.60	5.40	5.80	223
2009	4.96	4.78	5.14	151
2010	4.97	4.78	5.16	147
2011	4.38	4.22	4.55	150
2012	5.24	5.04	5.45	229
2013	5.71	5.49	5.93	209
2014	5.74	5.51	5.97	193
2015	5.27	5.08	5.47	247
2016	6.75	6.50	7.01	283
<b>Average</b>	<b>4.94</b>	<b>4.75</b>	<b>5.13</b>	<b>309</b>

## Sources and references

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