

Stock Annex: Norway lobster (*Nephrops norvegicus*) in Division 8.c, Functional Unit 31 (southern Bay of Biscay and Cantabrian Sea)

Stock specific documentation of standard assessment procedures used by ICES.

Stock:	Norway lobster
Working Group:	Working Group for the Bay of Biscay and the Iberic waters Ecoregion (WGBIE)
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A. General

A.1. Stock definition

Nephrops stock from FU 31 extends in two main patches located in the central and in the eastern most Cantabrian Sea respectively.

A.2. Fishery

The description of these fisheries was updated and reported in STECF (2003). Mackerel and horse mackerel contribute 80% of the landed species by the beam bottom-trawl fleet in the Cantabrian Sea, while hake and *Nephrops* together represent only 1% of the total landings by this fleet. Other trawl components operating in the Cantabrian Sea (namely HVO trawl and pair trawl) do not catch *Nephrops*.

Nephrops is managed in the area by an annual TAC (applying to the whole of ICES Division 8.c) and technical measures. European Union regulations establish 20 mm carapace length (CL) as a minimum landing size. A recovery plan for southern hake and Atlantic Iberian *Nephrops* stocks was implemented and enforced since 2006 (EC, 2166/2005). The aim of the recovery plan is to rebuild the stocks within 10 years, with a reduction of 10% in F relative to the previous year and the TAC set accordingly.

A Fishing Plan for the Northwest Cantabrian ground was established in 2013 (AAA/1307/2013). This new regulation establishes an assignation of the quotas by vessel including *Nephrops*.

A.3. Ecosystem aspects

Nephrops is a burrowing species and occurs on muddy seabed on the continental shelf and upper slope. The distribution of *Nephrops* in this area is limited to depths ranging from 90–600 m in a patch work configuration where the substratum is suitable. Its distribution is more determined by ground type and sea temperature than depth. They are sedentary but they can leave this burrow to look for food and for the reproduction.

After reaching sexual maturity, males moult more frequently than females, consequently growing faster. Mating takes place just after the females moult. Eggs are fertilized when they are laid and they attach under the female abdomen. Berried *Nephrops*

stay most of the time in their burrows. Egg loss is significant during incubation. When they hatch larvae are pelagic for one month, then after metamorphosis the small *Nephrops* settle on the seabed. The emergence patterns of the *Nephrops* females during the incubation period results in a different exploitation pattern for each sex.

Nephrops are omnivorous but polychetes, crustaceans, molluscs and echinoderms are its favourite prey. There are not reports on *Nephrops*' predators in the area.

B. Data

B.1. Commercial catch

Landings

Landings were reported only by Spain and they are available for the period 1983-2015. Data used in FU 31 were based on IEO scientific estimations based on sale sheets and Owners Associations where the *Nephrops* landings allocation was carried out based on landing port criteria. Since 2011, the Spanish Authority for Fisheries (Secretaría General de Pesca, SGP) who is also the National Authority for the Data Collection Framework established a new policy and general approach in the provision of official data on catches and fishing effort. So, since 2011 *Nephrops* landings are official landings.

Discard

Nephrops discards are negligible in this fishery.

B.2. Biological

Annual length frequencies by sex of *Nephrops* landings are collected by the sampling program since 1988. The sampling data of Aviles and Santander fleet are raised to the total landings by market category and month.

B.3. Surveys

Abundance indices of *Nephrops* FU 31 could be derived from the Spanish groundfish survey (SP-GFS) carried out to collect information on abundance of demersal species. The survey uses a stratified random sampling design with half hour hauls and covers the northwest area of Spain, from Portugal to France, during September–October since 1983 (except 1987). The information is not taken into account due to the surveys are not designed for *Nephrops* and are not carried out in the main *Nephrops* fishing season.

B.4. Commercial cpue

The fishing effort and LPUE dataserie includes three bottom-trawl fleets operating in the Cantabrian Sea with home harbours in Avilés, Santander and Gijón. In last years, the information of the different fleets is intermittent, although Santander dataserie is the longest (up to 2013). A new effort series including the Santander, Avilés and Gijón effort and lpue together from 2009–2015 is used (ICES, 2015a).

B.5. Other relevant data

C. Historical Stock Development

At present, no assessment is carried out in this working group. The low levels of landings and fishing effort are insufficient to carry out an adequate assessment. The last analytical assessment of FU31 was conducted in 2002 (ICES, 2002).

Since 2012, the advice for this stock was based on fishery LPUE and effort trend, according to the ICES data-limited approach (ICES, 2012). This stock is classified in the category 3.1.4. of Data Limited Stocks (DSL), stocks with extremely low biomass.

D. Short-Term Projection

E. Medium-Term Projections

F. Long-Term Projections

G. Biological Reference Points

Proxies of MSY reference points were defined using the methods developed in WKLIFE and WKProxy (ICES, 2015b, 2016). $F_{0.1}$, taken as proxy of F_{MSY} , from length-based analysis for the period 2001–2014 was 0.28 for males and 0.47 for females but the value of MSY $B_{trigger}$ proxy is not available.

H. Other Issues

I. References

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