Stock Annex: Cuckoo ray (*Leucoraja naevus*) in Division 8.c (Cantabrian Sea)

Stock specific documentation of standard assessment procedures used by ICES.

Stock: Cuckoo ray

Working Group: Working Group on Elasmobranch Fishes (WGEF)

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Authors:

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Last updated by: Guzman Diez, Pascal Lorance

A. General

A.1. Stock definition

The cuckoo ray (*Leucoraja naevus*) is distributed in the North-Eastern Atlantic from the North of Norway and Iceland to the Sudivison 9.a south in European waters. It can be found further south in the Mediterranean sea and off Africa from Morocco to Senegal. The stock was formerly included in the management unit of the demersal elasmobranch in the Bay of Biscay and Iberian waters ecoregion.

A.2. Fishery

L. naevus is the most common species in the Spanish and French trawl demersal fishery along the Cantabrian Sea (8.c) and Bay of Biscay (8.a,b,d) trawler in 8.a,b,d making approximately 65% of the total rays landing in this subarea since 1999. In the Basque Country waters (8.c), the coastal artisanal (trammel net), fishery targets demersal teleost species (mainly hake, monkfish and mackerel), but also several skates and rays species. In this fishery *L. naevus* is the third most abundant species after *R. clavata* and *R. montagui*

A.3. Ecosystem aspects

It is a demersal species found in depth range 20 - 500 m, but usually 20 - 250 m. It seems to be more abundant sandy and muddy bottoms.

B. Data

B.1. Commercial catch

The landing estimates (tonnes) of this species in subarea 8 since 1999 are given in the table below. Increasing landings might be ascribed to the reporting of rays and skates landings in an aggregated category in earlier years.

	LANDINGS 8 (T)
	L. naevus
1999	319
2000	999
2001	867
2002	871
2003	884
2004	951
2005	1175
2006	847
2007	743
2008	1011
2009	1298
2010	1065
2011	1016
2012	1023
2013	1350

Discard estimates of the OTB Spanish fleet in 2013 were 52 t (4% of total *L. naevus* Spanish landings) .

B.2. Biological

According a recent study carried out in subarea 8 the percentage of adult females in 3a (spawning capable) and 3b (actively spawning) stages indicates that individuals of both stages coexist simultaneously throughout the year and a proportion of the total cuckoo rays sampled (usually <20%) is in spawning stage at any time, except in perhaps the months of June-July and December.(G. Diez pers. comm.)

B.3. Surveys

This species is found in the Spanish IEO Q4-IBTS survey (8.c), ITSASTEKA survey (8.c East) and in the French EVHOE Survey in 8.a,b,d.

The EVHOE survey shows that a large patch were the species is abundant straddles across the limit of the eco-region to the Celtic Seas (Figure 1).
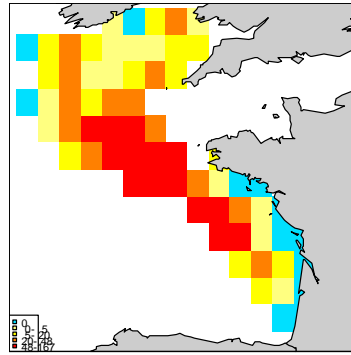
Figure 1. Spatial distribution of catches of cuckoo ray in the EVHOE survey years 1997-2013 combined.

Population indices are available from the EVHOE survey both for the part of the stock in subarea 8 since 1987 and for the enlarged survey coverage in 7 and 8 since 1997 (Figure 2).
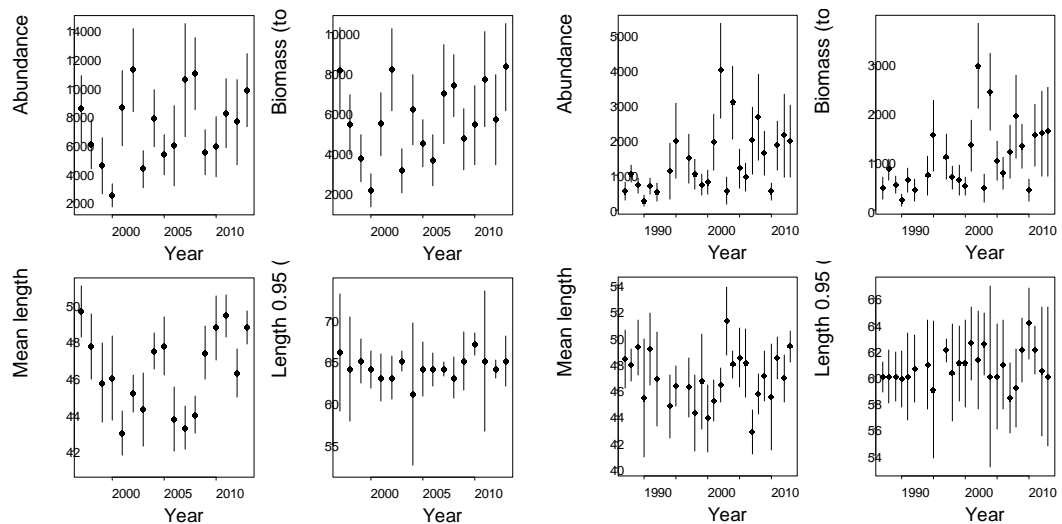

Figure 2. Populations indices of cuckoo ray (*Leucoraja naevus*), (left) ICES Division 5.g,k and 8.a,b,d (1997-2013) and (right) Division 8.a,b,d (1987-2013). Abundance and biomass are relative stratified indices raised to the whole area surveyed (swept area method), mean length and 0.95 perscentile of the length distribution are stratified estimates.

B.4. Commercial Effort and CPUE

Data of nominal LPUE -series for the Basque Country's OTB DEF>=70 in Subarea 8 from 2001 to 2013 is available for L. naevus. Acoording this information the L. naevus LPUE has been above 100 kg/day except in 2002, 2009, 2010 and 2013.The lowest peak was observed in 2010 with 44 kg/day and the highest in 2007 with 169 kg/day.

B.5. Other relevant data

C. Assessment: data and method

Model used: None

Survey trends-based assessment using the Spanish IEO Q4-IBTS survey (8.c), ITSASTEKA survey (8.c East) and in the French EVHOE Survey in 8.a,b,d.

D. Short-Term Projection

E. Medium-Term Projections

F. Long-Term Projections

G. Biological Reference Points

H. Other Issues

H.1. Historical overview of previous assessment methods

I. References

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