

Stock Annex: Thornback ray (*Raja clavata*) in Division 7.e (western English Channel)

Stock specific documentation of standard assessment procedures used by ICES.

Stock: Thornback ray

Working Group: Working Group on Elasmobranch Fishes (WGEF)

Created:

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A. General

A.1. Stock definition:

The stock identity of *Raja clavata* in 7.e is unclear. In 2012 advice it was merged with 7d as a 3a47de stock, in 2014 we decided to keep it as a potential unit before to have more valuable information to reattach or not this stock to 7.d. Data from surveys are available (CGFS and BTS in 7.d and 4.c, BTS in 7.e) together with these from the French fisheries observer program. These data show a gap at the limit between 7.e and 7.d (Figure 1 and 2), this area is known to be very rough and not adapted to bottom trawling. The North of Cotentin is known to be a biogeographical limit for some populations, therefore we are waiting more informations coming from studies in progress (tagging, genetic).

A.2. Fishery:

This species is historically mainly exploited by France and UK as a by catch by the trawlers, and as a target species by netters and long liners.

A.3. Ecosystem aspects:

Nurseries occur in shallow waters of the Normano-Breton Gulf (Bay of Mont St Michel, Bay of St Brieuc, West coast of Cotentin), Leblanc and Al., 2014.

B. Data

B.1. Commercial catch:

This species is easy to recognize and very popular on the market, this situation suggest that the specific declarations are good, but it is know that it can by declare locally as various skates. From 2008 onwards the EC has obliged member states to provide species-specific landings data for the major North Sea skates species including *Raja clavata*. This measure is in favour of an increase of the quality of the data coming from industry.

B.2. Biological:

This species is one of the best known skates and its knowledge is progressing with the new studies on skates triggered by the Undulate ray ban in 2009 (Stéphan, 2014).

Movement patterns: tagging experiments are in progress from France and UK (Channel island) in the Normand-Breton Gulf (Stéphan, 2014).

Results from population genetic structure are also in progress.

B.3. Surveys:

French CGFS in 7.d, IBTS in 7.d-4., English BTS in 7.d-4.c, English BTS in 7.e, French miscellaneous survey not dedicated but catching skates (COMOR, NURSOM, NURSEINE). A new French bottom otter trawl survey in 7.e is planned at autumn 2014 (CAMANOC).

The distribution of the species seems relatively stable during all the series with a regular dominance in the central part of the 7.d. The Eastern part shows some connections with the southern North Sea, it's not the case in the Western part where the species is never found (but where the sampling effort is limited).

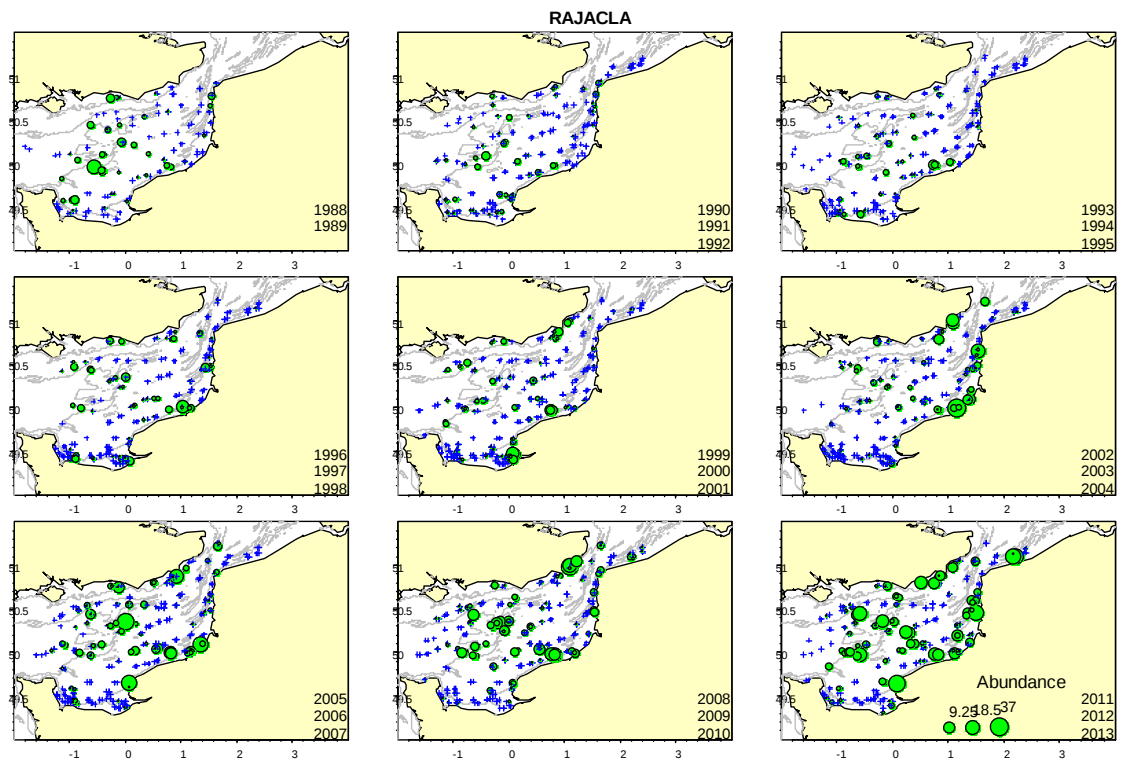


Figure 1.-Spatial distribution of Thornback ray (*Raja clavata*) in 7.d from CGFS. The number of fish caught per haul (green circles) is shown for groups of three years. Hauls with no catch of the species are represented by a blue cross (+).

B.4. Commercial CPUE:

Data are available from landings, fisheries observer program and inquiries for some projects (e.g. French RAIMOUEST project).

The French fisheries observer program shows that the main distribution is the 7.d and that there is clearly a link with the 4.c (Fig. 2). As with CGFS data we observed off the North of Cherbourg a none sampling area. This area is known to be very rough and not adapted to trawling (nevertheless we have some coastal trawl catches near Cherbourg, skates may caught by longlining, but unfortunately this metier is not sampled).

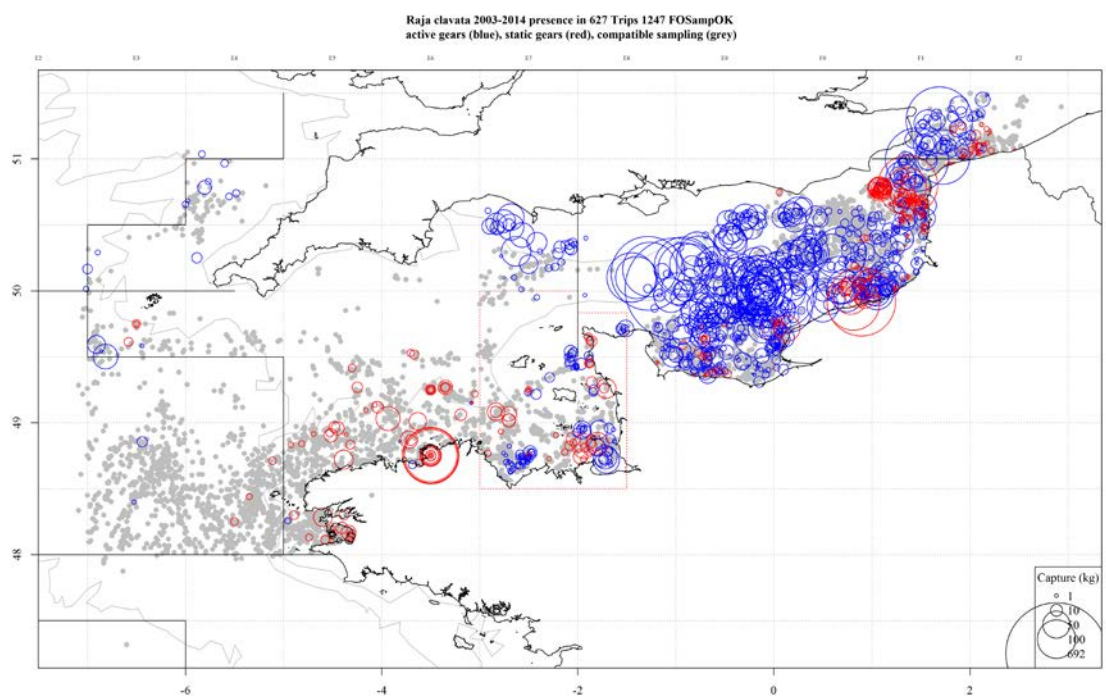


Figure. 2.- French fisheries observer program: *Raja clavata* catches (kg) in the English Channel and adjacent areas from 2003 to the first quarter 2014 (grey dots: hauls from gears susceptible to catch skates with no catch of *R. clavata*; open circles catch in weight of *R. clavata*, blue: towed gears, red: passive gears). Each circle corresponds to one sampled fishing operation.

UK BTS in 7.e shows that Thornback ray is mostly captured in Lyme Bay, North of the Western part of 7.e (Silva WD WGEF2014).

French EVOHE (Figure 3) indicates no connections with 7.h.

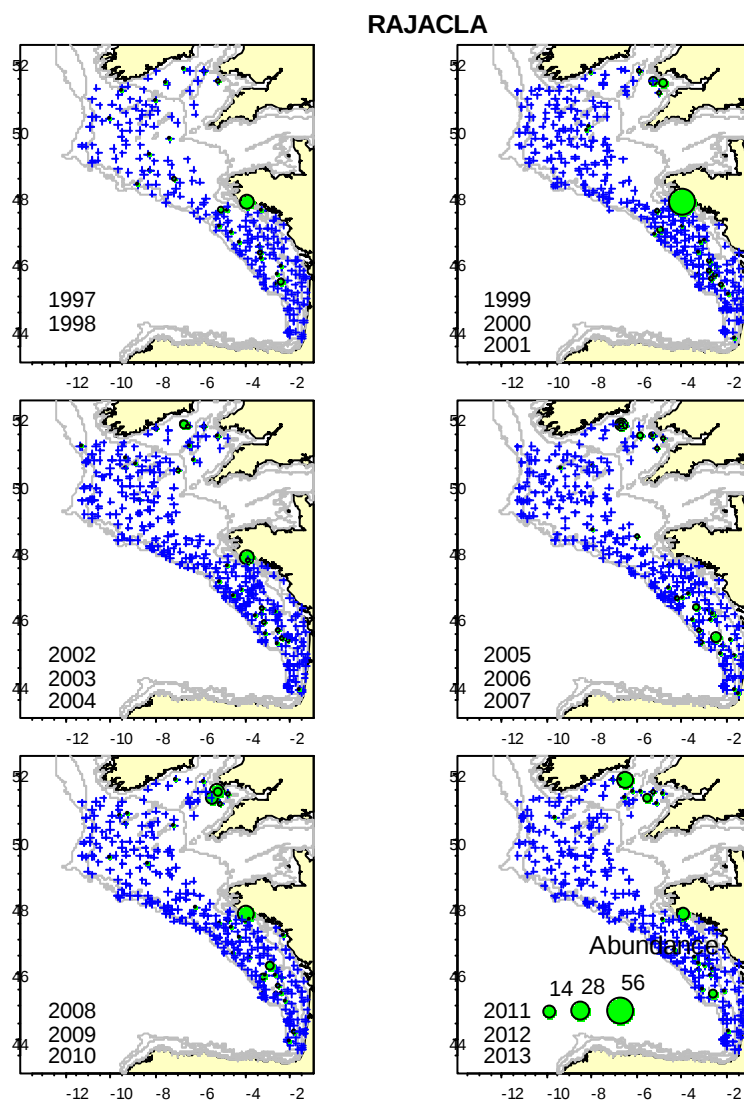


Figure 3.-Spatial distribution of Thornback ray (*Raja clavata*) in 7.d from EVOHE. The number of fish caught per haul (green circles) is shown for groups of three years. Hauls with no catch of the species are represented by a blue cross (+).

B.5. Other relevant data:

C. Assessment: data and method

Model used:

Software used:

Model Options chosen:

Input data types and characteristics:

D. Short-Term Projection

Model used:

Software used:

Initial stock size:

Maturity:

F and M before spawning:

Weight at age in the stock:

Weight at age in the catch:

Exploitation pattern:

Intermediate year assumptions:

Stock recruitment model used:

Procedures used for splitting projected catches:

E. Medium-Term Projections

Model used:

Software used:

Initial stock size:

Natural mortality:

Maturity:

F and M before spawning:

Weight at age in the stock:

Weight at age in the catch:

Exploitation pattern:

Intermediate year assumptions:

Stock recruitment model used:

Uncertainty models used:

1. Initial stock size:
2. Natural mortality:
3. Maturity:
4. F and M before spawning:

5. Weight at age in the stock:
6. Weight at age in the catch:
7. Exploitation pattern:
8. Intermediate year assumptions:
9. Stock recruitment model used:

F. Long-Term Projections

Model used:

Software used:

Maturity:

F and M before spawning:

Weight at age in the stock:

Weight at age in the catch:

Exploitation pattern:

Procedures used for splitting projected catches:

G. Biological Reference Points

	TYPE	VALUE	TECHNICAL BASIS
MSY	MSY Btrigger	xxx t	Explain
Approach	FMSY	Xxx	Explain
	Blim	xxx t	Explain
Precautionary	Bpa	xxx t	Explain
Approach	Flim	Xxx	Explain
	Fpa	Xxx	Explain

H. Other Issues

H.1. Historical overview of previous assessment methods

2012 first advice, rjc-347de, years 2013 and 2014

I. References

Leblanc, N., Tetard, A., Legrand, V. E. Stephan, L. Hegron Macé, 2014. RAIMOUEST: the French fishery of rays in the Western English Channel (Vile), 2014 update. Working

Document presented at the Working Group on Elasmobranch Fishes (WGEF) meeting, 17–26th June, 2014.

- E. Stephan, C. Hennache, A. Delamare, N. Leblanc, V. Legrand, G. Morel, E. Meheust, J.L. Jung, 2014. Length at maturity, conversion factors, movement patterns and population genetic structure of undulate ray (*Raja undulata*) along the French Atlantic and English Channel coasts: preliminary results. Working Document presented at the Working Group on Elasmobranch Fishes (WGEF) meeting, 17–26th June, 2014.

French fisheries observer program (<http://sih.ifremer.fr/Description-des-donnees/Les-donnees-collectees/Echantillonnage-des-captures-a-bord-des-navires-de-peche>).

- J. F. Silva, S. R. McCully, J. R. Ellis and S. Kupschus, 2014. Demersal elasmobranchs in the western English Channel (ICES Division VIIe)