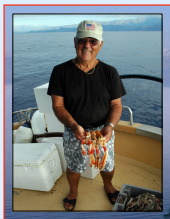

From net to bottom traps: is exploitation of Norway lobsters a suitable option for Corsican common spiny lobster fishermen ?

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Introduction & goal of the study

In Corsica (NW Mediterranean), most of the fishing activity is composed of small-scale artisanal fisheries, and takes place on the western coast. The common spiny lobster (*Palinurus elephas*) is the main target of Corsican netters. However, its populations have been declining since the 1950's, questioning the sustainability of this activity.

Figure 1 – Norway lobster trap hauling on muddy bottom

Figure 2 – A few minutes before shooting Norway lobster traps near Calvi coast

We therefore tried to assess whether the fishing effort, currently mostly focused on common spiny lobsters, could be moved towards other commercially-interesting deep crustaceans, such as the Norway lobster (*Nephrops norvegicus*), through diversification of artisanal fishing practices.

Materials and methods

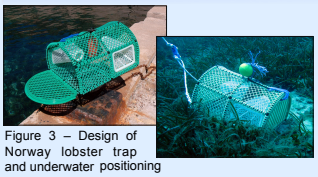


Figure 3 – Design of Norway lobster trap and underwater positioning

With the help of four local fishermen (Fig. 2), we set up Scottish traps for Norway lobsters at depths of 300 to 400 meters, on sandy and muddy bottoms (Fig. 1) of both eastern and western coasts.
We add a one liter buoy on each trap, for a better positioning on the bottom (Fig. 3).

Fishermen have been selected for their motivating and for the technical traits of their boat : high horsepower, hauling capacity…
Each line was composed of 20 or 35 traps, and 2 or 3 lines were hauled per day. The scheme of device is given in figure 4.

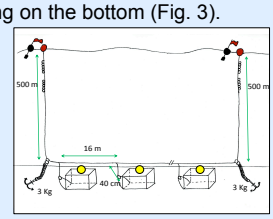


Figure 4 – scheme of device after shooting

Figure 5 – two kind of bait used in the study. A : trawler discards. B : Spanish Bait

Various bait were selected during the trials. In a first time, we used trawler discards, composed mainly by little squales (Fig. 5A, *Scyliorhinus canicula*, *Galeus melastomus*).
We used Spanish bait made from fish flour and oil too (Fig. 5B), packed in wafer and maintained in cold atmosphere.

Results & perspectives

1. Comparison between western and eastern coast in Corsica (Fig. 6)

Twenty day at sea were done on the western coast, and 880 traps were hauled. On the eastern coast, the sample effort is composed by 481 traps, hauled during nine days at sea.

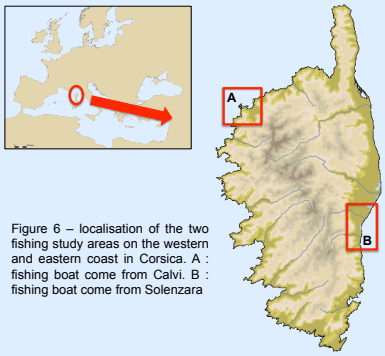


Figure 6 – localisation of the two fishing study areas on the western and eastern coast in Corsica. A : fishing boat come from Calvi. B : fishing boat come from Solenzara

Despite several tests using different baits and soak times at various depths or seasons, catches on the western coast were low. Only 18 Norway lobsters were caught. Mean size is high (i.e. 55 mm CL, 120 g).

On the other hand, on the eastern coast, experimentation showed interesting yields, and large mean size (i.e. high commercial value) for both sexes. 229 individuals were caught.

2. Comparison of yield

In Mediterranean Sea, *Nephrops norvegicus* lives in deep water. On Corsican trawlers, the best catches are found near 300-400 meters deep.

Figure 7 – catches on the eastern coast

The Catch Per Unit of Fishing were very low on western coast with 2,5 g/trap (Tabl. 1). On eastern coast, yield are more important with 41,7 g/trap at mean (Fig. 7).

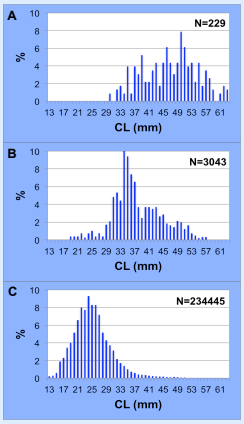
Finally, the CPUE observed in eastern coast of Corsica have an intermediate position between the yield found by Castriota (2004) in the same water and by Morandeau (2007) in Bay of Biscay.

Table 1 – comparative study of different work focused on *Nephrops norvegicus* fishing with trap – CPUE : Catch Per Unit of Effort – Bait : D=Divers, SB=Spanish Bait, M=Mackerel, T=Horse Mackerel, P=Pouting, H=Herring

Source	Fishing Area	Depth (m)	Trap/day	CPUE (g/trap)	Bait
This study	Western Corsica	240-510	40/60	2,5	D, SB
	Eastern Corsica	330-430	35/70	41,7	M
Morandeau (2007)	Bay of Biscay	250/300	59	64	T, M, P
Castriota (2004)	Tyrrhenian Sea	100/300	30	2.9	D
		300/500		23.7	
Morello (2009)	Adriatic Sea	210/235	81	4.31	H

3. Comparison of size distribution

Corsican population have a greater proportion of large Norway lobsters than population of Bay of Biscay (Fig. 8).
When we compare the two gear sample in Corsica, mean size of catches is higher when we used trap against trawler.



This results show the important selectivity effect of traps, where little size is scant.

Figure 8 – comparison for size distributions for trap catches in Eastern Corsica (A), trawler catches in Eastern Corsica (B) and trawler catches in Bay of Biscay (C) (B & C modified according Cornou *et al.*, 2013)

4. Perspectives

While more studies are needed to confirm these results and improve knowledge of Norway lobster stocks, trap fishing of this species on eastern coast of Corsica could be a suitable alternative for diversification of artisanal fisheries.

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We would like to express our gratitude to the captains who accepted to play with us with the Norway lobster traps : Raphael PARRIGI, Joseph RICCO & Eric VILLAIN. A special thanks to Jean-Toussaint LUCCHINI who was volunteer during this study.