

TAGGING EXPERIMENTS ON HAKE, ANGLERFISH AND OTHER SPECIES IN THE BAY OF BISCAY



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Objectives of the tagging experiments:

- To test the adequate gear
- To progress in fish age validation
- To advance in fish migrations knowledge

HAKE

(*Merluccius merluccius*)



ANGLERFISH

(*Lophius piscatorius* & *L. budegassa*)



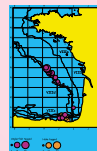
1. SELECTION OF THE MORE ADEQUATE GEAR

An accurate search on the different commercial fleets of the Basque Country that could be used to tag hake and anglerfish in good conditions was carried out.

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|------------------------------|--|------------------------------|---|
| 1) TRAWLERS | ➔ REJECTED (fish flattened & stomach extruded) | 1) GILLNET (700-800 m depth) | ➔ ACCEPTED (for large fish) |
| 2) LONGLINERS (>100 m depth) | ➔ REJECTED (stomach/intestine extruded) | 2) GILLNET (<100 m depth) | ➔ ACCEPTED (for small fish) |
| 3) GILLNETS | ➔ REJECTED (very few fish appear alive or in good conditions) | 3) "BAKA" TRAWL | ➔ ACCEPTED (high abundance of fish in good conditions for tagging) |
| 4) TRAPS | ➔ REJECTED (very few catches) | | |
| 5) PURSE SEINERS | ➔ REJECTED (very low catches) | | |
| 6) LONGLINERS (<100 m depth) | ➔ ACCEPTED (fish in good conditions & in relative abundance) | | |

2. TAGGING LOCATIONS

* ICES Division VIIIc (eastern part):
(in front of the Basque Country coasts)



* ICES Division VIIIc (eastern part):

* ICES Division VIIIb

3. TAGGING PERIOD

- * The exploratory tagging started in Autumn 1998 (1 week)
- * It continued in Spring (May-June) 1999 (2 weeks)
- * It finished in Spring 2000 (2 weeks)

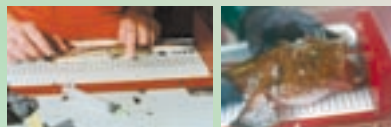
- * The exploratory tagging started in Autumn 1998 (1 week)
- * It continued in Spring (May-June) 1999 (3 weeks)
- * It finished in Spring 2000 (2 weeks)

4. TAGGING PROCEDURE

Fish captured in good conditions were placed into to a pond with continuous flux of sea water for observation during 5-60 min.

EXTERNAL TAGGING

- * Fish measured to lower cm
- * Fish tagged with T-Bar Anchor type tags ("spaguetti" tags)
- * Tags inserted close to the 1st-2nd dorsal fins

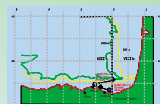


INTERNAL TAGGING

- * By means of tetracycline (diluted antibiotic terramycin) in injectable solution
- * Dose: 50 mg oxytetracycline/kg fish.
- * Injection into the ventral part of the body, approximately in the intestinal area.



5. PRELIMINARY RESULTS

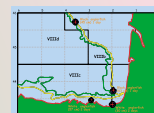


HAKE TAGGED

- * 152 fish were tagged internal and externally along 21 days.
- * Fish total length range: 22-70 cm

2 HAKE RECOVERED

- 1) In December 1998, 35 days after the tagging, one hake of 49 cm was recaptured at 16 nautical miles towards west from where the fish was tagged.
- 2) In June 1999, 24 days after the tagging, one hake of 56 cm was recaptured at approximately 20-30 nautical miles towards east from where the fish was tagged.



ANGLERFISH TAGGED

- * 115 White Anglerfish (20-82 cm) and
- * 213 Black Anglerfish (27-79 cm) were tagged internal and externally, along 40 days of work at sea.

4 ANGLERFISH RECOVERED

- 1) In June 1999, 2 days after the tagging, one White Anglerfish of 57 cm was recaptured almost at the same place where fish was tagged.
- 2) Along the spring 2000, two Black anglerfish (63 and 45 cm) were recaptured 1 day after being tagged and one White anglerfish (30 cm), 2 days after being tagged. All recoveries occurred at almost the same place where fish were tagged.

6. PRELIMINARY CONCLUSIONS

- 1) It is possible to tag and recover hake in good conditions.
- 2) Longliners working on shallower waters seem to be the gear most adequate to be used to tag hake.
- 3) For tagging hake, two people on board are required.

- 1) The otter "baka" trawl result to be the most suitable gear to obtain Anglerfish in relatively larger number, medium size and in good condition for tagging. (Gillnets capture small and large Anglerfish also in good conditions, but they were more expensive because of the relatively low number of the fish caught by trip).

- 2) For tagging Anglerfish only one person is needed on board.

ACKNOWLEDGMENTS

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OTHER FISH TAGGED

- * 105 Atlantic Horse mackerel (*Trachurus trachurus*) (25-39 cm)
- * 5 Mediterranean Horse mackerel (*T. mediterraneus*) (35-52 cm)
- * 8 Blue Horse mackerel (*T. picturatus*) (36-42 cm)
- * 3 Atlantic mackerel (*Scomber scombrus*) (40-46 cm)
- * 8 Spanish (Chub) mackerel (*S. japonicus*) (36-47 cm).

OTHER FISH RECOVERED

In December 1998, 45 days after the tagging, one Horse mackerel of 33 cm total length was recaptured.

The recapture occurred close to the place where it was tagged.