EXPERIMENTAL FISHING

Understanding the evolution of fish communities and the impact of the implementation of the Professor Luiz Saldanha Marine Park on these communities.

BIOMARES Program
Task start: 2007

INTRODUCTION

The monitoring of the Arrábida Marine Park, and in reality, of all reserves, is essential to understand the impact of its implementation. Experimental fishing allows us to understand the changes caused by the creation of protection areas with regard to the ichthyofauna of mobile substrates (fish with sand and mudflats).

These data are essential to understand the extent to which the objectives of conservation and protection are being achieved. This information is essential for adaptive management of marine protected areas.

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OBJECTIVE

To understand the evolution of fish communities associated with mobile funds, and the impact of the implementation of the Marine Park in these same communities over time.

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METHODS

For experimental fishing, nets with technical characteristics similar to those of local fishermen are used. The campaigns are also carried out on board a local fishing vessel.

The nets (500 m) are launched after sunrise and collected approximately 24 hours later, in the total protection zone, in two partial protection zones and in the complementary protection zone, in two depths and types of bottom:

1. 10-18 m (sand)
2. 30-40 m (sludge).

The technical team records the data on board (geographical position of the move, duration of the move, identification and length of each catch).

All catches are released alive when possible. Only individuals who raise doubts about identification are retained for laboratory analysis. The data are analyzed using appropriate statistical techniques to assess the effectiveness of protection, changes in the structure of communities and the average size.

TASK PERIOD AND DURATION

Experimental fisheries took place between autumn 2007 and autumn 2019, with campaigns in spring and autumn.

Note: for several reasons, no campaigns were carried out between Spring 2015 and Spring 2019.

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Figure 1. **Measuring the length of common torpedo (*Torpedo torpedo*).** In experimental fishing, one of the factors that is evaluated is the average length of each animal and the value of the catch per unit of effort (500 m of net), in relation to the different levels of protection.

MAIN RESULTS

The evaluation of the impact of experimental fishing showed that the method used is effective given the low selectivity, both in terms of species and in terms of size. In addition, this method has a high survival rate, mainly for the most important species (ecologically and economically), having a relatively low impact on local ecosystems.

Preliminary analyzes detected a significant increase in biomass between the period of implementation and the period after the implementation of the Marine Park. The composition of fish communities in mobile habitats (sand and drain) is different between different levels of protection and different depths. The differences recorded between the complementary protection zone and the others (total and partial) are probably due to the fact that it is allowed to fish with nets (trammel nets and gillnet) in the complementary protection zone. The increase in biomass in the areas of total and partial protection, and the positive trends (increase in biomass and / or abundance, as well as the average size) suggest that the Marine Park may have an important role in the protection of some species.

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