

“SARDONE”

Improved management of small pelagic fish populations in the Mediterranean

*In the Mediterranean, stocks of small pelagic species, such as sardine (*Sardina pilchardus*) and anchovy (*Engraulis encrasicolus*), have repeatedly been reported to be overexploited. At the same time, the particular life history of these species – which are highly mobile, feed on plankton and have a short life span – makes them particularly sensitive to environmental changes. Their response to climatic variations can be quick and dramatic, giving rise to big year to year fluctuations in the abundance of these fish populations and making long-term stock assessment and management virtually impossible.*

Fish population dynamics are generally found to be largely controlled by recruitment, which can be defined as the amount of fish that is added to an exploitable stock each year due to growth and/or migration into the fishing area. Understanding changes in recruitment strength is of utmost importance for good fisheries management. These changes are commonly attributed to variations in spawning stock size and environmental variability. Surprisingly little is known, however, about the reproductive habitat structure and premature (post-larval) stages of anchovy and sardines in the Mediterranean. This lack of knowledge is an impediment to the efficient management of the fisheries.

The EU-funded **SARDONE** project is aimed at developing a series of **tools to improve stock assessment and fishery management of small pelagic fish resources** in the Mediterranean.

Characterisation of essential habitats for juvenile small pelagic fish in the Mediterranean

Currently, existing data from summer surveys are being analysed to study the distribution of juvenile sardine. In addition, new standardized autumn/winter acoustic surveys are being conducted to investigate juvenile anchovy and a hydrodynamic

study on egg and larvae drift will be started. The latter will include the development of a tool simulating the advection of eggs, larvae and late larvae from spawning areas. This way, a sound scientific basis for the localisation and quantification of late larvae concentration will be established, which will allow for the mapping and modelling of juvenile presence/abundance in relation to topographic and oceanographic variables.

In conjunction herewith, a methodology for post-larval monitoring using echo-sounders and fine mesh sampling gear is being developed, so as to enable the harmonisation of acoustic methods for the estimation of juvenile fish abundance. Following this, guidelines for the application of acoustic recruitment surveys in the Mediterranean will be produced.

The effects of fry fisheries on stock dynamics

Existing knowledge on fisheries for post-larval sardine and anchovy in the Adriatic and NW Mediterranean will be collected and reviewed, in order to produce a report on fry fisheries data. Following this, a suitable methodology will be selected or developed to assess the impact of fry fisheries on the adult populations of small pelagic fish in the Mediterranean.



Project acronym:

SARDONE

Full title of Project:

Improving assessment and management of small pelagic species in the Mediterranean.

EU contract number:

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Web-site:

<http://www.ismaran.it/ismaran/projects/sardone/sardone.html>

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The ecology of late larvae and juveniles of anchovy and sardine

Important gaps on the ecology of late larvae and juveniles of anchovy and sardine have been identified in the Mediterranean Sea. In order to assess the impact of fisheries targeting late larvae and juveniles of these species, essential information on this subject is needed, with special attention to the impact of the environment. Therefore, the SARDONE project will establish a comprehensive picture of the trophic ecology of these species and study the growth rates of late larvae and early juveniles in different areas of the Mediterranean. Feeding rates and growth during those stages prior to recruitment will then be compared for different locations in the Mediterranean and for different ecological and oceanographic conditions. In a later stage this information will be required to analyse the small pelagic fish dynamics and the effects of fishing.

effects of an experimental rope trawl using horizontal separator panels and 2 superposed cod-ends on the pelagic communities.

Improvement of current stock assessment in the Mediterranean

Existing population dynamic methodologies utilised in Mediterranean and Bay of Biscay (Atlantic) will be reviewed. The applicability of several stock assessment methods currently applied in the Atlantic (Bay of Biscay) to small pelagics (anchovy and sardine) to these species in the Mediterranean sea will also be explored, which might eventually lead to the transfer of selected methods to the Mediterranean.



SOURCE: SARDONE WEB SITE.

“THE SARDONE PROJECT WILL LEAD TO THE FORMULATION OF GENERAL GUIDELINES FOR ASSESSMENT AND MANAGEMENT OF SMALL PELAGIC RESOURCES IN THE MEDITERRANEAN”

Gear selectivity

The selectivity of existing towed gears used to catch small pelagic fishes in the Mediterranean will be defined and improved. New design modifications and selectivity devices for the pair pelagic trawl (Adriatic Sea) and the single rope pelagic trawl (Gulf of Lions) will be tested using computer simulations. In addition, a cruise will be organised to document the direct

In the final stage of the SARDONE project, all the activities of the project will be linked in order to create a useful synthesis of the results. This will eventually lead to the formulation of general **guidelines for assessment and management of small pelagic resources in the Mediterranean** as well as **guidelines for future research in the field of Mediterranean small pelagic resources**.