

AN INTER-REGIONAL COMPARISON OF THE DIET OF EUROPEAN ANCHOVY JUVENILES IN THE ADRIATIC SEA AND IN THE GULF OF LIONS

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Abstract

This work was carried out in the framework of SARDONE project to assess and compare the ecology of juveniles of *Engraulis encrasicolus* (L.) in two important fishing areas of the Mediterranean Sea. Although in the Adriatic Sea the mean zooplankton biomass was much higher than in the Gulf of Lions during autumn 2007, the diet of the anchovy juveniles was based mainly on small copepods in both areas. Anchovy prey selectivity seems to point out the preference for few genera: *Temora*, *Oncaea*, *Euterpina* in the Adriatic and *Temora*, *Microsetella* and *Corycaeus* in the Gulf of Lions.

Keywords: Diet, Pelagic, Gulf Of Lions, Adriatic Sea, Zooplankton

Introduction

Small pelagic fish are essential mid trophic levels of the food web and play a major role in the ecosystems in terms of trophic flows and biomasses in the Mediterranean Sea [1, 2]. European anchovy, *Engraulis encrasicolus* (L.), can be found throughout the Mediterranean Sea, being the most important fishery of small pelagic fish in two of the major stocks (North-western Mediterranean and Adriatic Sea). Since the fishing pressure exercised over *E. encrasicolus* is exceptionally high in these areas [1], different studies have been carried out in order to improve the knowledge on the trophic ecology of this species [3, 4]. However, differences in the diet of anchovy juveniles between the Adriatic and the Gulf of Lions have never been studied. Here we present the first work that compares the trophic behaviour of anchovy in these two regions.

Materials and Methods

Two cruises were carried out in the Gulf of Lions (Northwestern Mediterranean) and in the Po river Delta (Northwestern Adriatic Sea) in December and November 2007, respectively. Plankton samples were collected by vertical tows with a standard WP2 net (mesh size of 200 µm) for mesozooplankton, and by means of a modified Calvet net (mesh size of 53 µm), for microplankton. Juveniles of *Engraulis encrasicolus* were captured with a small pelagic trawling net. The total length and the weight of the individuals were measured. The feeding preferences were assessed using the Ivlev's dietary selectivity index [5].

Results and Discussion

In the Adriatic Sea mean microplankton biomass was 67.04 mg*m⁻³ and mesozooplankton biomass was 29.04 mg*m⁻³ while in the Gulf of Lions mean biomass was 11.38 mg*m⁻³ and 7.04 mg*m⁻³ of microplankton and mesozooplankton respectively. Anchovies total length ranged between 45 and 86 mm in the Adriatic Sea, and between 48 and 110 mm in the Gulf of Lions. The composition of the stomach contents in the Adriatic and in the Gulf of Lions was basically made-up of small copepod (adults and copepodites). Ivlev's selectivity index (Fig. 1) pointed out a preference for *Temora* spp., *Oncaea* spp. and *Euterpina acutifrons* in the Adriatic. In the Gulf of Lions, the most highly selected preys were mainly *Microsetella rosea*, *Temora* spp. and *Corycaeus/Farranula*, but decapod larvae and other crustaceans were also positively selected. *Temora* spp. was preferred in the same proportion in both the areas, but, in the Gulf of Lions the feeding selectivity covered a wider range of prey.

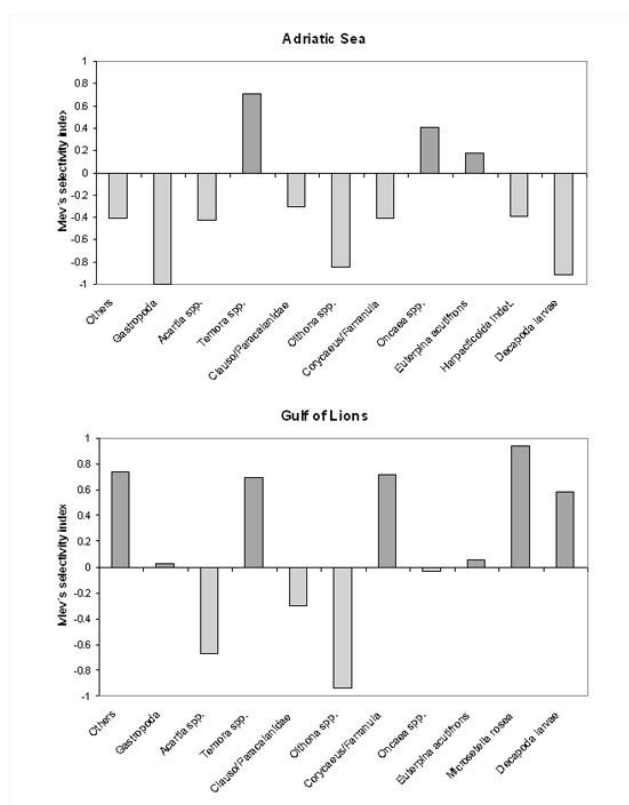


Fig. 1. Ivlev's diet selectivity index of juvenile anchovies

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