SHORT-TERM INVESTIGATION OF THE FISH COMMUNITY IN MALI STON BAY RESERVATION, CROATIA, SOUTHERN ADRIATIC

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Abstract

A short-term study of the coastal fish community was conducted from May till August 2003 in the special reservate in Mali Ston Bay (southern Adriatic, Croatia), using a 25 m long beach seine. A total of 4038 fish specimens, belonging to 14 families and 28 species were caught. Atherinidae (88,18%) dominated the catch: *Atherina boyeri* (81,87%) was the most numerous, while *A. hepsetus* (6,31%), *Gobius genioporus* (2,15%), *Mullus barbatus* (1,95%) and *M. surmuletus* (1,11%) comprised 11,52% in total. The remaining species contributed less than 0,3% of the catch. Most species were present as juveniles. The overall value of richness (D) was 3,25, diversity (H) values were 0,94 and evenness (J) was 0,11. Our preliminary results provide a contribution to the knowledge of the fish assemblage of the Mali Ston Bay.

Key words: fish, biodiversity, Mali Ston Bay, Adriatic

Introduction

Mali Ston Bay is an unpolluted area suitable for the cultivation of the European oyster and Mediterranean mussel. The tradition of oyster and mussel farming in this Bay is centuried old, and it is one of the few areas famous for successful cultivation and fast growth of oysters and mussels. Although there is considerable research on the plankton and shellfish populations, the fish assemblage of Mali Ston Bay is scarcely known (1). The present study provides preliminary data on the fish assemblage in the special reservate in Mali Ston Bay, southern Adriatic.

Matherial and methods

Mali Ston Bay is located between the coast and the peninsula of Pelješac. The waters of the Bay are affected by freshwater discharged by the Neretva river, underground springs and occasional abundant rainfall. The greatest part of Mali Ston Bay was proclaimed as a special reservation at 2002. Sampling was conducted from May till August 2003, in several sites. The sampling sites were mostly on muddy, or sandy-muddy bottoms with rocky boulders and parts overgrown with *Zoostera sp*. To depths of 2 m. Fish samples were collected with beach seine, 25 m long and 5 m high at the central part with central bag. The mesh size was 8 mm at outer wings, and 4 mm at central part of the net. Collected material was kept on ice and brought to the laboratory for identification. Species were identified according to (2) and (3). The community structure was specified by species richness (D), diversity (H) and eveness (J)(4-6).

Results

A total of 4038 fish specimens werecollected, belonging to 14 families and 28 species. The most abundant were members of family Atherinidae with 88,18% of the catch. *Atherina boyeri* (81,87%) was the most numerous, while *A. hepsetus* (6,31%), *Gobius genioporus* (2,15%), *Mullus barbatus* (1,95%) and *M. surmuletus* (1,11%) comprised 11,52% in total. The remaining species contributed less than 0,3% of the catch. The greatest number of species (24) and individuals (1694) was caught in May, while the smallest number of individuals (489) was caught in August. Most species were present as juveniles. The overall value of richness (D) was 3,25, ranging from 2,40 in June to 3,09 in May. The values of diversity (H) was from 0,49 in June to 1,03 in August with an overall value of 0,94. Evenness (J) values were from 0,04 in May to 0,17 in June, with an overall value of 0,11.

Discussion

The taxonomic composition of fishes reported in Mali Ston Bay differs from other protected areas in the Mediterranean (7-9). The difference may stem from different geographical and geomorphological features of the Bay. Mali Ston Bay is semi-closed, with relatively little water exchange and the mostly mud bottom. The low abundance of some species, for example *Diplodus* spp. (except *D. annularis*) could be attributed to the paucity of microhabitats suitable for the settlement of these species. The absence of juvenile stages of *Dicentrarchus labrax* and *Sparus aurata*, typical brackish-water species, possibbly means that this reservate would not act as an spawning and nursery center for these species, but somwhere outside of its border, possible in nearby Neretva river estuary. *Atherina boyeri* made a signifficant contribution to the overall number of individuals of the assemblage as the frequent species of brackish-water ecosystems (10). Similar results were obtained for shallow coves in the middle Adriatic (11). The values of diversity, richness and eveness are slightly lower than values obtained in other bays and estuaries (12-14). This difference may stem from the lower number of species related to the number of individuals. The data collected in this study provides preliminary knowledge of the fish assemblage of the special reservate in Mali Ston Bay.

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