

Monitoring systems of inland fisheries for species management: construction of fisheries indicators and assessment of impacts in the Gironde .

Abstract :

Sustainable management of inland fisheries and their target fish stock requires informations on both the level of catches and the evolution in abundance of the stock. Current monitoring systems of fisheries produce unrealistic results, which do not allow for good management. Based on data from scientific monitoring of professional fisheries in the Gironde, based on voluntary fishermen, we tested methods able to produce robust and reliable fisheries indicators.

Nominal and effective effort and catches are estimated over the period 1946-2006. Abundance indices are also evaluated for allis shad, sea lamprey, glass eel, yellow eel and white shrimp over the same range of years. Biological samples taken from the fishery allowed us to reinforce the diagnosis made on species abundance and explained them for a part. They also proved to be useful for the study of life history traits of these species. Both fisheries and biological informations are used to assess the impact of fishing by modeling. We used that models particularly on glass eels and on yellow eels. Environmental factors and fisheries data are analyzed to show the relationship between species and environment.

Results from this work and those obtained by current monitoring are compared. At the end of this analysis, a mixed system is proposed based on both an exhaustive data collection and voluntary declaration. This system should ensure both the monitoring of exploited species and the impact of inland fisheries in a reliable manner.

Keywords : fisheries monitoring ; management of inland fisheries ; fisheries indicators ; diadromous fishes et crustaceans abundance ; impact assessment ; species-environment relationship.