

# **PRELIMINARY COMPARATIVE OVERVIEW OF THE ENVIRONMENT AND THE FISHERIES FOR YELLOWFIN, SKIPJACK AND BIGEYE TUNAS IN THE ATLANTIC, INDIAN AND PACIFIC OCEANS**

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## **ABSTRACT**

### **GLOBAL GOAL OF THE PRESENT WORK**

*The goal of the paper is to develop, at a worldwide level (Atlantic, Indian and Pacific Oceans), a comparative analysis of the trends in fisheries catching yellowfin, skipjack and bigeye tunas, and their relationship with the environment. This topic may be of major scientific interest: it is surprising that, although tunas are a biologically homogeneous zoological group world-wide, most of the research programs on their biology and stock assessment are conducted more or less independently by the scientists working in each area on each species. Such a multi-species worldwide comparative analysis needs to incorporate the major environmental component of the oceans: each ocean shows the characteristic patterns of its environment (distribution and variability). It will then be of major interest to determine for each area how the tunas have adapted their biology (for instance spawning and feeding zones and periods), migrations, and levels of absolute biomass in each area, as a function of a variable environment over millions of years.*

### **A WORLD-WIDE TUNA PROGRAM**

*This paper is a first and preliminary result of the research program, conducted by the author at the headquarters of the Inter-American Tropical Tuna Commission, aiming at a world-wide comparison of the tropical tuna stocks and fisheries, based upon a comparative analysis of all existing catch and effort data about tuna fisheries. The short-term goal of this program will be to publish, in early 1996, a scientific atlas of tuna fisheries worldwide and their environment (including the sizes of the fish).*

*The final goal of this program will be to review and discuss in various scientific papers (in cooperation with interested scientists) the results of the world-wide comparison, and subsequently the various methods used to conduct the stock assessment for tropical tuna species (yellowfin, bigeye and skipjack). This comparison should provide a better understanding of the real potentials and limitations of the various methods used by tuna scientists. This comparative study of tuna stocks and fisheries worldwide could lead to a significant improvement of the stock assessment work done in each geographical area.*

### **TOPICS COVERED**

*The first part of this paper will summarise the data used in the present analysis and their potential improvement.*

*The second part will develop a comparison of the catch levels and trends for yellowfin, skipjack and bigeye in the various oceans (Atlantic, Indian, western and eastern Pacific), based on the best available statistical information from various sources in each of those three oceans.*

*The third part, based on a comparison of average fishing maps, will review the geographical changes in the global distribution of the fishing activities of surface and longline fleets in each ocean.*

*The fourth part will summarise some major environmental characteristics of the areas where the tuna fisheries targeting yellowfin, skipjack and bigeye are active.*

*A fifth chapter will compare the changes in area fished and the tuna catches per area in each ocean. The conclusion will review the prospects of this worldwide comparative analysis of tuna stocks and fisheries*