ON THE TUNA CONSERVATION IN THE ATLANTIC

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The exploitation of tuna resources in the oceanic waters of the Atlantic was introduced on a large scale only recently, with the arrival of Japanese long-line vessels in 1956.

Prior to that year, the tuna resources of the Atlantic were practically unexploited, as only a few coastal fisheries were operating with small boats and fixed traps.

An increasing fishing effort in the capture of the Atlantic tunas and the geographic expansion of the fishery had an appreciable effect on the exploited populations, resulting the decline in relative density and productivity of the fisheries.

At present, the major tuna fisheries in the Atlantic are concentrated in the zone of equatorial currents, with the landings of yellowfin tuna predominating.

The Japanese fleet of long-liners operating in the Atlantic is undergoing large variations, due to the opening of new fishing areas in the Indian Ocean or simply returning to the Pacific fishery.

The tuna exploitation in the Atlantic is in a critical situation, demanding that measures of international scope be taken for the conservation of the stocks. This was the primary objective of the *Conference of Plenipotentiaries on the Conservation of Atlantic Tunas,* convened by Food and Agriculture Organization of the United Nations, which met during the period of 2-14 May 1966, at Rio de Janeiro, Brazil.

The international control of the Atlantic tuna fisheries is not an easy task. Besides collecting statistical data on the commercial capture and the accomplishment of a vast research program, the establishment of quotas by nations involved is a must. The acceptance and respect of the established quotas seems to be the most difficult conservation measure to be put into effect.

In a recent work about the development of the Pacific tuna, Prof. M. Inouye of the Tokai University suggests the possibility of conducting artificial hatching of tuna and consequently rearing the young, until they are big enough to be able to withstand the dangers of survival when stocked with open ocean.

The arguments presented by Prof. M. Inouye are sound and deserve reflection. It is evident that a research institute for the study of hatching and the first phase of the biological cycle of the tunas should not be under the responsability of a single nation, but should be maintained through international cooperation.

Before the tunas reach sizes that make them subject to the mortality caused by fishing, they are subject to a high level of natural mortality, by the lack of food during the larval phase; the flowout of larvae to an inadequate environment as a result of a change in oceanographic conditions; and predatory action, including cannibalism.

In tunas, as in other fishes, nature tries to compensate for the high mortality in the first phase of the biological cycle with the elevated genetic potential of its adult females. Prof. M. Inouye's suggestion raises the fundamental question of eliminating the principal factors of natural mortality in the first phase of the biological cycle of the tunas, thus aiming at a higher abundance for the fisheries.

The common predators in the areas of juvenile tuna development include fishes which feed on to reach 20 cm of length, when they may be place in appropriated areas of the oceans.

There is no doubt that the attainment of artificial hatching and the rearing of the tunas during the first phase of their biological cycle will be fundamental measure for the conservation of th Atlantic tunas. The chain of oceanic islands in th zone of the Atlantic equatorial currents and th islands of the Caribbean Sea may constitute appropriated places for research bases.

REFERENCE

Inouye, M. — 1966 — Plan for the development of the Pacific tuna. **Tokay Daigaku Shimbun**, number 100, Memoria Issue, Shimizu. Translation from Japanese by Dr. I. Yamanaka