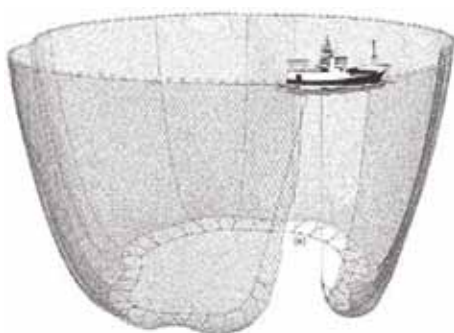


Bycatch and non-tuna catch in the tropical tuna purse seine fisheries of the world



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Preparation of this document

This report has been prepared at the request of the responsible service for Highly Migratory Species of the Fisheries and Aquaculture Department of the Food and Agriculture Organization (FAO) of the United Nations to inform the public discussion on some of the ecological impacts of the tropical tuna purse seine fisheries of the world.

It provides a review of the information available in published papers, or documents presented at the tuna regional fishery management organizations (RFMOs) scientific and technical meetings, and workshops. As the bycatch process is a very dynamic one, changing by economic reasons, technological changes, and mitigation effort, it describes the conditions reported in the documents currently available, but the readers are encouraged to visit the websites of the tuna RFMOs for the most recent data.

Abstract

This report provides a review of our knowledge of the bycatches, defined as discarded dead, from the tropical tuna purse seine fisheries of the world. The major fishing grounds involved (eastern and western Pacific, eastern Atlantic, and western Indian Oceans) share the gear, the ways of fishing, and the structure of the pelagic communities. Because of that, the species taken in association with tuna schools tend to be the same in all regions.

After describing the gear and fishing operations, it discusses the reasons why bycatches happen, and explores the options to mitigate them.

The types of sets used to capture tunas and the detection methods used to locate the schools are a major factor to determine which are the catches and the bycatches. The main bycatches are tunas, sharks and rays, pelagic bony fishes, billfishes, and sea turtles. The total discards amount to one to five percent of the total tonnage captured, and tunas of the species targeted amount to over 90–95 percent of those bycatches. The silky shark is the most common shark species by far, followed by the oceanic whitetip sharks. Marlins and sailfishes are also taken but in reduced numbers. Olive ridley sea turtles are the most common turtle captured, but the majority of them are released alive and unharmed. Rainbow runners, mahi-mahis, wahoos and amberjack yellowtail are the major pelagic bony fishes taken with the tunas. They are being retained in increasing numbers for utilization.

Besides discussing problems of estimation, the report presents most of the ideas proposed or in different stages of testing, to mitigate those bycatches, including ways to avoid the captures, or to release the individuals from the net or from the deck.

Finally, the known or potential ecological impacts of the rapidly increasing fishery on fish aggregating devices (FADs) are reviewed, emphasizing some of the uncertainties that still prevail.

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Abbreviations and acronyms

AIDCP	Agreement on the International Dolphin Conservation Program
BPUE	bycatch per unit of effort
BR	bycatch rate
CPS	capture per set
CPUE	catch per unit of effort
CWP	Coordinating Working Party on Fishery Statistics
EPO	Eastern Pacific Ocean
FAD	fish aggregating device
IATTC	Inter-American Tropical Tuna Commission
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICES	International Council for the Exploration of the Sea
IOTC	Indian Ocean Tuna Commission
ISSCFG	International Standard Statistical Classification of Fishing Gear
MADE	Mitigating ADverse Ecological impacts of open ocean fisheries
MPA	marine protected area
NFMS	National Marine Fisheries Service (the United States of America)
NPS	numbers per set
RFMO	regional fisheries management organization
SPC	Secretariat of the Pacific Community
t-RFMO	tuna regional fisheries management organization
VMS	vessel monitoring system
WCPFC	Western and Central Pacific Fisheries Commission
WPO	Western Pacific Ocean
WPPS	weight per positive set
WPS	weight per set

