

3rd Meeting of the Scientific Committee

Port Vila, Vanuatu
28 September - 3 October 2015

SC-03-15

**Incidental catch of seabirds, mammals, and marine turtles in the Chilean jack
mackerel industrial purse-seine fleet**

Dr. Rodrigo Vega

Incidental catch of seabirds, mammals, and marine turtles in the jack mackerel industrial purse-seine fleet

Dr. Rodrigo Vega

Department of Fisheries Assessment, Fisheries Research Institute

Report prepared for the Undersecretariat for Fisheries and Aquaculture within the framework of the information to be submitted to the South Pacific Regional Fisheries Management Organization

Introduction

The global trend regarding the negative status of the main commercial fisheries has made necessary to re-examine the management approach towards an ecosystem management approach that includes a multi-species vision to assess the impact of the extractive activity on the structure of communities, habitats and marine environment in general.

One of the elements recently incorporated and that it expands the scope of the single-species management programs is the incidental catch of seabirds, mammals and marine turtles. Unintentional capture of these groups of species has had a huge impact in some populations since their feeding grounds, involving wide expanses of sea, overlap with areas where fisheries operate. This, in addition to the features of the life history of species, such as late maturity and low fecundity, makes them sensitive to increases of mortality rates.

In Chile, regular data and information collection about extractive fishing activity is conducted annually by the Fisheries Research Institute (IFOP), commissioned by the Undersecretariat for Fisheries and Aquaculture. These studies have allowed the development of valuable series of historical data, but only recently have included environmental, multi-species, or ecosystem issues. Record of incidental catch data begun recently at IFOP in accordance with international agreements and national plans of action. In this context, thanks to the work of scientific observers on board during 2007, the first base line regarding the incidental catch of seabirds in the industrial surface longline fishery.

Historical evolution of the data collection in the industrial purse-seine fishery for jack mackerel

Within the industrial purse-seine fishery for jack mackerel (*Trachurus murphyi*), the study of incidental catch of seabirds, mammals and marine turtles started with training activities of scientific observers from the monitoring program of the fishery on the identification of seabirds. At the beginning of 2014, along with the observer training, the platform of record and input of data regarding incidental catch is implemented. It starts to work as a pilot in order to establish the information record and management protocols. Once the field and database procedures are reviewed and standardized, regular collection of information starts during 2015 through the placing of scientific observers from ports of the VIII Region (Table 1). In the same way, since January 2015, the Discard Research Program with a team of observers destined to monitoring purse-seine fleets between V and X Regions, starts the collection of information on board of the jack mackerel purse-seine fleet with the same standard of the fishery monitoring program (Table 1). Ports of landing of the fleet corresponded to San Vicente and Coronel in the VIII Region.

Information collected by scientific observers refers mainly to events of incidental catch where each set is detailed including, species of the bird, mammal or turtle captured, number of specimens affected, the result of the interaction in terms of the number of specimens resulting dead or alive. In addition to building estimates, observers define if the set was specifically destined to observe incidental catch or if data are not recorded randomly.

Table 1. Historical evolution of data collection from IFOP in the industrial purse-seine fishery for jack mackerel in accordance with the research program

Research program	Year	
	2014	2015
Monitoring of Pelagic Fisheries Zone Center-South	Beginning of the information collection regarding incidental catch of seabirds, mammals and marine turtles during fishing activities. Pilot study.	Regular data collection of incidental catch of seabirds, mammals and marine turtles during fishing activities. (7 scientific observers)
Discard Research Program in Purse-Seine Fisheries for Small Pelagics		Regular data collection of incidental catch of seabirds and marine mammals during fishing activities. Beginning of the pilot study program regarding interaction of seabirds, mammals and marine turtles with fishing activities. (11 scientific observers in the VIII Region)

Perspectives and pilot program of the interaction study

A more detailed interaction level will be addressed through a pilot research plan that will begin to be developed during the second semester of 2015 under the framework of the Discard Research Program. This pilot plan is aimed at detailing and explaining the procedures and criteria to be followed for the correct collection of data and interactions of seabirds, mammals and marine turtles in industrial purse-seine vessels in order to gather the data that will allow the conduction of a diagnosis of the level of interaction between these groups of species and the fishing fleet targeting jack mackerel, as well as sardine and anchovy. It is expected to establish these procedures regularly within the monitoring of the fishery.

The interaction of seabirds, mammals and marine turtles with industrial purse-seine fishing operations targeting jack mackerel will be studied in a specific proportion of sets destined exclusively to this activity (approximately 20% of monitored sets). Observations will be conducted by scientific observers and they will be carried out during the whole annual operation cycle of the fleet, specially in fishing seasons and grounds where the interaction occurs more frequently and strongly according to the experience of fishermen and records of observers.

Sampling forms of interactions are standardized in a single form for seabirds, mammals and marine turtles. The record of interaction will be determined according to categories of interaction per species and it will include information related to the type of interaction, moment of fishing activity when it occurs, impact on the fishing operation, causes of mortality, and the result of the interaction in terms of the number of specimens damaged, alive or dead. Auxiliary information will also be collected such as the number of purse-seiners operating around the vessel and data referred to the environmental and oceanographic conditions at the moment of the setting. If actions destined to the release of animals conducted by the crew are recorded, they will be briefly described. In the case of the study of interaction of seabirds, the protocol includes counting of fixed point, according to standardized methodologies, of seabird species around the vessel during fishing operations.

Depending on the distance to fishing grounds, availability of scientific observers, and oceanographic conditions, whale sighting will be consequently addressed during navigation. In order to do this, a form was designed and procedures for data record during regular periods of time during navigation towards fishing grounds were established. Data to be recorded include: position at the beginning and at the end of the sighting, number of specimens observed, state of development and behavior per species, and security percentage of the observation (identification) among others. Complementary data of environmental conditions will also be recorded during these observations together with the photographic or video recording.