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On-board scientific observer program of Japanese trawl vessels

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Working paper ☒ info paper ☐

Delegation of Japan

Abstract

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On-board scientific observer program of Japanese trawl vessels

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Abstract

This working paper describes the Japanese on-board scientific observer programs for a trawl fishery at SIOFA convention area. The observer training course was held twice for three candidates of scientific observers to implement 100 % on-board scientific observer coverage required for the trawl fishery under the CMM 2016/01. Cruise report, catch and effort data, length frequency data, and other biological information are collected according to the voluntary observer data list described in CMM 2016/02. Through the preparation and actual implementation of the observer program, difficulty is recognized for collection of some data listed in Annex B, CMM 2016/02. The Scientific Committee must consider the data listed in the Annex B in terms of necessity and feasibility of data collection.

This document reports Japanese actions to implement on-board scientific observer programs for a trawl fishery at SIOFA convention area.

1) Observer training

Since 1 January 2017, placing a scientific observer on every commercial fishing vessel operating in the SIOFA convention area is required of Japan under the CMM 2016/01. Since scientific observers need to acquire enough knowledge and technique for on-board data/sample collection through the observer training course, the Observer training course was held twice (September and October in 2016), and as a result, 3 persons were certified as official scientific observers. The training course includes following five main subjects: (a) methods of data collection and recording on vessel details, observer

details, and fishing operation, (b) methods of data collection and recording on catch data, (c) biological sampling including bycatch species, (d) safety issues, and (e) lectures on the background and framework of fisheries resources management in the SIOFA convention area. Trainees who completed the entire course are certified as official scientific observer.



Fig. 1 Japanese training course for SIOFA scientific observer. The candidates of observer exercise the measurement of armorhead body height.

2) Scientific observer program design and coverage

In 2017 fishing season, two Japanese commercial trawlers operate in SIOFA area. Two observers in the observer program cover these two vessels (100% coverage).

3) Type of data collected

Japanese scientific observers collected cruise information, catch/effort data, length frequency data, and other biological information according to the voluntary observer data list (Annex B of CMM 2016/02) containing following ten information.

i) Vessel details

- Name of vessel

- Current vessel flag state (ISO 3-alpha)
- Vessel owner/charterer
- Name of the captain and the fishing master
- Number of crew
- Vessel registration information: registration number, call sign, Loyd's/IMO number, port of registry and landing
- Vessel and fishing gear type
- Vessel size: weight, length, width, engine power, and hold capacity
- Equipment for cruise and fishery

ii) Trip information

- Trip number (ID)
- Cruise details; start and end dates
- Date of report

iii) Observer details

- Name and nationality (ISO 3-alpha) of observer
- Observer's employing organization and its contact information
- Boarding date and location (name of port)
- Disembarkation date and location (name of port)
- Observation periods
- Recording time zone (UTC±).

iv) Fishing gear information (Trawl)

- Fishing gear ID
- Headrope and groundrope length
- Bobbin diameter
- Otterboard to wing length
- Horizontal and vertical opening width of net
- Mesh size of net wing and codend
- Codend circumference
- Mesh type of codend
- Trawl net design and material
- Otterboard type and weight

v) Fishing operation

- Haul ID
- Trawling duration and speed
- Net deployed and retrieved details: data, time, and location
- Start and end of trawling details: time, location, gear depth, and distance from bottom
- Existence of offal discharged during shooting and hauling, bycatch mitigation measures, and trawl warp strikes

vi) Catch data

- Species name: English name and FAO-3-alpha code
- Retained catch
- Discarded catch: including bycatch fishes except for sharks, skates, and rays
- Conversion factor.

vii) Body size of target species

- Body length frequency of alfonsino within a haul
- Body length and height of each armorhead individual

To fulfill the standard of collecting length frequency data of target species, 100 alfonsino individuals and 30 armorhead individuals are randomly sampled from catch composition of one haul for each day.

viii) Bycatch data: sharks, skates, rays, birds, turtles, and marine mammals

- Species name: English name and FAO-3-alpha code
- Number of individuals
- Taking photos
- Biological information: body length, weight, and sex
- Life status upon release

ix) VME data

- Species name: English name and FAO-3-alpha code
- Body size information: body length, and weight
- Taking photos

x) Recovered tag information

- Tag recovery details: data, time, and location
- Tagged species name: English name and FAO-3-alpha code

- Tag details: type and color
- All information recorded on tag: e.g., number, code, tagging institution, etc.
- Biological information of tagged organisms: Body length, weight, and sex
- Fate and Life status

Items i)-iv) are recorded once for each cruise. Items v), vi), and viii) are collected for all fishing hauls. Body size of target species (item vii) is observed once a day for alfonsino and armorhead. The current observer program is designed to record VME data (item ix) and recovered tag information (item x) when VME indicators and tagged organisms are caught, respectively.

Considering the workload of scientific observers in the current observer program, it is difficult to collect some biological samples and data, i.e., weights, sex, maturity stage, gonad weights, and otoliths for target species. Instead of collecting otoliths and sexual maturity information onboard, whole fish are preserved and later they are examined in the laboratory. Therefore, we request observers to collect and preserved 30 fish specimens each for alfonsino and armorhead. The specimens are sent to NRIFS (National Research Institute of Far Seas Fisheries) and scientists collect relevant information (size, sex, otoliths, and sexual maturity). These specimens are sampled once a month for each target species.

Discussion

The scientific observer program for Japanese trawl fisheries in SIOFA area is now conducted, which collects the information listed in Annex B, CMM 2016/02. However, the Scientific Committee must review the list based on the Contracting Parties' experience of the observer program implementation. For example, data collection frequency of some items, such as "estimation of bycatch species abundance around fishing vessels," "seabird abundance," and "species interaction with fishing gear" need to be clarified since the observers cannot collect such data constantly. In addition, clear definitions for some items are needed. For instance, it is not clear what following items mean: "species interactions with fishing gear" and "identify any circumstances or actions that may have contributed to the bycatch event, for incidental capture of concern species." Taking into account the experience through preparation and actual implementation of the observer programs, the data listed in Annex B of CMM2016/02 must be considered in terms of necessity and feasibility of data collection in the Scientific Committee.

In order to correct bycatch data, species identification materials for SIOFA fisheries would be useful. At present, limited information about bycatch species caught by SIOFA fisheries is available. Therefore, the current Japanese observer training course for SIOFA fisheries cannot provide the details about potential concern species incidentally caught by trawl fishing. It would be useful to develop a photo catalogue for identifying bycatch species.