



North Pacific Fisheries Commission

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Report on the existing observer programs of NPFC Members and those of other RFMOs NPFC Secretariat

SUMMARY

Article 7 (Paragraph 2, b) of the Convention states that the Commission shall “*develop and implement a North Pacific Ocean Fisheries Observer Program*”. Following the recommendations from SC and TCC and the Commission decisions, this working paper summarizes information regarding the existing scientific observer programs (OP) of Members and OPs of other RFMOs to establish a basis for further discussions on developing the Observer Program.

Currently, NPFC Members have relatively well-developed observer programs for bottom fisheries as required by CMMs 2017-05 and 2017-06. Each fishing vessel carries an observer onboard (North West Pacific) or is equipped with an electronic monitoring system (North East Pacific). Training, recruitment, deployment and supervision of observers as well as data collected are entirely managed by Members. However, data are neither reported to Secretariat nor shared among Members excepting summary information.

For pelagic fisheries, there is no coordination in the Members’ observer programs neither in terms of the type of OP nor in coverage and data requirements. Russia and Korea collect data on fishing vessels at sea by observers and electronic reporting system, respectively, while other Members carry out in-port scientific observations. Specifications for observer training, OP design, number of observers and required data differ among Members. To fill data gaps for current SC activities, Korea took a lead in development of standardized data reporting templates which try to harmonize different ways of data collection. However, most of this work is underway, and it likely requires more coordination.

All “general” RFMOs¹ (CCAMLR, NAFO, NEAFC, SEAFO, SIOFA) have developed at least one observer program and one RFMO is in process of its development (SPRFMO). Most of general RFMO OPs have been set up primarily to collect scientific data, but in three of six cases, it includes compliance tasks with one general RFMO focusing on a compliance observer program. Almost all RFMOs for highly migratory species have observer programs with both science and compliance components, but with different balances. The expenses related to observer training, recruitment, deployment and supervision are usually born by Members, and basically all OPs are managed by Members, but several have a Secretariat oversight/data coordination role. Most of RFMOs provide

¹ According to classification made by Stefan Asmundson <https://www.cbd.int/doc/meetings/mar/soiom-2016-01/other/soiom-2016-01-fao-19-en.pdf>

all observer data to Secretariat which then handles those data in accordance with the established data management and security regulations. Regional scientific observers are an important and often a key source of fishery data used by RFMO scientists for stock assessment and VME management.

As described in *FAO Guidelines for Developing an at-Sea Fishery Observer Programme* certain activities can be achieved by at-sea observers only; other tasks are best and most completely achieved by observers; and some are achieved equally well by other monitoring systems or methods. Observer tasks and abilities unique to at-sea observers are summarized in this working paper to assist SC in considering actions to fill data gaps to assess status of priority species stocks and VMEs.

INTRODUCTION

Following Article 7 (Paragraph 2, b) of the Convention to “*develop and implement a North Pacific Ocean Fisheries Observer Program*”, SC and TCC recommended to establish a corresponding group for advancing work towards the development of such an Observer Program (OP) and SC recognized it as one of its projects for the near future. These recommendations were endorsed by the Commission at its meeting in July 2017. It was agreed that the corresponding group would compile information regarding the existing observer programs of Members and those of other RFMOs to establish a basis for further discussions on developing the Observer Program.

It is noteworthy that the paragraph 2, b quoted above flows from the Article which divides tasking into the scientific issues and compliance issues, with paragraph 2 focusing on the latter. However, the issue of developing a scientific observer program or a compliance observer program or one that includes both components shall be addressed in the RFMO’s strategic plan for management of fisheries resources and shall be resolved by the Commission with input from both the SC or TCC.

It should be noted that the *FAO Guidelines for Developing an at-Sea Fishery Observer Programme* states as an objective: *Observer programmes are usually implemented in order to generate data for both fishery science and compliance purposes, which in turn serve wider fisheries management objectives.* However, the Guidelines go on to note that: *Each observer programme will develop a balance between fishery science and compliance aims, in accordance with management priorities and the constraints of the programme environment. The setting of priorities and the evaluation of the programme constraints will ideally be determined when management plans are developed or updated.*

Observer programs are considered at the highest level of international regulations to be of great importance to fisheries management. Several key international instruments call for the use of observer programs as important fisheries management tools: the United Nations Convention on the Law of the Sea (UNCLOS; Article 62), the FAO Code of Conduct for Responsible Fisheries (CCRF; Section 7 and 8), the UN Fish stocks Agreement (UNFSA; Article 18), the precautionary approach to fisheries, and the international plan of action (IPOA; Section 24) to

prevent, deter and eliminate Illegal, Unreported and Unregulated fishing.

As noted earlier, there are two purposes why an observer program can be established which are fishery science and compliance (or both). For fishery science, it provides individual vessel data on what, how, when and where fish are caught, which are used for the assessment of stocks or ecosystems and the prediction of their responses to exploitation in the future. In case of compliance, at-sea fishery information provides individual vessel data that can be used to check whether fishing is being conducted according to fishery management control rules and other measures which are imposed to ensure sustainability. The challenge for the Commission is to develop the right balance that is most efficient for the management of the fisheries and ecosystems in the Convention Area. However, it is seen as more cost-effective if an observer program addresses both science and compliance even if initially it focuses on one of these components.

This report was drafted by Secretariat to summarize information on the national observer programs run by the NPFC Members in the Convention Area as well as observer programs in place in other RFMOs with the focus on “general” RFMOs which have a similar mandate to NPFC, but also taking into consideration those observer programs already operational in the overlapping convention areas which are focused on highly migratory species management.

1. EXISTING OBSERVER PROGRAMS OF NPFC MEMBERS

Fisheries in the NPFC Convention Area fall into two major categories: bottom fisheries and pelagic fisheries. Information on the existing observer programs for bottom fisheries was derived from CMMs 2017-05 and 2017-06 which list type and format of scientific data to be collected. For pelagic fisheries, Members provided technical reports describing their types of observer program, methods of observation, observer training, observer program design and coverage, and data collected in the Convention Area.

Information on the Members’ existing observer programs is summarized in the following paragraphs and table. It includes only scientific component as no reports on data collected for compliance purposes were received from Members.

Existence and type of Members’ national observer programs in the Convention Area

Bottom fisheries

CMMs 2017-05 and 2017-06 for bottom fisheries and protection of VMEs in the northwestern and northeastern Pacific Ocean incorporate scientific observer program (Paragraphs 6 and 8, Annex 4 and 5). In the northwestern Pacific Ocean, information is collected by observers onboard fishing vessels (at sea). Vessels operating in the northeastern Pacific Ocean are equipped with electronic devices to collect the required data.

Pelagic fisheries

Russia collects data at sea by observers. Korean and Chinese Taipei's vessels submit their daily catch data, including logsheet information, by electronic reporting system (ERS). Most Members which have pelagic fisheries in the Convention Area, excepting Russia and probably Vanuatu, collect information in ports.

Existence and type of Members' national observer programs in the Convention Area

Fishery	Can	Chi	Jpn	Kor	Rus	CT	USA	Van
Bottom fish	At Sea (EM)	NA	At Sea (O)	At Sea (O)	At Sea (O) &(ERS)	NA	NA	NA
Pacific saury	NA	Ports	Ports	At Sea (ERS) & Ports	At Sea (O) &(ERS)	At Sea (ERS) & Ports	NA	?
Chub mackerel	NA	Ports	Ports	NA	At Sea (O) &(ERS)	NA	NA	NA
Squids	NA	Ports	Ports	At Sea (ERS) ² & Ports	At Sea (O) &(ERS)	At Sea (ERS)	NA	NA

Information is collected on fishing vessels (*At Sea*) or at landing places (*Ports*).

Type of program: O – Observer; EM - Electronic Monitoring.

Most NPFC Members have extensive *national* observer programs developed for their exclusive economic zones. These programs can include observations on fishing vessels or collection of data at landing places, processing plants or market places; data are collected by certified observers or electronic devices; information is utilized for scientific analyses or/and compliance purposes. This capacity, the data collection tools and experience can be very useful in the development of the North Pacific Ocean Fisheries Observer Program.

Observer training

Japan, Korea and Russia conduct training for at-sea observers.

Japan: The subjects of the training course consist of methods of data collection and recording for fishing operation and catch, biological sampling for catch and bycatch species, and safety issues as well as lectures on the background and framework of fisheries resources management in the North

² In 2017, one Korean squid jigging vessel operated in the Convention Area and it carried a scientific observer onboard, however normally Korea does not dispatch observers for pelagic fisheries in the Convention Area.

Pacific.

Korea: The qualification for being an observer is to be a college graduate who majored in fisheries science or to be fisheries high school graduate who has at least 1 year of on-board experience or has a certificate of qualification to deck officer.

Russia: An extensive observer training course is conducted in Kaliningrad. Trainees who completed the course are certified as official scientific observers.

Number of at-sea observers trained in 2017:

Japan – 11 trainees were certified as official scientific observers (for bottom fisheries);

Korea – 9;

Russia – 2 (for bottom and pelagic fisheries).

Observer Program Design and Coverage

At sea observations

Each Members' vessel operating in the Emperor Seamount area for bottom fisheries carries an observer onboard, in accordance with CMM 2017-05 which requires 100% coverage of fishing fleet with observer. In the eastern North Pacific, bottom fishery by Canada is observed through electronic means.

For pelagic fisheries, only Russian fleet has observers onboard. There are no mandatory requirements with respect to observer coverage. In 2017, one out of four Russian dip net vessels operated in the Convention Area carried an observer. Each Korean vessel fishing in the Convention Area is equipped with electronic reporting system.

Observations at landing places

China: There are three Chinese fisheries, for Pacific saury, chub mackerel and squids, operating in the Convention Area. For each high-seas fishery, China established one technical working group which is in charge of data collection and scientific research. The data are collected mainly from logbooks, port sampling and study fleet. Port sampling varies from year to year, and basically it is conducted 2-4 times per year for each fishery.

Japan: At the landing ports, chub mackerel, Pacific saury and squids are sampled by trained researchers. Catch amount, length, weight and maturity data are collected and then utilized for stock assessment.

Chinese Taipei: Since 2006, Chinese Taipei has collected biological data at the Pacific saury landing places. Hundreds of samples were made annually, in October or November, at ChienChen Fishing Harbor and Siaogang Fishing Harbor in Kaohsiung city. The knob length, body weight, and gonadal weight of Pacific saury were measured and age (by the otolith) and gender were determined. In

addition, the samples in 2016 were examined to determine the maturity status.

Observer Data Collected

Bottom fisheries

Members developed an extensive list of data to be collected by observers from bottom fisheries (CMMs 2017-05 and 2017-06). It includes vessel data, observer data, catch and effort data, length frequency data, biological data and sampling, other data/information such as incidental captures of protected species and tag recovery.

Pelagic fisheries

There is no unified list for data collection by Members from pelagic fisheries. However, Korea, in cooperation with other Members, has developed standardized data reporting templates for Pacific saury and started development of the templates for other pelagic species as an attempt to fill data gaps for stock assessment of priority species.

Storing and Reporting the Collected Data

All data collected from both bottom and pelagic fisheries are stored and managed by Members. Annually Members provide summary on scientific observer program for bottom fisheries to the Secretariat as a part of their Annual Reports.

2. OBSERVER PROGRAMS OF OTHER RFMOs

There are about twenty RFMOs in the world which have legal competence to adopt binding conservation and management measure in the high seas. For the purpose of this review, the focus was made on “general” RFMOs which have similar to NPFC mandate and manage straddling stock, but also taking into consideration those observer programs already operational in the overlapping convention areas which are focused on highly migratory species management.

All general RFMOs (CCAMLR, NAFO, NEAFC, SEAFO, SIOFA) have developed at least one observer program and one RFMO is in process of its development (SPRFMO). Most of RFMO observer programs have been set up primarily to collect scientific data, but in three of six cases, the OP includes compliance tasks. NAFO’s OP is aimed entirely at compliance, however NAFO Members in two separate reviews, have noted both the usefulness of data collected by the NAFO observer program and more recently, are of diverging views as to the usefulness of the collected information for scientific purposes.

The expenses related to observer training, recruitment, deployment and supervision are usually born by Members. Also, most RFMO observer programs are managed entirely by Members excepting CCAMLR which has a network of national coordinators administered by the CCAMLR Secretariat.

Basically, the required observer coverage is 100% for the priority species but may be much lower

for other species or for vessels that implement daily electronic reporting of catches and other information.

All RFMOs report an annual summary of OP implementation to Secretariat and most of them provide all observer data to Secretariat which then handles the data in accordance with the established data management and security regulations. Regional scientific observers are an important and often a key source of fishery data used by RFMO scientists for stock assessment and VME management.

Comparison of “general” RFMOs’ observer programs

	CCAMLR	NAFO	NEAFC	SEAFO	SIOFA	SPRFMO
Existence of OP	Yes	Yes	Yes	Yes	Yes	Under development
Type of OP	Primarily scientific (with some compliance tasks)	Entirely compliance	Entirely scientific and only for exploratory bottom fisheries	Entirely scientific, however compliance component is under consideration	Entirely scientific	Probably scientific (with some compliance tasks)
Cost and management	Members cover all costs and manage the OP with coordination by Secretariat.	Members cover all costs and manage the OP.	?	Members cover all costs and manage the OP.	Members cover all costs and manage the OP.	Not decided yet.
Observer coverage	100% of international observers for icefish and toothfish fisheries; 50% of international or national observers for krill fishery	100% but can be reduced to 25% for vessels with daily electronic reporting system	100%	100%	100%	Not decided yet but probably will be species-specific

Highly migratory species (tuna) RFMOs have more diverse, numerous and complex observer programs. Most of them address both scientific and compliance issues, and their OPs are often managed or coordinated by their Secretariats.

For more information on OPs of tuna RFMOs as well as ones of other RFMOs refer to an overview made by SPRFMO Secretariat <https://www.sprfmo.int/assets/Meetings/Meetings-2013-plus/Commission-Meetings/4th-Commission-Meeting-2016-Valdivia-Chile/COMM-04-INF-04-Observer-Programmes-of-RFMOs.pdf>.

3. FAO GUIDELINES FOR DEVELOPING AN AT-SEA FISHERY OBSERVER PROGRAMME

In 2003, FAO published guidelines to help those involved in managing fisheries to understand the range of objectives that an observer program can meet and how these contribute towards the management of a fishery <http://www.fao.org/docrep/005/Y4390E/y4390e00.htm#Contents>.

Key is the point that “observer programs are usually implemented in order to generate data for both fishery science and compliance purposes, which in turn serve wider fisheries management objectives”. Depending on the tasks and objectives, observer programs can be small and simple, using a few observers which join fishing vessels on day trips, two or three times a month, and produce simple raw data sheets. Or they can be large and complex, involving many highly trained observers collecting, processing and analyzing data and sending the results via satellite to a shore-based team of experts, who further analyze results before sending them to a fisheries management authority.

Observers can collect information on fishing vessels or at landing places, processing plants or market places. Certain activities can only be achieved by at-sea observers. Other tasks are best and most completely achieved by observers, but a degree of cover can be achieved by alternative schemes, sensors or platforms. Some are achieved equally well by other monitoring systems or methods.

Observer tasks and abilities unique to at-sea observers are summarized in the table from the *FAO Guidelines* below, and for the purposes for the SC the focus will be on the column for scientific data, for TCC it will be the compliance column and for the Commission it will be the overall requirements for management.

This list is not exhaustive and depends on the management plan developed by RFMO.

Observer tasks and abilities unique to at-sea observers

Observer Tasks	Contributing to objectives			Ability unique to at-sea observers
	Fisheries science	Vessel compliance	Fisheries management information	
Fishing Activity				
Logbook validation	•	•	•	v
Effort monitoring	•		•	v
Position monitoring		•	•	*
Gear identification (inc. illegal gear)	•	•	•	v
Target species catch monitoring	•	•	•	X
Non-target species catch composition	•	•	•	X
Prohibited species catches		•	•	X
Incidental catches		•	•	X
Fishing plan development			•	v
Gear selectivity	•		•	*
Fleet activity				
Fleet dynamics	•		•	*
Detection of unlicensed vessels		•	•	*
Production				
High Grading	•	•	•	X
Discard levels	•	•	•	X
Marketable and non-marketable catch			•	X
Conversion factors	•		•	
Box and container labelling		•		X
Biological sampling of catch				
Size measurements	•	•	•	v
Sex determination	•			v
Spawning condition	•		•	v
Disease monitoring			•	v
Shell condition	•		•	v
Environmental sampling				

Sea state	•		*
Cloud cover	•		*
Sea temperature	•		*
Ambient temperature	•		*
Pollution			
Dumping of pollutants	•	•	v
Transshipment activity	•	•	v
General			
National sovereignty		•	*
Avoidance of submerged items	•	•	*

Observer task that can contribute to objectives:

X - activities that can only be done by observers;

v - activities best achieved by observers but a degree of cover can be achieved by other means;

* - activities can be achieved equally well by other means.