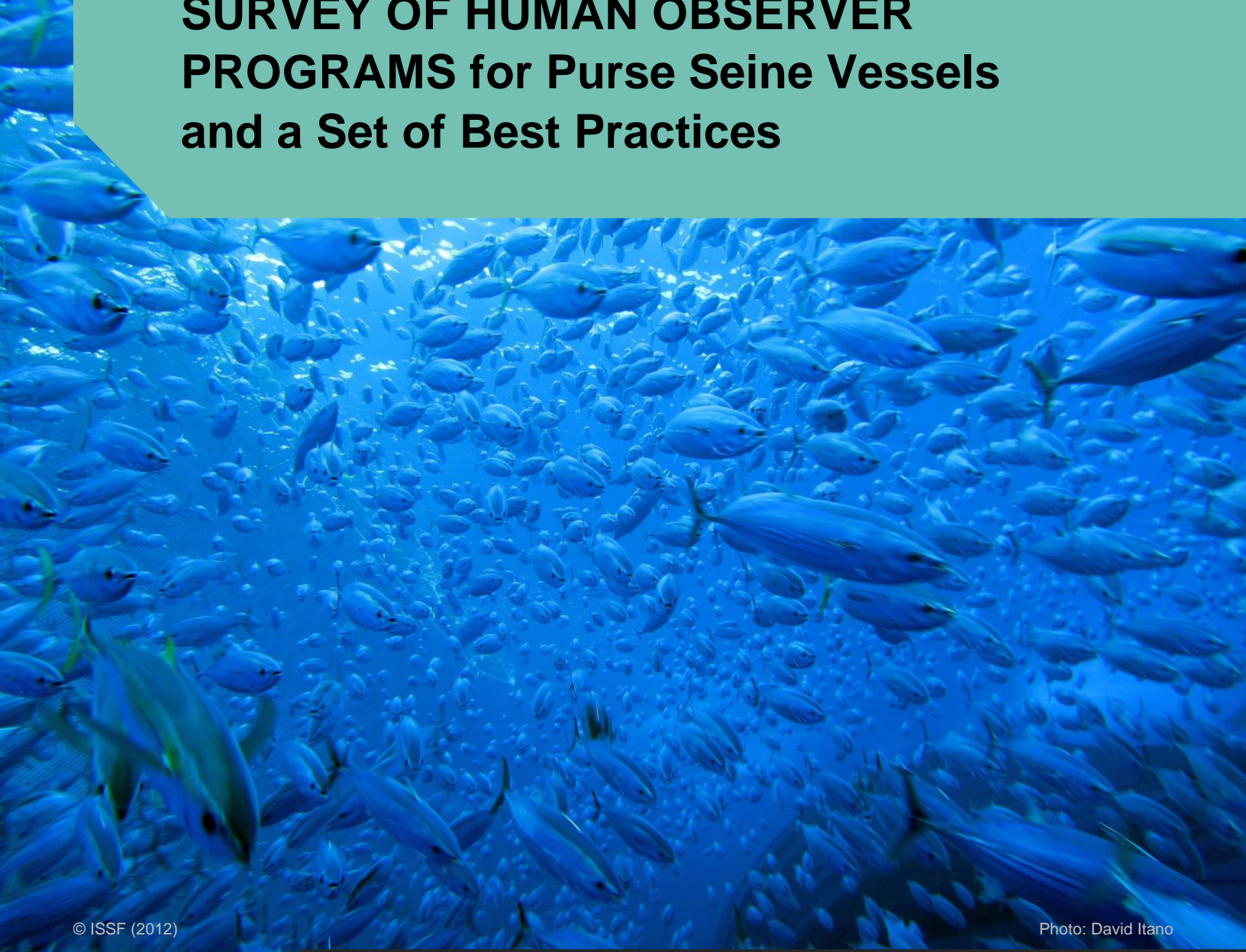


SURVEY OF HUMAN OBSERVER PROGRAMS for Purse Seine Vessels and a Set of Best Practices



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Abstract

Purse seine fisheries in all oceans are required to carry some level of human observer coverage in accordance with measures adopted by the relevant regional fisheries management organization (RFMO) for some or all of the year or in certain areas. Existing observer programs vary in terms of program management, entrance requirements, training program structure and course content, and the function of the observer, among other areas. This Technical Report surveys a number of national and/or regional or sub-regional programs in place and in use in the Atlantic, Pacific and Indian Oceans, and it develops a set of best practices for human observer programs for purse seine vessels.

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The International Seafood Sustainability Foundation (ISSF) — a global coalition of seafood companies, fisheries experts, scientific and environmental organizations, and the vessel community — promotes science-based initiatives for long-term tuna conservation, FAD management, bycatch mitigation, marine ecosystem health, capacity management, and illegal fishing prevention. Helping global tuna fisheries meet sustainability criteria to achieve the Marine Stewardship Council certification standard — without conditions — is ISSF's ultimate objective. ISSF receives financial support from charitable foundations and industry sources.

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Executive Summary

Purse-seine fisheries in all oceans are required to carry some level of human observer coverage in accordance with measures adopted by the relevant regional fisheries management organization (RFMO) for some or all of the year or in certain areas. These observer requirements are met through national, regional or RFMO-coordinated programs, or a combination of such programs. In addition, in some oceans, coastal States require observer coverage for foreign-flagged vessels licensed to operate in waters under their national jurisdiction.

These observer programs vary in terms of program management, entrance requirements, training program structure and course content, and the function of the observer, among other areas. This Technical Report surveys a number of national and/or regional or sub-regional human observer programs in place and in use in the Atlantic, Pacific and Indian Oceans.

A set of Best Practices is identified to assist RFMOs and other stakeholders in the development or strengthening of national, regional or sub-regional human observer programs for fishing vessels.

Key Findings:

- 1 Human observers are used in all oceans to meet RFMO-mandated coverage requirements.**
- 2 All RFMO observer programs have detailed training standards and entrance qualifications.**
- 3 The functions of observers differ among RFMOs – with some having only a scientific role and others having a dual scientific and compliance role.**
- 4 All RFMOs mandate that observers cannot be a crew member of the fishing vessel being observed, cannot be an employee of a fishing vessel company involved in the observed fishery, or otherwise have a conflict of interest.**

Research Questions

These research questions are for readers to begin to examine how aspects of our best practice recommendations for support vessels may help them in their work. The questions are not intended to be comprehensive or represent every recommendation in the Report, but are designed to assist users in identifying how to use these best practices. We have organized these questions around the key themes covered in the Report.

- **To what extent are human observers used on purse seine vessels?**
- **What are the observer coverage requirements?**
- **What is the purpose of observer programs?**
- **What are the functions of onboard observers?**
- **How are regional observer programs managed and what is required to be an observer?**
- **What kind of training do observers receive?**

Introduction

ISSF Conservation Measure 4.3(a)¹ states that processors, traders, importers, transporters and others involved in the seafood industry must conduct transactions only with those large-scale² purse seine vessels that have 100% observer coverage (human or electronic if proven to be effective) on every fishing trip and observing every fishing operation, unless prevented by *force majeure* conditions³ in a particular region. ISSF Participating Companies are to refrain from transactions with large-scale purse seine vessels that do not meet this requirement, and are audited annually against this Measure.

The ISSF Conservation Measure provides flexibility as to whether an observer must be human or an electronic monitoring system (EMS). ISSF has a Technical Report⁴ that provides guidance to EMS for tropical purse seine fisheries.

The purpose of this Technical Report is to develop a set of Best Practices for human observer programs for purse seine vessels, drawing on a number of national and/or regional or sub-regional programs in place and in use in the Atlantic, Pacific and Indian Oceans. States and RFMOs are encouraged to use these Best Practices in the development of, or strengthening of, national, regional or sub-regional human observer programs for fishing vessels.

This Technical Report is composed of three sections:

- Section I surveys a select set of existing national and/or regional or sub-regional observer programs or providers in the Atlantic, Pacific and Indian Oceans.
- Section II identifies a set of Best Practices from these programs or providers.
- Section III provides recommendations and conclusions.

Publicly available sources of information and documents or manuals provided by observer program coordinators or providers were consulted and used for this technical paper. This paper also utilized the conventions, resolutions, conservation and management measures, rules and procedures, and other reports, memoranda of understanding, and standards-setting documents that are posted on the websites for the four tropical tuna RFMOs (ICCAT, IOTC, IATTC and WCPFC), or posted online or released by a national government authority or by private services provider (such as IRD, IEO, AZTI, SPC/FFA or MRAG).

A number of experts were also consulted regarding specific aspects of the various observer programs and/or service providers, when the publicly available information was not detailed enough, unclear or silent on an issue.

The purpose of observer programs

Observers collect biological and fisheries-related data, such as catches for each set, species composition, gear attributes, set information, vessel attributes and non-target or bycatch species interactions. In some programs, depending on their mandate, observers also record whether or not the vessel, master and crew comply with applicable national or regional

¹ ISSF Conservation Measure 4.3(a). <http://iss-foundation.org/knowledge-tools/publications-presentations/conservation-measures-commitments/>

² For the purpose of this resolution, large-scale purse seine vessels are those with at least 335 m³ fish hold volume. This corresponds approximately to 273 metric tons (301 short tons) of fish carrying capacity.

³ Force Majeure (French for “Superior Force”) is an event or effect, both acts of nature and acts of people, that can neither be anticipated or controlled, such as, for example, floods, hurricanes, riots, strikes or wars.

⁴ <https://iss-foundation.org/download-monitor-demo/download-info/issf-technical-report-2014-08-updated-guidance-on-electronic-monitoring-systems-for-tropical-tuna-purse-seine-fisheries/>

fisheries regulations (i.e., are they high grading or discarding fish, retaining prohibited species or sizes, discarding trash or plastics, fishing with prohibited gear or in closed areas, interactions with species of special interest, setting on FADs, etc.)

Functions of human observers

Some national or RFMO programs prescribe strictly a “scientific” function for the observers, whereas others have a dual “scientific” and “compliance” function. Therefore, the functions of human observers onboard vessels can be divided into two components: (1) collecting catch-related information and other scientific data (the science component); and/or (2) monitoring the implementation of RFMO and/or national conservation and management measures or the terms of access or licensing agreements (the compliance component).

Human observers can also perform specific functions under seafood certification schemes where very close monitoring is required to meet the conditions of such schemes.

Scientific activities usually include collecting the following:

- a. Information on fishing activities (searching time, means of locating fish schools, visits to floating objects or setting drifting FADs, vessel position, set time and duration, set type, etc.)
- b. Data on target tunas (total catch, species and size composition, discards)
- c. Data on non-target species (species, sizes, numbers/weight, fate)
- d. Information on the gear used (net length, depth, drifting FADs deployed, etc.)
- e. Other scientific materials requested by the science committee of the RFMO (e.g., collecting tissue samples, tagging, etc.)

These scientific data elements can also be used for compliance purposes, depending on individual RFMO measures, national laws, licenses or access agreements. For example, data on catches can enable the cross-checking of entries made in logbooks. Also, the information on fishing activities can be used to determine if a set was made in contravention of a time/area closure, full retention or live release or certain species requirements, or identify the amount of catch made within a specific EEZ or high seas transshipment activities. This type of information can be valuable to the RFMO compliance processes, flag state and/or licensing State authorities, and vessel owners and fleet managers.

The functions of human observers onboard vessels can be divided into two components: (1) collecting catch-related information and other scientific data; and/or (2) monitoring the implementation of RFMO and/or national conservation and management measures or the terms of access or licensing agreements.

Observer Coverage

Human observer coverage requirements vary among the tuna RFMOs. In the WCPFC and IATTC, 100% coverage is required for large-scale purse seine vessels. In the IOTC a minimum of 5% coverage is required for various gear types, including purse seine. ICCAT also requires 100% observer coverage (human or electronic) for purse seine vessels targeting bigeye, yellowfin and/or skipjack throughout the Convention Area. ICCAT also requires 100% coverage in the bluefin fishery.

For other types of fishing-related activities, such as at-sea transshipment by longline vessels, some RFMOs require 100% coverage of at-sea transshipment with transshipment observers on the receiving vessels. Large-scale longline vessels in WCPFC, IOTC and IATTC have a requirement of a minimum of 5% coverage. ICCAT will require a minimum of 10% coverage for longline vessels of 20 length overall (LOA) by 2022.

CCSBT has a target observer coverage of 10% for catch and effort monitoring of longline and purse seine (surface fisheries).

In RFMOs where a minimum of 5% coverage is the baseline requirement, either for purse seine vessels or longline vessels, the scientific committees of these RFMOs have highlighted that this requirement is inadequate to provide reasonable estimates of total bycatch, which hinders scientific input on effective conservation measures for non-target species.

A 100% observer coverage requirement for large-scale purse seiners ensures full and accurate collection of catch data, interactions with non-target species, and other scientific information, as described in paragraph 5, which are necessary for stock assessments and analyses, as well as, where allowed, for compliance purposes.

For other gear types, such as longline, scientists have recommended that the minimum level of observer coverage on the harvesting vessel should be at least 20% of the effort by gear type.

Further, a 100% observer coverage of at-sea transshipments ensures accurate data collection on catches (by species and geographic location) and monitoring to combat IUU fishing activities.

RFMO Human Observer Programs for Purse Seine

WCPFC

The Western and Central Pacific Fisheries Commission (WCPFC) established its Regional Observer Program (ROP) in 2007⁵, the development of which is mandated in Article 28 of the WCPFC Convention. The WCPFC ROP is implemented through the use of existing regional, sub-regional and national observer programs already in place. All existing regional, sub-regional and national observer programs and providers that wish to be part of the WCPFC ROP, so that observers from those programs are able to be deployed to satisfy WCPFC observer coverage and other related requirements, must meet the WCPFC ROP Standards on the formation and operation of observer programs, and be audited against those standards. Placements of ROP observers are made by individual national or subregional programs that are authorized to be part of the WCPFC ROP. The WCPFC Secretariat maintains records related to the programs' authorizations to be part of the WCPFC ROP, conducts regular audits of programs to ensure that agreed WCPFC minimum standards are being met, and monitors observer coverage rates in accordance with agreed CMM requirements across fleets.

Function of Observers. Observers placed under the WCPFC ROP have a dual science and compliance role aboard the vessel, which means that while the observers are not enforcement officers onboard, the information in their reports can be used by national authorities in investigating potential infractions. The WCPFC also has a pre-notification process from observer providers to flag State members of the Commission to allow for advance notification of possible alleged infringements by their vessels, as well as coastal States when the alleged infringement may have taken place in the coastal State's waters.⁶ The WCPFC also has a Conservation and Management Measure for the protection of observer under the WCPFC ROP. The WCPFC also has an online compliance case file system, which among others, supports the notification to the relevant flag CCM of alleged violations by their vessels based on ROP observer reported data, and tracks the progress of investigations by flag CCMs for individual alleged violations, up until the conclusion of the investigations by the relevant flag CCM. For observer-data based alleged violations, flag CCMs are provided with details sufficient to commence their investigations, e.g., to identify the vessel; the trip start and end dates; if relevant, the fishing area; the CMM paragraph related to the alleged violation; and the observer programme that supplied the observer.⁷

Training Program Structure. The WCPFC has comprehensive standards for its ROP⁸. The Commission recently adopted two new minimum standards for inclusion in the WCPFC ROP Minimum Standards: "Observer Safety at sea" and "Emergency Action Plan" (See Table 1). In the case of manuals, minimum data fields formats, training, and compliance with WCPFC CMMs, the Standards explicitly state that national, sub-regional and regional programs and providers may use their existing documentation or formats as long as they include a section or annex on the in-force WCPFC CMMs and ROP (in the case of manuals) and include the minimum data fields required by the Commission (in the case of data collection formats)⁹. Further, training must be linked to the in-force WCPFC CMMs and other decisions, and the programs and providers must ensure that their observers fully understand the content of the CMMs especially in relation to their role

⁵ Conservation and Management Measure 2007-01.

⁶ See Attachment U of the Final WCPFC12 Meeting Report

⁷ <https://www.wcpfc.int/node/27861>

<https://www.wcpfc.int/node/27890>

⁸ <https://www.wcpfc.int/regional-observer-programme>

⁹ The same forms and formats (manuals, identification guides etc.) for all gear types are used by a majority of the WCPFC ROP programs, and are harmonized. This allows for the data collected to be easily entered into databases. *WCPFC Secretariat, personal communication.*

in monitoring the CMMs. Given that the WCPFC ROP is composed primarily of existing programs that all had established processes and procedures, there was a need to balance the needs of the Commission with minimizing costly changes to the existing programs' structures.

Training Course Content. With respect to observer training, the WCPFC ROP Standard states that training must be a central element in programs authorized to be part of the ROP, and observer training courses should include, but not be limited to, the following items:

- Fisheries management
- Understanding MCS
- WCPFC Convention and related CMMs
- Importance of observer programs, understanding authority and responsibilities of observers
- Safety at sea – emergencies at sea, survival at sea
- First aid
- Species identification, including target, non-target, protected species, etc.
- Fishing vessel and gear types
- Vessel identification and markings
- Techniques of verification of catch logbooks
- Techniques of estimating catch and species composition
- Fish sampling, measuring and weighing techniques
- Preservation of samples for analysis
- Data collection codes and data collection formats
- Use of digital recorders
- Knowledge of navigation including latitude/longitude; compasses; bearings; chart work; plotting a position
- Electronic equipment and understanding their operations
- The use of radios and communications
- Verbal debriefing and report writing

Entrance requirements and certification in specific gears. The WCPFC does not prescribe an entrance requirement for observer training programs such as a specific level of education, but it does state that observers must reach a high (though undefined) level of competency and must be able to be categorized as fully trained in one or all of the major tuna-harvesting gear types (purse seine, longline, pole and line, etc.)¹⁰.

Language or nationality requirements. There are no language requirements other than English for national or regional or sub-regional programs to be authorized to be part of the WCPFC ROP. WCPFC decisions state that the WCPFC ROP shall consist of independent and impartial observers qualified in accordance with criteria approved by the Commission. While it is not specifically required that the observer be of a different nationality than the flag State, that is the general

¹⁰ To be admitted to training in countries that use the harmonized WCPO formats, an entrance exam with 75% passing score is a requirement to take the training course. *Ibid.*

practice¹¹. However, vessels that operate principally in coastal waters, and occasionally venture on to the adjacent high seas or into the waters under the jurisdiction of a neighboring State, if they so agree, may carry observers of their own nationality, provided those observers have been authorized by the WCPFC Secretariat.

Program management. Again, to be authorized to be part of the WCPFC ROP, national or regional or sub-regional programs must be audited and determined to have met the WCPFC ROP standards, which include elements on program management. In particular, authorized observer programs must have processes for coordinating the placement and deployment of observers, mechanisms for resolving disputes, conduct pre-briefings and de-briefings, employ vessel safety checks, have training programs for briefers, establish codes of conduct and standards for the performance of observers.

Electronic technologies. The WCPFC training standards for programs that wish to be authorized as part of the ROP include the use of digital recorders, and other standard radio and communications equipment. However, the WCPFC training standards do not currently prescribe that observers be proficient in such things as computer software or electronic data entry technologies because they are not yet in wide use in the region. However, while some WCPFC ROP authorized programs use only paper forms, others are beginning to use electronic logbooks for observers.

Forum Fisheries Agency

The Forum Fisheries Agency (FFA) Observer Program was started in 1986 and in conjunction with the Secretariat of the Pacific Community Oceanic Fisheries Program provides training and support for observers from all seventeen Pacific Island Country members of the FFA. This Program has deployed FFA observers on U.S. fishing vessels licensed under the Multilateral Treaty on Fisheries since 1988, and other fishing vessels licensed under the Federated States of Micronesia Arrangement since 1995¹². The SPC/FFA Observer Program is essentially the regional standard in the Western and Central Pacific, and was looked to extensively in the development of the WCPFC ROP as it pre-dated the WCPFC ROP by 20 years and was a significant factor in the WCPFC decision to implement its ROP through the use of existing regional, sub-regional and national observer programs (the hybrid approach).

Function of Observers. Observers placed under the SPC/FFA Observer Program have dual science and compliance roles aboard the vessel in that the information in their reports can be used by national authorities in investigating potential infractions, as well as in the WCPFC Compliance Monitoring Scheme.

Training course content and length. The standard Pacific Islands Regional Fisheries Observer (PIRFO) course, which was developed by the FFA and SPC, lasts approximately four weeks, and is both comprehensive and intensive. The training program includes the following elements:¹³

- Health and safety in transit and onboard vessels and sea survival
- Observer code of conduct
- Background information on fisheries in the WCPO including the WCPFC
- Gear technologies and operational procedures of selected fisheries (purse-seining, long-lining, pole and line)

¹¹ For example, some WCPFC members require that vessels fishing in their waters carry an observer that is not from the flag of the vessel. *Ibid.*

¹² The Parties to the Nauru Agreement observer program began to deploy observers on vessel operating under the FSM Arrangement in 2013 in lieu of the SPC/FFA program. *FFA, personal communication.*

¹³ WCPFC-TCC2-2006-11 (Status Report on the Implementation of the ROP) and the Pacific Island Regional Fisheries Observer Certification and Training Policy Manual (2009).

- Basic navigation
- Use of electronic communications equipment
- Species identification
- Monitoring catch and vessel activities
- Environmental monitoring
- Species of special interest interaction reporting
- Sampling design/strategies
- Data management
- Debriefing skills and use of debriefing templates and protocols
- Report writing, form completion and report production

Entrance requirements. There is no specific educational entrance requirement to its program; however, the general rule is at least a high school education. Other pre-requisites include medical examinations, and sea-safety and first aid courses.¹⁴

Language and nationality requirements. There are no language requirements other than English for the SPC/FFA PIRFO Program. As a general rule, the SPC/FFA observer program places observers that are of a different nationality of that than of the flag State.¹⁵

Certification in specific gears. The SPC/FFA PIRFO training program covers the gear technologies and operational procedures of purse seine, long lining, pole and line and observers can be categorized as fully trained in one or all of these major tuna-harvesting gear types.

Program management. The SPC/FFA PIRFO program coordinates the placement and deployment of observers, has established mechanisms for resolving disputes, conducts pre-briefings and de-briefings, employs vessel safety checks, and has codes of conduct and standards for the performance of observers.

New technologies. The SPC/FFA PIRFO training program covers the use of data management tools. The SPC/FFA PIRFO program uses paper forms, but the use of use electronic logbooks for observers is being developed and trialed in some coastal States.

¹⁴ FFA, personal communication.

¹⁵ Some nations require that vessels fishing in their waters carry an observer that is not from the flag of the vessel.

Table 1. Minimum standards for “Observer safety at sea” and “Emergency Action Plan” for inclusion in the WCPFC Minimum Standards of the Regional Observer Programme¹⁶

ITEM: Observer safety at sea

Each ROP authorised observer programme shall ensure that observers from their programme will be provided before any boarding for a trip,

- An approved independent two way communication satellite device; and
- A waterproof personal lifesaving beacon.”

*Noting that this may consist of a single device such as “Satellite Emergency Notification Device” or it may be a combination of an independent satellite-based system such as a Sat phone plus a portable lifesaving beacon (PLB).”

ITEM: Emergency Action Plan for Observer Safety

Each CCM with an ROP authorised observer programme will ensure that they have an “Emergency Action Plan” (EAP) in place to accommodate any reported observer emergency including interference, harassment, intimidation and other personal safety issues.

The EAP must include communications protocol and appropriate contact information in an emergency and as a minimum will include.

- **When to report:** (Generally, observers should be required to report any instance of interference, harassment, intimidation, or assault as outlined in ROP training.)
- **Who to report to:** (Observer programmes must have a “Designated Officer/s” who is responsible for maintaining a device capable of receiving a signal from the approved independent two-way satellite communication device.)
- **Follow up responses:** (Observer programme must have an established procedure to initiate contact with the observer, the vessel, and, if necessary, the appropriate enforcement authority of Flag CCM’s and relevant Coastal CCM’s; this procedure must also include clear procedures that must be taken in the event of various emergencies.)
- **Remedial action:** (Observer programme must establish appropriate measures for addressing violations made against observers.)
- Completing the EAP protocols for observer related incident involving observer reporting of Interference Harassment, Intimidation must be resolved through a legal or nationally recognized procedure.

IATTC/AIDCP Observer Program

In accordance with the 1999 Agreement on the International Dolphin Conservation Program (AIDCP), purse seine vessels with a carrying capacity greater than 363 metric tons (400 short tons) and that operate in the Inter-American Tropical

Tuna Convention (IATTC) Area, must carry an observer during each fishing trip in the Agreement Area. At least 50 percent of the observers on the vessels of each AIDCP Party¹⁷ shall be IATTC observers¹⁸, and the remainder may be from the Party's national observer program.

The WCPFC and the IATTC have a Memorandum of Cooperation for the cross-endorsement of observers that have met the necessary training requirements for operating on vessels that fish in the high seas of both RFMO's respective Convention Areas¹⁹.

Functions of observers. Observers under the IATTC/AIDCP program have a dual science and compliance role aboard the vessel, and the data and information in their reports is used by the AIDCP International Review Panel (IRP) to identify if a vessel is in compliance with vessel-based limits under the AIDCP related to dolphin mortalities, and data and information collected by observers is also used in by the IATTC in its Review Committee, which monitors compliance with IATTC Conservation and Management Measures. Observer data is collected via paper forms that are key punched by IATTC or national program staff, and then verified.

Training program structure. With respect to training, all observers must complete technical training of a standard established by the IATTC/AIDCP. The IATTC Secretariat manages a program to train observers and national programs must ensure their observers are trained to the same standard as the IATTC-trained observers and are guided by the same manual as is used in the IATTC training program. When a national program is established, IATTC observer program staff works with the national training program in-country to ensure that the program will be able to produce and maintain a cadre of observers that are up to the IATTC standard. The IATTC Secretariat also undertakes an analysis of data received from national programs to ensure accuracy. The IATTC Secretariat provides additional assistance and training when requested by a national program, and makes the national observer program coordinators aware of any changes to the reporting requirements or forms.

Course content and length. The IATTC initial training program and national training programs are three weeks in length. The training courses cover the following topics:

- Information on the IATTC and AIDCP (Convention Areas and conservation measures)
- Observer responsibilities before, during and after the trip
- How to record observer collected data
- Information about vessels (gear, equipment, trips)
- Completing daily reports
- Recording free school and FAD sets
- Collecting data on FADs
- Instructions on tagging marine animals
- Information on identifying and collecting data on sea turtles, sharks, billfishes marine mammals and other marine fauna

¹⁶ See Attachment F of the Final WCPFC12 Meeting Report.

¹⁷ The AIDCP Parties are: Belize, Colombia, Costa Rica, Ecuador, El Salvador, European Union, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru, United States, and Venezuela. Except for Honduras, these nations are also party to the IATTC.

¹⁸ The IATTC provides the Secretariat for the AIDCP.

¹⁹ <https://www.iattc.org/PDFFiles2/2011-MOC-WCPFC-IATTC-Cross-Endorsement-SignedENG.pdf>

- Techniques for handling sensitive marine species
- Instructions on reporting at sea
- Collecting data for the International Review Panel
- Maintaining compliance records
- How to complete the forms, the codes for use on the forms and copies of all the forms

Entrance requirements. The IATTC/AIDCP observer program guidelines²⁰ require that applicants have, at minimum, a university degree in biology, or a related subject like zoology, ecology, fisheries science, oceanography, to enter the program. Candidates must also have completed all credits or curriculum in their field of study. All candidates are to be interviewed and must write an essay on why they wish to become an observer. Finally, the guidelines state that psychometric tests should be used to assess the psychological profile of candidates.

Language, nationality and conflict of interest requirements. Given that at least 50 percent of the observers on the vessels of each AIDCP Party must be IATTC observers, and the remainder may be from the Party's national observer program, there are no language requirements (although a proficiency in English is likely highly desirable)²¹ or provisions that observers are not to be nationals or citizens of the flag State. The IATTC/AIDCP observer program does require Parties to ensure their observers are not a crew member of the fishing vessel being observed, and not be an employee of a fishing vessel company involved in the observed fishery.

Certification in specific gears. The IATTC/AIDCP observer program does not offer training in specific gears other than purse seine, as that is the gear type covered by this program.

Program management. The IATTC/AIDCP program includes a process for resolving disputes between observer's reports and the captain/crew. The text and annexes to the AIDCP include specific provisions on observer and captain/crew conduct, the degree of access by the observer to equipment and areas of the vessel, and living/working conditions for the observer. The training manuals also include information on expected behavior of both observers and captains/crew²². In addition, given these provisions are part of the AIDCP and its Annexes, the Parties have a duty to incorporate these elements into their national laws and regulations, inform their flagged vessel's captains of the requirements, and enforce them.²³

Electronic technologies. The IATTC/AIDCP program uses primarily paper forms.

ICCAT Observer Programs

In 2010 the International Commission for the Conservation of Atlantic Tunas (ICCAT) adopted Recommendation 10-10 (Recommendation by ICCAT to Establish Minimum Standards for Fishing Vessel Scientific Observer Programs), which has since been replaced by subsequent revisions, that established a requirement for a minimum of 5% observer coverage of fishing effort in the pelagic longline, purse seine and baitboat fisheries as well as general minimum standards for ICCAT observer programs. In 2019, ICCAT adopted Recommendation 19-02 to replace Recommendation 16-01 on a Multi- Annual Conservation and Management Program for Tropical Tunas that requires a minimum of 10% coverage for

²⁰ Document OBS-02-03a, adopted at the 2nd Annual Meeting of IATTC and National Observer Programs, La Jolla, CA, 2007.

²¹ All observers participating in the AIDCP are from Latin-American countries and Spanish is their native language.

²² Training course for captains are only required for those wishing to be on the AIDCP list of qualified captains, which is a prerequisite for a vessel to receive a dolphin mortality limit. Other captains may take this course voluntarily, but it is not required in the IATTC.

²³ IATTC Secretariat, *personal communication*.

longline vessels of 20 length overall (LOA) by 2022 and also requires 100% observer coverage (human or electronic) for purse seine vessels targeting bigeye, yellowfin and/or skipjack throughout the Convention Area. ICCAT Parties are to ensure this coverage rate through national observer programs for vessels flying their flag covered by the measure. However, Rec. 19-02 also tasked the Working Group on Integrated Monitoring Measures (IMM) to explore the scope and benefits of ICCAT adopting a regional Observer Program for tropical tuna fisheries, taking into account the need for harmonization and coordination of national observer programs.

ICCAT has also established observer programs for specific purposes, species and fisheries. For example, the Recommendation for the Multi-Annual Recovery Plan for Bluefin Tuna in the Eastern Atlantic and Mediterranean, includes provisions for a Regional Observer Program to provide 100% coverage of purse seiners authorized to fish bluefin tuna, all transfers of bluefin tuna from purse seiners, all transfers of bluefin tuna from traps to transport cages, all cagings of bluefin tuna in farms, and all harvesting of bluefin tuna from farms. This Recommendation also prescribes 20% national observer coverage for other vessel types. The specific requirements of these regional programs, where they differ from the general standards for national observer programs, are described in the sections below.

ICCAT Scientific Observer Program

Functions of observers. ICCAT Recommendations²⁴ set out minimum standards for observers that are to collect scientific data in ICCAT managed fisheries. The observer programs and their deployment, however, are the responsibility of each flag State Party to ICCAT. Further, each Party can use the data collected under these programs in accordance with national laws, and therefore those data may be used for compliance purposes by individual flag States.²⁵

Training program structure. ICCAT does not prescribe specific entrance requirements for observers. It sets out specific tasks that each Party is to require of its observers and it states that Parties must ensure that their observers are properly trained before deployment.

Entrance Qualifications. The Recommendation also outlines a set of qualifications that Parties must ensure their observers have. These qualifications include:

- Sufficient knowledge and experience to identify species and collect information on different fishing gear configurations
- Satisfactory knowledge of the ICCAT conservation and management measures assessed by a certificate provided by the CPCs and based on ICCAT training guidelines
- The ability to observe and record accurately data to be collected under the program
- The ability to collect biological samples

Language, nationality and conflict of interest requirements. ICCAT Parties are to ensure observer coverage rate through domestic observer programs for vessels flying their flag covered by the particular measure, unless otherwise provided in another measure, so there are no language requirements or provisions that observers are not to be nationals or citizens of the flag State. Parties are to ensure their observers are not a crew member of the fishing vessel being observed, and not be an employee of a fishing vessel company involved in the observed fishery.

²⁴ A “Recommendation” is a binding measure in ICCAT, whereas in the IOTC and IATTC recommendations are non-binding. Those RFMOs use the term “Resolutions” to denote binding measures. The WCPFC uses Conservation and Management Measures (CMMs) for binding measures and “Resolution” for non-binding.

²⁵ NOAA Sustainable Fisheries, *personal communication*.

Certification in specific gears. ICCAT prescribes that Parties ensure training in all the major tuna harvesting gears; and they are to ensure that their observers have sufficient knowledge and experience to collect information from different gear configurations.

Program management. As the responsibility for fulfilling the observer requirement lies with ICCAT Parties, ICCAT has not set standards for the management of those programs (such as for vessel safety checks, briefing and debriefing, resolution of conflicts, codes of conduct and performance standards, etc).

Eastern Atlantic and Mediterranean Bluefin Tuna Observer Programs

Observer Function. Observers deployed in the bluefin tuna fishery have a dual scientific and compliance role. Observer reports and all other information collected by the observers are shared with the flag State. In this case too, flag States may use information reported by observers under this program in accordance with their national laws. Flag States usually do take action where necessary and report back to the ICCAT Commission to be considered in the annual compliance review conducted through the ICCAT Compliance Committee.²⁶

Program Structure. The ICCAT bluefin regional observer program under is operated on behalf of ICCAT by a consortium, which conduct observer recruitment and training, observer deployment, etc. under the direction of the ICCAT Secretariat. Obtaining an observer requires that the vessel/farm/trap operator sign a memorandum of understanding (MOU)²⁷ with the consortium.

Program management. The consortium MOU includes provisions for proof of seaworthiness and safety to satisfy ICCAT guidelines and all applicable national and international safety regulations, and outlines the obligations of the flag State of purse seine vessels and farm and trap States, responsibilities of the operators, role and responsibilities of the observer while onboard and at farms and traps, standards of conduct and behaviour of observers, pre-deployment and post-deployment briefings, and detailed requirements for pre-sea inspections that must be met for embarkation of the observer.

Course content and length. The training programs have common elements and specific curricula depending on the purpose of the particular observer program and what data will be collected, activities to be monitored and the type of gear and vessel. The training courses run for an average of 5 or 6 days, but can be longer depending on the complexity of the observer program for which trained observers are being contracted. The training course components that are common to all programs include:

- Introduction to the RFMO, background, relevant management measures
- Species identification and catch estimation
- Collection and preservation of samples
- Data collection and entry techniques
- Use of communication and navigation electronics
- Training on specific vessels and gears types to be used in the particular RFMO area
- Working conditions on vessels and health and safety at sea
- Report generation and writing

²⁶ Ibid.

²⁷ ICCAT ROP-BFT 2013: MOU Between Observer Suppliers and Bluefin Tuna Purse Seine Vessel, Farm and Trap Operators

- Use of spreadsheets and access databases for data entry and report generation

Entrance requirements. There are requirements for observers stipulated by ICCAT, including:²⁸

- Completion of a college education in the relevant degree and/or have previous at-sea experience in fisheries, for example as fisheries officers, observers, marine scientists or commercial fishers
- Previous experience as fishery observers or in fisheries science
- Passage of a full seafarers' medical
- At-sea experience
- A basic sea survival certificate
- A certified merchant shipping medical certificate
- Appropriate language skills
- Completion of the full observer training course
- A high degree of diplomacy and responsibility
- Willingness and capability to go offshore at short notice
- A sound mental and physical state

Language and nationality requirements. For the bluefin observer program, Parties must ensure that observers have a satisfactory knowledge of the language of the flag of the vessel or farm observed. Also, for this program, ICCAT stipulates that, to the extent possible, observers are not to be nationals or citizens of the flag State of the receiving vessel.

Electronic technologies. The ICCAT program appears to use only paper forms, provides training (and issues laptop computers to its observers) on spreadsheets and access databases for data entry and to generate reports.

ICCAT Observer Program for Bigeye and Yellowfin

In its 2019 Recommendation for a Multi-Annual Conservation and Management Program for Bigeye and Yellowfin Tunas, ICCAT mandated 100% observer coverage (human or electronic) for purse seine vessels targeting bigeye, yellowfin and/or skipjack throughout the Convention Area. ICCAT currently requires a minimum of 5% coverage for pelagic longline, purse seine, baitboat, traps, gillnet and trawl fisheries throughout the year. However, ICCAT will require a minimum of 10% coverage for longline vessels of 20 length overall (LOA) by 2022.

Observer Function. The tasks and requirements for these observers, are distinct from ICCAT Scientific Observers. The observers are to monitor the fishing vessels' compliance with the relevant conservation and management measures adopted by the Commission.

Entrance qualifications. The Recommendation does not prescribe specific entrance requirements for observers. It sets out specific tasks of the observers and outlines a set of qualifications that the observers deployed must have. These qualifications include:

²⁸ http://www.mrag.co.uk/Observer_Qualifications.htm and MRAG UK, *personal communication*.

- Sufficient knowledge and experience to identify species and collect information on different fishing gear configurations
- Satisfactory knowledge of the ICCAT conservation and management measures assessed by a certificate provided by the CPCs and based on ICCAT training guidelines
- The ability to observe and record accurately data to be collected under the program
- The ability to collect biological samples
- A satisfactory knowledge of the language of the flag of the vessel observed

Language, nationality and conflict of interest requirements. The Recommendation requires that observers have a satisfactory knowledge of the language of the flag of the vessel observed. Further the observers shall not be a crew member of the fishing vessel being observed and shall:

- (a) Be nationals of one of the CPCs
- (b) Be capable of performing the duties set forth by ICCAT
- (c) Not have current financial or beneficial interests in the tropical tuna fisheries

Program management. As the responsibility for fulfilling the observer requirement lies with ICCAT Parties, ICCAT has not set standards for the management of those programs (such as for vessel safety checks, briefing and debriefing, resolution of conflicts, codes of conduct and performance standards, etc).

IOTC Regional Observer Scheme

The Indian Ocean Tuna Commission (IOTC) adopted Resolution 10/04 in 2010 that established the IOTC Regional Observer Scheme (ROS), which has been replaced by Resolution 11/04. The scheme is implemented nationally and is designed to collect scientific data. It does not have a compliance purpose²⁹. The ROS prescribes a coverage requirement of 5% of the number of operations/sets for each gear type by the fleet of each Contracting Party while fishing in the IOTC area of competence of vessels 24 meters overall length and over, and under 24 meters if such vessels fish outside of their EEZ. When aboard a purse seiner under the Scheme, observers are to also monitor the catches at unloading to identify bigeye composition. In 2016, the IOTC adopted Resolution 16/04 on the implementation of a pilot project in view of promoting the Regional Observer Scheme of IOTC. This project is to enhance the implementation of the Resolution 11/04 and to strengthen compliance with Resolutions 15/01 and 15/02 (on the recording of catch and effort data by fishing vessels and on mandatory statistical reporting requirements, respectively). The project is planned for completion in 2021. The IOTC Scientific Committee elaborated an observer working manual, minimum data requirement, template for observer forms, a template to be used for observer reports.

Functions of Observers. The ROS is a scientific program. The IOTC Resolution outlines the duties of observers deployed under the Scheme as:

- Record and report fishing activities, verify positions of the vessel
- Observe and estimate catches as far as possible with a view to identifying catch composition and monitoring discards, by-catches and size frequency
- Record the gear type, mesh size and attachments employed by the master

²⁹ IOTC Secretariat, *personal communication*.

- Collect information to enable the cross-checking of entries made to the logbooks (species composition and quantities, live and processed weight and location, where available)
- Carry out such scientific work (for example, collecting samples), as requested by the IOTC Scientific Committee

Observer reports are to be provided to the IOTC Secretariat by Parties within 150 days of the end of the trip. The Secretariat prepares summaries of the information submitted in the reports, which are then provided to the Scientific Committee, Compliance Committee and Working Party on Ecosystems and Bycatch³⁰. The level of compliance with requirements of the Scheme (reporting, level of coverage, etc.) is also included in the individual compliance reports for each Party that are then considered annually in the Compliance Committee.

Program Structure and Training. Each Party has the primary responsibility to obtain qualified observers for deployment on their flagged vessels, and they may use observers of any nationality. Parties are responsible for taking all necessary measures to ensure that observers deployed on their vessels are able to carry out their duties in a competent and safe manner and ensuring that the vessel on which an observer is placed shall provide suitable food and lodging during the observer's deployment at the same level as the officers, where possible. CPCs must submit a list of their approved observers to the IOTC Secretariat, which then can be authorized via the process outlined in the ROS Standards. The Resolution outlines that vessel masters shall ensure that all necessary cooperation is given to observers in order for them to carry out their duties safely including providing access, as required, to the retained catch, and catch which is intended to be discarded. The IOTC developed templates for data collection and reporting, including forms, and recommended training pre-requisites,³¹ which are to be used as guidelines by IOTC Parties in implementing their own national observer programs. These were revised by the SC in 2014³² where interim reporting templates were adopted³³. The IOTC Pilot Project (Resolution 16/04³⁴) is currently underway and the project involves developing a set of standards and training programme for the ROS to support the implementation and regional recognition of national programmes.³⁵ In 2018, the European Union provided funds for the IOTC to develop and implement a comprehensive observer training program to support the effective implementation of the ROS. Part of this work was to develop draft standards for the ROS and a process to assess national observer programs against the standard to obtain authorization to become part of the ROS. These resulting ROS standards were adopted in 2019³⁶. In addition to providing for the Commission to authorize observer programs approved by CPCs to provide observers for their flagged vessels under the ROS, the Standard also has a process for the Commission to authorize scientific observer programs approved by other tuna RFMOs. This authorization process will be implemented gradually, during which time national and regional observer programs may continue to operate as normal.

Entrance qualifications. IOTC developed a set of minimum pre-requisites for IOTC observer training to guide national programs as part of the ROS Standard. Under the Standard, Observer Providers are to keep a record of documentation to prove observers meet the agreed requirements, including:

- Evidence of proficiency in literacy and numeric competency (holder of a Secondary School Certificate or equivalent)

³⁰ Ibid.

³¹ Report of the Technical Meeting on the IOTC Regional Observer Scheme, Seychelles, 19-21 May 2010 (IOTC-2010-WROS-R)

³² IOTC-2014-SC17-R

³³ ROS manual and reporting templates; <http://www.iotc.org/science/regional-observer-scheme-science>

³⁴ <http://www.iotc.org/cmm/resolution-1604-implementation-pilot-project-view-promoting-regional-observer-scheme-iotc>

³⁵ IOTC-2017-S21-10; A Pilot Project for the IOTC Regional Observer Scheme

³⁶ IOTC-2019-S23-10_Rev1: Regional Observer Scheme Draft Programme Standards

- Valid passport
- Valid Certificate of Medical Fitness³ (STCW or equivalent) issued by an authorised medical practitioner
- Valid STCW Basic Safety Training Certificate (or equivalent)
- Certificate of successful completion of a Basic Observer Training Course based on IOTC training curriculum
- Document signed by the observer accepting the code of conduct

Language, nationality and conflict of interest requirements. There are no specific language requirements stipulated in the IOTC Resolution. The Resolution does prescribe that each CPC may choose to use either deployed national or non-national of the flag State of the vessel on which they are deployed. However, CPCs must ensure observers are not an employee of a fishing vessel company involved in the observed fishery.

Certification in specific gears. The IOTC ROS Standard prescribes that observers meet the minimum competency standards to be certified by Observer Providers as fully trained in one or all of the following gear types: purse seine, longline, pole and line, and gillnet.

Program management. The responsibility for fulfilling the observer requirement under Resolution 11-04 lies with IOTC Parties. Observer providers and CPCs are responsible for ensuring the requirements in the ROS Standards are met. The IOTC ROS Standard includes requirements for the management of those programs, including that observers agree to conform to Code of Conduct approved by the Commission, basic training curriculum, competency standards for observer performance, observer deployment and at-sea coordination, qualifications for Observer Coordinators, equipment and materials, manuals and data fields and collection forms, training on IOTC CMMs, communications, safety at sea, insurance and liability, minimum standards for briefing and debriefing, dispute settlement, and data management, processing and reporting.

Electronic technologies. The ROS Standard requires that CPCs ensure data are submitted to the Secretariat in an approved electronic data reporting format using IOTC standard codes and units, such as the IOTC e-data collection and reporting tool or one of the IOTC endorsed e-data templates or other electronic tools already adopted at sub-regional levels.

CCSBT Observer Program

The Commission for the Conservation of Southern Bluefin Tuna (CCSBT) developed a Scientific Observer Program in 2001. The Program is implemented nationally and is designed to collect scientific data as part of the CCSBT Scientific Research Program (SRP). The CCSBT Scientific Observer Program covers the fishing activity of CCSBT members and cooperating non-members wherever southern bluefin tuna are targeted or are a significant bycatch. The Program has a target observer coverage of 10% for catch and effort monitoring of each fishery (longline and surface). Each member must provide a report to the Extended Scientific Committee and the Ecologically Related Species Working Group on the sampling scheme and arrangements for collecting data of its observer program as a separate section in the member's annual fishery report.

Functions of Observers. Observers deployed under the CCSBT Scientific Observer Program have a scientific function only. The CCSBT Standard (revised 2015) outlines the responsibilities of each member's Scientific Observer Program, including ensuring appropriately designed sampling schemes to ensure representative coverage and including specific provisions for the role and duties of observers in tag recapture reporting. While the Program does not have specified compliance function,³⁷ each member must include in National Reports to the Compliance Committee and Commission, a summary of the levels of compliance in relation to the implementation of mandatory mitigation measures.

³⁷ https://www.ccsbt.org/sites/ccsbt.org/files/userfiles/file/docs_english/operational_resolutions/observer_program_standards.pdf

Program Structure and Training. The CCSBT Standard (revised 2015) outlines that each member is responsible for the recruitment and training of observers for placement on their flagged vessels. CCSBT defers to each member to manage their observer programs in accordance with their domestic processes and laws.

Entrance qualifications. The CCSBT Standard (revised 2015) states that observers should have the following “attributes:”

- Technically trained or experienced personnel for the fleets concerned, with interests related to fisheries
- Ability to work at sea in difficult conditions
- Ability to work under stressful psychological and physical situations
- Ability to work with a boat’s crew on a cooperative and team basis over long and continuous periods at sea
- Soundness of mind and body

Regarding training, the CCSBT Standard (revised 2015) requires members to establish and maintain a structured training program, including the development of manuals and courses. The Standard also identifies the following minimum items that each member’s scientific observer training program should include:

- Briefing on the CCSBT SRP, particularly the CCSBT Scientific Observer and Tagging Program elements to promote a full understanding of the rationale for the Programs
- Fishery management and biological field collection programs including species identification, data collection and sampling procedures. This should also include identification of bycatch species, such as seabirds, sharks, marine reptiles, other ERS and knowledge of current mitigation measures that are used in the CCSBT
- Monitoring tag recovery
- Training on safety at sea and first aid
- Protocols for dealing with difficult situations (personal conflicts and physical hazards)
- Preparation of cruise/trip reports
- De-briefing with observers to provide feedback on improvement
- Any additional technical training required for special project such as tagging fish, when necessary

Regarding recruitments, the Standard recommends that observers be recruited broadly from various related fishery sectors to widen the knowledge and experiences of observers. The Standard also encourages observer exchanges among members for transparency, training and capacity building of the cohort.

Language, nationality and conflict of interest requirements. There are no specific language requirements stipulated in the CCSBT Standard (revised 2015). The Standard does prescribe that observers should not have current financial or beneficial interests in the fisheries in which they will be required to operate as observers, and observers should not have been found guilty of a serious criminal offence for five years prior to their appointment as an observer.

Certification in specific gears. The CCSBT Standard does not prescribe that members ensure training in all the major tuna harvesting gears; however, they are to take all necessary measures to ensure that observers are able to carry out their duties in a competent and safe manner.

Program management. As the responsibility for fulfilling the scientific observer requirement lies with CCSBT Members, the Standard outlines basic minimum requirements for the management of those programs (see above in “entrance requirements”). The Standard also states that any vessel selected for an observation should be capable of meeting the minimum requirements for accommodation, sanitary facilities, meals, equipment and communication systems equivalent to those of the crew (junior officer

when possible) so that the observer's duties are not compromised, and that a vessel must be advised of its responsibilities in this regard. Finally, the Standard outlines the type and format of scientific data that must be collected.

Electronic technologies. Each member program can vary with regard to the use of electronic or paper forms for observer reporting as there is no specific requirement by the CCSBT. The CCSBT has begun to discuss electronic observation technologies, but has not yet adopted any requirements for the use of such technologies.

Recommendations

The following Best Practices for human observer programs in tuna fisheries were identified through a review of a selected set of RFMO observer programs in the Atlantic, Pacific and Indian Oceans.

Recommendation 1: Observer Coverage

- Large-scale purse seiners should have 100% observer coverage (human or electronic; see <https://issf-foundation.org/knowledge-tools/technical-and-meeting-reports/download-info/issf-2018-04-minimum-standards-for-electronic-monitoring-in-tropical-tuna-purse-seine-fisheries/>) to ensure full and accurate collection of catch data, interactions with non-target species, and other scientific information, which are necessary for stock assessments and analyses, as well as, if required, collection of data for compliance purposes.
- For other gear types, such as longline, the minimum level of observer coverage on the harvesting vessel should be at least 20% of the effort by gear type.
- At-sea transshipments should have 100% observer coverage (such as on the receiving vessel) to ensure accurate data collection on catches (by species and geographic location) and monitoring to combat IUU fishing activities.

Recommendation 2: Training Program Structure

- The training course content should cover, at a minimum, the following core competencies:
 - Collection of data related to fishing effort
 - Data related to retained catch and discards
 - Information on applicable measures and/or regulations and performance of observer duties
 - Safety and use of equipment
- The length of a training course should not be less than 5 days, unless it is a refresher course or if the program requires observers to have advanced degrees or training certificates, which may allow for less focus on some components.
- There should be minimum education requirements or applicants must be able to pass an entrance exam that demonstrates the ability to write and communicate in the appropriate language or any additional required languages, and basic math skills.
- Observers placed on specific fleets, or which are cross-endorsed to cover wider geographical areas and RFMO areas of competence, should be able to communicate effectively in the common language of the vessel or be provided with materials in multiple languages to facilitate communication between the observer, captain/master and crew onboard.
- Providers or programs that place observers on a range of gear types should ensure that each observer receives sufficient training on each gear type, vessel configuration, and equipment differences.

Recommendation 3: Functions of the Program

- The duties and responsibilities of observers should clearly outline their role in collecting and reporting statistical data and, ideally, monitoring the implementation of applicable conservation and management measures.
- Observer programs should be designed in a manner that the data collected are available and useful to scientists and RFMO science committees. Observer data (such as summaries of reports that protect the identity of the

observer) should be able to be used in RFMO compliance assessments. The flag State should report to the RFMO on the status of its investigations/ legal processes in the case of alleged infractions identified by observers.

- When using observer data for compliance purposes by flag States, coastal State and/or RFMOs, the process for how and under what procedures should be clearly defined.
- Observer programs need to be flexibly designed so that they can be modified to adapt to new monitoring and management needs. For example, if human observers are placed on support/tender vessels, the data collection requirements for scientific and, where required, compliance purposes, will differ from those in place for harvesting vessels.

Recommendation 4: Program Management

- Observer providers and regional observer programs should ensure the following are part of their program management structure:
 - Pre-briefings and debriefings are conducted for all observers.
 - That, where possible, the observer is of a different nationality from the fishing vessel
 - That the observer has no conflict of interest, e.g., not a crew member or employee of the vessel, fishing company or carrier vessel/company
 - Pre-boarding safety checks of the vessel are conducted by the observer program before the observer embarks.
 - The establishment of formal reporting mechanisms, including an independent communication system, between the observer and the observer program for use in the event of emergency or observer duress
 - The rights, duties and responsibilities of observers, captains and crew are clearly articulated — such as through a Memorandum of Understanding — and there is a policy for addressing disputes and allegations of harassment
 - There are clear rules for observer access to all areas and equipment aboard a vessel necessary to perform their duties.
 - There are established codes of conduct for observers, captains and crew.
 - There are clear and binding rules and policies to protect the safety of human observers on board, including the provision of emergency and communications equipment.

Recommendation 5: Use of Electronic Technologies

- Observer providers and programs should offer training in the use of new technologies (electronic monitoring, onboard electronic data processing and reporting software, etc.) so that observer-collected data can be electronically captured and submitted. The use of electronic forms increases efficiencies in data submission and reduces errors.



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