

**A Survey of National and/or Regional or Sub-regional Observer Programs for
Purse Seine Vessels and a Set of Best Practice Standards**

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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 various observer programs vary in terms of program management, entrance requirements, training program structure and course content, the function of the observer, among other areas. This technical paper 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 develops a set of best practice standards for observer programs for purse seine vessels. States and RFMOs are encouraged to use these best practice standards in the development of or strengthening of national, regional or sub-regional human observer programs for fishing vessels.

Introduction

1. ISSF has adopted a multi-annual conservation measure resolution¹ that requires, as of January 1, 2014 that purse-seine vessels must have an observer onboard for every trip and observer every fishing operation. As a result, ISSF Participating Companies are to refrain from transactions with purse seine vessels that do not meet this requirement. The conservation measure provides flexibility as to what can be considered an “observer” (i.e., the use of electronic monitoring systems (EMS) – if proven effective -- or human observer) and recognition of *force majeure* that may prevent a vessel or fleet from meeting the objective. ISSF published a technical paper² in 2012 providing guidance to vessels on the elements that would make electronic observers “effective.”

3.1 Observer coverage – purse seine vessels

Commitment Objective: 100% observer coverage (human or electronic if proven to be effective) of purse seine vessels.

Commitment Completion Date: 1/1/2013 for large-scale³ purse seine vessels unless prevented by force majeure⁴ conditions in a particular region. To facilitate implementation, coverage for a vessel will considered to be satisfactory in 2013 if the vessel has an observer onboard in at least one trip. Starting in 2014, taking into advice the recommendation from the ISSF Scientific Advisory Committee, 100% coverage will

¹ ISSF Resolution 11-03, as amended in 2012 (Resolution 12-03) and 2013 (Resolution 13-02).

² ISSF Technical Paper 2012-13 Guidance on Electronic Monitoring for Observer Programs to Comply with ISSF Commitments.

³ 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.

⁴ 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.

require presence in every fishing trip and observing every fishing operation.

2. With respect to observer training, ISSF Resolution 13-02 (section 3.2) provides that by January 1, 2014, human observers on board purse seine vessels must satisfactorily complete annual observer training, with course content to be regularly updated (which will be facilitated with internet based tools and in-person training).
3. The purpose of this technical paper is to develop a set of best practice standards for 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 practice standards in the development of, or strengthening of, national, regional or sub-regional human observer programs for fishing vessels. In addition, this paper will identify how well the surveyed programs or providers conform to these best practices.
4. This technical paper 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 practice standards from these programs or providers. Section III provides recommendations and conclusions.
5. Publically 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), 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 publically available information was not detailed enough, unclear or silent on an issue.

Section I

The purpose of observer programs

6. Nations and, more recently, regional fisheries management organizations (RFMOs), are increasingly requiring that a percentage of fishing vessels in certain fisheries carry a human observer aboard the fishing vessel for the duration of the trip. Some national or RFMO programs prescribe strictly a “scientific” function for the observers, whereas others have a dual scientific and “compliance” function. 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), and, in some programs, depending on their mandate, record whether or not the vessel, master and crew comply with applicable 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).

Western and Central Pacific Fisheries Commission Regional Observer Program (ROP)

7. The Western and Central Pacific Fisheries Commission (WCPFC) established its Regional Observer Program in 2007⁵, the development of which is mandated in Article 28 of the WCPF Convention. The Commission ROP is implemented through the use of existing regional, sub-regional and national observer programs already in place when Conservation and Management Measure (CMM) 2007-01 entered into force on 15 February 2008. All existing regional, sub-regional and national observer programs and providers that wish to be part of the Commission 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. Once audited and determined to have met the standards, the national or sub-regional program is authorized to be part of the WCPFC ROP. As of April 2013, twenty-three national, regional or sub-regional programs or providers are fully authorized as part of the WCPFC ROP.⁶ In addition, the WCPFC has ROP authorized the first private observer provider to operate under the ROP.⁷ WCPFC ROP activities are coordinated centrally through the staff of the WCPFC Secretariat.

8. **Function of Observers.** Observers placed under the WCPFC ROP have a dual science and compliance role aboard the vessel in that the information in their reports can be used by national authorities in investigating potential infractions.

9. **Training Program Structure.** The WCPFC ROP Standards cover the areas in 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)⁸. 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 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. The existing programs and providers also had significant experience to offer to the Commission to fulfill the development of a ROP, and so it would not have been sensible to attempt to duplicate these programs.

⁵ See Conservation and Management Measure 2007-01.

⁶ Australia, China, Chinese-Taipei, Cook Islands, Federated States of Micronesia, Fiji, FSM Arrangement, Japan, Kiribati, Korea, Marshall Islands, Nauru, New Caledonia, New Zealand, Palau, Papua New Guinea, Philippines, Tonga, Solomon Islands, Tuvalu, Forum Fisheries Agency, United States, and Vanuatu.

⁷ WCPFC Secretariat, personal communication.

⁸ The same forms and formats (manuals, identification guides etc.) for all gear types are used by 18 of the 24 WCPFC ROP programs and are harmonized. This allows for the data collected to be easily entered into databases. *WCPFC Secretariat, personal communication.*

9. **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
- Health at sea issues

Table 1.

WCPFC ROP Standard Item⁹	Explicit Link to WCPFC CMMs or Other Requirements
Manuals and Workbooks	X
Data Fields and Minimum Data Standards	X
Sea Safety	
Training	X
Observer Trainers	
Code of Conduct	
Coordinating Observer Placements and the Deployments of Observers	X
Briefing and Debriefing	
Briefing and Debriefing Training	
Equipment and Materials	
Communications	
Performance of Observers	
Dispute Settlement	
Authorization Process	X
Observer Coverage	X
Insurance and Liability	
Vessel Safety Check List	
Conservation and Management Measure (CMM) Adherence	X

⁹ For items without an explicit link to a WCPFC CMM, there are requirements from the Commission through the working group on the ROP and other processes. *WCPFC Secretariat, personal communication.*

10. **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), which varies from program to program, 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

11. **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. Under the WCPFC, CMM 2007-01 sets the standard that the Commission 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 practice¹¹. However, CMM 2007-01 prescribes that vessels that operate principally in coastal waters, but 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 Secretariat.

12. **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 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.

13. **New 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

14. The Forum Fisheries Agency 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

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.*

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.*

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. For instance, the fact that the SPC/FFA Observer Program pre-dated the WCPFC ROP by 20 years 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).

15. **Function of Observers.** Observers placed under the SPC/FFA 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.

16. **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);
- 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; and
- Report writing, form completion and report production.

17. **Entrance requirements.** The SPC/FFA program does not have a 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

18. **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 than that of the flag State.¹⁵

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).

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.

19. **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.

20. **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.

21. **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 electronic logbooks for observers is being developed and trialed in some coastal States.

IATTC/AIDCP Observer Program

22. 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 Agreement Area (which corresponds to the Inter-American Tropical Tuna Convention (IATTC) Area within the Eastern Pacific Ocean), 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 Party¹⁶ shall be IATTC observers¹⁷, and the remainder may be from the Party's national observer program.

23. At the request of the FFA, IATTC staff trained SPC/FFA observers to comply with the requirements of vessels that do not regularly fish in the waters under the purview of the AIDCP, and that are not included in the IATTC vessel registry to operate in the Eastern Pacific Ocean (as allowed under the IATTC Resolution on Capacity (C-02-03)), and the observer requirements of the AIDCP. The program was in effective from 2002 to 2011. In 2011, the WCPFC and the IATTC signed 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 Areas.¹⁸

24. **Functions of observers.** Observers under the IATTC/AIDCP program have a dual science and compliance role aboard the vessel in that 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.

¹⁶ 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.

¹⁷ The IATTC provides the Secretariat for the AIDCP.

¹⁸ WCPFC6 Summary Commission Report (2010) and the Minutes of the 82nd Meeting of the IATTC (2011).

25. **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 national observer training programs 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.

26. **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;
- Techniques for handling sensitive marine species;
- Instructions on reporting at sea;
- Collecting data for the International Review Panel;
- Maintaining compliance records; and
- How to complete the forms, the codes for use on the forms and copies of all the forms.

27. **Entrance requirements.** The IATTC/AIDCP observer program guidelines¹⁹ 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.

28. **Language and nationality 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)²⁰ or provisions that observers are not to be nationals or citizens of the flag State. The IATTC/AIDCP observer program does require Parties

¹⁹ Document OBS-02-03a, adopted at the 2nd Annual Meeting of IATTC and National Observer Programs, La Jolla, CA, 2007.

²⁰ All observers participating in the AIDCP are from Latin-American countries and Spanish is their native language.

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.

29. **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.

30. **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/crew²¹. In addition, given these provisions are part of the AIDCP and its Annexes, the Parties have a duty to incorporate these elements in to their national laws and regulations, inform their flagged vessel's captains of the requirements, and enforce them.²²

31. **New technologies.** The IATTC/AIDCP program uses only paper forms.

32. As described above, the IATTC and WCPFC have agreed upon a set of conditions and procedures for "cross-endorsed" observers to engage in observing activities of fishing vessels in the IATTC and WCPFC Convention Areas. The IATTC cross-endorsement manual for use by cross-endorsed observers from the WCPFC includes much the information as is provided to IATTC observers during training. The training manual includes the following broad categories of information and elements:

- Information on the active IATTC requirements for purse seine vessels, which are compiled from the relevant IATTC and AIDCP treaties, resolutions and decisions;
- Information on any exceptions to these requirements;
- A list and description of the IATTC forms that must be provided to the observer before boarding, and instructions for completing these forms;
- A description of what documents and forms the observer provider must ensure have been completed at the end of a trip;
- Procedures and guidance for the observer;
- Detailed instructions for completing the individual IATTC forms for data collection, such as reporting and recording interactions with dolphins and the use of dolphin safety gear, sightings or interactions with other marine mammals, catches of sharks and sea turtles, tuna discards, and fishing in the high seas closure area called "Corralito";
- Coordinates for the IATTC Convention Area; and
- IATTC Staff contact information, codes for use on the forms and copies of all the forms.

²¹ 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.

²² IATTC Secretariat, *personal communication*.

ICCAT Observer Programs

33. In 2010, notwithstanding additional observer program requirements that may be in place or adopted by ICCAT in the future for specific fisheries for the collection of scientific information, 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) that established a requirement for a minimum of 5% observer coverage of fishing effort in the pelagic longline, purse seine and baitboat fisheries. ICCAT Parties are to ensure this coverage rate through national observer programs for vessels flying their flag covered by the measure. This Recommendation provides the general minimum standards for ICCAT observer programs.

34. ICCAT has also established observer programs for specific purposes, species and fisheries that build on the general requirement outlined in Recommendation 10-10. For example, Recommendation 12-08 (Multi-Annual Recovery Plan for Bluefin Tuna in the Eastern Atlantic and Mediterranean), which was most recently amended in 2013, 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. In addition, Recommendation 13-01 (Amending Recommendation 11-01 on a Multi-Annual Conservation and Management Program for Bigeye and Yellowfin Tunas) establishes an ICCAT Regional Observer Program to ensure 100% observer coverage for all surface vessels 20m length overall or greater fishing for bigeye and/or yellowfin tunas during a FAD closure period in a defined area of the ICCAT Convention Area. The specific requirements of these regional programs, where they differ from the general standards prescribed in Recommendation 10-10 for national observer programs, are described in the sections below.

ICCAT Scientific Observer Program – Recommendation 10-10

35. **Functions of observers and Program Structure.** Recommendation²³ 10-10 sets 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.²⁴

36. **Training program structure and entrance qualifications.** Recommendation 10-10 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

²³ 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.

²⁴ NOAA Sustainable Fisheries, *personal communication*.

are properly trained before deployment. 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; and
- The ability to collect biological samples.

37. **Language and nationality requirements.** Given that under Recommendation 10-10 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, 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.

38. **Certification in specific gears.** Recommendation 10-10 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.

39. **Program management.** As the responsibility for fulfilling the observer requirement under Recommendation 10-10 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 -- Recommendation 13-08

40. **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.²⁵

41. **Program Structure.** The ICCAT bluefin regional observer program under Recommendation 13-08 is operated on behalf of ICCAT by the Marine Resources Assessment Group (MRAG) and COFREPECHE, 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)²⁶ with the consortium.

²⁵ Ibid.

²⁶ ICCAT ROP-BFT 2013: MOU Between Observer Suppliers and Bluefin Tuna Purse Seine Vessel, Farm and Trap Operators

42. **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 behavior of observers, pre-deployment and post-deployment briefings, and detailed requirements for pre-sea inspections that must be met for embarkation of the observer. MRAG-administered observer programs all include detailed pre- and post- embarkation briefings, briefings on crew and observer roles and responsibilities and observer codes of conduct, vessel safety checks and a mechanism to address disputes or harassment.

43. **Course content and length.** The training programs operated by MRAG have common elements and specific curricula depending on the purpose of the particular observer program and what data will be collected, specific species or activities to be monitored or handled and the type of gear and vessel (i.e., purse seine, pelagic longline, trawler, carrier vessels, etc). 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 MRAG 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; and
- Use of spreadsheets and access databases for data entry and report generation.

44. **Entrance requirements.** MRAG has established requirements for observers in all of its programs, including:²⁷

- 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 fishermen;
- 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 MRAG observer training course;
- A high degree of diplomacy and responsibility;

²⁷ http://www.mrag.co.uk/Observer_Qualifications.htm and MRAG UK, *personal communication*.

- Willingness and capability to go offshore at short notice; and
- A sound mental and physical state.

45. **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.

46. **New technologies.** The ICCAT programs appear to use only paper forms. MRAG provides training (and issues laptop computers to its observers) on spreadsheets and access databases for data entry and to generate reports. MRAG provides training when needed on the use of new technologies (such a video monitoring) for the particular program.

ICCAT Regional Observer Program for Bigeye and Yellowfin -- Recommendation 11-01 (Annex 3) and Recommendation 13-01

47. As noted above, Recommendation 13-01 (Amending Recommendation 11-01 on a Multi-Annual Conservation and Management Program for Bigeye and Yellowfin Tunas) establishes an ICCAT Regional Observer Program to ensure 100% observer coverage for all surface vessels 20m length overall or greater fishing for bigeye and/or yellowfin tunas during a FAD closure period in a defined area of the ICCAT Convention Area. At the time of writing, this Regional Observer Program was still being developed by ICCAT. Therefore, details regarding observer training, entrance requirements, course content, program structure and management are not publically available. However, Annex 3 of Recommendation 11-01 does stipulate that observers under this Regional Program are to have a dual scientific and compliance role, and that to the extent possible not be a national of the flag State of the fishing vessel.

National Observer Programs for Tropical Tunas carried out by IRD (France), AZTI and IEO (Spain)

48. The EU (French and Spanish) Purse Seiner Observer Program is carried out under the Data Collection Framework Regulation²⁸ of the European Union, which requires observer coverage of 10 % of the fishing trips.

49. The observer program on the French and tropical tuna purse seine fleets operating in the Atlantic and Indian Oceans are managed by the Institut de Recherche pour le Développement (IRD), which, along with the Data Collection Framework of the European Union, co-funds the program. Since 2007, IRD has sub-contracted the operational implementation of the program to a private consulting company that is responsible for observer selection, recruitment, training, boarding of observers on vessels, and verification of the quality of the data collected and transmission to IRD. As the scientific manager of the program, IRD provides the technical specifications, manuals, forms, databases and determines sampling methods, and analyzes the data and submits it to ICCAT and IOTC.²⁹

²⁸ <https://datacollection.jrc.ec.europa.eu>

²⁹ Chavance, P., Damiano, A., Canquil P., and Relot A. 2012. *Observer Program on the French Tropical Tuna Purse Seine Fishery in the Atlantic Ocean*. SCRS/2011/124.

50. **Function of observers.** Observers deployed under the IRD program are to collect scientific data and do not have a compliance function. However, see paragraph 63 below.

51. **Entrance qualifications, language and nationality requirements.** The IRD observer program requires that observers have, at minimum, a university degree in marine biology, or a qualification in the Merchant Marine (certification of shift captain or equivalent), computer skills (word processing and spreadsheet software, like MS Word and Excel), and a proficiency in French. The IRD program does not appear to require that the scientific observers be of a different nationality from the vessel.

52. **Course content and length.** IRD conducts a 3-day training course that covers the following areas:

- The observer manual and forms;
- Completion of the required forms;
- Species identification of target stocks and bycatch;
- Data collection and use of computer applications (i.e., ObServe) for information management; and
- Writing of the observer report.

53. **Certification in specific gears.** The IRD observer program ensures that observers have sufficient knowledge and experience to collect information from purse seine gear configurations.

54. **Program management.** As the IRD program is a scientific observer program only, and does not have compliance objectives, its focus is on the collection of scientific and statistical information. Thus, while the program does include codes of conduct and performance standards for observers, it does not have such for captains or crew, conduct safety checks, briefing and debriefings, or have a mechanism for the resolution of conflicts.

55. **New technologies.** The IRD program does offer training in the use of electronic data entry and computer data management software.

56. The observer program for the Spanish tropical tuna purse seine fleets operating in the Atlantic, Eastern Pacific and Indian Oceans is managed by AZTI- Technalia and the Spanish Institute of Oceanography (IEO) which, along with the Data Collection Framework of the European Union, co-funds the program. As the scientific manager of the program, AZTI/IEO provides the technical specifications, manuals, forms, databases and determines sampling methods, and analyzes the data and submits it to ICCAT, IATTC and IOTC.

57. **Function of observers.** Observers deployed under the AZTI/IEO program have only a scientific role. However, see paragraph 63 below.

58. **Entrance qualifications, nationality and language requirements.** AZTI/IEO requires that observers have, at minimum, a university degree in marine biology, or a qualification in the Merchant Marine (certification of shift captain or equivalent), computer skills (word processing

and spreadsheet software, like MS Word and Excel), and a proficiency in Spanish. The AZTI/IEO program does not appear to require that the scientific observers be of a different nationality from the vessel.

59. **Course content and length.** For the purse seine fleets operating in the Indian and Atlantic Oceans, AZTI/IEO conducts training course of 3 or 4 days that covers the following areas:

- Responsibilities and tasks for observers;
- Responsibilities before boarding, during and after the trip;
- Instructions for recording observer data;
- Use and completion of forms (environmental factors, fishing activity, sampling of tunas, associated species);
- Collection of data on floating objects;
- Sampling of data on specific species, including identifying the species, sex, etc;
- Information on sharks, by species;
- Information on the codes for use in the forms, and the forms;
- Catch and bycatch estimation;
- The relevant tuna RFMO and its conservation measures and rules;
- Species identification; and
- Best practices for releasing sensitive species alive.

60. **Certification in specific gears.** The AZTI/IEO observer program ensures that observers have sufficient knowledge and experience to collect information from purse seine gear configurations.

61. **Program management.** As the AZTI/IEO program is a scientific observer program only, and does not have compliance objectives, its focus is on the collection of scientific and statistical information. Thus, while the program does include briefings and debriefings of observers and codes of conduct and performance standards for observers, it does not have codes of conduct for captains or crew, or conduct vessel safety checks or have a mechanism for the resolution of conflicts.

62. **New technologies.** The AZTI/IEO program does offer training in the use of electronic data entry and computer data management software. Observers operating as part of the Spanish national program process data and information on board by means of appropriate computer programs.

63. **Compliance Use.** Data collected by the IRD and AZTI/IEO observers can be used by flag States in their national administrative or legal proceedings, in accordance with their national laws, in investigating allegations of infractions, and in accordance with applicable RFMO procedures. Further, in 2011 the EU issued new implementing regulations³⁰ for a control observer scheme for EU fishing vessels. The tasks of these control observers are to:

³⁰ Commission Implementing Regulation (EU) No 404/2011 of 8 April 2011 laying down detailed rules for the implementation of Council Regulation (EC) No 1224/2009 establishing a Community control system for ensuring

- Verify relevant documents and record the fishing activities of the EU fishing vessel in which they are embarked as provided in Annex XXV of the Regulation³¹.
- Where appropriate, brief the officials who are about to proceed to an inspection of that fishing vessel upon arrival on board. If the facilities on board the EU fishing vessel so allow, and where appropriate, the brief shall take place in a closed meeting.
- Complete the report referred to in Article 73(5) of the Control Regulation using the established format. Observers shall forward that report without delay and in any case within 30 days following completion of an assignment to their authorities and to the competent authorities of the flag Member State. Their competent authorities shall make the report available, on request, to the coastal Member State, the Commission or the body designated by it.

The tasks of control observers can include other duties as part of an RFMO observer program or an established bilateral agreement with a third country.

64. **Nationality Requirements.** EU Implementing Regulation 404/2011 and the EC Control Regulation also prescribe that control observers are not to be a relative or an employee of the master of the EU fishing vessel or any other crew member, the representative of the master or the owner or the operator of the EU fishing vessel to which he is assigned, or an employee of a company controlled by the master, a crew member, the representative of the master or the owner or the operator of the EU fishing vessel to which he is assigned.

IOTC Regional Observer Scheme (Resolution 11/04)

65. The Indian Ocean Tuna Commission adopted Resolution 11/04 in 2011 (replacing Resolution 10/04) that established the IOTC Regional Observer Scheme (ROS). The scheme is designed only to collect scientific data and does not have a compliance purpose³², and 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 24 meters overall length and over, and under 24 meters if such vessels fish outside of their EEZ. When aboard a purse

compliance with the rules of the Common Fisheries Policy.” <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:112:0001:0153:EN:PDF>

³¹ TASKS OF CONTROL OBSERVERS (From Annex XXV of EU No 404/2011)

Control observers shall note all fishing activities whilst embarked in the fishing vessel, including particularly the following:

- (a) the date and time and geographical positions of the start and finish of each fishing operation
 - (b) observations of the depth at the start and finish of the fishing operation
 - (c) the type of gear used in each operation and its dimensions, including mesh sizes where applicable and attachments used
 - (d) observations of the estimated catch in order to identify target species, by catches and discards for compliance with catch composition and discard rules
 - (e) observations of the size of different species in the catch, with specific reference to undersize specimens.
- Control observers shall note any interference with the satellite tracking system.

³² IOTC Secretariat, *personal communication*.

seiner under the Scheme, observers are to also monitor the catches at unloading to identify bigeye composition. This Resolution also requests, basing on the experience of other tuna RFMOs, that the IOTC Scientific Committee elaborate an observer working manual, a template to be used for reporting (including minimum data fields) and a training program. The IOTC Scientific Committee developed these in 2010.

66. **Functions of Observers.** The ROS is a scientific program. However, Parties retain the right to include in their national observer programs a control and compliance function. Resolution 11/04 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;
- 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); and
- Carry out such scientific work (for example, collecting samples), as requested by the IOTC Scientific Committee.

67. 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 Bycatch³³. 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. The Compliance Committee and individual flag States determine whether there has been a violation of an IOTC conservation measure based on their consideration of the summaries, or the observer report itself in the case of the flag State. The Scientific Committee may also refer an issue to the Compliance Committee based on its evaluation of the summary data from the ROS.

68. **Program Structure and Training.** The IOTC Observer Scheme is not managed by the IOTC Secretariat. Each Party has the primary responsibility to obtain qualified observers, and they may use nationals or non-nationals of the flag State of the vessel on which they are deployed. 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. 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 Technical Meeting on the IOTC ROS developed a template for reporting, including forms, and recommended training pre-requisites,³⁴ which are to be used as guidelines by IOTC Parties in implementing

³³ Ibid.

³⁴ Report of the Technical Meeting on the IOTC Regional Observer Scheme, Seychelles, 19-21 May 2010 (IOTC-2010-WROS-R)

their own national observer programs. The IOTC Secretariat is to finalize the observer working and training manuals to be used as guidelines for national programs.

69. **Entrance qualifications.** The IOTC Technical Meeting developed a set of minimum pre-requisites for IOTC observer training to guide national programs.³⁵ Regarding recruitments, the Scientific Committee recommended that candidates for observer training should be assessed and ideally have the following specific skills and work experience prior to being accepted for observer training:

- Numeric, literacy and logic skills;
- Ability to work alone;
- Physical fitness;
- Capacity to live in potentially hostile environments, and ability to maintain standards of conduct; and
- Preferably “at-sea” experience.

70. The Technical Meeting also recommended that pre-requisite training for observers, prior to being considered IOTC certified observers, include:

- a) Basic Sea Survival, Familiarization and Personal Safety and Social Responsibility Training (using IMO requirements), including training on:
 - Introduction to safety and survival;
 - Emergency situations;
 - Evacuation;
 - Survival craft and rescue boats;
 - Personal life saving appliances; and
 - Survival at sea.
- b) Fitness to Work at Sea
 - Prior to deployment all observers are required to have a high seas medical certificate as well as inoculations required for tetanus, yellow fever and typhoid, depending on the ports of embarkation and disembarkation.

71. **Language and nationality requirements.** There are no specific language requirements stipulated in the IOTC Resolution. The Resolution does prescribe that each Party may choose to use either deployed national or non-national of the flag State of the vessel on which they are deployed. There are no explicit provisions stipulating that Parties must ensure observers are not be a crew member of the fishing vessel being observed, and not be an employee of a fishing vessel company involved in the observed fishery.

72. **Certification in specific gears.** The IOTC observer program does prescribe that Parties 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.

³⁵ *Ibid.* Appendix VIII

73. **Program management.** As the responsibility for fulfilling the observer requirement under Resolution 11-04 lies with IOTC Parties, IOTC 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).

74. **New technologies.** The respective Parties would have to provide training in new technologies, as it is not addressed in Resolution 11/04. Also, each national program can vary with regard to the use of electronic or paper forms for observer reporting.

Section II

75. Section I reviewed a select set of existing national and/or regional or sub-regional observer programs or providers in the Atlantic, Pacific and Indian Oceans that are the primary, and in some cases, sole sources of observers and observer collected data to meet specific RFMO observer coverage requirements for purse seine vessels and other data collection requirements. Based on this review, the following “best practices” and core elements of such programs have been identified and categorized as follows:

Training program structure

76. Course content. Training programs that cover the following core competencies:

Data related to fishing effort

- Fishing vessel and gear types
- Vessel identification and markings
- Monitoring catch and vessel activities (position, activity, etc...)

Data related to catch and discards

- Species identification, including target, non-target, protected species, etc.
- Techniques of verification of catch logbooks
- Techniques of accurately estimating catch, bycatch, discards by species
- Fish sampling, measuring and weighing techniques
- Preservation of samples for analysis

Information on regulations and performance of duties

- Applicable RFMO Convention and related conservation and management measures, and required forms and materials
- Data collection codes and data collection formats
- Responsibilities of observers
- Code of conduct of observers
- Verbal debriefing and report writing

Safety and Use of Equipment

- Electronic equipment and understanding their operations

- The use of radios and communications
- Data management and use of computers and software
- Basic navigation
- Health and safety in transit and onboard vessels
- Safety at sea – emergencies at sea, survival at sea

77. Course length. Training course should be of sufficient length to cover the topics outlined above in depth. It is recommended that the length of a training course should not be less than 1 week, unless it is a refresher course. Or, as in the case of the IATTC and Atlantic/Indian Ocean programs (for some fleets), the programs require advanced degrees or training certificates that may allow for less focus on some components.

78. Entrance requirements. Training programs should have minimum education requirements or applicants must be able to pass an entrance exam that demonstrates that the applicant has the ability to write and communicate in the regionally appropriate language or any additional required languages, and basic math skills.

79. Language requirements. Providers or programs that place observers on specific fleets, or which are cross-endorsed to cover wider geographical areas and RFMO convention areas, should ensure observers are 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.

80. Certifications in specific gears. 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.

Functions of the Program

81. Observer programs should be designed in a manner that the data collected are available and useful to scientists and RFMO science committees, and can serve as the basis of information for RFMO compliance assessments and be used by States in accordance with their national laws for compliance and enforcement purposes. Further, the flag State should also report to the RFMO on the status of its investigations/legal processes in the case of alleged infractions. The duties and responsibilities of observers should clearly outline their role in collecting and reporting statistical data and, ideally, monitoring the implementation of applicable RFMO or national conservation and management measures. In addition, if observer data can be used for compliance purposes by flag States, coastal State and/or RFMOs, it should be clear on how and what the processes are.

Program Management

82. 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 (either by the regional program or by national programs that contribute observers);
- That, to the extent possible, the observer is of a different nationality from the fishing vessel;
- That the observer has no conflicts 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;
- The rights, duties and responsibilities of observers, captains and crew are clearly articulated 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; and
- There are established codes of conduct for observers, captains and crew.

Use of new technologies

83. Observer providers and programs should offer training in the use of new technologies (electronic monitoring systems, 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.

Section III

Recommendations/Conclusions

84. The existing national and/or regional or sub-regional observer programs or providers in operation in the Atlantic, Pacific and Indian Oceans surveyed in Section I were compared to the list of best practices and core programmatic elements outlined in Section II of this paper. The results are outlined in Table 2 for each observer program or services provider surveyed. The column for each program or provider lists which of the Section II best practice elements it does not exhibit based on the information available to the author.

85. While there is room to improve in some areas for several of the programs reviewed in order to exhibit the full suite of best practices identified by this technical paper, overall, the bluefin tuna observer program in the Atlantic, the programs in the Pacific and the IRD and AZTI programs set a high standard. New or developing purse seine observer programs, whether national, regional or sub-regional, are encouraged to meet the same high standard as these programs and strive to exhibit the best practice standards outlined in this technical paper.

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Table 2.

	Training Program	Functions of the Observer	Program Management	Use of New Technologies
	Best Practices	Best Practices	Best Practices	Best Practices
WCPFC ROP	All elements are present.	Dual science and compliance roles Nationality (with some exceptions)/Not crew or an employee	All elements are present.	Paper forms in use. Electronic skippers logbooks and observer reporting formats under development and in trials. ³⁶
FFA Observer Program	All elements are present.	Dual science and compliance roles Nationality/Not crew or an employee	All elements are present.	Electronic skippers logbooks observer reporting formats under development and in trials. ³⁷
IATTC/AIDCP	All elements are present.	Dual science and compliance reporting roles Not crew or an employee Absent: ³⁸ Nationality requirement ³⁹	All elements are present.	Only paper forms in use. Some programs (such as the National Program of Spain) do use electronic and integrated data collection and management software.
IRD	Most elements are present. Absent: Training on applicable RFMO	Scientific role only ⁴⁰ Absent: Nationality/ Not crew	Most elements are present. Absent: Codes of conduct for	Electronic and integrated data collection and management software (ObServe)

³⁶ WCPFC TCC9 Meeting – Verbal reports by CCMs and personal communications with SPC representatives.

³⁷ *ibid.*

³⁸ See paragraph 28 for discussion on nationality requirements.

³⁹ National laws of some IATTC/AIDCP Parties require that only their nationals be observers aboard their flagged vessels (*IATTC Secretariat, personal communication*).

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	Training Program	Functions of the Observer	Program Management	Use of New Technologies
	Best Practices	Best Practices	Best Practices	Best Practices
	conservation measures	or an employee	captains or crew, safety checks, briefing and debriefings, and a mechanism for the resolution of disputes.	
AZTI/IEO	Most elements are present. Absent: Training on applicable RFMO conservation measures	Scientific role only ⁴¹ Absent: Nationality/ Not crew or an employee	Most elements are present. Absent: Codes of conduct for captains or crew, safety checks, briefing and debriefings, and a mechanism for the resolution of conflicts.	Electronic and integrated data collection and management software (ObServe)
ICCAT	Unknown for scientific observers as these programs are administered by each ICCAT Party. For bluefin program administered by the MRAG consortia, all elements are present.	Science (scientific role) ⁴² Bluefin (dual science and compliance roles) Bluefin: Nationality/not crew or employee Absent (for scientific observer): ⁴³ Nationality	Unknown for scientific observers as these programs are administered by each ICCAT Party. For bluefin program administered by the MRAG consortia, all elements are present.	Only paper forms in use.

⁴⁰ See paragraphs 63 for a discussion of the potential use of data collected under these programs by EU Member States for compliance purposes.

⁴¹ *Ibid.*

⁴² See paragraphs 35 and 40 for a discussion of how information collected by this program can be used by flag States for compliance purposes.

⁴³ See paragraph 37 and 45 for discussion on nationality requirements.

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	Training Program	Functions of the Observer	Program Management	Use of New Technologies
	Best Practices	Best Practices	Best Practices	Best Practices
MRAG (UK)	<p>Many elements are present as part of the common components of MRAG training.</p> <p>Specific elements depend on the type of RFMO program for which the MRAG observers are being contracted.</p>	<p>Depends on the type of RFMO program for which the MRAG observers are being contracted.</p>	<p>All elements are present</p>	<p>MRAG provides training (and a laptop) in access databases and spreadsheets for data entry and report generation. Some training programs cover new technologies like electronic monitoring technologies, if needed by the RFMO program.</p>
IOTC	<p>Partially known. Each IOTC Party administers the observer programs that make up the IOTC Observer Scheme; however, IOTC has set standards for minimum data fields, reporting templates, and training.</p>	<p>Dual science and compliance role</p> <p>Absent: Nationality/ Not crew or an employee</p>	<p>Unknown. Each IOTC Party administers the observer programs that make up the IOTC Observer Scheme, and the IOTC has not set programmatic standards.</p> <p>The IOTC Resolution 11/04 does provide that observers are to be given access to all areas and equipment aboard a vessel necessary to perform their duties.</p>	<p>Most fleets use paper forms. Some others (Spanish/French) may use electronic data entry systems.</p>