7th International Fisheries Observer & Monitoring Conference Workshops

Data Quality Workshop (DQW)

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Introduction:
Trust in data quality, information and knowledge, produced by Fisheries Research Organizations, is a matter of survival. If those products become suspicious, the organization's credibility is called into question and its reputation, as an independent source of reliable and credible knowledge, is undermined. Therefore attention to data quality management must be a matter of major concern. The knowledge required by public institutions for decision-making, leading to the sustainability or recovery of fisheries, is implicit in fisheries stakeholders, particularly fishermen. To capture this implicit knowledge and make it explicit and recorded in standard forms and high quality, Fisheries Observers (FO) are essential. All involved stakeholders in fisheries governance, must be part of a quality culture based on respect, truth and mutual reliance. If those prerequisite are not met, all attempts of fishery regulations will fail to succeed.

Objectives:
Review the key aspects of scientific data collection and statistical quality, reliable basis for policy development and decision making for sustainable management of fisheries.

DQW Presenters

INTERNATIONAL PRINCIPLES AND QUALITY INDICATORS FOR FISHERIES DEPENDENT DATA

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Trust in the quality of data, information and knowledge produced by fisheries research organizations, to achieve sustainable fishing under ecosystem approach, is a matter of survival for fisheries research organizations. Whether these products become suspicious, the institution's credibility is called into question and his reputation as independent and objective source of reliable knowledge is undermined. Therefore due attention to the management of data quality, should be a matter of major concern and priority, for all those parties involved in the institutional management. During this session we will review concepts like knowledge, quality principles and indicators applicable to fisheries dependent data and statistics, according recommendations of international organizations such as FAO, ICES, OECD and UN. We will make a quick reminder of concepts such as knowledge management, intellectual capital and data quality management, and livelihoods to achieve efficient Fisheries Observers Programs.

IMPACT OF REAL-TIME COMPUTER ASSISTED LOGBOOK ON ANCHOVY FISHERIES DATA MANAGEMENT

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Introduction

The pelagic resources in the Peruvian sea show a high variability in different temporal scales, associated to the great coastal upwelling and events like El Niño[1] [2] [3]. Among these resources, the anchovy *(Engraulis ringens)* has a great importance due to the fact that it supports the most monospecific greater fishery of the world[4] [5]

The main problem in the administration of fisheries is referred to the adoption of adequate measures of management that may allow the sustainability of the resource. In the case of the Peruvian fishery, this problem is more complicated, taking into consideration that the Peruvian sea presents a great environmental variability (events El Niño/La Niña) that incorporates more uncertainty to the diagnosis and recommendations issued. In this sense, the Instituto del Mar del Perú (IMARPE) has the mission of assessing the government in the management of fisheries resources. As part of this purpose, since 1996 IMARPE has, in a continuous form, 25 scientific observers on board of the purse-seiners fleet known as Fisheries Logbook Program, distributed in the main ports along the Peruvian littoral.

Figure 1. Distribution of Onboard Logbook Fisheries Observer Program in the Peruvian Coast

[1] Brink KH, Halpern D, Huyer A, Smith RL. 1983. The physical environment of the Peruvian Upwelling System. Progress in Oceanography 12: 285 – 305.

[2] Huyer A, Knoll M, Pauszkiewicz T, Smith RL. 1991. The Peru Undercurrent: a study in variability. Deep Sea Research 38: S247 – S271.

[3] Chavez F, Bertrand A, Guevara-Carrasco R, Soler P, Csirke J. 2008. The Northern Humboldt Current System: Brief history, present status and a view towards the future. . Progress in Oceanography 79: 95-105.

[4] 4Pauly D, Tsukayama, I. 1987. On the implementation of management-oriented fishery research: The case of the Peruvian anchoveta. In: D. Pauly and I. Tsukayama (eds.) The Peruvian anchoveta and its upwelling ecosystem: Three decades of change. ICLARM Studies and Reviews 15, 351 p. Instituto del Mar del Peru (IMARPE), Callao, Peru; Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), GmbH, Eschborn, Federal Republic of Germany; and International Center of Living Aquatic Resources Management (ICLARM), Manila, Philippines, p1-13.

[5] Ñiquen M, Bouchon M, Cahuín S, Díaz E. 2000. Pesquería de anchoveta en el mar peruano. 1950 – 1999. Bol. Inst. Mar Perú 19 (1 y 2): 117-123.

Due to the technological development happened in the last years, the sampling system in Peru evolved from the traditional one realized in the landing ports to observations in the same fishing areas, to improve the time of the analysis of the information, same that was optimized with the use of a WAP Application (mobile telephone) on real time and with the follow up of satellite data.

Methodology

IMARPE since 1996 is recollecting information in the Peruvian sea through the Observers on Board Logbook Fisheries Program, with registers *in situ*, of all the activities performed in a sample made from a group of purse-seiners, since the moment they sail until they return to landing port[6]. This Program contributes with valuable information on the different fishing effort measures, distribution of resources, behavior of schools, discarding, by-catch, and interaction with superior predators, among others.

At present, we count with 25 observers on board, strategically distributed in the main landing ports along the Peruvian littoral, and are installed in an aleatory way on board of the steel purse-seiners, wood (Vikings) and lower scale, industrial fleet (Fig. 1). The boarding of personnel is made permanently during the fishing seasons.

Due to the need of counting with information on real time, the observers onboard were awarded with mobile telephones with an application especially designed for them. The data is digitized in the mobile telephones within the fishing zone and are sent in an automatic way to the IMARSIS Data Base of IMARPE (Fig.2). The system has been performed in Java program language and is connected to the data base by http. Previously, digitations were performed in Excel calculus sheets, afterwards the charts were received in Headquarters, were consolidated and the information verified; this process took too long. This new system allows scientists to count with all the elements of an integrated computer system for the management of files and recuperation of information, allowing giving the pertinent recommendations more rapidly.

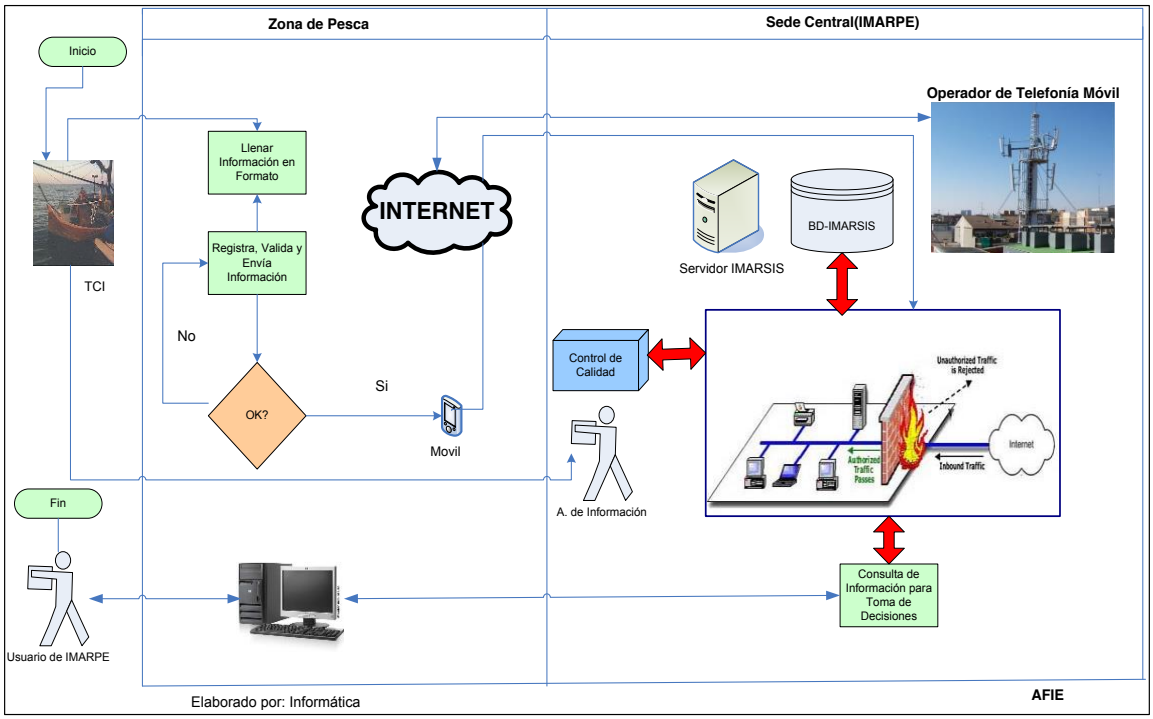

Figure 2. Process of sending the information obtained by the Fishing Logbook Program, on board of the purse-seiners fleet.

[6] Bouchon M, Ñiquen M, Arias M, Bello R. 1997. Manual de Operaciones del Proyecto Bitácoras de Pesca. Inf. Prog. IMARPE 74: 44 pp.

Results/Discussion
According to the observations, the PBP is capable of generating valuable information on the biologic and population aspects of the Northern – Central Stock of the anchovy. References on the minimum sizes as well as the spatial and vertical distribution are able to be analyzed during almost all the month anchovy is fished.
At present, the administration of fishing resources in Perú is based in the incorporation of elements of the ecosystem focus. This innovation performed in an orderly and rapid way, has allowed the stability in the development of fisheries, assuring the sustainability of the resources through time, influencing its impact in all the periods, in short as well as long terms. Likewise, the greater biologic-fishing information obtained has allowed diversifying and increasing the management measures in the pelagic fishery.

The system allows taking more rapid protection measures of the stocks, especially in the case of having to apply a closing season due to the fulfillment of quotas and the high incidence of juveniles, closings determined geographic areas. The use of the data provided by the Logbook Program has allowed to now in real time the main areas of fishes and the area of incidence of the juveniles. On the other side, it has allowed to improve the monitoring in real time of one of the greatest fisheries of the world, where it has just been implemented a system of individual quotas has been implemented, same that is one of the keys of the success of this management systems.

USING OBSERVER DATA AND SATELLITE MONITORING TO IMPROVE ESTIMATES OF FISHING EFFORT

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Introduction.
The common hake fishery (*Merluccius hubbsi*) is the most important fishery in the Argentine Sea. The offshore fleet operates primarily in the range of (34° S-48° S), although most exploitation takes place south of 41° S, from the inner shelf to the continental slope and is used by the freezing fresh fish vessels and processors which target common hake.

This fleet comprises 138 ships, with a length ranging from 20 m to 60 m, and an engine power from 290 HP to 2000 HP. These features are used to divide the fleet into the following strata:

Stratum I: Vessels that have a length between 20 m and 38 m and 290 HP and 699 HP.
Stratum II: Vessels that have a length between 25 m and 65 m and 700 HP and 899 HP.
Stratum III: Vessels that have a length between 32 m and 60 m and 900 HP and 1399 HP.
Stratum IV: Vessels that have a length between 41 m and 60 m and 1400 HP and 2000 HP[1].

Data from fisheries observers are very accurate and sufficient to validate the daily catch rates due to the high coverage presented in strata III and IV, being super-optimal[2]. The objective pursued is to have observers covered with 7% of fishing trips, and this is achieved by giving a spatial and temporal coverage[3]. Therefore, observer's data are representative of both spatially and temporally.

[1] Irusta, C. G., Castrucci, R. y Simonazzi, M. 2006. Desembarque, esfuerzo y CPUE derivados de la flota fresquera argentina dirigida al recurso merluza localizado al norte de 41°S. Período 1986-2005. INIDEP. Inf. Téc. Int. 5/06:31pp.

[2] Ramos, A., Blanco, G., Aubone, A. y Rodríguez, J. 2011. Evaluación de la cobertura histórica del subprograma de observadores a bordo a la flota merlucera para los años 2007 y 2008. Informe de Investigación N°40/11:9pp.

[3] Aubone, A., Rodríguez, J., Blanco, G., Castañeda, F. y Cassanelli, M. 2009. Metodología para la estimación del número mínimo de observadores a bordo, necesarios para obtener una cobertura adecuada de la flota pesquera. INIDEP. Informe de Investigación N°69/09:10pp.

Fishing Vessels in Argentina, except for the artisanal fleet, are required to use marine transceivers with GPS (Global Positioning System) on board.

This paper aims to compare the data from the On-Board Observer INIDEP (National Institute of Fisheries Research and Development), the satellite monitoring system and fishing parties, in order to verify discrepancies or similarities observed between these three data sources, with respect to time and trawl hauls and thereby verify the performance of the fleet.

Methods

The data used in this report came from trips with observers on board 18 ice trawlers, which were 44 trips in 2011. Logbooks Data and Satellite Monitoring Data were retrieved from SIOP (Information Fisheries Oceanography System INIDEP) and these Satellite Monitoring Data are provided by companies Sitrack, AEROTERRA MARINE, AND NAVALSTAR Globalstar.

We calculated the number of tows and duration (expressed in minutes) from 18 vessels and 12 ice trawlers belonging to Stratum III and 6 belonging to Stratum IV, who conducted 2549 commercial fishing hauls in a limited area (from 40° S to 42° S), in comparison to 38° S - 49° S and 52° W and the coast.

Satellite Monitoring data were selected from vessels whose speed ranged from 3 and 5 knots. Taking into account the towing speed of all vessels fishing trips in 2011, the result showed a minimum speed of 3.6 knots, a maximum speed of 4.4 and an average speed of 3.91 knots.

Results / Discussion

The prediction equations of real minute fishing hauls, from logbooks data and satellite data are equal to:

For Statistical Square Data per Trip:

$$\hat{y}_{obs} = 82{,}34 + 0{,}99 \text{ x } y_{part}$$

$$\hat{y}_{obs} = 133{,}28 + 0{,}65 \text{ x } y_{sat}$$

For total data per Trip

$$\hat{y}_{obs} = 346{,}78 + 1{,}02 \text{ x } y_{part}$$

$$\hat{y}_{obs} = 453{,}35 + 0{,}68 \text{ x } y_{sat}$$

Table 1 shows the basic descriptive statistics of the distribution of the relative errors of prediction that relate the data entered in the logbook and the data determined by the satellite, with the data recorded by the observer. In the data table are considered by statistical squares corresponding to the same trip and total trip data.

	Per Statistical square		Per Trip	
Basic statistics	Logbook	Sat.	Logbook	Sat.
N	306	310	44	44
Mean	-4,28	-19,18	-1,81	-3,19
Standar Des.	58,68	68,81	25,16	19,85
Lower Lim (mean) 95%	-10,88	-26,87	-9,45	-9,22
Upper Lim(mean) 95%	2,32	-11,49	5,84	2,85
Mínimum	-666,07	-447,33	-130,99	-77,97
Máximum	77,18	93,86	89,24	42,17

Table 1: Basic descriptive statistics relative prediction errors obtained by jackknife procedure for logbook and the satellite in relation to the data recorded by the observer. Errors are considered for the data per statistical squares within each trip and total trip data.

Conclusions

Data from fishing haul duration in minutes recorded by Satellite Monitoring overestimate the fishing haul duration in minutes recorded by observers, both within each statistical square trip to total trip.

For Statistical Square Data per Trip:	For total data per Trip:
$\hat{y}_{obs} = 133{,}28 + 0{,}65 \text{ x } y_{sat}$	$\hat{y}_{obs} = 453{,}35 + 0{,}68 \text{ x } y_{sat}$

The Satellite Monitoring raw data cannot be used without a proper calibration, as a substitute for real data recorded by the observer as the raw satellite data strongly overestimates the data of the observer. To transform values-satellite-observer values should be used the following prediction equations:

The average relative errors prediction considering Satellite Monitoring data and using previous prediction equations are equal to -19.18% for the data per statistical square within each trip and -3.19% for the total data trip.

Data from logbooks and according to the result of statistical analysis, data from tow duration in minutes registered on logbooks, would underestimate with a small bias from a practical point of view the observed data by the observer, but it should be noted the data used in this paper from logbooks are registered in "exact hours" and does not own a minute data associated with these values.

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SCIENTIFIC OBSERVER DATA MANAGEMENT AND QUALITY ASSURANCE AT CCAMLR

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The Commission for the Conservation of Antarctic Marine Living Resources is a multi-lateral organisation responsible for the conservation and management of the marine living resources and associated fisheries in the Southern Ocean. The fisheries are managed in a regulatory framework designed so that fishing does not expand faster than the acquisition of data necessary to ensure that each fishery meets CCAMLR's ecosystem based management objectives. CCAMLR's Scheme of International Scientific Observation was implemented to collect flag state independent scientific information to monitor the impact of fishing on the Antarctic ecosystem. The use of CCAMLR observers became compulsory in all finfish fisheries from 1994.

The Scheme operates internationally, with all observer data collected on standard forms and submitted to the CCAMLR Secretariat through designated technical coordinators for each Member. The development of standardised forms is essential for high quality data collection. The development and amendments to the logbook forms and data collection protocols are first discussed at the Scientific Committee's working group meetings and are then submitted annually to the Scientific Committee for endorsement. Once endorsed, the Secretariat updates the logbooks and distributes them to the all technical coordinators who are then responsible for distributing them to the observers. Technical coordinators play an important role in ensuring high observer data quality. This is done through training on data collection methods and sampling requirements, debriefing observers to identify any problems with the collection of data, checking the data before submitting it to CCAMLR and answering any data–related questions from the Secretariat arising from data quality assurance routines run on all submitted data.

All data submissions go through a series of pre-data entry checks, which look for field format issues, correct units have been used (kilograms not grams etc.) and the use of the correct CCAMLR codes for sex and maturity stages etc. The Secretariat also performs a series of statistical checks on the raw data to identify anomalies in length–frequency and length–weight data. During the data entry phase a series of automated validations take place, this covers conditional formatting and range checks (pre-defined length ranges for each species). Logical checks are performed to ensure area codes are cross referenced with recorded latitude and longitudes and that dates follow a logical sequence (hauling cannot commence before setting etc.). The database has a set of primary key constraints which ensure that key fields are not missing and that codes recorded by observers match those defined in the database (species and gear codes etc.).

To ensure that CCAMLR data is of the highest quality for scientists and managers to use, the Secretariat is always looking for ways of improving data quality. Some of the future developments are enhanced relation checking, using multiple fields like location and times to calculate distance and speed travelled to make sure these are operationally valid. The development of species distribution checks, using defined species specific parameters (distribution patterns and depth ranges) to verify that a correct species code has been recorded in an area is also under development. Like many organizations, this is a balance of managing expectations with current workloads.

QUALITY MANAGEMENT SYSTEM ISO 9001, AS A TOOL TO IMPROVE DATA QUALITY MANAGEMENT AND FISHERIES OBSERVERS PROGRAMS. CASE STUDY: RESULTS SIX YEARS UNDER OPERATION IN IFOP.

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In 2004 a group of scientists, engineers and technicians of the IFOP, began to develop a data management system assisted with information technology. The system became operational in 2007, and is in a process of continuous improvement. This development was carried out in parallel with the quality data management system ISO 9001. Both systems were presented at the 6th IFOMC. This workshop will present a scaling system throughout Chile. It has three modules: a) logical data entry, editing, storage and webcast. This includes fishing logbook data, catch composition and bycatch species; sampling length, proportion and sexual maturity, total and gutted weight, sample ID for otolith and stomachs samples. b) Data reception and storage, control and status of receiving data transmitted by each observer, timing control for each process, software for expert data validation and delivery to the scientists managing different fisheries monitoring programs. c) Automated assessment and webcasting of monitored fisheries biological indicators: cpue, average size, size composition by geographical area and sexual maturity.

KNOWLEDGE, SKILLS, AND ABILITIES OF SCIENTIFIC OBSERVERS TO COLLECT QUALITY DATA: A CHALLENGING AND MULTIFACETED JOB

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Instituto de Fomento Pesquero, Chile.

The FAO (2010) states: "The fisheries are a socio-ecological system involving fishing operations and other policy areas, comprising the links established between people and the environment." Scientific Fisheries Observers (FO), as part of a fishery system are involved in a turbulent interactions network within a much broader and complex socio-ecological system, where not only people are involved, but also aspects such as technological, legal, economic, political, territorial, local culture, organizations, social, family, institutional, environmental ethnicity, etc. The experience gained by FO in the Chilean fishing system will be shown as a study case in which we will explain: 1) different fisheries and its work environment, 2) the different tasks performed in each case and the difficulties faced and 3) the knowledge, competencies and skills they must have to collect quality data on the fishery system. All this in the context of the new Chilean Fisheries Law, which expands the scope and diversity of work to be performed by a FO. Since scientific fisheries observers are the first essential link in fisheries research for the sustainable management of resources, it is necessary to give the FO the status of key person. To achieve this recognition, political will is required to legally empower the FOs, to be treated and accepted with due respect by fishermen. This will enable FOs to capture the knowledge they have, and translate it to the context and meaning required by researchers.

Observer Professionalism Workshop (OPW)

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Objectives:
This session will first present the IFOMC series of historical perspectives and driving themes centered around observer professionalism, while providing background and status of the IFOMC's Observer Professionalism Working Group (OPWG). Secondly, panelists will discuss current trends and issues affecting observer professionalism.

OPW Presenters

OBSERVER PROFESSIONALISM THEMES

Davis, K

Observer, Observer Professionalism Working Group (OPWG) Chair.

Introduction
The collection of high quality information is essential to the sustainable management of aquatic living resources. Human observers are the most reliable and the only independent and scientifically-viable data collection source for many types of at-sea and dockside information. Consequently, the integrity of many data products from an observer programme is greatly dependent on the conduct, performance accountability, quality experience retention, support and morale of that program's observers[1].

"An 'observer' is a person who is authorized by a regulatory authority to independently collect aquatic resource information in the field (either at sea or on shore) outside the authority of the monitored entity."[2] According to this workshop, the Observer Professionalism Working Group (OPWG), the Association for Professional Observers (APO) and the International Observer Bill of Rights (IOBR) project, the term 'observer' includes all professions that fit into this definition; including (but not limited to) titles such as 'Fisheries Observer,' 'Scientific Fisheries Observer,' 'Dockside Monitor,' 'Protected Species Observer,' 'Marine Mammal Observer,' 'MCS Observer,' 'At-Sea Monitor (ASM),' 'Sea-sampler,' 'Dockside Sampler,' and 'Fisheries Inspector.' Observers should have financial interests independent from the interests of fishing industries; and, publications and monitoring programmes globally should guard from ever using the term 'observer' to describe "Industry Self-Monitors," who do have financial dependency on industry. In order to do their jobs professionally, observers need (not an exhaustive list): clear and prioritized employment terms and rights (in written contract); evident responsibility expectations (codes of conduct) for all stakeholder entities involved in the fair, safe and healthy employment/deployment of observers; and, clear inter-stakeholder lines of communications (including grievance procedures), from employment start to observer data end-use.
Observer Professionalism Themes is a collection of resources that represents the OPWG work up to finalizing its Observer Professionalism Focused Interviews Project (OPFIP) in the context of the 6th IFOMC (2009)[3].

[1] Davies, S. L. and J. E. Reynolds. 2002. Guidelines for developing an at-sea fishery observer programme. FAO Fish. Tech. Paper No. 414.:116 pp.

[2] See the International Observer Bill of Rights (IOBR) project in these proceedings and at www.apo-observers.org, "Observer Professionalism and Rights."

[3] NMFS. 2010. Proceedings of the 6th International Fisheries Observer and Monitoring Conference. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-F/SPO-107, 367 p. See pages 295-306: http://spo.nmfs.noaa.gov/tm/TM107.pdf

Methods

The OPWG was founded in 2006, in the context of the IFOMC series, with the purpose of: investigating, categorizing, and prioritizing the international working knowledge of observer professionalism terms and observer rights initiatives; and, producing firmer conference outputs regarding this important topical area of worldwide observer and monitoring programmes. The OPWG greatly referenced the 2nd Conference's (St. John's, Newfoundland, 2000) Observer Bill of Rights (OBR) document[4] when shaping its founding goals; referenced this prelude to the 7th IFOMC's International Observer Bill of Rights (IOBR) project throughout all of its 5th and 6th Conference activities, and assisted with the drafting and editing of the IOBR and supporting Code of Conduct for Responsible Observer Programs - Observer Health and Safety (ROPHS) and Stakeholder Responsibilities (ROPSR)) documents - in the context of the 7th IFOMC.

For the 2009 OPFIP project, the OPWG (with 20 members) centered about collecting in-depth interviews from the four OPWG topical areas of study: 'Wages and Benefits,' 'Support and Opportunities', 'Employment Standards', and 'Social Equity.' The main project purpose was 'Outlining Avenues that Foster the Recruitment and Retention of a Professional, Equitably Employed Workforce of Observers.' To locate interview participants, OPWG members reached out among all of their networks and made announcements in the *Spring 2009 Mail Buo*[5] and at the 6th IFOMC. Interviews were conducted by utilizing the following techniques: in person, on-line correspondence, telephone, or post. 74 interviewees (from many global observer programmes) completed 92 interviews, with approximately half of the interviews completed prior to the 6th IFOMC and half completed at or shortly thereafter the conference.

Digital transcripts of all OPFIP interviews were completed in 2011, and there is potential for living Observer Professionalism Themes resources to be extensive. These resources will continue be worked on long after the close of the 7th IFOMC.

Results/Discussion

OPFIP identified topics/issues are organized in *Observer Professionalism Themes* resources according to the progression of observer employment from start to end:

- Employment: Recruitment and Hiring;
- Deployment Preparation;
- Deployment;
- Post Deployment;
- Employment Retention and Career Support;
- Observer Data End-Use;
- Feedback from Observers; and,
- Program Assessments and Harmonization.

Rather than analyzing what interviewees identified as professionalism issues and solutions, these resources are presented to exhibit the variety of perspectives shared (especially in the context of the OPFIP focused interviews, with other related background references). Stakeholders are encouraged to reference these resources according to their own investigations or interest and draw their own conclusions. These resources are meant to: exhibit a series of topics recognized to be of high importance to observer professionalism among global programmes; identify successful practices among programmes; address practices of concern; identify capacity building options, while addressing the practicality of programmes implementing strategies that could foster successful practices; and, ultimately lead stakeholders to resources and perspectives (interviews) to consider at their own discretion.

[4] Anon. 2000. Canada - U.S. Fisheries Observer Program Workshop - Proceedings. NMFS and DFO, St. John's, Newfoundland, Canada. 52p. OBR document: www.apo-observers.org/docs/ObserverBillofRights.pdf

[5] APO. 2009. Mail Buoy. Spring 2009; 12(1). A quarterly newsletter of the Association for Professional Observers (APO). Link: http://www.apo-observers.org/mailbuoy/Spring09MB.pdf

Without ever identifying interviewees to a personal level, interview response is defined according to classifications such as: stakeholder perspective, gender, ethnicity, experience, and region/country/programme. Observer professionalism Themes outputs carry no assumptions of the degree of responsibility each stakeholder within an observer programme (e.g. Regulatory Authority, Observer Programme, Observer Employer, Monitored Entity, Observer) would have in ensuring observer professionalism. The OPWG recommends following the Articles and Sections of the International Observer Bill of Rights (IOBR) and supporting ROPHS and ROPSR documents closely in accordance with all Observer Professionalism Themes outputs.

'Observer Professionalism Themes' on-line Resources:
To review all public Observer Professionalism Themes resources (like the Observer Profession Glossary) and other OPWG resources or to provide feedback in regards to the continued work of the OPWG please navigate to OPWG web resources: **http://www.apo-observers.org/ifomc/opwg.php**
Point of Contact:
Keith Davis: **Keitth.Granger.Davis@gmail.com**

Acknowledgments
We'd like to thank the 7th IFOMC organizers for making the Observer Professionalism and Rights Workshop possible. And, these resources could not have been possible without the help of the 25+ OPWG members (since foundation) and the 100+ observers and Conference delegates who have contributed to this work - Thank you!

ISOLATING VARIABLES THAT CONTRIBUTE TO INCREASED OBSERVER RETENTION

Barto, A.

East West Technical Services LLC, USA.

The purpose of this discussion is to increase cost efficiency and data quality by reducing the relative attrition of at-sea monitors. The high initial investment of observer training paired with the low statistical value of data produced by probationary monitors signifies a field throughout the employment process in need of reform. Further, increased observer retention will proliferate a more positive relationship between and amongst participating stakeholders, i.e. fishermen and their respective management agency. This dialogue will explore options such as a survey to the aforementioned stakeholders and an open conversation amongst management agencies. The survey could include a series of check-all-that apply characteristics such as age, sex, education level, socioeconomic back round, work history, etc. and will resemble those of a detailed resume. The survey could also include a series of scaled, 1-10 characteristics. These will be less tangible and will include work ethic, time management skills, physical ability, safety, and overall performance. Survey data from both stakeholders can then be correlated to observers that keep and maintain their employment. Interagency communication could also isolate factors that contribute to prolonged observer employment and performance. The anticipated results of this discussion are objective characteristics that statistically increase the likelihood of observer retention. Moreover, this objective data can also be a mechanism to maintain accountability for said observer's performance. This data can then be used as a criterion for choosing qualified applicants.

THE VULNERABILITY OF OBSERVERS WORKING AS "AT WILL" CONTRACTED EMPLOYEES

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Introduction

Outsourcing of observer employer (sometimes called "observer provider") services is increasingly becoming the norm in federal fisheries observer programs around the world. Observers find themselves beholden to two bosses. On the one hand the government agency is their boss: the agency mandates observer coverage, dictates the observers' duties, evaluates the observers' performance and often have hiring and firing standards required of observer employers. Yet, on the other hand, the private company is legally responsible for the observers' welfare and sometimes this can result in observers finding themselves in limbo with no job security and no grievance procedures.

Case Study

The case study I am about to present highlights the vulnerability that many observers face under contract employment, and involved mismanagement at multiple levels. The National Marine Fisheries Service (NMFS) Pelagic Observer Program (POP) in the Southeast of the United States fired a highly qualified observer for writing an e-mail to program managers, asking them why the agency wasn't enforcing rules meant to protect observers. The following day he was told by his employer, IAP Worldwide Services, which contracts with NMFS to provide observer services, informed them that he was no longer to work in that program. Neither NMFS, nor the employer, gave him a reason for this, nor did they have any evidence against him to support their decision. He was simply told by his employer that their client, NMFS, didn't need an excuse, only that they didn't want him back. So, technically, he wasn't fired by NMFS. He wasn't told he did anything wrong. He wasn't fired by his employer. He was simply prevented from working again in that program.

He subsequently reported this to the National Observer Program (NOP)[1] which coordinates observer program management nationally, with a statement that included claims of mismanagement by multiple programs in the Southeast region. He reported they were ignoring observer reports of fisheries violations, and telling observers to ignore marine pollution violations. This was corroborated by multiple observers who we subsequently interviewed. After this statement, he was informed by his employers that he was banned from working with the entire region's programs. In spite of his reports of having witnessed several fisheries violations, to this day he has not been interviewed by NMFS enforcement nor told the reasons for the disciplinary actions against him.

Upon interviewing several observers, many were apprehensive about coming forward, saying they were fearful of losing their job. Observers in this region were reportedly pressured to accept unsafe vessel assignments during the BP oil spill. One observer reported that because so many of the vessel assignments violate the equal accommodation law, if they refused every vessel that violated this law, they feared they would lose their job. Another observer came forward and said that he spoke for 12 observers who were too scared to come forward and would only come forward with their stories if they could be guaranteed anonymity through a lawyer. In my view this encompasses a hostile work environment. In this situation, nobody was held accountable. Contracted employees in any sector have no whistleblower rights in the United States. Because NMFS was not the employer of the observer, their laws regarding official complaints did not apply to the observer.

Discussion

The government agency has a moral obligation to support its observers, regardless of who actually pays the observer. Observers form a critical function in the government's ability to objectively manage public fisheries resources. The unbiased data that observers collect allows the government to make scientifically-based objective decisions. Instead of treating observers as their own, the work is often marginalized by all sectors. Instead of guaranteeing their rights and supporting them, there is an expectation that observers will put up with the harsh treatment.

Conclusion

[1] Statement by Jonathan Lee Combs. 2011. http://www.apo-observers.org/docs/Statement_by_Jonathan_Lee_Comb_sent_to_APO.pdf

Governments have the power to make the observer employer support the observer to do their job with integrity. They must require fair labor standards in the contract between the government and the employer and place conditions based on annual compliance reviews that include reports from observers. Without grievance procedures independent of the agency and the employer, observers are vulnerable to being fired without cause. Without agency support of its observers, regardless of who actually employs them, conflicts of interest, favoritism, discrimination, and collusion with the fishing industry have the potential to influence decision-making of observer placement and treatment.

Observers must have a venue to lodge formal complaints without negative repercussions. Otherwise the power of the program managers and employers remains unchecked. The fallout from this is an erosion of observers' rights, which eventually leads to attrition of qualified observers. This compromises the quality of the data and adds to observer program costs. Those who stay may compromise their own rights to stay in good standing. Observers shouldn't have to make this decision. If there are laws to protect them, the observer should know about them and expect that they will be enforced.

An observer cannot long defend the integrity of a program or maintain the illusion of representing the government, if they are not supported. If there are no protocols that hold everyone accountable for the integrity of observer programs, the quality of the data may be compromised. The observer supports the agency's ability to defend its scientifically-based decisions. They are well aware of the many pressures against this. But in order to do this, there must be mutual support and respect in order to carry out these objectives.

EDUCATING CREW MEMBERS: THE OBSERVER ROLE

Fader, J.

Saltwater Inc.; Pacific Island Regional Observer Program, National Marine Fisheries Service.

Introduction

This presentation considered additional roles that observers could take on pelagic longline vessels covered by the Pacific Islands Regional Observer Program, as well as basic principles for how observers could be used in a more cost-effective and goal-oriented manner in any observer program. While captains of fishing vessels are ultimately responsible for staying up to date on current regulations, documenting catch and bycatch, and the proper handling of protected species interactions, these responsibilities often fall on crewmembers in the Hawaii longline fleet as captains are frequently not present on deck during actual fishing operations. Rarely, however, do the captain and crew speak the same language, and crewmen are commonly misinformed, or not informed at all, about regulations, fish identification, and what to do if a protected or endangered species is hooked or entangled.

These miscommunications are generally mitigated when fisheries observers are present on a vessel. Observers are well trained in safety, species identification, protected species handling, and current laws and can assist captains and crew in complying with these regulations and meeting the goals of the observer program. Unfortunately, many observer programs are not able to cover 100% of registered fishing trips and thus do not have the advantage of observer presence for meeting program goals during all fishing operations. This presentation discussed simple actions that fisheries observers could do during deployment to help advance observer program goals and increase compliance with fishing regulations on later trips when observers may not be present.

Methods

The pelagic longline observer program in Hawaii was discussed as a model for assisting captain and crew in meeting observer program goals. In this fishery, observers work closely with the crew and can provide hands-on training in species identification, protected species handling, as well as briefings or reviews of safety training. Observers could provide documentation to leave behind after the trip, updates on regulations, species

identification guides, etc. This would be especially beneficial on deep-set (Tuna) trips as they currently receive 20% observer coverage.

Conclusions
Increasing the knowledge base of the crew could be a major step in increasing the effectiveness of observer programs with less than 100 percent coverage. Possible steps that observers could do while deployed on an observed fishing trip were discussed. These steps were specific to the Hawaii longline fleet but general principles were mentioned that are broadly applicable to other observer programs. With the amount of time that observers spend with captain and crew in some fisheries, there is a great opportunity to increase the knowledge and skills that are ultimately required for sustainable and well-regulated fisheries.

There was one comment from the audience emphasizing that observers themselves do not have the authority to independently implement additional policies or training programs. This was not specifically addressed in the presentation, however, the ideas presented here are not intended to be assumed by observers without proper training and full implementation by an observer program. The steps suggested would need to be officially recognized by the observer program and included in training programs.

WHAT IS THE RELATIONSHIP BETWEEN OBSERVER EXPERIENCE AND DATA QUALITY?

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What is the relationship between observer experience and data quality? It seems intuitive that the quality of data collected by a fisheries observer would improve as the individual gained experience. In the Northeastern United States, there are a number of observer and monitoring programs, two of which have measures in place to evaluate observer performance and data quality. These two programs include NEFOP (Northeast Fisheries Observer Program) and the ASM (At Sea Monitoring) program. NEFOP has been in place since 1989 and covers a large number of fisheries, including groundfish, scallop, squid, surf clam and ocean quahog. This program also covers many different gear types including trawl, dredge, trap, long-line, and gillnet. Those trained in the service of this program are referred to as observers. The ASM program was instituted in May of 2010, for the purpose of covering the federally managed New England multispecies fishery, which is targeted by vessels in the Northeast Groundfish Sectors (a newer catch share program). The gear types covered in this program include trawl, long-line, and gillnet. Those trained in the service of this program are referred to as monitors. While there is overlap in the geographic areas, fisheries, vessels, and gear types, there are important differences that distinguish the two programs. For example, in addition to being trained in the broader range of fisheries and gear types mentioned, NEFOP observers collect much more detailed information on fishing gear characteristics, biological samples from target and priority species, and they may collect samples from or retain whole specimens from incidental takes. Many people have dual certifications and participate in both of these programs. The evaluation system in place is used to assess individual observers and monitors' work performance. These evaluations are conducted biannually. In this study, the biannual reviews for observers, monitors, and dual-certifications (observer vs. monitor) were averaged on an annual basis and plotted on a multi-year basis. Then, several experience categories were identified and compared. The scoring in these evaluations definitively show that a positive correlation exists between length of service as an observer or monitor and improved data quality. Observer and monitor evaluation data from 2007 and 2010, respectively, to present, are included in this investigation.

ESTABLISHING A COLLABORATIVE NETWORK LINKING FISHERIES OBSERVERS WITH AGENCY/INSTITUTIONAL SCIENTISTS

Dietrich, K., [1], Mitchell, E., [2]

1 Fisheries Consultant, USA.
2 Association for Professional Observers, USA.

Fisheries-dependent data collected by scientific observers is utilized by a wide range of people. Observers are an underutilized resource for agency or institutional staff using this data. Currently, there is no formal mechanism whereby observers who are interested in research can work directly with scientists and other data users in their field of interest.

Observers are the next generation of fisheries scientists – they need positive mentors and strong role models. Linking observers with data users is not a new concept. In fact, a similar concept was presented at the 5th IFOMC relating to increased collaboration between observer programs and the various Sea Grant programs that provide a marine extension service through public universities[1]. Linking observers with data users to enhance professional development needs to be institutionalized by observer programs.

A formalized network would benefit observers, data end users, the public and the resource. Potential benefits include:

- Increased observer morale which in turn may encourage higher retention;
- Increased pride to be associated with the observer program and improved data collection quality;
- Provide an opportunity to perform analyses and contribute to publications;
- Establishes a vehicle to mentor future fisheries scientists and managers; and
- Increased understanding of data limitations by scientists (and data end users).

There are a variety of options to implement a formal network such as social media, a web-based database linking keywords with contact information, a formal mentorship program similar to the structure used by the American Fisheries Society and likely a host of other venues.

Observer-scientist collaborations exist but they are usually the exception rather than the rule. Examples include: 1) the collaboration of an observer, the U.S. National Marine Fisheries Service, U.S. Fish and Wildlife Service and the fishing industry to develop an albatross identification placard to be used by Alaska groundfish fisheries observers as well as the fishing industry; 2) Projeto Albatroz in Brazil focuses on the reduction of seabird and sea turtle bycatch. Many observers were also graduate students and their work was somewhat collaborative with fishers. These observers collected and analyzed the data and published results in peer reviewed journals[2].

Carrying out this concept is not without a few hurdles. In a few countries, there is legislation relating to data confidentiality. Access to the raw data is not impossible but does involve additional steps to gain legal access. There may also be issues regarding who should make initial contact – observers or the data users. Finally, some programs already have a process in place. We are not trying to subvert any existing processes; rather we encourage much more interaction between and among observers and the data users. We encourage all delegates to help foster more collaboration between observers and data users in the future.

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[1] Dietrich, K. 2007. Sea Grant and observer programs: opportunities for future cooperation. In: McVea, T.A and Kennelly, S.J. (ed.), 2007. Proceedings of the 5th International Fisheries Observer Conference – 15 – 18 May 2007, Victoria, British Columbia, Canada. NSW Department of Primary Industries, Cronulla Fisheries Research Centre of Excellence, Cronulla, Australia, 412 pp. ISBN 978 0 7347 1861 7.

[2] Bugoni, L. P.L. Mancini, D.S. Monteiro, L. Nascimento, and T.S. Neves. 2008. Seabird bycatch in the Brazilian pelagic longline fishery and a review of capture rates in the southwestern Atlantic Ocean. Endangered Species Research 5:doi: 10.3354/esr00115; Bugoni, L., T.S. Neves, N.O. Leite Jr., D. Carvalho, G. Sales, R. W. Furness, C. E. Stein, F.V. Peppes, B.B. Giffoni, and D.S. Monteiro. 2008. Potential bycatch of seabirds and turtles in hook-and-line fisheries of the Itaipava Fleet, Brazil. Fisheries Research 90: 217-224.