Recent situation of the regional Tuna Observer Programs (TOP)

(Reference paper for the future IOTC TOP)

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Résumé

Upon recommendation made by the WPDCS in 2003 as stated below, recent situation on the regional tuna observer program (TOP) are summarized. The information used in this document are from the special project implemented in Japan, namely, "Investigation on the current situation of overseas fisheries observer programs". To now 5 investigations were completed in 4 years from 2001-2004, which covered some 40 fisheries related Agencies including private observer companies in nearly 20 countries and International Fisheries Agencies in the North America, Europe and Oceania. For this report, the TOP related information in EU, USA, Canada and Japan are extracted mainly from two reports (Nishida, 2002 & 2003) and summarized.

There was no time to form a small group and nor to circulate this draft to that group and the IOTC before the SC this year although it was requested by the terms of references. In this connection, a small group needs to be established soon. Then the group needs to start developing the future IOTC TOP by referring to this document and other information when the task is requested.

Terms of reference (TOR) from the WPDCS report 2003

Dr. Nishida, who has been conducting a study of observer programmes in various countries, volunteered to coordinate the activities of a small group that, through correspondence and in collaboration with the Secretariat, would collect information and, if possible, present a proposal on standards for observer programmes in the Indian Ocean at next year's meeting.

Contents

ABBREVIATIONS

Note: Next two abbreviation tables (I) & (II) are from two reports (Nishida, 2002 & 2003) (see references), which reflect their contents. Some abbreviations will not be appeared in this document as only selected parts from these two reports were complied into this document. By the same reason, some abbreviations are overlapped between (I) & (II).

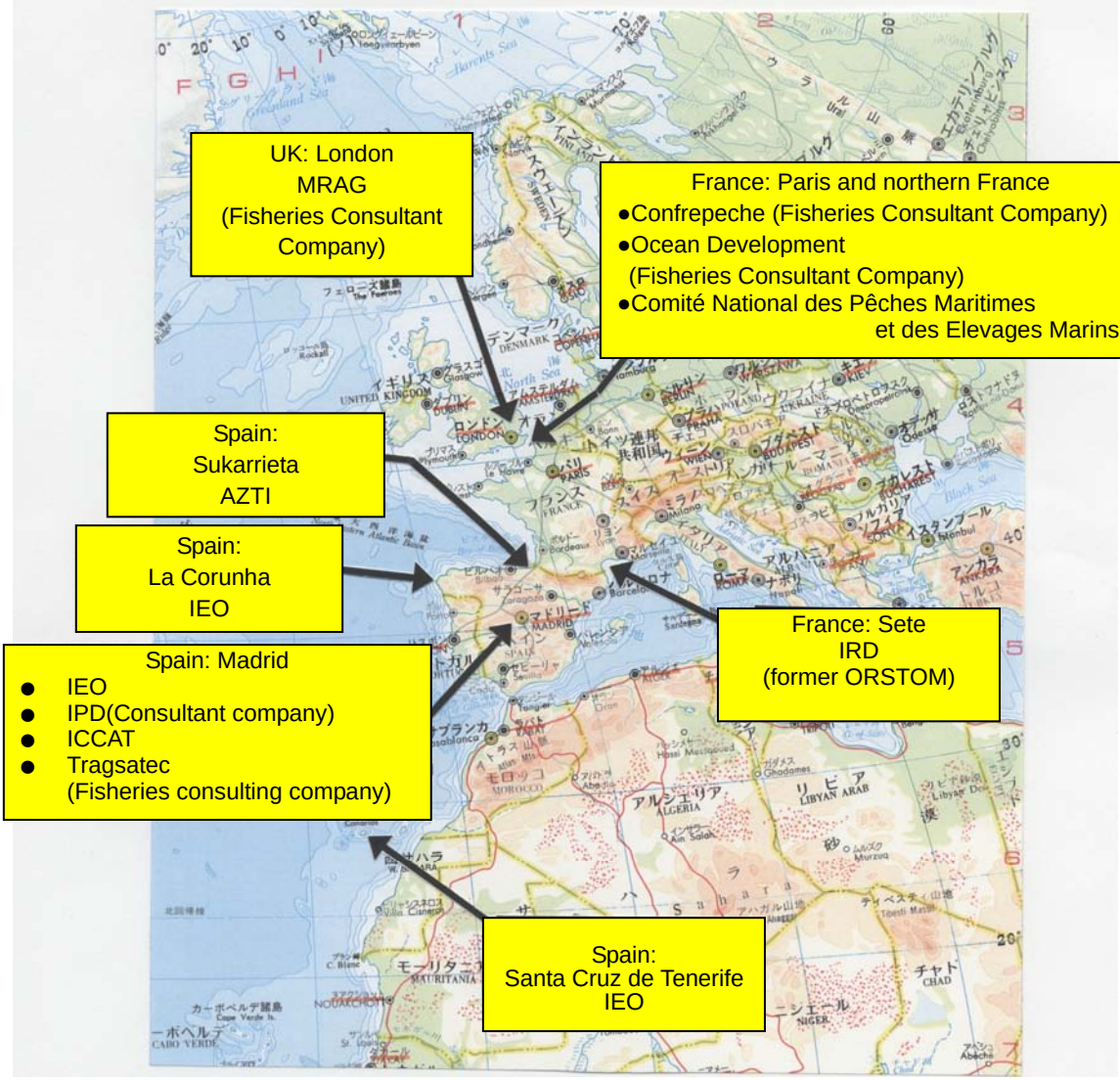
Abbreviation (I) (from 2002 report)

Abbreviations	Meaning
AFSC	Alaska Fisheries Science Center
AMR	Archipelago Marine Research Ltd.
ANABAC	Asociacion Nacional de Armadoresde Buques Atuneros Congeladores
AOI	Alaska Observer Inc.
AZTI	Instituto Tecnológico Pesquero y Alimentario
B.C.	(State of) British Colombia
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCSBT	Commission for the Conservation of Southern Bluefin Tuna
CPUE	Catch Per Unit Effort
DFO	Department of Fisheries and Oceans
D.G.	Director General
DNA	DeoxyribonNcleic Acid
EC	European Communities
EEZ	Exclusive Economic Zone
ESTHER	Efficacite Des Senneurs Thoniers et Efforts Reels
EU	European Union
FAD(s)	Fish Aggregating Device(s)
FAO	Food and Agricultural Organization(of the Uniated Nations)
GERDAU	GERmon-DAUphin (French). Albacore tuna-Dolphin (English)
ICCAT	International Commission For the Conservation of Atlantic Tuna
ICES	International Council for the Exploration of the Sea
IEO	Instituto Español de Oceanografía
IFREMER	Institut Français de REcherche pour l'exploitation de la MER
IOTC	Indian Ocaen Tuna Commission
IPD	Investigacion Planificacion y Desarrolo
IRD	Institut de Recherche pour le Développement
IWC	International Whaling Commission
MHLC	Multilateral High Level Conference on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific
MMP	Marine Mammal Protection (Act)
MRAG	Marine Resourcse Assessment Group
NAFO	Northwest Atlantic Fisheries Organization
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOW	Northwest Observer Inc.
OPAGAC	Organizacion de Productores Asociados De Grandes Atuneros Congeladores
ORSTOM	Institut Français de Recherche Scientifique pour le Développement en Cooperation
PBC	Pacific Biological Center
PC	Personal Computer
TAC	Total Allowable Catch

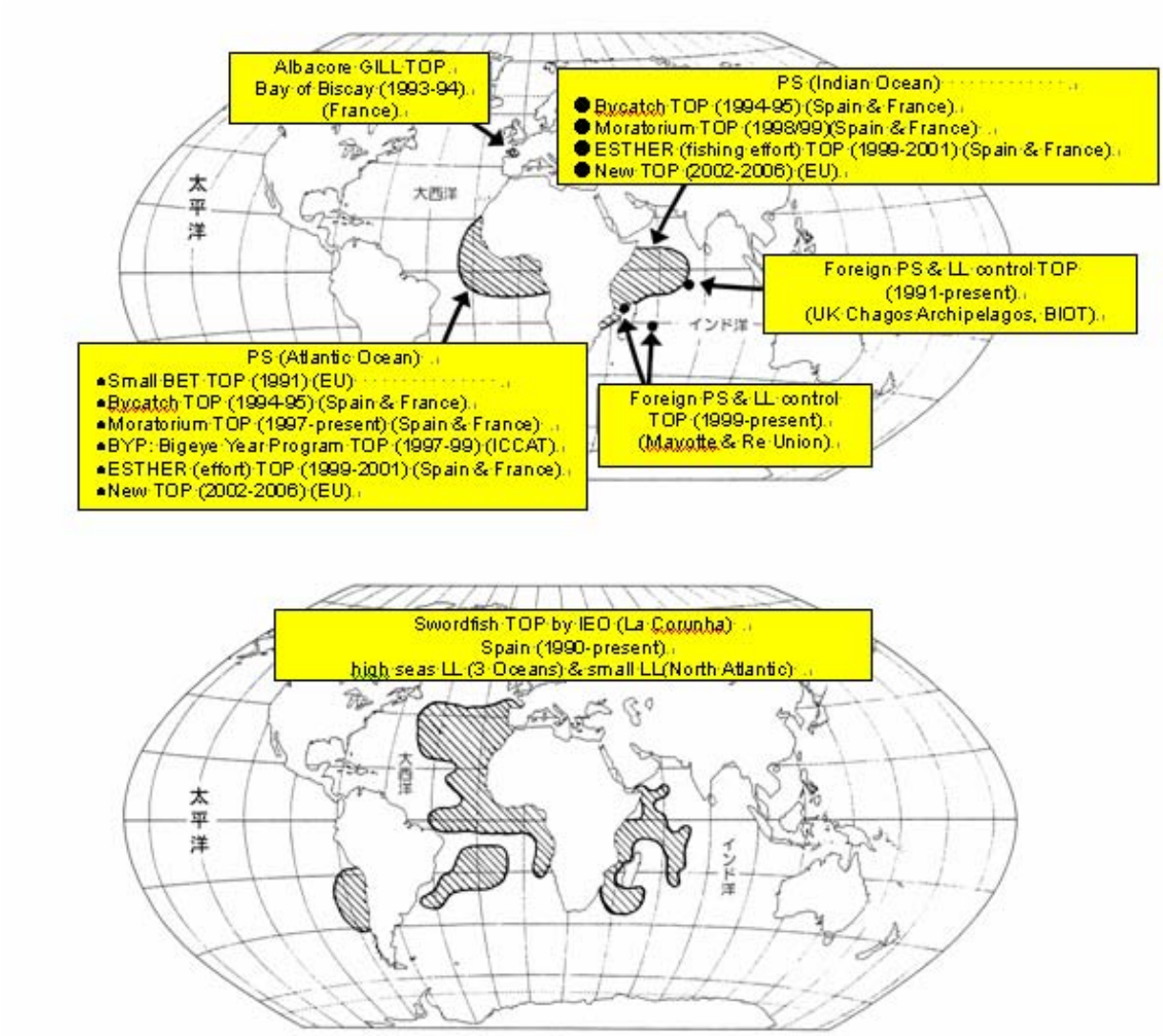
Abbreviation (II) (from the 2003 report)

Abbreviations	Meaning
AFSC	Alaska Fisheries Science Center
AMR	Archipelago Marine Research Ltd.
ANABAC	Asociacion Nacional de Armadores de Buques Atuneros Congeladores
AOI	Alaska Observer Inc.
AZTI	Instituto Tecnológico Pesquero y Alimentario
B.C.	(State of) British Colombia
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCSBT	Commission for the Conservation of Southern Bluefin Tuna
CPUE	Catch Per Unit Effort
DB	DataBase
DFO	Department of Fisheries and Oceans
D.G.	Director General
DNA	DeoxyribonNcleic Acid
EC	European Communities
EPIRB	Emergency Position Indicating Radio Beacon
ESTHER	Efficacite Des Senneurs Thoniers et Efforts Reels
EU	European Union
FAD(s)	Fish Aggregating Device(s)
FAO	Food and Agricultural Organization (of the Uniated Nations)
FMP	Fishery Management Plan
GB	Grand Bank
GERDAU	GERmon-DAUphin (French) Albacore tuna-Dolphin (English)
GOM	Gulf of Mexico
HMS-FMP	Highly Migratory Speices Fishery Management Plan
IATTC	Inter-American Tropical Tuna Commission
ICCAT	International Commission for the Conservation of Atlantic Tuna
ICES	International Council for the Exploration of the Sea
IDCP	International Dolphin Conservation Program
IEO	Instituto Español de Oceanografía
IFREMER	Institut Français de REcherche pour l'exploitation de la MER
Inc.	Incorporated
IOTC	Indian Ocaen Tuna Commission
IPD	Investigacion Planificacion y Desarrolo
IRD	Institut de Recherche pour le Développement
ITQ	Individual Transferable Quota
IWC	International Whaling Commission
LOA	Length OverAll
MHLC	Multilateral High Level Conference on the Conservation and Management of Highly Migratory Fish Stocks
MMPA	Marine Mammal Protetion Act
MRAG	Marine Resourcse Assessment Group
MS	MicroSoft
NAFO	Northwest Atlantic Fisheries Organization
NFOP	Native Fishereis Observer Program
NGO	Non-Governmental Organization
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOW	Northwest Observer Inc.
NPGOP	North Pacific Grand fsiheres Observer Program
ODA	Overseas Development Administration
OPAGAC	Organizacion de Productores Asociados De Grandes Atuneros Congeladores
ORSTOM	Institut Français de Recherche Scientifique pour le Développement en Cooperation
PBC	Pacific Biological Center
PC	Personal Computer
PFD	Personal Flotation Device
PIAO	Pacific Islands Area Office
POP	Pelagic (fisheries) Observer Program
QC	Quality Control
SWFSC	Southwest Fisheries Science Center
TAC	Total Allowable Catch
VMS	Vessel Monitoring System

1. TOP of the world (France, Spain and UK)

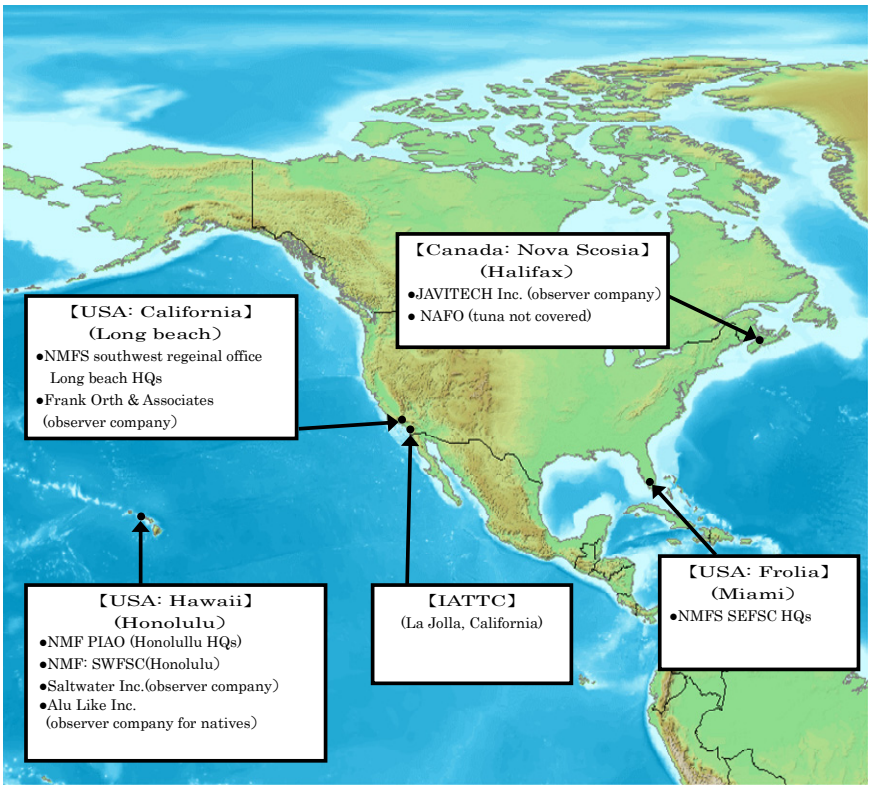


Map 1. Location & names of the TOP related
Fisheries Agencies & observer companies investigated (2002)

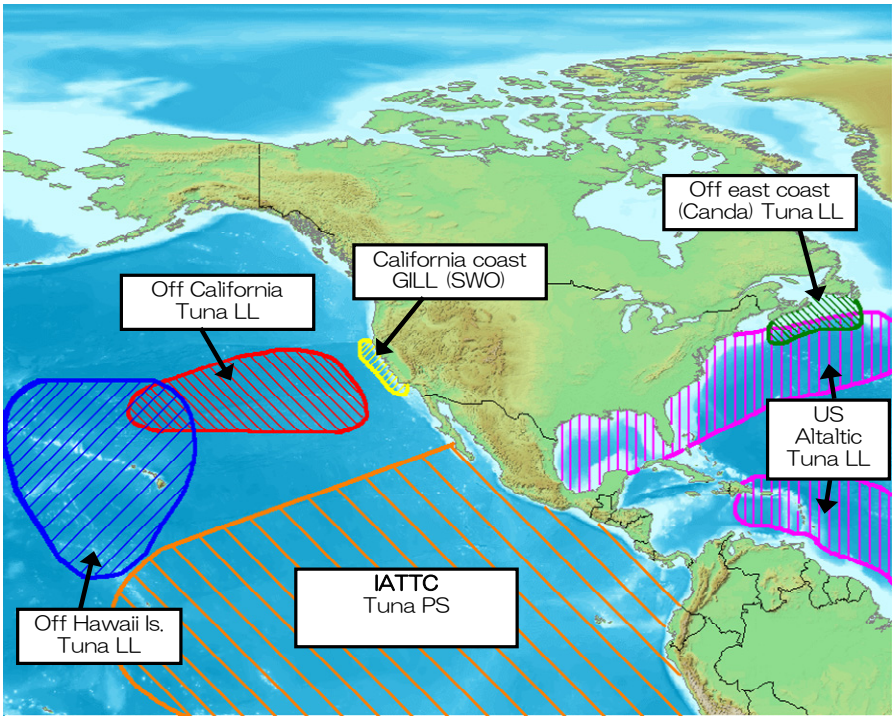


Map 2 Relevant tuna fishing grounds covered by the TOP investigated
(France, Spain and UK)
(as of early 2002)

2. TOP of the World (US, IATTC & Canada)



Map 3. Location & names of the TOP related
Fisheries Agencies & observer companies investigated (2003)



Map. 4 Relevant tuna fishing grounds covered by the TOP investigated
(USA, AITTC and Canada)(as of early 2003)

3. Type of the Observer Program (OP)

In general, there are three types of the observer programs (OP) as depicted in Fig. 1, i.e., “Scientific OP”, “Fisheries OP” and “Surveillance (Control) OP”. The most basic, essential and fundamental one is the Scientific Observer Program” which collects only scientific information and an essential part for the OP.

The second type is the Fisheries Observer Program, which is the combination of the Scientific OP and Surveillance (Control) OP. This fisheries OP collects mainly the scientific informational but concurrently monitor the legal matters. Although it does not have any enforcement powers, they report illegal acts to the Authorities.

The third type, Surveillance (Control) OP is primarily to monitor the legal matters (e.g. to monitor activities of licensed foreign LL and PS vessels in UK and French territories in the Indian Ocean) but it also collects basic scientific information such as catch by species.

Besides these three types of the OP, there is a special category, ‘Inspection program’, although it is not a part of observer programs. Inspection programs are conducted by fishery inspectors with enforcement powers (e.g. Government port inspections). In our investigations, we don’t cover inspection programs as we focus on the OP collecting scientific information. Fig. 1 depicts their definitions and relations.

Table 1 summarizes the types of the recent tuna observer programs (TOP) in the world. According to Table 1, in North America, the major type is the ‘Fisheries’ TOP. On the other hand, in Europe, scientific TOP take the majority part, although there are also a few ‘Fisheries’ and ‘Surveillance (Control)’ TOP. In the Indian Ocean, the TOP by the UK and France and also the moratorium TOP by France and Spain are the ‘Control ‘program but they collect a considerable amount of the scientific data.

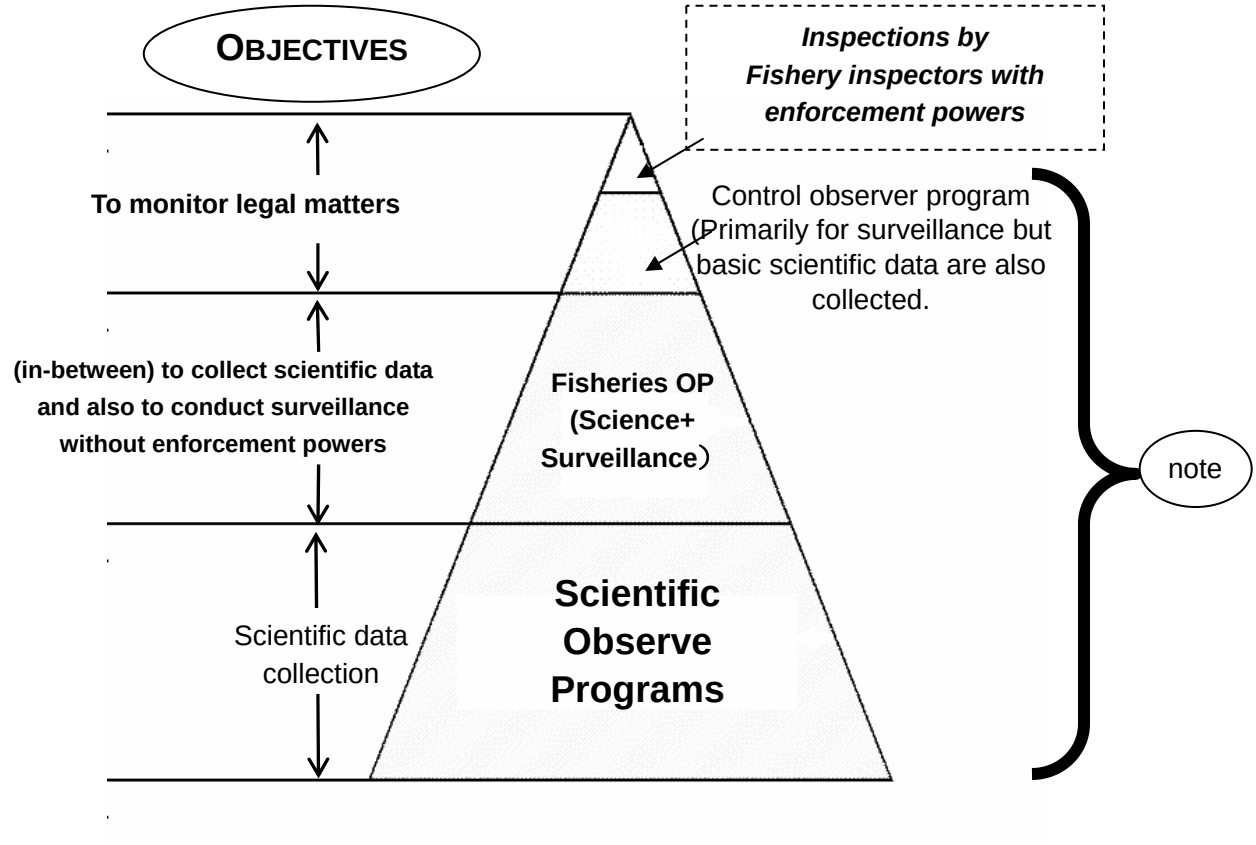


Fig. 1 Definition of various types of the observer programs and their relations.

(*Note*) *Our investigation covers Scientific OP, Fisheries OP and Surveillance OP, but the Inspection program is not covered.*

4. Summary & comparative Tables of the TOP of the world

Important information collected are summarized in Tables 1-3.

Table 1 Types of the tuna observer programs (TOP) in the past and the present (refer to Fig. 1)

Fisheries	Objectives	Country/organization (Area)	Type		
			Scientific	Fisheries	Surveillance
PS	Collection of information on small bigeye	EU (Atlantic & Indian Ocean)	■		
	collection on incidental catch information and surveillance	Spain & France (Atlantic& Indian Ocean)	■		
	surveillance on moratorium	Spain & France (Atlantic & Indian Ocean)			■
	bigeye year (collection of scientific information)	ICCAT (Atlantic)	■		
	ESTHER (collection of fishing effort information)	Spain & France (Atlantic & Indian Ocean)	■		
	New observer program (collection of scientific information)	EU (EEZ of participating countries)	■		
	collection of incidental catch information and surveillance	IATTC (Eastern Pacific)		■	
LL	Swordfish (collection of scientific information)	Spain (three Oceans)	■		
	Swordfish (surveillance on incidental catch)	U.S.A. (off California)		■	
	collection of incidental catch information and surveillance	U.S.A (off Hawaii)		■	
		U.S. A. (Atlantic Ocean)		■	
		Canada (off eastern coast)		■	
LL&PS	Surveillance on tuna and skipjack fishing vessels in French territorial waters	France (Indian Ocean)			■
	Surveillance on tuna and skipjack fishing vessels in U.K. territorial waters	U.K. (Indian Ocean)			■
	Japan's observer program (LL & PS)	Japan (three oceans)	■		
GILL	collection of incidental catch information and surveillance (albacore driftnet)	France (Bay of Biscay)		■	

Table 2 Comparisons of the observer program costs (including non-TOP).

Country	Year	Types of observer program (Area)	No. of observers dispatched (per year)	Average boarding months of observers (months)	Average no. dispatches per year: (men*months)	Total annual budget(*) (Million US $)	Ave. cost per observer per month (**) (in 10,000 US $)	Budget source and share (100% if % are not indicated)
Offshore and distant-water fisheries (One cruise lasts from one month to 4 months)								
U.S.A.	2002	tuna LL fisheries off Hawaii	30	4.0(*)	120	2.55	2.09	Government
Spain France	1997 -1999	bigeye year (tuna PS) (Atlantic)	22	1.3	29	0.52	1.79	ICCAT
Japan (***)	2000	tuna/skipjack fisheries (PS & LL) (three oceans)	21	2.0	42	0.73	1.73	Government
Spain France	1999 -2001	ESTHER (fishing effort in PS fishing) (Atlantic& Indian Ocean)	3	3.9	12	0.19	1.59	Government
U.S.A. (non -tuna)	2000	Bottom trawling (mainly in the Gulf of Alaska and North Pacific)	300	3.0	900	14.00	1.55	Industry (79%), Government (21%)
Spain France	1994 -1995	Incidental catch in PS (Atlantic, Indian Ocean)	12	2.0	24	0.37	1.55	ICCAT
Spain	2002 -2006	swordfish LL fisheries (three oceans)	2	3.5	7	0.10	1.43	Government
Japan (***)	2000	tuna/skipjack fisheries (three oceans)	21	2.5	53	0.73	1.38	Government
Spain France	1997 -2000	Moratorium on PS (Atlantic)	18	1.3	54	0.73	1.35	PS fishing industry
Coastal and offshore fisheries (One cruise last less than 2 weeks)								
France	1993 -1994	albacore driftnet (coastal and offshore)	18	1.0(*)	18	0.19	1.06	Government
Canada	2002	Tuna LL fisheries in eastern coast	40	3.5(*)	140	1.45	1.10	Industry (72%), Government (28%)
U.S.	2001	Tuna LL (Atlantic)	9	4.0(*)	36	0.35	0.98	Government
U.S.	2002	swordfish driftnet fisheries off California	20	5.0(*)	100	0.80	0.80	Government
Canada	2000	Salmon fisheries in western coast, bottom trawling	300	1.0(*)	300	2.18	0.73	Industry (67%), Government(33%)
IATTC	2002	Tuna/skipjack PS	130	5.0	650	3.55	0.45	Industry (67%), IATTC(33%)

(*) *Assumed values based on the information obtained in the investigations.*

(**) *All the costs, such as payments to fisheries consulting firms, observer firms, and agents as well as observer salaries, insurance cost, travel expenses and equipment cost, are included.*

(***) *In the case of Japan, travel expenses were estimated on the assumption that the annual boarding months are 2 and 2.5 months.*

Table 3 Comparisons of important factors among the regional TOP investigated (as of 2002 or 2003).

FACTORS (↓)		JAPAN	SPAIN	FRANCE	U.K.
FISHERIES & AREA	**Fisheries**	Distant-water tuna LL, overseas PS	Tuna PS, tuna (swordfish) LL	Tuna PS	Foreign vessel Surveillance (PS & LL)
	area	three oceans	PS: Atlantic & Indian Ocean, LL: three oceans	Atlantic & Indian Ocean	Indian Ocean (Chagos Islands)
OBJECTIVES		Mostly collection of "scientific data"	"Collection of scientific data". However, the main purpose of the observer program is surveillance on "PS moratorium" and for France, "foreign vessels in the French territorial waters in the Indian Ocean."		Surveillance of foreign vessels and collection of scientific data
PROVISIONS, LAWS AND OBSERVER COVERAGE RATE	**Governing regulations and laws**	Recommendations from international fisheries conventions and agreements. No national legislations.	Recommendations from ICCAT, IOTC, EU, etc. Domestic legislations regarding surveillance program for the French territorial waters in the Indian Ocean.		National legislations
	Observer boarding rate (% of the no. of cruises)	From several percents to 10% (Differs from fishery to fishery)	3%: swordfish observer program 5-15%: PS scientific observer program 80-100%:PS moratorium observer program		15%: surveillance observer program
RECRUITMENT	**Recruiting organizations**	JAMARC	Fisheries consultant firms (3 firms) and public fisheries organizations (IEO, AZTI)	Fisheries consultant firms (2 firms)	MRAG (consultant firm for fishery resources)
	Recruitment method	Public offering, introduction	Public offering for universities and fisheries organizations; through internet; introduction (mouth-to-mouth information), etc. Observer data bank is used by U.K.(MRAG).		
	Qualifications for application (Academic and professional career)	Aged 20-65 Those who have experience (in fisheries) are preferable.	University graduates specializing in fisheries science and biology (including those in master's and doctor's courses), and those who have experience as observers		
	Applicants	Mostly retirees from fisheries-related career (over 60 years old)	Mostly those who have completed university (graduate) courses and those who have experience as observers		
	Employment method	Document (Almost all of the applicants are employed.)	Documents and interviews (competition rate is twofold at the highest. However, competition rate for French controllers is six times). Priority is given to those who have experiences.		
EDUCATION AND TRAINING	**Education and training organizations (number of training days)**	JAMARC is in charge of the program, and the National Research Institute of Far Seas Fisheries carries out training seminars. (1-2 days)	IEO (Tenerife:PS), AZTI (PS), IEO (La Corna: swordfish LL) (about 2 days)	ORSTOM (currently IRD) and Oceanic Development Inc. (about 2 days)	MRAG (one week)
	Contents of seminars	Data collection (catch volume, catch effort, species identification, survey on incidental catch, size and weight, biological sampling (otolith and muscles for DNA analysis), marine mammals)。Surveillance program also includes the methods for collection of information on fisheries management" and "surveillance of illegal activities."			
	Education on on-the-sea safety (see Plate 1, Page 13)	Only lectures. No on-the-spot training	AZTI requires one-week training by the government. IEO has no special requirements.	None	The certificate of completion of maritime rescue training course given by the government is required. Lectures are given at MRAG.
	Training fee	Free of charge (Costs are allocated from the budget.)			
	Examination and Evaluation (during the debriefing)	None	Although examinations are given but all the applicants are ensured to pass them. Those who did not take good marks are given additional training.	None	None. Poor evaluation in debriefing will cause no re-employment.

(continued)

(CONTINUED) FACTORS		JAPAN	SPAIN	FRANCE	U.K.
EMPLOYMENT AND DISPATCH	**Employment and dispatch (logistic matters)**	JAMARC	Mainly, fisheries consultant firms		
	Dispatch period	One cruise lasts 1-3 months. In most cases, only one cruise is conducted, but for some cases, more than 2 cruises.			
	Debriefing	JAMARC, the National Research Institute of Far Seas Fisheries, etc. (about 1 day)	PS: (2 days) (+ IEO needs about 5 days for data input.) swordfish LL (7 days)	No debriefing in case of moratorium. About 2 days are needed for scientific programs.	MRAG: 2 days plus data input (one week)
	Rate of establishment (re-employment)	50% on the average	Details are not clear, but it seems to stand at about an average of 50%.		
INFORMATION COLLECTED BY OBSERVERS	**Method of transmission**	Transmitted to the National Research Institute by door-to-door delivery after disembarkation.	Brought at the time of debriefing		
	Data processing (DB management)	National Research Institute of Far Seas Fisheries (Software is developed by a software company.)	AZTI IEO IRD(for joint TOP) And others	IRD, IFREMAR, Marine Fisheries and Aquaculture Commission	MRAG
	Organizations using the data	JAMARC, the National Research Institute of Far Seas Fisheries, Marine Department of Tokai University, etc.	AZTI, IEO, Laguna University (Tenerife), ICCAT, IOTC, EU & others	IRD,IFREMAR,EU, Marine Fisheries and Aquaculture Commission, ICCAT, IOTC, etc.	MRA G and Imperial College (In the future, IOTC will be included.)
	Utilization	Generally, the data are used in the areas of research on the resources, biology and ecology. Surveillance data are used to manage fishing effort, illegal fishing activities, incidental catch and the moratorium.			
VARIOUS STATISTICS REGARDING OBSERVER PROGRAMS	**Fisheries consultant firms engaging in observer duties**	None (JAMARC implements most of the work)	4 firms (one of them is a specialized observer firm as found in the U.S.)	2 firms (One each in Paris and Concano)	One firm (MRAG)
	Average age	60 or over	Mid-20s	25. But the age for controllers was extended to 25-50, with the average of 35.	mid-20s. However, the age of controllers should be 30 or over.
	Sex ratio (Male: female)	Male100%	PS (75%: 25%), PS supply vessels and LL (All males)	PS (75%: 25%),	PS: (female: 2-5%), LL (All males)
	Budget	Refer to Table 2 for detail (Page 10)			
	Number dispatched				
	Per diem during observer dispatch (including all allowances)	US $ 182 (plus travel expenses) Fisheries Agency➔ provided by JAMARC	US$ 118-182 (+travel expenses). Per diem differs depending on the programs and years of experiences.	US$ 164 (+travel expenses). Per diem differs depending on the programs and years of experience.	US$ 136-173 (+travel expenses). Per diem may increase depending on the year of experiences.

Plate 1 Educational program for safety at the sea

In employing observers (controllers) MRAG requires the submission of certification of completion of the on-the-sea safety program carried out the by the government. A few years ago a ship accommodating an observer (controller) sank, but the observer (controller) narrowly survived. In the aftermath of such an incident, MRAG is reinforcing its education program for on-the-sea safety. Education programs are extended at observer training sessions using Power Point (see photo on the right.) Lately, a supply vessel for Spanish tuna PS vessel sank, and the observer onboard was rescued. In the Gulf of Alaska in the U.S., a fire broke out on the ship and the observer was rescued. In such cases, crew on the ship is fully occupied with their own safety and observers need to take safety measures by themselves. For this reason, education of observers (controllers) about on-the-sea safety has become an important item for education worldwide.

(UK, MRAG)

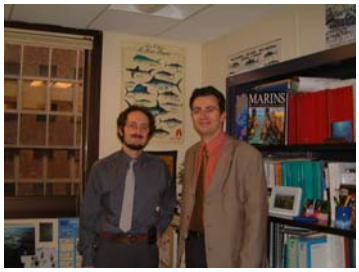
(USA and Canada)

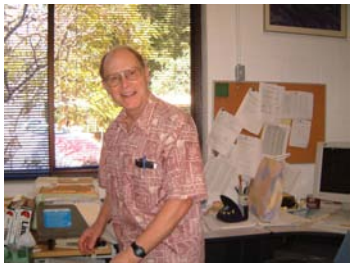
References

Nishida, T. (2002): Report on the current situation of the overseas fisheries observer program (Vol.2). Tuna fisheries in France, Spain and UK. (*in Japanese*). 72pp.

Nishida, T. (2003): Report on the current situation of the overseas fisheries observer program (Vol.3). Tuna fisheries in the USA, IATTC and Canada (i*n Japanese*). 93pp.

Acknowledgements

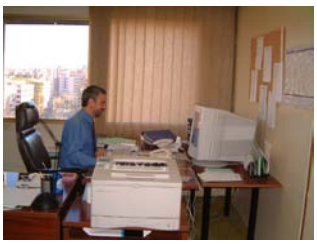



And also for many more others not appeared here …, who provided valuable information & shared time for investigations.







Appendix A : Additional information (SPC)

Objectives the observer program

The prime objective for most fisheries authorities is to contribute to the optimum utilisation, rational management and conservation of fisheries resources in national waters. To pursue this objective fisheries management teams must ensure, amongst other things, the availability of useful catch and effort information from all the country's major commercial fisheries. Various reviews fisheries authority functions have agreed that observer programmes are necessary to collect corroborative catch and effort data and to monitor compliance with conservation and enforcement management measures. A cost effective means to meet stock assessment needs is to reduce the number of observers at sea by also undertaking complimentary port sampling activities. With our modern day obsession to have leaner meaner government institutions and the consequent reduction of fisheries enforcement and scientific staff that has occurred in many fisheries institutions, the role of observers as independent eyes and ears for Fisheries Managers on the fishing grounds is more important than ever.

Roles of observers

An observer mainly collects accurate catch and fishing effort information. This is used by fisheries managers for science or compliance purposes to evaluate fish stocks and to ensure vessels are fishing within the law.

When there is concern about the accuracy of logsheet data in a fleet observer data from a few covered vessels may be used check the accuracy of those vessel logsheets and may be used to adjust the logsheet data in the entire fleet.

Observers' records must therefore be entirely independent to those the vessel collects.

Because observers collect catch and species data each time the vessel fishes they can also collect accurate times, positions and fishing effort data, that cannot be collected from export data, landings data or even port sampling data.

Observers are not enforcement officers. Enforcement of the law is usually the responsibility of Fishery Officers especially employed for the job. Observers have no powers to order the master to do anything except to request reasonable co-operation and assistance from the ship's officers and crew to do their observer work successfully. However, they usually have

responsibility to record offences as part of observer duties.

Observers should have some knowledge of the treaties, access agreements and laws in which they operate but should not allow themselves to be consulted as experts on these laws. If asked such questions observers should refer the query to the National Fisheries Authority (NFA), Fisheries Department or to the Forum Fisheries Agency (FFA) for answer.

If an observer uses good methods to make their assessments, it is unusual for a fishing master (or captain) to insist on recording different data to the observer's, particularly if they have talked together. However, if there is a difference of opinion, it is the fishing master's responsibility to fill in the vessel's logsheets and he is quite entitled to stand by his own opinion if he believes it to be correct. So when there is no evidence to support him, for example where a damaged net results in loss of fish, the observer must be prepared for the fishing master to insist on his (the fishing master's) own opinion. In this case it is usually not possible to show evidence of the original size of the catch and the observer should record his own opinion separately if he disagrees with the fishing master's assessment, with the reason that the observer disagrees in his diary.

The role of the observer, then, is not to provide advice on laws, or to enforce them, but to ensure that good quality catch and effort data are collected on their host vessel. These data are often the most valuable source of information to assess fish stocks and design management measures, particularly when a long time-series of data is available. Observers' data must also be accurate enough for enforcement officers to use if needed. Therefore, observers should see their role as part of a quality assurance programme to ensure that commercial fishing vessels supply high quality catch and effort data.

Appendix B ：Available Information (References)

CANADA

Archipelago Marine Research Ltd.（アーキピラゴ　海洋研究所)

(1) A PRACTICAL GUIDE TO The Identification of Commercial Groundfish Species of British Columbia (ブリティッシュ・コロンビア州の底魚漁業における魚種判別ガイド)
(Second Edition) by Donna Grant, Michael Gjernes and Nev Venables. A cooperative project by:Archipelago Marine Research Ltd.　and Fisheries and Oceans Canada, Pacific Biological Station

(2) Electronic Monitoring Opportunities for Commercial Fisheries
(操業の電子モニタリングの試み)
Howard McElderry, M.S. Archipelago Marine Research Ltd. #200-525 Head Street Victoria, British Columbia, Canada V9A 5S1

(3) AT SEA DOMESTIC FISHERIES OBSERVER TRAINING COURSE
(沿岸・沖合漁業科学オブザーバー訓練コース)

(4) *(JAN 22 TO FEB 9, 2001), ARCHIPELAGO MARINE RESEARCH*

(5) ARCHIPELAGO TRAWL OBSERVER BRIEFING WORKBOOK
(底魚漁業科学オブザーバー ブリーフィング用報告記入用紙)

(6) ARCHIPELAGO 2001 OFFSHORE OBSERVER TRAINING MANUAL
(2001 年用 沿岸オブザーバー訓練マニュアル)

(7) デジタルビデオによる操業の電子モニタリングシステム (CD-ROM)

DFO(カナダ海洋漁業省)および PBC(太平洋生物研究所) 関連

(1) At-Sea Fisheries Observer Program:*Conservation and Protection*
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(2) 1998 Summary Report : Observer & Logbook Monitoring　Programs
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(3) 1999 Summary Report: Observer & Logbook Monitoring Programs
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(4) Commercial Salmon Catch Reporting Program 2000
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(5) At Sea Fisheries Observer Participant Workbook
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(7) ONBOARD BY-CATCH MONITORING MANUAL COMMERCIAL SALMON FISHERY
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(8) AT-SEA OBSERVER PROGRAM REVIEW AND RECOMMENDATIONS
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(11) At-Sea Observer Program: OPERATIONS MANUAL
(海洋漁業オブザーバープログラム:実施マニュアル)
(12) Observer Program Instructor's Guide NAFO Regulatory Area
(オブザーバープログラム:NAFO 海域におけるインストラクター用ガイドブック)
(13) 潜水艇による 3 次元ライントランセクト目視調査:メヌケ現存量調査(CD－ROM)

Javitec

(1) CD-ROM (パワーポイント)(業務案内)

J.O. Thomas and Associates

(1) 2001 SPAWN-ON-KELP MONITORING PROGRAM FIELD MANUAL
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(1) Pacific Region Fisheries Observer Course: Participants Workbook
(太平洋海域向けオブザーバー訓練:ワークブック)
(2) Schedule Outline for the 10 day Pacific Region Fisheries Observers Training Course
(太平洋域漁業オブザーバートレーニングコース:10 日訓練コーススケジュール)
(3) At Sea Fisheries Observer And Creel Survey Course (March 23,2001) :
(海洋漁業オブザーバーおよびさけます漁聞き込み調査トレーニングコース:理論試験問題)
Theory Exam Questions

FRANCE

(1) EFFICACITE DES SENNEURS THONIERS ET EFFORTS REELS (ESTHER)
(かつお・まぐろまき網漁船の漁獲効率と漁獲努力量に関するオブザーバープログラム)
PROGRAMME DE RECHERCHES IRD / IEO(IRD/IEO 調査プログラム)
(2) MANUEL DES OBSERVATEURS EMBARQUES A BORD DES SENNEURS OPERANT DANS L'ATLANTIQUE ET DANS L'OCEAN INDIEN
(大西洋とインド洋で操業するまき網船オブザーバー向けマニュアル)
(3) "LES ESPECES ASSOCIEES AUX PECHES THONIERES TROPICALES"
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(5) COMMISSION THON TROPICAL 【ICCAT】
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(6) CAPTURES ACCIDENTELLES DU FILET MAILLANT DÉRIVANT ET DYNAMIQUE DES POPULATIONS DE DAUPHINS AU LARGE DU GOLFE DE GASCOGNE
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(7) PROGRAMME FILEYEUR GERMONIER 1992 – 1993 (Programme GERDAU)
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(8) MANUEL DES OBSERVATEURS EMBARQUES SUR LES GERMONIERS
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(9) ECHANTILLONNAGE PAR OBSERVATEUR EMBARQUÉ DES CAPTURES DE MERLU RÉALISÉES PAR LES CHALUTIERS FRANÇAIS UTILISANT UN MAILLAGE COMPRIS ENTRE 70 ET 99 MM DANS LA ZONE DE PROTECTION DU MERLU INSTITUÉE PAR LE RÉGLEMENT N° 1162/2001 DE LA COMMISSION EUROPÉENNE
MANUEL DE L'OBSERVATEUR
(ヨーロッパ委員会の規則 No.1162/2001 に基づく、メルルーサ保護海域における網目の大きさが 70～90mm のフランスの底曳トロール船オブザーバー向けマニュアル)
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(1) Proceedings of the First Biennial Canada/U.S. Observer Program Workshop
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Delta St.John's Hotel and Convention Centre, St.John's, Newfoundland, Canada (June 26-29, 2000)

(3) Official Journal of the European Communities
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(4) Professional Communication And Conflict Resolution Training for Observers
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Joe Chaszar – UAA-North Pacific Fisheries Observer Training Center
Sheryl Corey – NMFS – North Pasific Observer Groundfish Program

(5) INTERNATIONAL FISHERIES OBSERVER CONFERENCE
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(1) BYCATCH IN THE TUNA NET FISHERIES
(まぐろ漁業における混獲)
(2) Strategies to Reduce the Incidental Capture of Marine Mammals and Other Species in Fisheries
(漁業による海棲哺乳類などの混獲削減計画)
(3) An Ecological View of the Tuna-dolphin Problem: impacts and trade-offs
(まぐろーイルカ問題の経済的観点)
(4) Working with Fishers to Reduce Bycatch: The Tuna-Dolphin Problem in the eastern Pacific Ocean
(漁民との混獲を減らすための取り組み)
(5) Chapter 13 Interactions Between Aquatic Mammals and Humans in the Context of Ecosystem Managemant
(13 章 海棲哺乳動物と人間との生態系を守るための相互関係)
(6) Chapter 14 Environmentalists, Fishermen,Cetaceans and Fish: Is there a Balance and can Science Help to Find it?
(14 章 環境保護団体、漁業者、鯨類と魚:均衡は保てるのか また科学はその助けとなりうるか?)
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(8) THE INTERNATIONAL CONFERENCE ON INTEGRATED FISHERIES MONITORING
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(9) On Bycatches (混獲について)
(10) Solving the Tuna-Dolphin Problem in the Eastern Pacific Purse-Seine Fishery
(東太平洋まき網漁におけるまぐろーイルカ問題の解決法)
(11) Effects of sample size on bycatch estimation using systematic sampling and spatial post-stratification; Summary of Preliminary results
(12) Effect of sample size on bycatch estimation March 3, 2000
(サンプルサイズが混獲推定量に及ぼす影響)
(13) Video no. 1 ELIZABETH C.J. (オブザーバー乗船記録)
(14) 2 SPINNER BEHAVIOR AREAL FOOTAGE
(15) 3 SCHOOL SIZE ESTIMATION
(16) 4 THE WORLD OF TUNA (ENGLISH)
(17) 5 NET INSPECTION/PORPOISE SG/QUEEN MARY 1985
6 DOLPHIN IDENTIFICATION 1 OF 2 (SOME DOLPHINS & WHALES PART STRIPED THROUGH PSENDORCA PART)
(18) 7 DOLPHIN IDENTIFICATION 2 OF 2 (PILOT WHALE & QUIZ)
(19) 8 PORPOISE RESCUE FOUNDATION
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(3) Memoria 2000 INSTITUTO ESPANOL DE OCEANOGRAFÍA
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(5) LANCES: SEGUIMIENTO DE LA RECOMENDACIÓN DE ICCAT RESPECTO AL ESTABLECIMIENTO DE VEDA DE ZONA Y TEMPORDA AL USO DE DISPOSITIVOS CONCENTRADORES DE PECES (DCP – s) 2000 – 2001
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J. Mejuto[(1)], B. García-Cortés[(1)], F. González[(2)]
(1) Instituto Español de Oceanografia. España. (スペイン国立海洋研究所研究員)
(2) Observador Cientifico.(スペイン海洋研究所/科学オブザーバー)

USA

NMFS(米国連邦政府海洋漁業局) 及び AFSC(アラスカ漁業科学センター)関係

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(4) Independent Review of the North Pacific Groundfish Observer Program
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(7) Minutes and Recommendations from a Workshop on NMFS OBSERVER PROGRAMS
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(9) Observer Program Manual (オブザーバープログラムマニュアル)

(10) *For Sampling of Central Bering Sea Pollock Fisheries March 1997, Alaska Fisheries Science Center, National Marine Fisheries Service, 7600 Sand Point Way NE, Seattle, WA 98115-0070*

(11) NPGOP Training Syllabus (北太平洋底魚漁業オブザーバープログラム 訓練 シラバス)
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(1) Sea Turtle Guideline sheets(海亀ガイドライン　シート)

(2) No.1 Hawaii Longline Observer　Program (CD-R 版 Species ID Final Exam 他)
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(3) No.2 Hawaii Longline Observer　Program (CD-R 版 Training ID Material)

(4) No.3 Hawaii Longline Observer　Program (CD-R 版 Field Manual 他)

(5) No.4 CD-R 版 (Alu Like 資料，オブザーバープログラム実態調査デジタル写真集)

(6) ＊ウミガメ類の識別図

(7) ＊カジキ類の識別図

(8) Quick Reference Safety Equipment and Survival Procedures
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(9) ＊Regulation(final rules) implementing the Pelagics FMP

(10) ＊Length-Weight interrelationships for swordfish,Xiphias gladius L. caught in the central north pacific
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(11) Comparisons of fish catches reported by fishery observers and in logbooks of Hawaii-based commercial longline vessels- William A. Welsh. Joint Institute for Marine and Atmospheric Research. University of Hawaii.
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(12) ＊Estimation of sea turtle take and mortality in the Hawaiian longline fisheries
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(13) ＊Estimation of albatross take in the Hawaiian longline fisheries
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(14) Sexual maturity, sex ratio, and size composition of swordfish, Xiphias gladius, caught by the Hawaii-based pelagic longline fishery
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(15) ＊Comparison of logbook reports of incidental blue shark catch rates by Hawaii-based longline vessels to fishery observer data by application of a generalized additive model
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(16) ＊Generalized additive model and regression tree analyses of blue shark(Prionace glauca) catch rates by the Hawaii-based commercial longline fishery
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(17) ＊Hawaii seafood (Buyers'guide)(ハワイの海産物バイヤーガイド)
(18) ＊Hawaii seafood (ポスター)(ハワイの海産物ポスター)
(19) Conditions of Employment & Code of Professional Conduct(雇用状況と職業倫理)
(20) Native Fishery Observer Program –leaflet(原地民の漁業オブサーバープログラム)
(21) FOA Vessel Safety Examination Checklist
(22) Fisheries Research Vol.53,Issue 2,pp.115-131(漁業研究 Vol.53)
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(25) Southwest Fisheries Science Center April 2000(南西漁業科学センター月報 4．2000)
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NMFS(Long Beach ロングビーチ)

(1) ＊Drift Gillnet Observer Training manual(流網漁業オブザーバー訓練マニュアル)
(2) Drift Gillnet Observer Field Manual(流網漁業オブザーバーフィールドマニュアル)
(3) Marine Mammals of the Eastern North Pacific(東部北太平洋の海棲哺乳動物)
(4) Magnuson-Stevens Fishery Conservation and Management Act
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(5) ＊Alopias Anatomy　(オナガザメ解剖)
(6) ＊Billfish Identification(カジキ類の判別方法)
(7) Common Thresher Shark Stomach Collection(オナガザメの胃収集サンプルリスト)
(8) ＊Mako Shark Tissue Collection(アオザメの組織切片サンプルリスト)
(9) ＊Collection Item List　(データ収集項目リスト)
(10) North Pacific Albatrosses(北太平洋アホウドリ)
(11) ＊Sea Turtle Identification(海亀判別方法)
(12) Guideline for Handling Hooked Sea Turtles & Hooked Seabirds Handling Guidelines
(網にかかった海亀や海鳥の取り扱い方に関するガイドライン)
(13) A guide for identifying fresh specimen of yellowfin and bigeye tunas(キハダとメバチの識別方法)
(14) ＊Contract for Observer Company(オブザーバー会社との契約)
(15) ＊Drift Gillnet Observer Training Schedule(流網漁業オブザーバー訓練スケジュール)

(16) ＊Drift Gillnet Observer Briefing Schedule
(流網漁業オブザーバーブリーフィングのスケジュール)
(17) California Drift Net Observer Program 10 Years of Data Collection
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(18) ＊Observed Pelagic Shark Catch California Drift Gillnet Fishery
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(19) ＊Pacific Drift Gillnet Observer Program Invoice
(カリフォルニア沖メカジキ流網漁業オブザーバープログラム:インボイス)
(20) ＊Draft Fishery Management Plan and Environmental Impact Statement for U.S. West Coast Fisheries for Highly Migratory Species
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(21) Marrine MammalProtection Act of 1972 as Amended-1995
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(22) NOAA Fisheries 2001 Report(NOAA　2001 年漁業レポート)
(23) NMFS Strategic Plan for Fisheries Research-2001
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(24) NOAA By Catch-A National concern(NOAA 混獲:国の懸案事項)
(25) NOAA Managing the Nations ByCatch(NOAA 混獲管理)
(26) Drift Fleet- Season Letter(流網漁船ニュースレター)
(27) Investing in the Health and Wealth of America's Fisheries
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(28) Annual report 1999-2000(1999-2000 年間レポート)
(29) Notice For Vessel Owners/Operators of the California-Based Pelagic Longline Fishery
(カリフォルニアを基地としたまぐろはえ縄漁業者への通知)
(30) Notice for Vessel Owners/Operators of California/Oregon Drift Gillnet Vessels Targeting Thresher Shark/Swordfish Using Large-Mesh14"
(カリフォルニア・オレゴン沖のメカジキ流網漁業で 14 インチ網を使う漁業者への通知)
(31) U.S.Department of Commerce Western Administrative Support Center Seattle, Washington.
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(2) Pelagic Observer Program Longline Field Instructions
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(3) NOAA Technical Memorandum NMFS-SEFSC-486(NOAA 専門的覚書)
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