SOUTH EAST ATLANTIC FISHERIES ORGANISATION (SEAFO)

REPORT OF THE SEAFO SCIENTIFIC COMMITTEE

30 September – 11 October 2013

Scientific Committee of SEAFO
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1 Opening of the meeting

The 9th Annual Meeting of the SEAFO Scientific Committee (SC) was convened on 30 September to 11 October 2013 at the National Marine Institute Research Centre, NatMIRC, Swakopmund, Namibia. The Chairperson, Mr. Paul Kainge, opened the meeting and welcomed delegates. He emphasized that this will be an informal discussion of scientific issues and that all delegates are expected to freely express their scientific views so that issues can be resolved and the best possible advice be forwarded to the Commission.

2 Adoption of agenda and meeting arrangements

SC adopted the provisional agenda with only minor revisions. Members were informed of practical arrangements for the meeting by the Executive Secretary.

3 Appointment of Rapporteur

After nomination and secondment, Mr. Erich Maletzky was appointed as rapporteur for the Scientific Committee meeting.

4 Introduction of Observers

Observers from the Republic of Korea, FAO and Japan attended the 9th SEAFO Scientific Committee and are listed under the "Observers" section of Appendix I.

5 Introduction of Participants

A total of 11 Scientific Committee members (excluding the SEAFO Secretariat) attend the 9th SEAFO Scientific Committee meeting (see Appendix I for list of participants). No members from South Africa and Norway could attend the 9th Scientific Committee meeting and apologies from these Contracting Parties (CPs) have been accepted by SC.

6 Review of submitted SEAFO working documents and any related presentations, allocation to the agenda items. Working documents should be circulated by 16 September and presentations should be limited to a maximum duration of 10 minutes

A total of 21 working documents were submitted to the Scientific Committee for review and/or consideration during the 2013 SC meeting – all of which are listed in Table 1 below.

Table 1: List of working documents submitted to the Scientific Committee.

DOC #	Title	Agenda item
DOC_SC_04_2013	Landings Tables 2013	7, 12 & 13
DOC_SC_05_2013	Observer Database	8
DOC_SC_06_2013	Observer Reporting	8
DOC_SC_07_2013 DOC_SC_27_2013	Results of the 2013 Exploratory Fishing Proposal Exploratory Fishing (2013)	9
DOC_SC_08_2013 DOC_SC_09_2013 DOC_SC_10_2013 DOC_SC_11_2013 DOC_SC_12_2013	Stock Status Report Dissostichus eleginoides Stock Status Report Hoplostethus atlanticus Stock Status Report Chaceon erytheiae Stock Status Report Pseudopentaceros richardsoni Stock Status Report Beryx splendens	10
DOC_SC_13_2013 DOC_SC_13A_2013	CCAMLR Assessment CCAMLR Assessment 41-02	14
DOC_SC_15_2013	BirdLife South Africa feedback	17
DOC_SC_16_2013	Working docs SEAFO	18
DOC_SC_19_2013 DOC_SC_20_2013	Seamounts, deep-sea corals and fisheries South-East Atlantic Seamounts	19
DOC_SC_21_2013	SEAFO SC FAO-ABNJ Project Participation outline	20
DOC_SC_22_2013	STATLANT 47 Questionnaire	21
DOC_SC_24_2013	Walvis Ridge MV1203 Expedition	14
DOC_SC_25_2013	Short Note on Spanish-Namibian survey	14
DOC_SC_26_2013	Species exploited within SEAFO CA	10

7 Review of the report by the Executive Secretary presenting all landings, incidental by-catch and discard tables updated to include all available data to date

The Executive Secretary presented available data and related information. These were updated with additional information made available by SC members.

Catch statistics for the SEAFO CA are incomplete. A table with the available data from 1995 to 1998 was listed in the report of the 1st annual meeting of the Commission (SEAFO, 2004). These data were based on a report by Japp (1999). Some data were derived from the "1975-2005 FAO Southeast Atlantic capture production database" and are added to the current tables of annual catch figures below in **bold**.

Comments were made regarding effort representation on the table for trawls, as well as the landings versus catches. It was noted that catches should be used instead of landings as this most accurately defines the dataset and that the efforts column be removed from all tables and only the catches reported.

The Secretariat, based on last year's request and subsequent approval by the Commission, has forwarded memos to Russia, Poland and the Ukraine. No feedback has been received to date.

Catches for the five main resources are listed by country, fishing method and SEAFO Management Division in Tables 2-7. Tables 8-13 list the bycatch species.

EU (Spain):
Catch data were provided for the years 2001-2010. Since 2010 no catches have been made to date (Tables 2, 3, 5 & 6). From 2001 to 2003, catches were small with the exception of around 100t of Patagonian toothfish recorded in 2003. Landings of toothfish in 2010 amounted to 26t and this was taken by one vessel.

EU (Portugal):
Catch data were provided for 2004 to 2007. No catches have been reported since 2007 (Tables 4, 5 & 8).

Japan:
Catch data were provided from 2003 to 2013 to-date (Tables 2 & 5). Provisional catches for 2013 to date are 41t for Patagonian toothfish, of which 1 ton was discarded. No fishing for deep-sea red crab has taken place as of 2011 to date.

Republic of Korea:
Catch data were provided from 2005 to 2013 to-date (Tables 2, 4, 6, 9-13). There was no fishing for Patagonian toothfish as of 2010 to date. The mid-water trawl fishery, a multi-species fishery, which started in 2010 targets both alfonsino and southern boarfish (pelagic armourhead) with significant by-catches of Blackbelly rosefish. To date there have been no reported catches from the Rep. of Korean mid-water trawl fishery for 2013.

South Africa:
Catch data were provided for 1976-2012 (Tables 2, 3, 4 & 6). To date there have been no reported catches from the South African longline fishery for 2013.

Namibia:
Catch data were provided for 1976-2012 (Tables 3, 4, 5, 6 & 7). The only catches on record for 2012 (187t) and 2013 (198t) to date are from the deep-sea red crab fishery.

Other Countries:

Catch data for other countries are summarised in the various tables.

Table 2: Catches (tons) of Patagonian toothfish (*Dissostichus eleginoides*) by Spain, Japan and Republic of Korea

Nation	Spain	Japan		Rep. of Korea	South Africa	
Management Area	D0	D0	D1	D0	D0	D1
Fishing method	LLS	LLS	LLS	LLS	LLS	LLS
Catch details	Landing (t)	Landing (t)	Landing (t)	Landing (t)	Landing (t)	Landing (t)
2002	18					
2003	101 (14)	47		245		
2004	6	124				
2005	N/F	158		10		
2006	11	155				
2007	N/F	166				
2008	N/F	122		76		
2009	N/F	86		65		
2010	26	54				
2011	N/F	158	N/F	N/F	15	28
2012	N/F	89	N/F	N/F	24	12
2013***	N/F	36	4	N/F	N/F	N/F

Partial effort data refers to partial catch in brackets ( ).
N/F = no fishing. Blank fields = No data available.
*** Provisional (Aug 2013).
LLS = Set Longlines

Table 3: Catches (tons) of orange roughy (*Hoplostethus atlanticus*) made by Namibia, Norway and RSA.

Nation	Namibia	Norway	South Africa
Management Area	B1	A1	B1
Fishing method	TB	TB	TB
Catch details	Landing (t)	Landing (t)	Landing (t)
1995	40	N/F	
1996	8	N/F	
1997	5	22	27^{Japp} **
1998	N/F	12	
1999	<1	N/F	
2000	75	0	
2001	94	N/F	
2002	9	N/F	
2003	27	N/F	
2004	15	N/F	
2005	18	N/F	

2006	N/F	N/F	
2007	N/F	N/F	N/F
2008	N/F	N/F	N/F
2009	N/F	N/F	N/F
2010	N/F	N/F	N/F
2011	N/F	N/F	N/F
2012	N/F	N/F	N/F
2013***	N/F	N/F	N/F

** Sum of Catches from 1993 to 1997.
*** Provisional (Aug 2013)
TB = Bottom Trawl
N/F = No Fishing. Blank fields = No data available.
Japp = values taken from the Japp (1999). TB=Bottom Trawl

Table 4: Catches (tons) of Alfonsino (*Beryx spp.*) made by various countries.

Nation	Namibia	Norway	Russia	Portugal	Ukraine	Rep. of Korea	Spain	Poland	Cook Island	Mauritius	Cyprus	South Africa
Management Area	B1	A1	UNK	UNK	UNK	A, B & C	UNK	UNK	UNK	UNK	UNK	B1
Fishing method	TB	TB	TB	UNK	UNK	TM	TM / LLS	UNK	TB	TB	TB	TB
Catch details	Landing (t)	Landing (t)	Landing (t)	Landing (t)	Landing (t)	Landing (t)	Landing (t)	Landing (t)	Landing (t)	Landing (t)	Landing (t)	Landing (t)
1976			252[Japp]									
1977			2972[Japp]									
1978			125[Japp]									
1993					172[FAO]							
1994												
1995	1[Japp]	N/F						1964[FAO]				60[Japp]
1996	368[Japp]	N/F			747[FAO]							109[Japp]
1997	208[Japp]	836	2800[Japp]		392[FAO]		186[FAO]					124[Japp]
1998	N/F	1066	69[FAO]				402[FAO]					
1999	1	N/F		3 [FAO]								
2000	<1	242		1 [FAO]								
2001	1	N/F		7 [FAO]			2					
2002	0.00	N/F		1 [FAO]								
2003	0.00	N/F		5 [FAO]			2					
2004	6	N/F	210				4		142	115	437	
2005	1	N/F	54				72					
2006	N/F	N/F	N/F	<1			N/F	N/F	N/F	N/F	N/F	N/F
2007	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F
2008	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F
2009	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F
2010	N/F	N/F	N/F	N/F	N/F	*192*	N/F	N/F	N/F	N/F	N/F	N/F
2011	N/F	N/F	N/F	N/F	N/F	*165*	N/F	N/F	N/F	N/F	N/F	N/F
2012	N/F	N/F	N/F	N/F	N/F	172	N/F	N/F	N/F	N/F	N/F	N/F
2013***	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F

* Whole weight
*** Provisional (Aug 2013)
N/F = No Fishing. Blank fields = No data available. UNK = Unknown.
Japp = values taken from the Japp (1999). FAO = values from FAO Two species targeted: Beryx splendens represents majority of catch.

Table 5: Catches (tons) of deep-sea red crab (*Chaceon* spp., considered to be mostly *Chaceon erytheiae*).

Nation	Japan	Namibia	Spain	Portugal
Management Area	B1	B1	UNK	A
Fishing method	FPO	FPO	FPO	FPO
Catch details	Landing (t)	Landing (t)	Landing (t)	Landing (t)
2001			<1	
2002				
2003			5	
2004			24	
2005	234	54		
2006	389			
2007	770	4		35
2008	39			
2009	196	N/F	N/F	N/F
2010	200	N/F	N/F	N/F
2011	N/F	160	N/F	N/F
2012	N/F	187	N/F	N/F
2013*	N/F	198[#]	N/F	N/F

* Provisional (Aug 2013)
[#] 5-Day Reports (Aug 2013)
FPO = Pot Fishing

Table 6: Catches (tons) of pelagic armourhead *(Peudopentaceros richardsoni*)**.**

Nation	Namibia	Russia	Ukraine	South Africa	Spain	Cyprus	Rep. of Korea
Management Area	B1	B1	UNK	B1	B1	UNK	B1
Fishing method	BT	BT	BT	BT	BT / LL	BT	MT
Catch details	Landing (t)	Landing (t)	Landing (t)	Landing (t)	Landing (t)	Landing (t)	Landing (t)
1976		108					
1977		1273					
1978		53					
1993		1000	435 [FAO]				
1994							
1995	8		49	530			
1996	284		281	201			
1997	559		18	12			
1998	N/F						
1999	N/F						
2000	20						
2001	N/F				<1		
2002	N/F						
2003	4				3		
2004					3	22	
2005							

2006							
2007							
2008							
2009	N/F	N/F	N/F	N/F	N/F	N/F	N/F
2010	N/F	N/F	N/F	N/F	N/F	N/F	913
2011	N/F	N/F	N/F	N/F	N/F	N/F	135
2012	N/F	N/F	N/F	N/F	N/F	N/F	152
2013***	N/F	N/F	N/F	N/F	N/F	N/F	N/F

******* Provisional (Aug 2013)
^{FAO} = values from FAO
TB = Bottom Trawl
TM = Mid-water Trawl
LL = Longline

Table 7: Catches (tons) of oreo dories (*Allocyttus verucossus, Neocyttus romboidales, Allocyttus guineensis).* Smooth oreo dories - *Pseudocyttus maculatus* (ASFIS-SSO)

Nation	Russia	Cyprus	Mauritius	Namibia
Management Area	UNK	UNK	UNK	UNK
Fishing method	UNK	UNK	UNK	TB
Catch details	Landing (t)	Landing (t)	Landing (t)	Landing (t)
1995				<1
1996				0
1997				35
1998				N/F
1999				3
2000				33
2001				14
2002				1
2003				1
2004	<1	21	25	0
2005				4
2006				
2007				
2008				
2009				
2010	0	0	0	0
2011	0	0	0	0
2012	0	0	0	0
2013*	0	0	0	0

***** Provisional (Aug 2013)
TB = Bottom Trawl

Table 8: Catches (tons) of Wreckfish (*Polyprion americanus*.)

Nation	Portugal
Management Area	A
Fishing method	LL
Catch details	Bycatch (t)
2004	1
2005	
2006	6
2007	9
2008	
2009	0
2010	0
2011	0
2012	0
2013*	0

***** Provisional (Aug 2013)
LL = Longline

Table 9: Catches (tons) of Blackbelly rosefish (*Helicolenus spp.*)**.**

Nation	Rep. of Korea
Management Area	A, B1, C
Fishing method	TM
Catch details	Bycatch (t)
2010	161
2011	47
2012	44
2013*	0

***** Provisional (Aug 2013)
TM = Mid-water Trawl

Table 10: Catches (tons) of Imperial Blackfish (*Schedophilus ovalis)***.**

Nation	Rep. of Korea
Management Area	A, B1, C
Fishing method	TM
Catch details	Bycatch (t)
2010	24
2011	35
2012	24
2013*	0

***** Provisional (Aug 2013) TM = Mid-water Trawl

Table 11: Catches (tons) of Silver Scabbardfish (*Lepidotus caudatus*)

Nation	Rep. of Korea
Management Area	A, B1, C
Fishing method	TM
Catch details	Bycatch (t)
2010	30
2011	15
2012	0,1
2013*	0

***** Provisional (Aug 2013)
TM = Mid-water Trawl

Table 12: Catches (tons) of Mackerel (*Scomber japonicus*)

Nation	Rep. of Korea
Management Area	A, B1, C
Fishing method	TM
Catch details	Bycatch (t)
2011	50
2012	0
2013*	0

***** Provisional (Aug 2013)
TM = Mid-water Trawl

Table 13: Catches (tons) of Cape Horse Mackerel (*Trachurus capensis)*

Nation	Rep. of Korea
Management Area	A, B1, C
Fishing method	TM
Catch details	Bycatch (t)
2011	1
2012	0
2013*	0

***** Provisional (Aug 2013)
TM = Mid-water Trawl

Recommendation: SC has noted that logbook data exists but SC does not have access to these data, and mindful of the current data deficiencies SC proposes that Flag States/CPs forward vessel logbook data to the Secretariat to be used as a means to validate the current landing tables, amongst other things. This is expected to augment current data quality.

8 Working Document by the SEAFO Data Manager presenting a detailed overview of SEAFO Database and procedures for collecting, updating and analysing the data.

The SEAFO Data Manager (DM), Mr. George Campanis, presented the new SEAFO database to SC (Appendix II). Deliberations started with the structure (linkages of different datasets) and ended with a discussion on the database metadata. An overview of some components within the different datasets were made and discussed where needed. It was noted that a more user-friendly manner be implemented for SC members to run and filter queries – for example in the SC member's portal of the SEAFO website. SC requested that SC members inform the DM on the tables and fields required for adequate data analyses well in advance of (atleast 30 days prior to) the SC meetings.

The DM also gave a presentation on the actual data contained in the SEAFO database and highlighted the need for reliable and internationally accepted database standards (i.e. following SDMX, ISO & CWP guidelines on databases). The issue of data validation by data owners (CPs) was then raised to which the DM proposed two options for data submission to the SEAFO Secretariat:-

Option 1: Data are sent from the fishing vessel to the Flag State/CP which processes the data and forwards the processed data to the Data Manager for further processing and inclusion in the SEAFO database; or

Option 2: Data are sent from the fishing vessel to the Flag State/CP which immediately forwards the data to the SEAFO Data Manager for processing into the SEAFO database format. The Data Manager then sends the processed data back to the Flag State/CP for validation and only after receiving confirmation from the CP includes the into the SEAFO database.

The SC agreed that Option 2 would be the most suitable approach for data inclusion into the SEAFO database, and that CPs should adhere to the data submission timeframe of 30 days in sending data to the SEAFO Data Manager. The DM will forward all processed data to the CPs (Scientific Co-ordinators) 90 days before the start of the SC meeting for validation, after which CPs must validate the data within 30 days of receipt and forward any changes back to the DM.

SC agreed to provide the DM with a list of fields needed to run their stock assessment.

The DM further highlighted some of the problems encountered with data currently contained within the SEAFO database covering gaps in the datasets, inconsistencies in quality and quantity of data recorded.

Recommendations: The DM recommended that: CPs confirm and submit a historic data inventory of SEAFO scientific observer data to the Secretariat.

9 Review results of the Japanese 2013 exploratory fishing survey, and proposal for 2014 exploratory fishing survey.

Japan presented some results from the 2013 exploratory fishing exercise in Division D0, Discovery Seamount, of the SEAFO CA (see Appendix III). The exploratory fishing was conducted using Trot longline fishing gear with pilchard and squid bait. Results showed minimal to moderate catches of various commercial species, in particular: Patagonian toothfish (27 tons); Rattail (5 tons); Deep-sea cod (0.5 tons); Deep-sea crabs (74 kg); Skates & rays (20 kg). Weights of all individual VME indicators were less than the threshold level of 10 VME units (as defined in Conservation Measure 24-12).

SC considered the results of the experimental fishing conducted in Division D0, and agreed that the experiments (2012 & 2013) fulfilled the requirements of the rules & procedures for opening new fishing areas. ***SC therefore advises that the Commission consider reviewing the SEAFO Fishing Footprint and include the three new fishing areas as illustrated in Figure 1 below.***

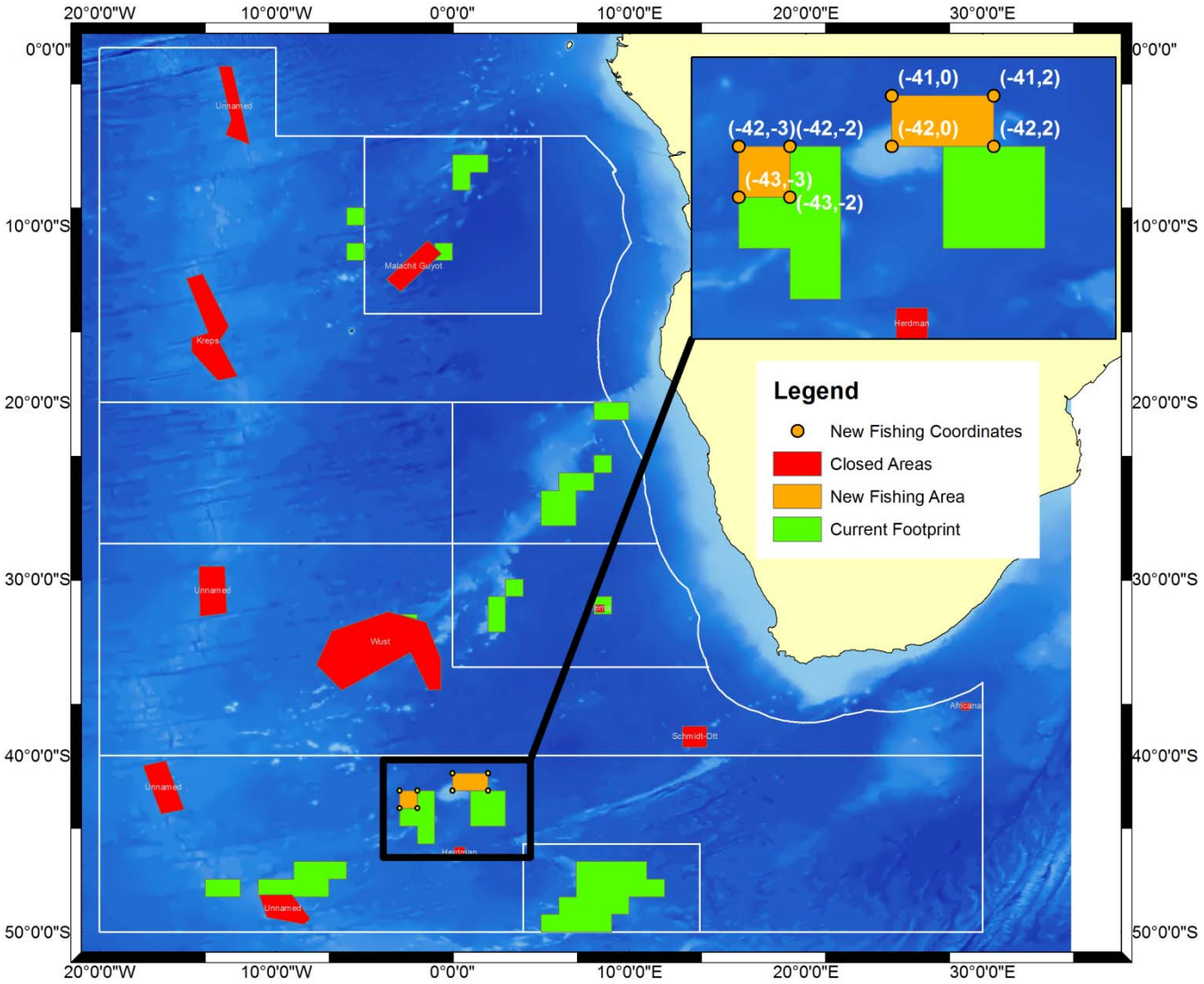

Figure 1: Map of revised SEAFO Fishing Footprint including the new fishing areas.

Japan presented an exploratory fishing proposal for 2014 as continuation to the 2013 survey in Sub-Area D, Discovery Seamount (Appendix IV). Aside from the focus area the experimental strategy (i.e. gear, fishing procedures and target species) are similar to that of the 2013 survey.

SC recommends that Japan proceed with the 2014 exploratory fishing proposal under the set guidelines for exploratory fishing conducted in the SEAFO CA.

10 Draft Status Reports for commercially important species

The working document "*DOC SC 26/2013*" (see Table1) summarize some approaches that can be applied to assess the status of main commercial species exploited in the SEAFO CA. It considers that this

constitutes approaches to assess SEAFO species that, based on the current knowledge of the biology and life-histories of the species found within the SEAFO CA and the limited timeframe of the commercial fishing data series, are considered data limited resources. Some of these methods have already been applied in the past and others such as the CPUE standardization was used during the 2013 meeting.

All reports for the major SEAFO species have been completed and will be distributed as separate documents to the SC report. Status reports are on the following species:

10.1 Patagonian toothfish (*Dissostichus eleginoides*)

SC considered the presentation on the state of the resource and the assessment (see Annex I of the Stock Status Report). SC was divided on the status of the resource and came up with the following views:

Majority View: [1] that the adjustment of the Production model using the data available – i.e. fixing one parameter and the use of an extremely short time series (4 years) with no contrast on the CPUE trend, for a species that has a life span of 50 years and that does not complete the life cycle of the species in the SEAFO CA – was an inaccurate procedure; [2] reiterate the use of a standardized CPUE trend to get a perception of the stock. So based on this there is no scientific basis to change the adopted TAC of 230t for this species. ***It is therefore recommended that the TAC for 2014 is kept at 230 tons.***

Minority View: Setting or assuming some parameters as constant values in stock assessment models have been common practices world widely. The assessment by ASPIC* used for this time, produced the best available scientific result using the best available scientific information at present. The longer time series of CPUE is ideal, but we cannot wait for many years until such data are available. More important task is to attempt the stock assessment using the best available scientific data, which is our fundamental responsibility. Otherwise we cannot conduct assessments and move forwards. ASPIC results likely produced realistic pictures, which suggest that the current and past status of stock has been in the safe zone in the stock trajectory chart (see below).

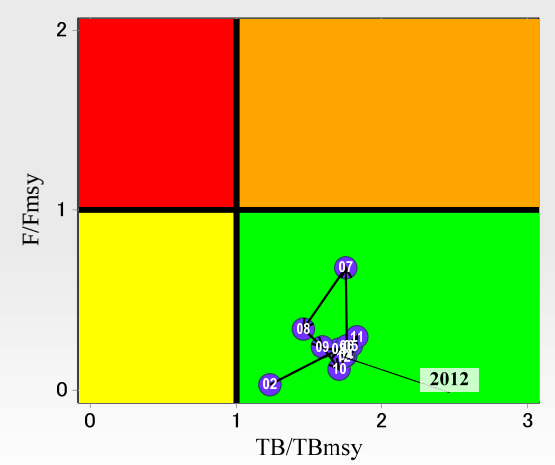

Figure 2: KOBE plot of the trajectory for the Patagonian toothfish management.

This is because, to now, very few fishing vessels have been operating (i.e., there have been very low F: fishing mortality) in the SEAFO CA. ***Thus, it is recommended that the 2014 TAC be set at the MSY level (381 tons) calculated by the model.***

**ASPIC: A Stock-Production Model Incorporating Covariates*

10.2 Alfonsino (*Beryx splendens*)

There was no new data for this species during 2013 and thus no recommendation on the TAC for the SEAFO CA.

10.3 Deep-sea red crab (*Chaceon erytheiae*)

SC recommends the TAC STATUS QUO of 400 tons. However, different views were expressed on the distribution of the TAC into different areas – which is outlined as follows:

Majority View: Based on standardized CPUE, as an indicator of stock abundance, which shows that there was no difference in the CPUE between 2005-2013 (except for 2010 when it was lower) and it is possible that the CPUE has been at low levels (particularly after the huge catch recorded during 2007 for which no effort data are available). It is important to note the marginal change in the standardized CPUE index (Fig. 3), in comparison with the drastic change in catches for the period analysed. Thus, the stock size on Valdivia Bank in Division B1 can only sustain current fishing pressure of not more than 200 tons per year. ***Therefore it is recommended that the STATUS QUO be maintained for 2014 - i.e. 200t in Division B1, and 200t for the remainder of the SEAFO CA.***

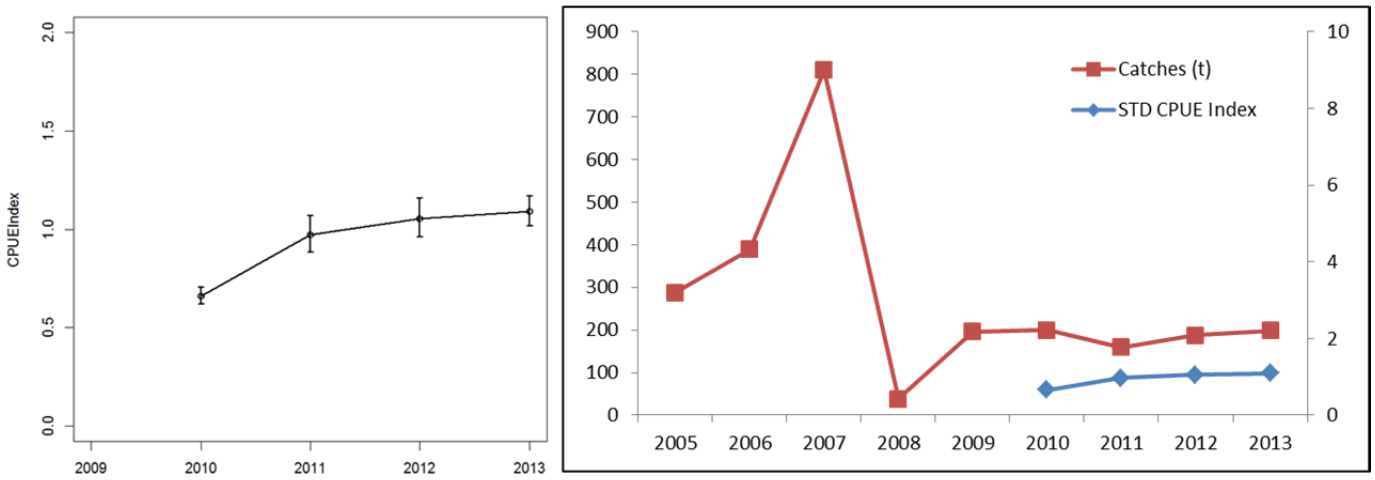

Figure 3: The standardized CPUE for deep-sea red crab (graph on the left) and the annual catches for deep-sea red crab (2005-2013) in relation to the standardized CPUE (graph on the right).

Minority View: Standardized CPUE (kg/pots) suggest an increasing trend (2010-2011), and a stable trend (2011-2013), even though there was the high level of catch (2005-2007) (e.g. 770t in 2007) (see Figure 4 below). Hence, the deep sea red crab stock in Division B1 of the SEAFO CA is likely not detrimental at the current level of the TAC. ***Thus, it is recommended that the deep-sea red crab global TAC (400 tons) for 2014 be allocated as follows: 300 tons in Division B1 ("Footprint"), in order to monitor the sustainable level, and 100 tons for the rest area of Division B1 reserved for the experimental fisheries.***

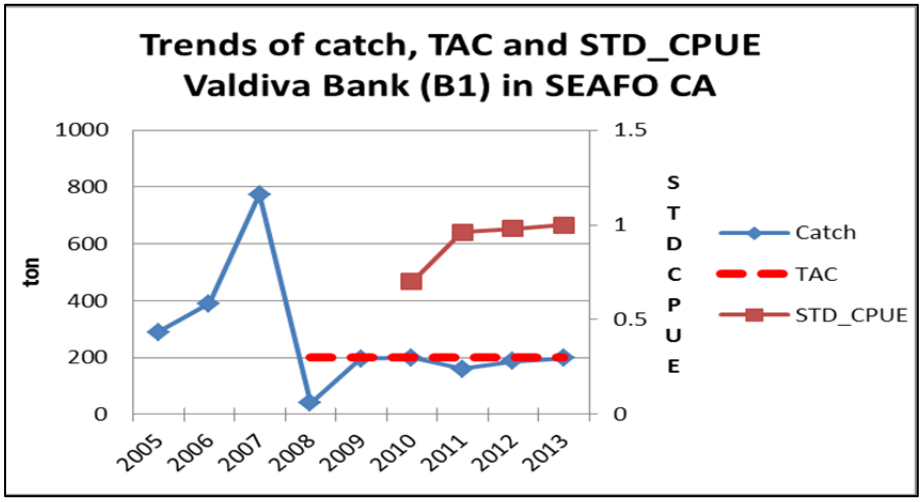

Figure 4: Catch data for deep-sea red crab showing the TAC, Catch and standardized CPUE (2005-2013).

10.4 Orange roughy (*Hoplostethus atlanticus*)

SC noted that there was no reported fishing for Orange roughy in the SEAFO CA during 2012 to August 2013.

10.5 Southern boarfish/pelagic armourhead (Pseudopentaceros richardsoni).

The assessment of this resource is based on highly localized fishery data (confined to a ~200 km^2 area on Valdivia Bank) and there is no information indicating whether this resource occurs anywhere else in the SEAFO CA. The only other place known for the distribution of *P. richardsoni* within the SEAFO CA occurs at a seamount outside Division B1 (i.e. Vema Seamount) which is closed to fishing (Albellán pers. comm.).

Majority View: The analyses were done on available catch & effort data and revealed that the CPUE, as an indicator of stock abundance, has declined sharply from 2010 to 2011 and remained low during 2011 and 2012 (Fig. 5). At the same time, there is a need for the continuation of data collection on this resource for getting a better idea of the stock status. ***For these reasons it is recommended that the 2014 TAC for Armourhead be set at 100 tons in Division B1.***

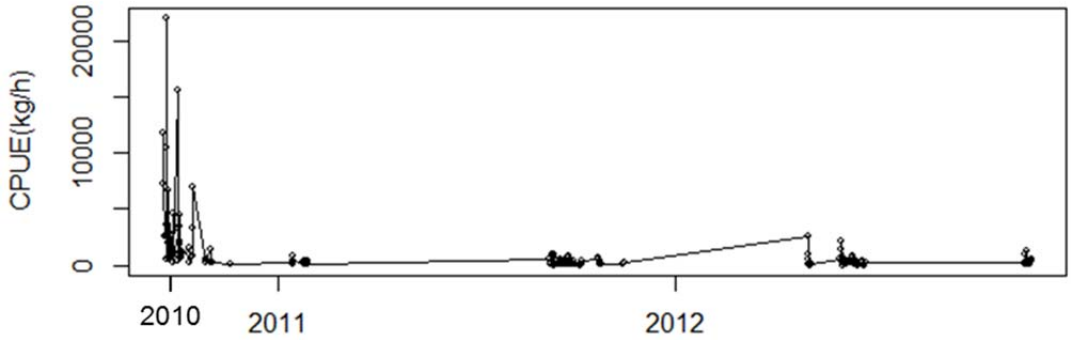

Figure 5: CPUE trend (set-by-set) for Armourhead from 2010 to 2012.

Additional note: the MSY for Armourhead was calculated using the Gulland formula as: MSY = 0.5*B*M = 0.5*851*0.214 = 91 tons. This is comparable to the 100t TAC recommended for Division B1.

Minority View: The minority view maintains the motivation as based on the results of the 2012 assessment which states that:-

- The average length for 2010-2011 September decreased (44.3 to 44.1 cm) and the median remained constant at 41.0 cm;
- The estimated biomass (by Local depletion model) at the beginning of the fishing season for 2010-2011 decreased (¼ from 2010 to 2011);
- The fishing ground of P. richardsoni by Korean trawls: concentrated at Valdivia Bank (aggregate at the adulthood); and
- The level of exploitation over the stock was considered high.

The analyses were done on available catch & effort data and revealed that the CPUE, as an indicator of stock abundance, has declined sharply from 2010 to 2011 (**1577 to 212 kg/hour**) but remained fairly stable at a low level during 2011 and 2012 (**212 to 242 kg/hour**) (Fig. 5).

Considering TAC

1. B_{MSY} was estimated as: $B_{MSY} = 0.5*B = 0.5*851 = 425$ t (375-548).

Table 14: Summary statistics of the biomass (tons) at the beginning of the fishing season derived from 2000 bootstrap re-sampling estimates.

Year	25 Percentile	Estimate	75 Percentile
2010	751	851	1096
2011	137	176	229

The model to estimate virgin biomass (B_o) used CPUE (haul-by-haul) and catch only without considering biological characteristics.

- The estimated biomass has many uncertainties because of unfitted assumptions for the population and lack of data for stock assessments.
- The estimated biomass through the process of the used model just reflected the catches.
- The estimated value is too small to use as the base value for calculating TAC.
- To get more reasonable results it is required to collect more data for a few years.

2. Need to consider catch and CPUE trend
   - Mean catch for 2010-2011: (918+132)/2=525 t

3. Mean value between 425 (B_{MSY}) and 525 t (Mean catch): 475 t

For Minority View it is recommended that the 2014 TAC for Armourhead be set at 450t for Division B1.

10.6 Helicolenus spp.

The SC has noted that samples for genetic studies on the *Helicolenus* spp. are required to fully determine which species is found within the SEAFO CA, and has requested CPs to collect samples and photographs from commercial catches and forward those to the Secretariat.

11 Review research activity in the SEAFO CA (Sep 2011-Aug 2013)

Geological Survey:- The Executive Secretary reported that contact was made with Prof. Anthony Koppers (Associate Professor in Marine Geology, CEOAS, Oregon State University) who was the chief scientist on the Walvis Ridge Survey in March 2012. This expedition dredged 40 seamounts along the southwest

portion of the Walvis Ridge. The Walvis Ridge begins on the African continent and extends to near the mid-Atlantic Ridge. The southwest half of the Walvis Ridge appears to bifurcate into two distinct physical and geochemical trends, the Tristan (northern) and Gough (southern) tracks. The data we collect will assist in improving Absolute Plate Motion models for the African continent, and knowledge of the geochemical evolution of plumes and the regional tectonic setting of the surrounding area. SC instructed the Secretariat to draft a formal request to Dr. Koppers for the provision of results from the geological survey.

12 Review landings, spatial and temporal distribution of fishing activity and biological data on by-catch species.

SC agreed that as of 2014 to assess bycatch species in terms of TAC-specific fisheries. Only bycatch species above **10%** of the total catch (over the last three years) will be further assessed in terms of the spatial and temporal distribution and biological parameters. SC agreed to categorize catch records into two categories: [1] Retained and discarded TAC species; and [2] Retained and Discarded bycatch.

Tables 15-19 report catch statistics of the Retained & Discarded TAC species. Tables 20-30 report catch statistics of the Retained & Discarded Bycatch species.

Retained & Discarded TAC species

Table 15: Catches (tons) of Patagonian toothfish (*Dissostichus eleginoides*) by South Africa, Spain, Japan and Korea.

Nation	Spain		Japan				Korea				South Africa			
Fishing method	Longlines		Longlines				Longlines				Longlines			
Management Area	D0		D0		D1		D0		D1		D0		D1	
Catch details (t)	Retained	Discarded	Retained	Discarded	Retained	Discarded	Retained	Discarded	Retained	Discarded	Retained	Discarded	Retained	Discarded
2002	18													
2003	101		47				245							
2004	6		124											
2005	N/F	N/F	158				10							
2006	11		155											
2007	N/F		166											
2008	N/F	N/F	122	0	N/F	N/F	76							
2009	N/F	N/F	86	0	74	0	16	0	46	0	N/F	N/F	N/F	N/F
2010	26	0	N/F	N/F	54	2	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F
2011	N/F	N/F	159	6	N/F	N/F	N/F	N/F	N/F	N/F	15	0	28	0
2012	N/F	N/F	86	3	N/F	N/F	N/F	N/F	N/F	N/F	24	0	12	0
2013*	N/F	N/F	36	1	4	<1	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F

N/F = No Fishing. Blank fields = No data available. *Provisional (Aug 2013).

Table 16: Catches (tons) of orange roughy (*Hoplostethus atlanticus*) made by Namibia, Norway and Republic of South Africa.

Nation	Namibia		Norway		South Africa	
Fishing method	Bottom trawl		Bottom trawl		Bottom trawl	
Management Area	B1		A1		B1	
Catch details (t)	Retained	Discarded	Retained	Discarded	Retained	Discarded
1995	40		N/F			
1996	8		N/F			
1997	5		22		27#**	
1998	N/F	N/F	12			
1999	<1		N/F	N/F		
2000	75		0			
2001	94		N/F	N/F		
2002	9		N/F	N/F		
2003	27		N/F	N/F		
2004	15		N/F	N/F		
2005	18		N/F	N/F		
2006	N/F	N/F	N/F	N/F		
2007	N/F	N/F	N/F	N/F	N/F	N/F
2008	N/F	N/F	N/F	N/F	N/F	N/F
2009	N/F	N/F	N/F	N/F	N/F	N/F
2010	N/F	N/F	N/F	N/F	N/F	N/F
2011	N/F	N/F	N/F	N/F	N/F	N/F
2012	N/F	N/F	N/F	N/F	N/F	N/F
2013*	N/F	N/F	N/F	N/F	N/F	N/F

N/F = No Fishing. Blank fields = No data available.
* Provisional (Aug 2013)
** Sum of Catches from 1993 to 1997.
# Values taken from the Japp (1999).

Table 17a: Catches (tons) of Alfonsino (*Beryx spp*.) made by various countries.

Flag State	Namibia		Norway		Russia		Portugal		Ukraine		Korea	
Fishing method	Bottom trawl		Bottom trawl		Bottom trawl		Bottom trawl		UNK		Mid-water trawl	
Management Area	B1		A1		UNK		UNK		UNK		B1	
Catch details (t)	Retained	Discarded	Retained	Discarded	Retained	Discarded	Retained	Discarded	Retained	Discarded	Retained	Discarded
1976					252#							
1977					2972#							
1978					125#							
1993									172§			
1994												
1995	1#		N/F	N/F								
1996	368#		N/F	N/F					747§			
1997	208#		836		2800#				392§			
1998	N/F	N/F	1066		69§							
1999	1		N/F	N/F			3§					
2000	<1		242				1§					
2001	1		N/F	N/F			7§					
2002	0		N/F	N/F			1§					
2003	0		N/F	N/F			5§					
2004	6		N/F	N/F	210							
2005	1		N/F	N/F	54							
2006	N/F	N/F	N/F	N/F	N/F	N/F	<1					
2007	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F
2008	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F
2009	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F
2010	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	159	0
2011	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	165	0
2012	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	172	0
2013*	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F

* Provisional (Aug 2013)
N/F = No Fishing. Blank fields = No data available.
UNK = Unknown. # = Values taken from the Japp (1999).
§ = Values from FAO Two species targeted, however, *Beryx splendens* constitutes majority of the catch total.

Table 17b: Catches (tons) of Alfonsino (*Beryx spp*.) made by various countries.

Nation	Spain		Poland		Cook Island		Mauritius		Cyprus		South Africa	
Fishing method	Mid-water trawl and Longlines		UNK		Bottom trawl		Bottom trawl		Bottom trawl		Bottom trawl	
Management Area	UNK		UNK		UNK		UNK		UNK		B1	
Catch details (t)	Retained	Discarded	Retained	Discarded	Retained	Discarded	Retained	Discarded	Retained	Discarded	Retained	Discarded
1976												
1977												
1978												
1993												
1994												
1995			1964§								60#	
1996											109#	
1997	186§										124#	
1998	402§											
1999												
2000												
2001	2											
2002												
2003	2											
2004	4				142		115		437			
2005	72											
2006	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F
2007	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F
2008	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F
2009	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F
2010	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F
2011	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F
2012	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F
2013*	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F

* Provisional (Aug 2013)
N/F = No Fishing. Blank fields = No data available. UNK = Unknown.
= Values taken from the Japp (1999).
§ = Values from FAO
Two species targeted: Beryx splendens represents majority of catch.

Table 18: Catches (tons) of deep-sea red crab (*Chaceon spp*., considered to be mostly *Chaceon erytheiae*).

Nation	Japan		Namibia		Spain		Portugal	
Fishing method	Pots		Pots		Pots		Pots	
Management Area	B1		B1		UNK		A	
Catch details (t)	Retained	Discarded	Retained	Discarded	Retained	Discarded	Retained	Discarded
2001					<1			
2002								
2003					5			
2004					24			
2005	253	0	54					
2006	389							
2007	770		3	0			35	
2008	39							
2009	196		N/F	N/F	N/F	N/F	N/F	N/F
2010	200	0			N/F			
2011	N/F	N/F	175	0	N/F	N/F	N/F	N/F
2012	N/F	N/F	187	0	N/F	N/F	N/F	N/F
2013*	N/F	N/F	198[#]	0	N/F	N/F	N/F	N/F

* Provisional (Aug 2013)
[#] 5-Day Reports (Aug 2013)
N/F = No Fishing.
Blank fields = No data available.
UNK = Unknown.

Table 19a: Catches (tons) of pelagic armourhead (*Pseudopentaceros richardsoni*).

Nation	Namibia		Russia		Ukraine		South Africa	
Fishing method	Bottom trawl		Bottom trawl		Bottom trawl		Bottom trawl	
Management Area	B1		B1		UNK		B1	
Catch details (t)	Retained	Discarded	Retained	Discarded	Retained	Discarded	Retained	Discarded
1976			108					
1977			1273					
1978			53					
1993			1000		435[§]			
1994								
1995	8				49		530	
1996	284				281		201	
1997	559				18		12	
1998	N/F							
1999	N/F							
2000	20							
2001	N/F							
2002	N/F							
2003	4							
2004								
2005								
2006								

2007								
2008								
2009	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F
2010	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F
2011	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F
2012	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F
2013*	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F

* = Provisional (Aug 2013)
N/F = No Fishing.
Blank fields = No Data Available.
UNK = Unknown.
§ = Values from FAO

Table 19b: Catches (tons) of pelagic armourhead (*Pseudopentaceros richardsoni*).

Nation	Spain		Cyprus		Korea	
Fishing method	Bottom trawl and Longline		Bottom trawl		Mid-water trawl	
Management Area	B1		UNK		B1	
Catch details (t)	Retained	Discarded	Retained	Discarded	Retained	Discarded
1976						
1977						
1978						
1993						
1994						
1995						
1996						
1997						
1998						
1999						
2000						
2001	<1					
2002						
2003	3					
2004	3		22			
2005						
2006						
2007						
2008						
2009	N/F	N/F	N/F	N/F	N/F	N/F
2010	N/F	N/F	N/F	N/F	688	0
2011	N/F	N/F	N/F	N/F	135	0
2012	N/F	N/F	N/F	N/F	152	<1
2013*	N/F	N/F	N/F	N/F	N/F	N/F

* = Provisional (Aug 2013)
N/F = No Fishing.
Blank fields = No Data Available.
UNK = Unknown.
§ = Values from FAO

Retained & Discarded Bycatch species

Table 20: Catches (tons) of oreo dories (*Allocyttus verucossus*, *Neocyttus rhombiodalis*, *Allocyttus guineensis*). Smooth oreo dories- *Pseudocyttus maculatus*.

Nation	Russia		Cyprus		Mauritius		Namibia	
Fishing method	UNK		UNK		UNK		Bottom trawl	
Management Area	UNK		UNK		UNK		UNK	
Catch details (t)	Retained	Discarded	Retained	Discarded	Retained	Discarded	Retained	Discarded
1995							<1	
1996							0	
1997							35	
1998							N/F	N/F
1999							3	
2000							33	
2001							14	
2002							1	
2003							1	
2004	<1		21		25		0	
2005							4	
2006								
2007								
2008								
2009								
2010	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0
2013*	0	0	0	0	0	0	0	0

* Provisional (Aug 2013)
N/F = No Fishing. Blank fields = No data available. UNK = Unknown.

Table 21: Catches (tons) of Wreckfish (*Polyprion americanus*).

Nation	Portugal	
Fishing method	Longlines	
Management Area	A	
Catch details (t)	Retained	Discarded
2004	1	
2005		
2006	6	
2007	9	
2008		
2009	0	0
2010	0	0
2011	0	0
2012	0	0
2013*	0	0

* Provisional (Aug 2013)
N/F = No Fishing. Blank fields = No data available. UNK = Unknown.

Table 22: Catches (tons) of Blackbelly rosefish (*Helicolenus* spp.).

Nation	Korea	
Fishing method	Mid-water trawl	
Management Area	A, B1, C	
Catch details (t)	Retained	Discarded
2010	161	0
2011	47	0
2012	44	0
2013*	0	0

* Provisional (Aug 2013)

Table 23: Catches (tons) of Imperial Blackfish (*Schedophilus ovalis*).

Nation	Korea	
Fishing method	Mid-water trawl	
Management Area	A, B1, C	
Catch details (t)	Retained	Discarded
2010	24	0
2011	35	0
2012	24	0
2013*	0	0

* Provisional (Aug 2013)

Table 24: Catches (tons) of Silver Scabbardfish (*Lepidotus caudatus*).

Nation	Korea	
Fishing method	Mid-water trawl	
Management Area	A, B1, C	
Catch details (t)	Retained	Discarded
2010	30	0
2011	15	0
2012	<1	0
2013*	0	0

* Provisional (Aug 2013)

Table 25: Catches (tons) of Mackerel (*Scomber japonicus*).

Nation	Korea	
Fishing method	Mid-water trawl	
Management Area	A, B1, C	
Catch details (t)	Retained	Discarded
2010	50	0
2011	0	0
2012	0	0
2013*	0	0

* Provisional (Aug 2013)

Table 26: Catches (tons) of Cape Horse Mackerel (*Trachurus capensis*).

Nation	Korea	
Fishing method	Mid-water trawl	
Management Area	A, B1, C	
Catch details (t)	Retained	Discarded
2010	1.3	0
2011	0	0
2012	0	0
2013*	0	0

* Provisional (Aug 2013)

Table 27: Catches (tons) of Cape Bonnetmouth (*Emmelichthys nitidus*).

Nation	Korea	
Fishing method	Mid-water trawl	
Management Area	B1	
Catch details (t)	Retained	Discarded
2010	11.4	0
2011	1.7	0
2012	<1	0
2013*	0	0

* Provisional (Aug 2013)

Table 28: Catches (tons) of Oilfish (*Ruvettus pretiosus*).

Nation	Korea	
Fishing method	Mid-water trawl	
Management Area	B1	
Catch details (t)	Retained	Discarded
2010	5	0
2011	13	0
2012	7	<1
2013*	0	0

* Provisional (Aug 2013)

Table 29: Catches (tons) Gemfish (*Roudi escolar, Promethichthys prometheus*).

Nation	Korea	
Fishing method	Mid-water trawl	
Management Area	B1	
Catch details (t)	Retained	Discarded
2010	0	0
2011	0	0
2012	0.02	0
2013*	0	0

* Provisional (Aug 2013)

Table 30: Catches (tons) of Longspine bellowfish (*Notopogon xenosoma*).

Nation	Korea	
Fishing method	Mid-water trawl	
Management Area	B1	
Catch details (t)	Retained	Discarded
2010	0	0
2011	0	0
2012	0	0.36
2013*	0	0

* Provisional (Aug 2013)

Table 31: Catches (tons) of Grenadiers nei (*Macrourus* spp.).

Nation	Spain				Japan				Korea		South Africa			
Fishing method	Longlines				Longlines				Longlines		Longlines			
Management Area	D0		D1		D0		D1		D0		D0		D1	
Catch details (t)	Retained	Discarded	Retained	Discarded	Retained	Discarded	Retained	Discarded	Retained	Discarded	Retained	Discarded	Retained	Discarded
2009	N/F	N/F	N/F	N/F	0	0	0	5.8	0	0.09	N/F	N/F	N/F	N/F
2010	4	0.09	1.9	0	0	0	0	2.6	N/F	N/F	N/F	N/F	N/F	N/F
2011	N/F	N/F	N/F	N/F	0	22.4	0	0	N/F	N/F	0	0	0	0
2012	N/F	N/F	N/F	N/F	0	20.9	0	0	N/F	N/F	0	2.8	0	0.2
2013*	N/F	N/F	N/F	N/F	0	5.7	0	0.6	N/F	N/F	N/F	N/F	N/F	N/F

* Provisional (Aug 2013)

Table 32: Catches (tons) of Blue antimora (*Antimora rostrata*).

Nation	Spain				Japan				Korea				South Africa			
Fishing method	Longlines				Longlines				Longlines				Longlines			
Management Area	D0		D1		D0		D1		D0		D1		D0		D1	
Catch details (t)	Retained	Discarded	Retained	Discarded	Retained	Discarded	Retained	Discarded	Retained	Discarded	Retained	Discarded	Retained	Discarded	Retained	Discarded
2009	N/F	N/F	N/F	N/F	0	0	0	4.6	0	0.1	0	0.2	N/F	N/F	N/F	N/F
2010	0	0.45	0	0.34	0	0	0	1	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F
2011	N/F	N/F	N/F	N/F	0	4.8	0	0	N/F	N/F	N/F	N/F	0	0	0	0
2012	N/F	N/F	N/F	N/F	0	4.3	0	0	N/F	N/F	N/F	N/F	0	0.16	0	0.07
2013*	N/F	N/F	N/F	N/F	0	0.5	0	0.3	N/F	N/F	N/F	N/F	N/F	N/F	N/F	N/F

* Provisional (Aug 2013)

13 Review the spatial distribution of reported catches of benthic organisms (coral, sponges etc.).

SC reviewed information contained in the NAFO list and CCAMLR guide on VME indicator species and compiled a provisional VME list for the SEAFO CA (Table 33).

Table 33: Provisional list of benthic invertebrate VME indicator species/groups for the SEAFO CA.

Group / Species code	Phylum / Order / Family	Common name
PFR	Porifera	Sponges
GGW	Gorgonacea (Order)	Gorgonian corals
AZN	Anthoathecatae (Family)	Hydrocorals
CSS	Scleractinia (Order)	Stony corals
AQZ	Anthipatharia (Order)	Black corals
ZOT	Zoantharia (Order)	Zoanthids
AJZ	Alcyonacea (Order)	Soft corals
NTW	Pennatulacea (Order)	Sea pens
BZN	Bryozoa	Erect bryozoans
CWD	Crinoidea (Class)	Sea lilies
OWP	Ophiuroidea (Class)	Basket stars
SZS	Serpulidae (Family)	Annelida
SSX	Ascidiacea (Class)	Sea squirts

Available data for bycatches of live corals and sponges are presented in Tables 34-36.

Table 34: Catches (kg) of Gorgonians (VME indicators).

Nation	Japan	Spain
Management Area	D	D
Fishing method	LLS	LLS
Catch details	Bycatch (kg)	Bycatch (kg)
2010	0	47.9
2011	3.8	N/F
2012	30.3	N/F
2013*	1.1	N/F

***** Provisional (Aug 2013)
N/F = No Fishing. Blank fields = No data available.

Table 35: Catches (kg) of Black corals and thorny corals (VME indicators).

Nation	Japan	Spain
Management Area	D	D
Fishing method	LLS	LLS
Catch details	Bycatch (kg)	Bycatch (kg)
2010	0	4.36
2011	0	N/F
2012	0.02	N/F
2013*	0	N/F

***** Provisional (Aug 2013)
N/F = No Fishing. Blank fields = No data available.

Table 21: Catches (kg) of Scleractinia (VME indicators).

Nation	Japan	Spain
Management Area	D	D
Fishing method	LLS	LLS
Catch details	Bycatch (kg)	Bycatch (kg)
2010	0	2.2
2011	15.4	N/F
2012	17.6	N/F
2013*	0	N/F

***** Provisional (Aug 2013)
N/F = No Fishing. Blank fields = No data available.

Table 36: Catches (kg) of sea pens (VME indicators).

Nation	Japan	Spain
Management Area	D	D
Fishing method	LLS	LLS
Catch details	Bycatch (kg)	Bycatch (kg)
2010	0	1.3
2011	0	N/F
2012	0.02	N/F
2013*	0	N/F

***** Provisional (Aug 2013)
N/F = No Fishing. Blank fields = No data available.

There were no recorded encounters in 2010, 2011, 2012 and 2013 of individual set bycatches exceeding the current VME threshold values (60kg for corals and 800kg for sponges). Set-by-set data for longliners fishing in 2010 showed an overall range of coral and sponge bycatch from 0.06 to 4.2kg (mean: 0.96kg) and 0.002 to 6.8kg (mean: 0.93kg), respectively. Set-by-set data for longliners fishing in 2011 showed an overall range of coral bycatch from 0.005 to 4.5kg (mean: 1.1kg). There has been no sponge bycatches reported in 2011 to date. Very low bycatches have been recorded during 2012 covering a range of 0.02 to 31kg for various VME indicators. The same trend was recorded during 2013 while only 1.1 kg of sponges were recorded to date (see Tables 19-22 for specifics).

The spatial distribution of recorded bycatches of corals and sponges in 2010 to 2013 is shown in Figure 6.

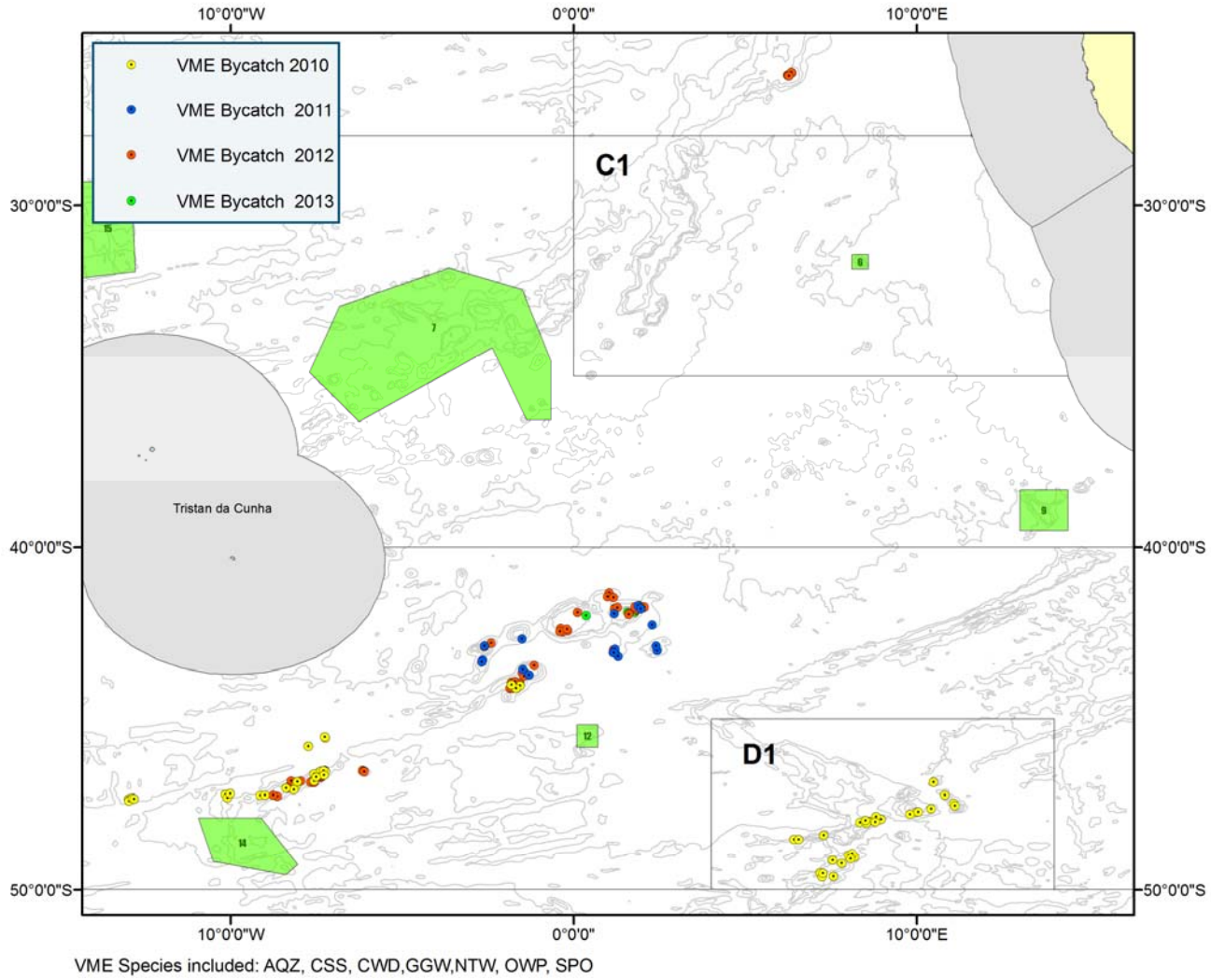

Figure 6: Catch positions of VME indicators (2010-2013 Oct.).

14 Examine, where appropriate, assessments and research done by neighbouring organisations to SEAFO (e.g. BCC and CCAMLR).

SC has noted that the Patagonian toothfish stock is likely shared between SEAFO and CCAMLR. For this reason the SEAFO SC should consider any assessments done on this stock within CCAMLR. However, SC noted that no new assessments were conducted by CCAMLR to date. Furthermore, no assessments of Patagonian toothfish within the BCLME region have been conducted.

The working document "*DOC SC 25/2013*" (see Table 1) was presented which contains websites to which information from the joint Spanish-Namibian research cruises conducted on the Walvis Ridge has been added, and will possibly be updated as new analyses are completed. Two websites are now available; the geo-portal IDEO (spatial data infrastructure of the IEO - *Instituto Español de Oceanografía*), which includes among others the project of Walvis Ridge based on the three multi-disciplinary research cruises (http://www.ideo-namibia.ieo.es/); and the biodiversity dataset available through Eurobis or Emodnet (http://bio.emodnet.eu/portal/index.php?dasid=4076) and the OBIS website in the near future.

A copy of bathymetric data files obtained in these three surveys has been provided to SEAFO Secretariat to be used in internal works of SEAFO scientific bodies but **not for public domain purposes**. The bathymetric data provided to SC is considered an important basis for a better understanding of fishing activities in Valdivia Bank seamount complex and were especially useful for the spatial analyses conducted during the 2013 meeting.

15 Review Total Allowable Catches and related management conditions for Patagonian toothfish, Deep-sea Red Crab and Southern boarfish/Pelagic armourhead for 2014/2015.

Patagonian toothfish (*Dissostichus eleginoides*)

Majority View: It is recommended that the TAC for 2014 be kept at 230 tons for Sub-Area D.

Minority View: It is recommended that the 2014 TAC be set at 381 tons for Sub-Area D.

Deep-sea red crab (*Chaceon erytheiae*)

Majority View: ***It is recommended that the STATUS QUO be maintained for 2014 - i.e. 200 tons in Division B1, and 200 tons for the remainder of the SEAFO CA.***

Minority View: ***It is recommended that the 2014 global TAC (400 tons) be allocated as follows: 300 tons in Division B1 ("Footprint"), in order to monitor the sustainable level, and 100 tons for the rest area of Division B1 reserved for the experimental fisheries.***

Southern boarfish/pelagic armourhead (Pseudopentaceros richardsoni).

Majority View: ***It is recommended that the 2014 TAC for Armourhead be set at 100 tons in Division B1.***

Minority View: ***It is recommended that the 2014 TAC for Armourhead be set at 450t for Division B1.***

Helicolenus spp.

SC notes that, since the Helicolenus species could be caught together with Southern boarfish and Alfonsino, catches (and fishing) of Helicolenus should be closely monitored to avoid increases in discards particularly if a TAC is adopted/set for Southern boarfish. SC recommends that once the TAC for either Southern boarfish or Alfonsino is reached, the mid-water trawl fishery be closed.

16 Review of progress regarding development of an ID guide for fish, crustaceans and incidental by-catch species.

The Secretariat gave an introduction to the SC on the progress of the development of the SEAFO ID guide noting that the project was awarded to Fisheries & Environmental Research Support, a consultancy based

in the UK. A representative from the Consultancy, Mr Dave Boyer, then presented a more detailed overview of the progress on the ID guide and started by noting that specialists from FAO are participating in the project to ensure quality, consistency and to give prestige to the project while at the same time giving the project access to FAO diagrams without concerns for copyright issues. Mr. Boyer further noted that FAO requires that all species included in the SEAFO ID guide be scientifically validated to avoid future misidentification. He then noted that a lack of access to scientific reports of surveys conducted in the SEAFO CA has hampered the process of scientific validation, and noted that to date only 20 species have been validated (mostly from commercial catch data recorded for the SEAFO CA). Boyer did, nevertheless, acknowledge that the Secretariat is in the process of collating all relevant scientific reports from applicable sources (e.g. Flag States, BCC, Nansen Program etc.) for the use as informational inputs into the ID guide.

Table 37: Work plan for the production of the SEAFO Species Guide agreed upon by SC and the Consultant.

Outline of actions to be taken	**Timeframe**
⇨ SC to approve layout of Species Guide	Sep 2013
⇨ 1st batch of species identification completed (approx. 20 species)	**Oct 2013**
⇨ SC to provide research reports to Consultant	Oct 2013
⇨ 2nd batch of species identification completed (approx. 20 species)	Dec 2013
⇨ Observer samples identified – 1st batch of samples	**Dec 2013**
⇨ 3rd batch of species identification completed (approx. 20 species)	**Feb 2013**
⇨ 4th (final) batch of species identification completed (approx. 20 species)	Apr 2013
⇨ Rounding off of guide (Introduction, index, references etc. completed)	May 2013
⇨ Printing and delivery of Species Guide	Jul 2013

NB: [1] If any of the above highlighted deadlines are not met it will have a cascading effect in terms of subsequent deadlines set for species inclusion into the Guide and thus may affect the final delivery date of the Species Guide.
[2] The Consultant relies on FAO for validating species included in the Guide as well as the final checking of the Guide.

A template of the SEAFO ID guide was considered and the SC deliberated on the proposed template of the ID guide. SC noted that it would be useful to have information on the global distribution of species found within the SEAFO CA in the ID guide. SC recommended to the Consultant that more species should be added to the "Similar species" and "See also" sections. The SC also noted that only the maximum length should be included in the guide as mean length varies tempo-geographically and thus is not a very useful attribute when it comes to species identification. Furthermore, SC recommended that all common names for the species be included under/after the FAO ASFIS (Aquatic Sciences and Fisheries Information System) English common name, and that the FAO ASFIS English common name be the standard for all SEAFO species. The SC, with input from the Consultant, agreed on a work plan (Table 37) for the period leading up to final printing of the ID guides and noted that there are some important deadlines (indicated in **BOLD**) that need to be adhered to in order for the project to stay on-track. The Executive Secretary then concluded the agenda point by informing the SC that the project is still within the budget limits approved by the Commission during 2012.

17 Review progress made on Korean Observer workshop.

The Executive Secretary informed SC that the Secretariat has received a brief report on the Seabird workshop conducted by BirdLife International (South Africa) in Korea during 2013. A total of 25 scientists and fisheries observers participated in the workshop covering aspects ranging from how to assess the risks to seabirds in trawl fisheries, the best practise solutions available to mitigate mortality, safe handling of seabirds, seabird identification and the collection of important data while out at sea. "The workshop was a

success – the first of its kind where an NGO worked with the Asian distant water fleets – which promises to be the start of a long-lasting relationship between BirdLife and Korean fisheries."

SC noted that a follow-up meeting in this aspect will be conducted during December 2013 in Busan, Korea, focussing on the Asian pelagic tuna longline fisheries.

SC further noted that since this was conducted successfully in Korea, the possibility of training Namibian observers. The Executive Secretary informed the SC that SEAFO has a fund to assist developing countries in implementing the Convention through measures such as observer training etc. The Secretariat has been in contact with CapFish (South Africa), an internationally accredited company that has previously trained observers for CCAMLR and Namibia in RFMO-related fields. ***SC therefore recommends that the Commission allow the Secretariat to contract Capfish for the training of the Namibian observers.***

18 Review progress regarding development of a SEAFO series of Working Documents and the numbering thereof.

The Executive Secretary gave feedback to SC on the progress of developing the SEAFO working document series and gave an overview of the genesis of the numbering scheme for referencing SEAFO documents internally (i.e. within the SC and Commission spheres) as well as publically. SC noted that a numbering format is already in effect (adopted in 2010) and that this format shall be strictly adhered to. SC then agreed that working documents shall be forwarded to the Secretariat to ensure the numbering and structure/format of documents are adhered to at all times.

SC agreed that for purposes of releasing SC working documents publically a smaller SC group (i.e. Chair, Vice-chair and one member from each CP) will review working documents and qualify them as research & summary papers (i.e. all documents other than scientific research papers).

19 Discuss the [1] Report of the South-Eastern Atlantic regional workshop to facilitate the description of ecologically or biologically significant marine areas and [2] the report of the FAO Regional Workshop on Vulnerable Marine Ecosystem (VMEs) in the SA Atlantic Ocean and the implications for SEAFO.

The CBD EBSA and FAO VME workshops were held in Swakopmund during April 2013. SEAFO co-organized both these workshops. Due to the fact that proceedings from both workshops are still pending the SC does not have access to the data (e.g. shapefiles, reports etc.) to pursue this work item. The indications are that these reports will be approved late 2013 and thus this agenda point will be deferred to the 2014 SC meeting.

20 Invitation for SEAFO to contribute to and participate in an FAO Project: "Demonstration and pilot implementation in ABNJ areas of management and conservation tools for deep-sea fisheries, and conservation and sustainable use of VMEs and EBSAs.

An overview of the FAO Project was given to SC by FAO representative, Ms Jessica Sanders, with emphasis on the various components of the project that have reference to SEAFO SC (Appendix V). SC has again reviewed the scope of the FAO Project and noted that SEAFO will gain through participation in the project. In particular aspects such as the training of observers, species ID guides, spatial mapping etc. are some of the outputs. ***Furthermore SC has taken note that there are no financial implications, other***

than in-kind (e.g. staff time), for SEAFO to participate in the FAO Project, and therefore recommends that the Commission approves the participation of SEAFO in the FAO-ABNJ Project.

21 Feedback by Database Manager on the CWP/FIRMS meetings.

The SEAFO Data Manager presented an overview of CWP (Co-ordinating Working Party of Fisheries Statistics) and noted that the SEAFO Secretariat attended a meeting in Rome during 2013. According the 2007-approved catch reporting requirements the FAO Area 47 (SEAFO CA) was changed to differentiate between the EEZ of adjacent countries and the high-seas (SEAFO CA) areas. It was further noted that although this change in the catch reporting requirement was well-received not all the countries have complied with the submission of data to the CWP. Amongst the identified non-complying countries were listed Angola, Namibia, Portugal and Spain.

Portugal informed SC that they had already tried to assimilate the historical data into the new reporting format but were unable to do this as they had no geographically related data to differentiate the catch data recorded generally as Area 47.

Recommendation: It was also noted that SC needs to conform to the FAO naming convention when reporting on SEAFO areas ensuring that the whole SEAFO CA is referenced as AREA 47; Sub-areas (A, B, C & D); and Divisions (A0, A1, A2, B0, B1, C0, C1, D0, D1).

22 Review specific rules and guidelines for biological data sampling (e.g. maturity, sample size, weight and length frequency).

SC noted that for proper stock assessment to be conducted detailed biological data (i.e. maturity, sample size, weight and length frequency) must be obtained from commercial catches. Guidelines on the sample sizes provided here (Table 38) are preliminary and will be reviewed annually as new data are received.

Table 38: Preliminary guidelines for data collection of the main commercial SEAFO species (suggested quantities).

Data required	Patagonian toothfish		Deep-sea red crab		Armourhead & Alfonsino & Orange roughy & Blackbelly rosefish	
	Type	Qty	Type	Qty	Type	Qty
Length	Total length	20 samples/set	Carapace width	100 per set	Fork length	100 samples/species/trawl
Maturity	Gonad stages	20 samples/set	Vulvae stage, Berry	100 samples /set	Gonad stages	10 samples/species/trawl
GSI	Gonad weight	20 samples/set	N/A	N/A	Gonad weight	10 samples/species/trawl
#Length-Weight	Individual weight	20 samples/set	Individual weight	50 samples /set	Individual weight	100 samples/species/trawl
Sex	Male & Female	20 samples/set	Male & Female	100 samples /set	Male & Female	10 samples/species/trawl
Age	Otoliths	5 samples/set	N/A	N/A	Otoliths	5 samples/species/trawl

#Length-weight samples can be a sub-sample of the Length (i.e. length-frequency) sample.

The Database Manager (DM) presented an assessment of scientific observer forms currently used within the SEAFO CA. It was established that observer forms were not being completed by observers in a standardized and consistent manner, thus SC has considered the standardization of the observer data collection and reporting procedures. It was agreed that CCAMLR forms should be used as a basis for developing SEAFO observer forms to maintain some degree of consistency between these two neighbouring RFMOs. Copyright issues were cleared with the CCAMLR Data Manager, Dr. David Ramm, before the CCAMLR forms were adapted to the SEAFO data requirements - to be annually reviewed. SC also discussed the continued collaboration between CCAMLR and SEAFO and the possibilities of devising SMARTFORMS to be used for harmonizing data collection between the two RFMOs. ***SC therefore seeks approval from the Commission to implement the current data collection measures (i.e. new sampling guidelines as well as new observer sampling forms).***

23 Advice and recommendations to the Commission on issues emanating from the meeting.

- ⇨ *Recommendation [AP7]: Mindful of the current data deficiencies within SEAFO, which inhibits adequate stock assessment processes, SC recommends that flag States/CPs forward vessel logbook data (described in the SEAFO System of Observation, Inspection, Compliance and Enforcement [2012], Chapter III, Article 10) to the Secretariat to be used as a means to validate the current landing tables.*

- ⇨ *Recommendation [AP9]: SC recommends that the Commission consider revising the SEAFO Fishing Footprint to include the three new exploratory areas as illustrated in Figure 1.*

- ⇨ *Recommendation [AP9]: SC recommends that Japan proceeds with the exploratory fishing proposal under the set guidelines for exploratory fishing in the SEAFO CA (Appendix IV).*

- ⇨ *Recommendation [AP16]: SC recommends that Contracting Parties instruct observers on fishing vessels operating in the SEAFO CA to take pictures of species that are not included in the upcoming SEAFO ID guide and where possible provide samples of said species to the Secretariat.*

- ⇨ *Recommendation [AP17]: SC recommends that the Commission allow the Secretariat to contract Capfish for the training of observers from developing countries for purposes of collecting data within the SEAFO CA.*

- ⇨ *Recommendation [AP20]: SC recommends that the Commission approves the participation of SEAFO in the FAO-ABNJ Project as there will be no financial implications, other than in-kind contributions (e.g. staff time), for SEAFO.*

- ⇨ *Recommendation [AP21]: SC informs the Commission that SEAFO needs to conform to the FAO naming convention when reporting on SEAFO areas ensuring that the whole SEAFO CA is referenced as AREA 47; Sub-areas (A, B, C & D); and Divisions (A0, A1, A2, B0, B1, C0, C1, D0, D1).*

- ⇨ *Recommendation [AP22]: SC recommends that the Commission approve the implementation of the new scientific observer data collection measures (i.e. new sampling guidelines as well as new observer sampling forms).*

⇨ *Recommendation: With regard to 2014 TACs for various species in the SEAFO CA, SC recommends the following:-*

- *Patagonian toothfish (Dissostichus eleginoides):*

  SC could not reach consensus and thus forwards two views;

  Majority View: TAC of 230 tons for Sub-Area D.

  Minority View: TAC of 381 tons for Sub-Area D.

- *Deep-sea red crab (Chaceon erytheiae):*
  SC recommends a global TAC of 400 tons, but could not reach consensus on the allocation and thus forwards two views;

  Majority View: STATUS QUO - i.e. 200t in Division B1, and 200t for the remainder of the SEAFO CA.

  Minority View: TAC of 300 tons in Division B1 ("Footprint"), and 100 tons Division B1 reserved for the exploratory fishing.

- *Southern boarfish/pelagic armourhead (Pseudopentaceros richardsoni).*
  SC could not reach consensus and thus forwards two views;

  Majority View: TAC of 100 tons for Division B1.

  Minority View: TAC of 450 tons for Division B1.

⇨ *Recommendation [AP15]: SC recommends that once the TAC for either Southern boarfish or Alfonsino is reached, the mid-water trawl fishery should be closed.*

24 Future work program for the SC.

SC endeavours to compliment some of the work done during the 2013 SC meeting inter-sessionally by looking at the following aspects:

⇨ Stock Assessment (Deep-sea red crab – improvement of current work done: e.g. standardization of CPUE incorporating depth, pot.hours, considering the application of other assessment methods such as a local depletion model; and Alfonsino – e.g. quantify and delineate between different species catch by mid-water trawls, clarify depth-related distribution of the various species);
⇨ Training of observers from developing countries on high seas scientific sampling procedures (pending approval from the Commission);
⇨ FAO ABNJ Deep-sea Project (pending approval from the Commission);
⇨ Data inventory to be compiled and forwarded to the Data Manager by Scientific Co-ordinators;
⇨ Data requirements list – required fields for stock assessment to be forwarded to SEAFO Data Manager;
⇨ SC inputs to the Species ID guide.

25 Any other matters.

⇨ *Proposed working arrangements during SC meetings [Sub-groups for stock assessments etc.]*

SC agreed that, before the next SC meeting, the following actions be completed: [1] to standardized stock assessment methods and define input data to used in the stock assessment process; [2] that external consultants be contracted to review the methods; and [3] that SC conduct the assessments for the various commercially important species in small groups using the approaches recommended by the reviewer.

⇨ *Duration of future SC meetings*

SC agreed that future meetings need to be reduced to 10 days maximum, which implies that most of the work done during the SC meetings be completed inter-sessionally and that only critical issues (i.e. discussion of stock assessment results, TAC recommendations etc.) be added to SC meeting agendas.

26 Budget for 2014.

⇨ US$900 [maximum] per day * ten days – Review Consultant[s].

27 Adoption of the report.

The Report was adopted by the 9th SEAFO Scientific Committee meeting.

28 Date and place of the next meeting.

SC noted that normally the date and venue of the SEAFO meetings are set by the Commission, however SC proposes that the next SC meeting takes place in Namibia during 29 September to 10 October 2014.

29 Closure of the meeting.

On Friday 11 October 2013 at 19h48, the Chairperson declared the closure of the meeting after all items had been concluded. In his closing remarks, the Chair expressed his satisfaction for the work accomplished and thanked all participants for their valuable contributions.

30 References

Anon (2012) – The stock assessment workshop for North Pacific Armourhead, Shimizu, Shizuoka, Japan. Workshop Report. March 2012

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Japp D. (1999) – An updated review of the catch statistics in the SEAFO Area was prepared by D.W. Japp, Fisheries & Oceanographic Support Services cc, Cape Town for consideration at the SEAFO Meeting in Cape Town on 27 September 1999. Unpublished.

NAFO WP 2012 – NAFO Working Paper 12/6. 34th Annual Meeting September 2012. 12pp.

SEAFO (2004) – Report of the 1st Annual of the Commission Meeting (http://www.seafo.org/CommAnnualReports.html)

APPENDIX I – List of Participants

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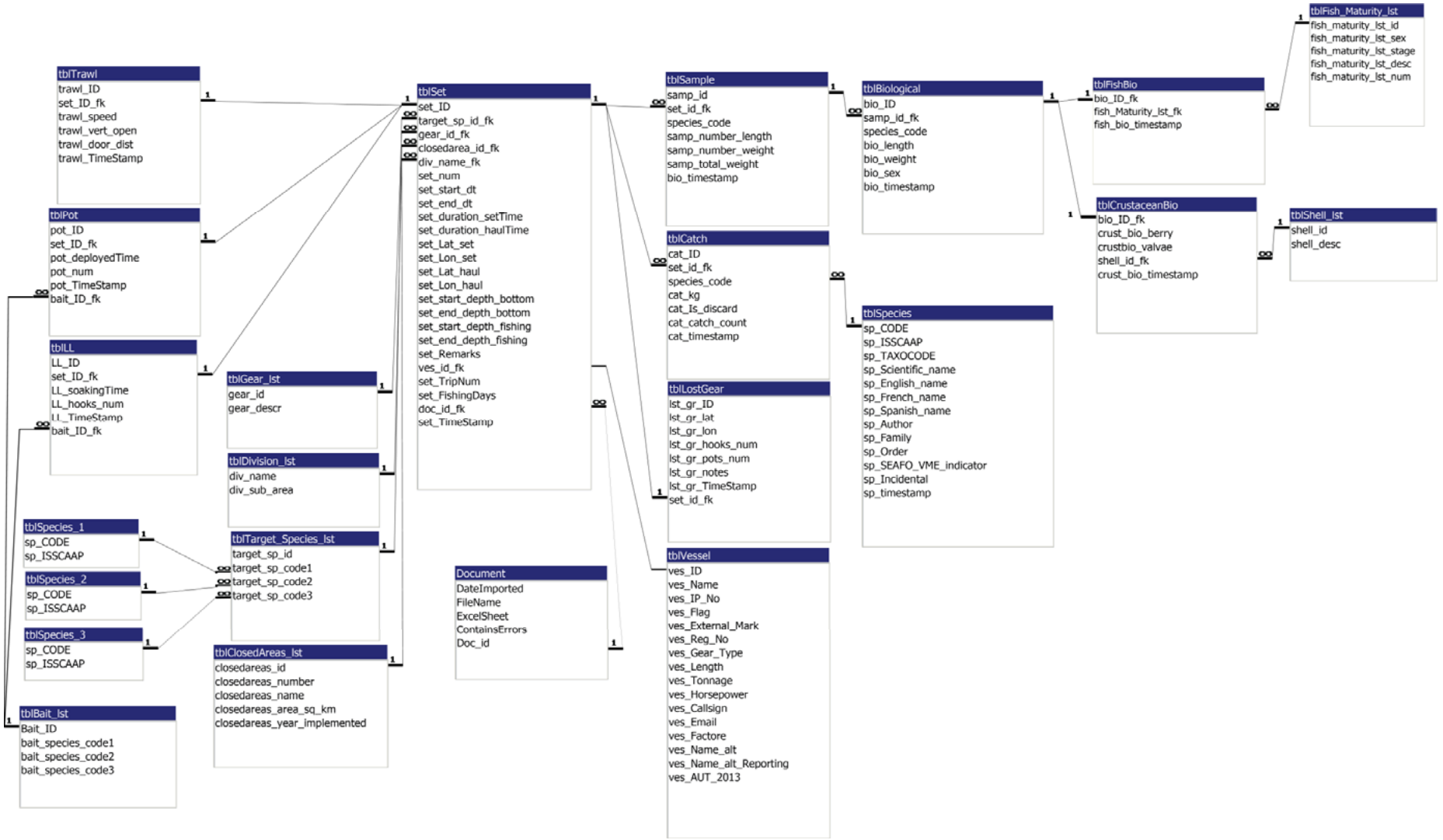
APPENDIX II – Complete structure of the new SEAFO Observer Database



APPENDIX III – 2013 Report on Japanese Exploratory Fishing in Division D0

SEAFO/SC/WP/07/2013

Progress report of the Japanese exploratory fishing by FV Shinsei-maru No. 3 in 2013

National Research Institute of Far Seas Fisheries (NRIFSF)

Fisheries Research Agency (FRA), Japan

October, 2013

Abstract

FV Shinsei maru No. 3 conducted the exploratory bottom fishing in 2 areas of the new fishing ground in the Discovery seamount area of the SEAFO CA (Map 1), i.e., eastern side from August 1-19 and the western side from August 24-September 9, 2013. This report analysed the data up to September 3 as the data from September 4-9 data were not available when the data were analysed. Based on the results of the exploratory fishing data analyses, it was found that (a) there were negligible amounts of VMEs (1.5kg total) less than the threshold values and (b) Patagonian toothfish resources (catch and CPUE) were similar to those in the existence fishing (footprint) areas. The latter (b) implies that habitats of Patagonian toothfish resources in both existing and exploratory fishing areas are likely homogenous nature. In addition, it was recognized again that the bottom longline was the VME safe gear. Thus there are no doubts that VME will not be significantly affected in the exploratory fishing areas and Patagonian toothfish resources will not be also significantly affected, unless otherwise a large fishing pressure occurs.

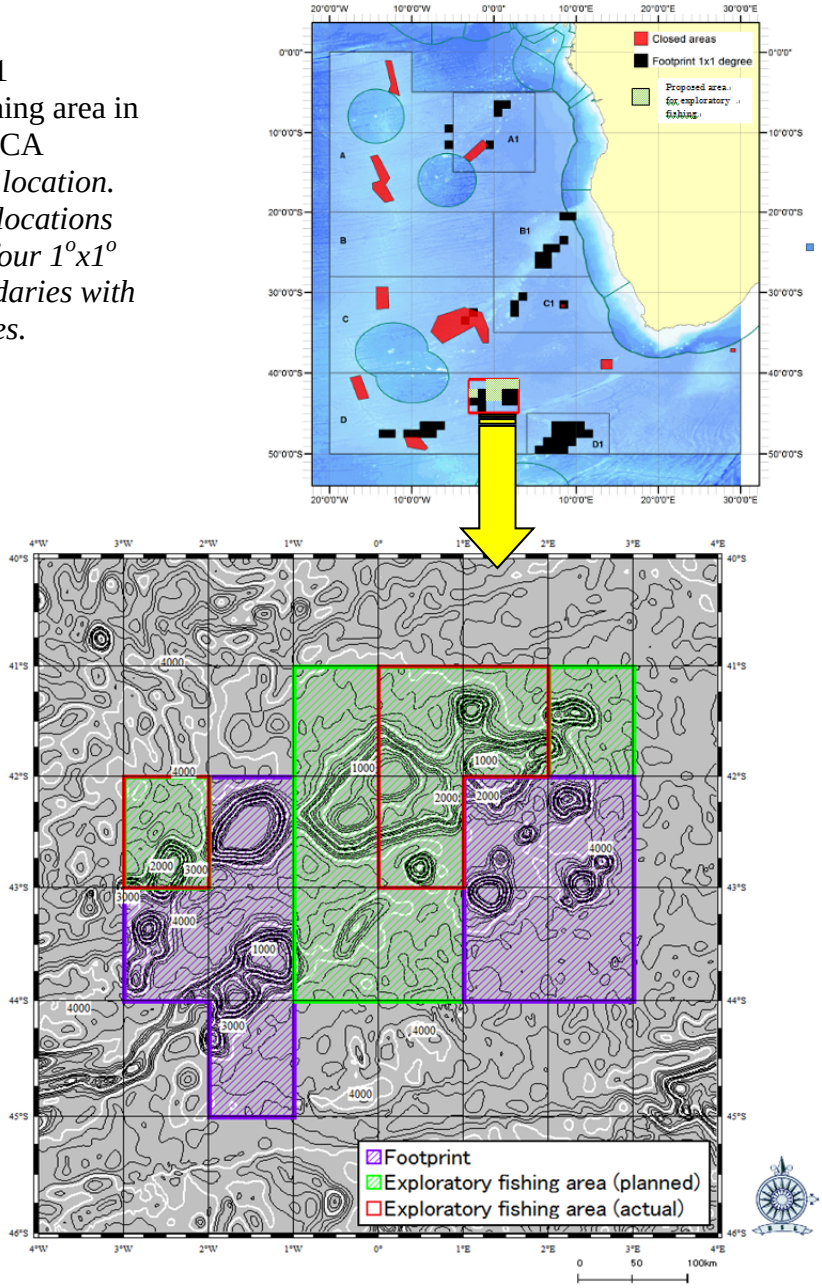
Contents

Submitted to the SEAFO 9th Scientific Committee (Sept. 30-Oct. 11, 2013) (Swakopmund, Namibia)

1. Introduction

FV Shinsei maru No. 3 conducted the exploratory bottom fishing in the new fishing ground in the Discovery seamount area (Map 1). .FV Shinsei maru No. 3 covered two areas, i.e., the eastern side from August 1-19 (50 sets from set no. 33-82 in 19 days) and the western side from August 24-September 9 (37 sets from set no. 89-125 in 16 days). As a result the total of 87 sets in 35 days was investigated. This report analysed the data up to September 3 (75 sets and 28 days) as the data after September 4-9 data were not available at the time when the data were analysed. Thus this report covered 86% (=75sets/87sets) of the data.

Map 1
Exploratory fishing area in SEAFO CA
Above: rough location.
Below: exact locations presented by four $1^o x1^o$ area with boundaries with red lines.



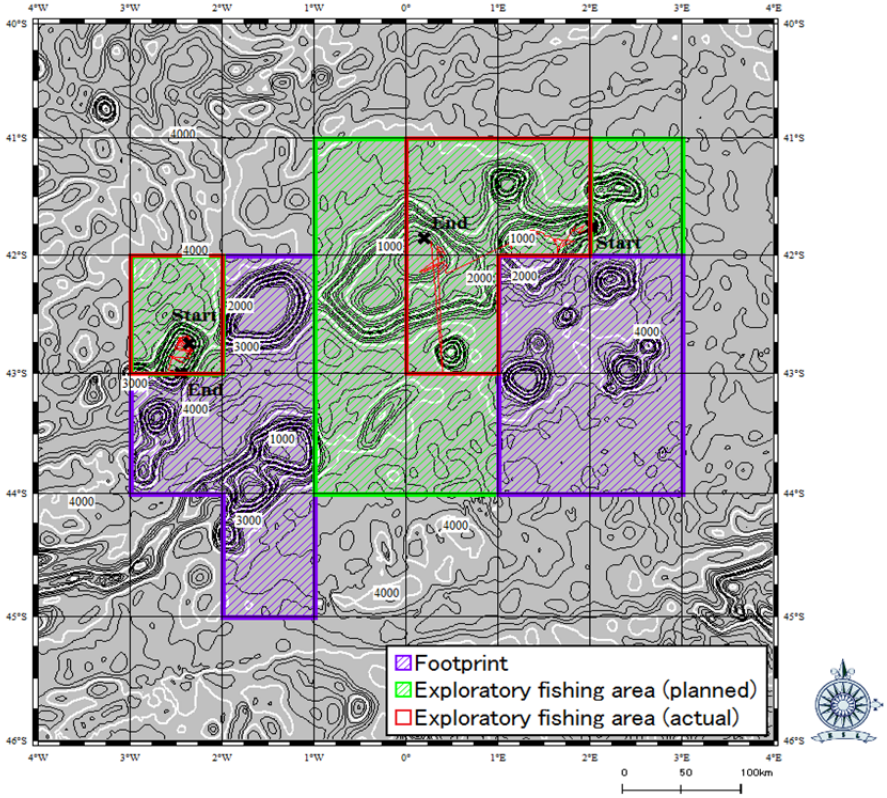
2. Results of the exploratory fishing

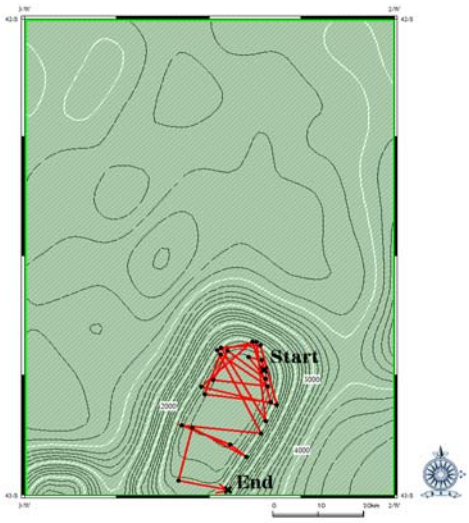
2.1 Track lines

Map. 2
Track lines of the exploratory fishing
Trip 1
(Eastern side)
Trip 2
(Western side)

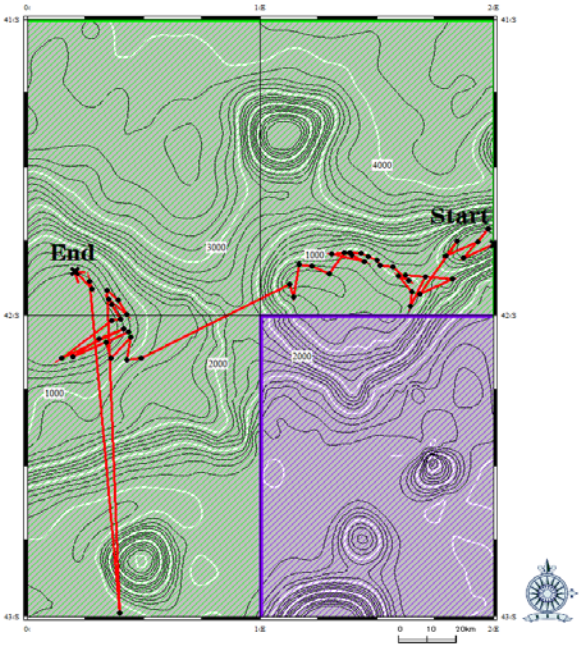
Right
Whole area map

Below
Magnified maps
(Black points represent set locations)





(Western Side)



(Eastern Side)

2.2 Gear and baits (Table 1)

Table 1 Gear and bait specifications

Items	Specification
Type of longline	Trotline (vertical droppers/trots attached to a mainline)
Type of line	Multi filament
Type of bait	Pilchard and Squid
Hooks baited (%)	100%
Length of line (m)	9,000m
Number of hooks used per set	4,020 hooks

2.3 Summary of fishing effort, catch and species compositions

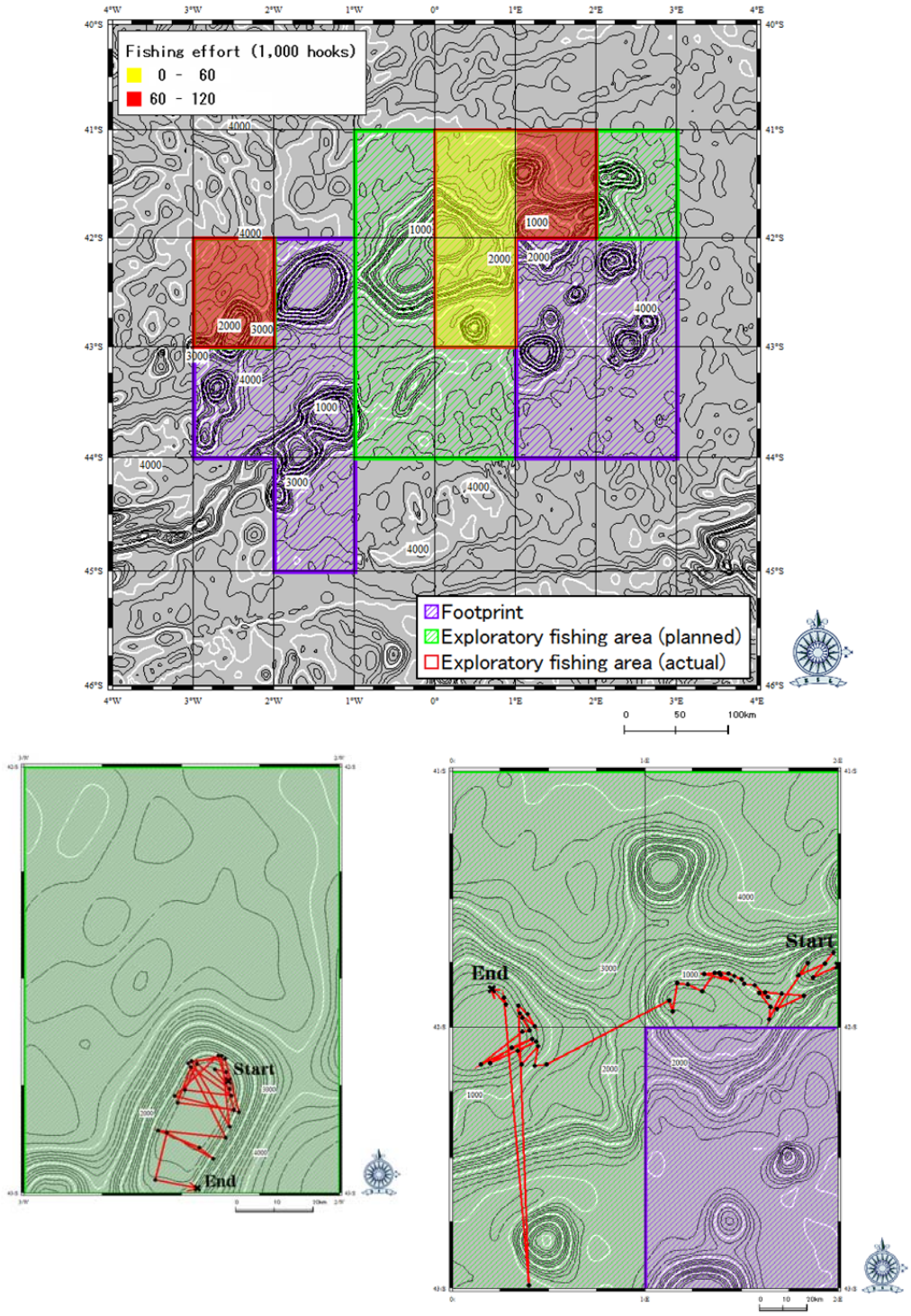
Table 2 shows the summary of fishing effort and catch during the exploratory fishing operations.

Table 2 Summary of total fishing effort and catch in the exploratory fishing operations

Subjects	Items	Figures
Fishing effort	Fishing days	28 days
	Number of total sets	75 operations
	Total number of hooks used	301,500 hooks
	Number of hooks lost	2,720 hooks
Catch (retained)	Patagonian toothfish (TOP)	27.4 tons
	Rattail (GRV)	5.2 tons
	Deep sea cod (ATN)	0.51 tons
	Crab spp. (KCX)	74 kg
	Skates and rays (SRX)	20 kg
Catch (discards)	Patagonian toothfish (TOP)	1,151 kg
	Ratfishes nei (HDY)	17 kg
	Blackbelly lanternshark (ETF)	2.7 kg
	Moray cods (MRL)	0.9 kg
Catch	Crab spp. (KCX)	3 (number of fish)
	Blackbelly lanternshark (ETF)	177 (number of fish)
	Greenland Shark (GSK)	25 (number of fish)
	Skates and rays (SRX)	9 (number of individuals)
VME indicator	Gorgonians (GGW)	1.9 kg (3 locations) (See section 2.4 VME for details)

FISHING EFFORT

Map 3 shows distributions and densities of fishing effort (1,000 hooks) by $1^{o}x1^{o}$ area and also by set in the exploratory fishing.

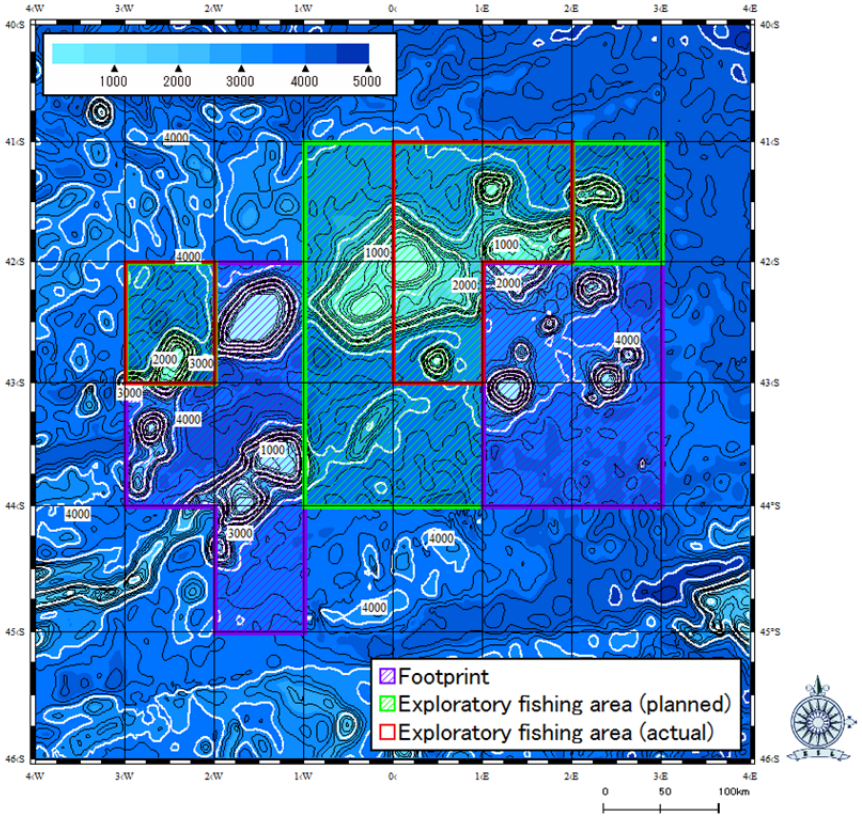


Map 2 Distribution and density of fishing efforts

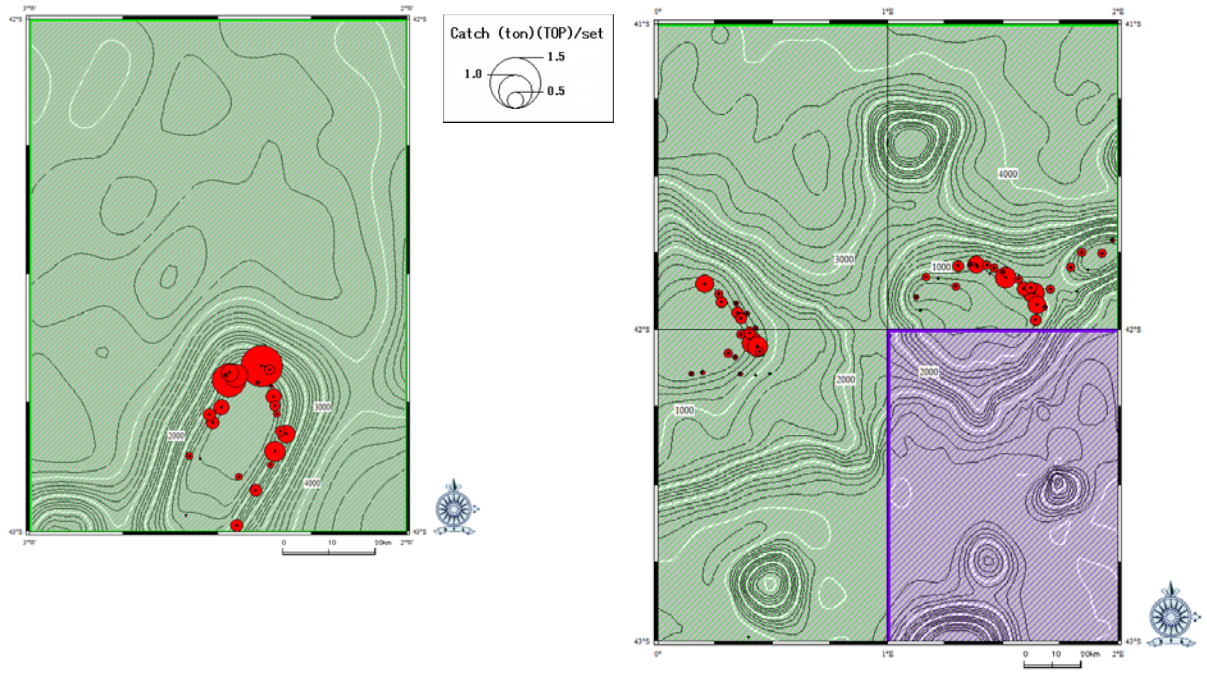
(above) by $1^{o}x1^{o}$ area (below) by each set (one black dot represents 4,020 hooks)

CATCH

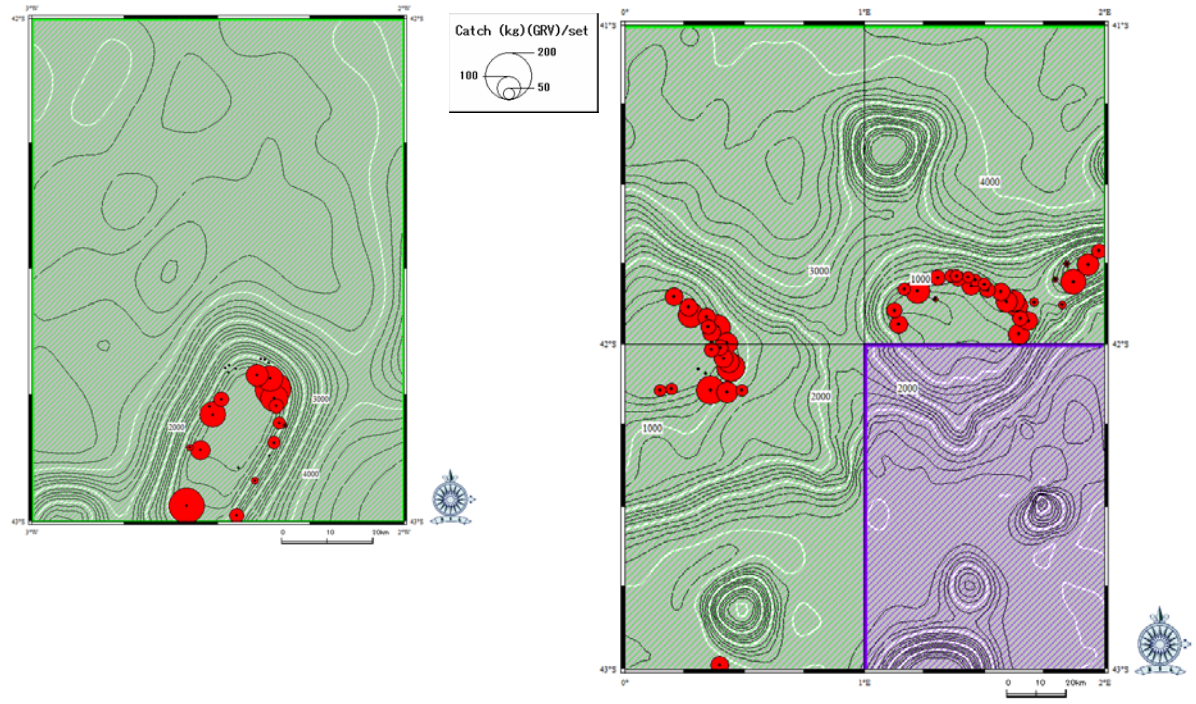
Map 4 (a)-(c) show distributions and densities of catch for Patagonian toothfish (TOP), Rattail (GRV) and Deep sea cod (ATN) respectively.



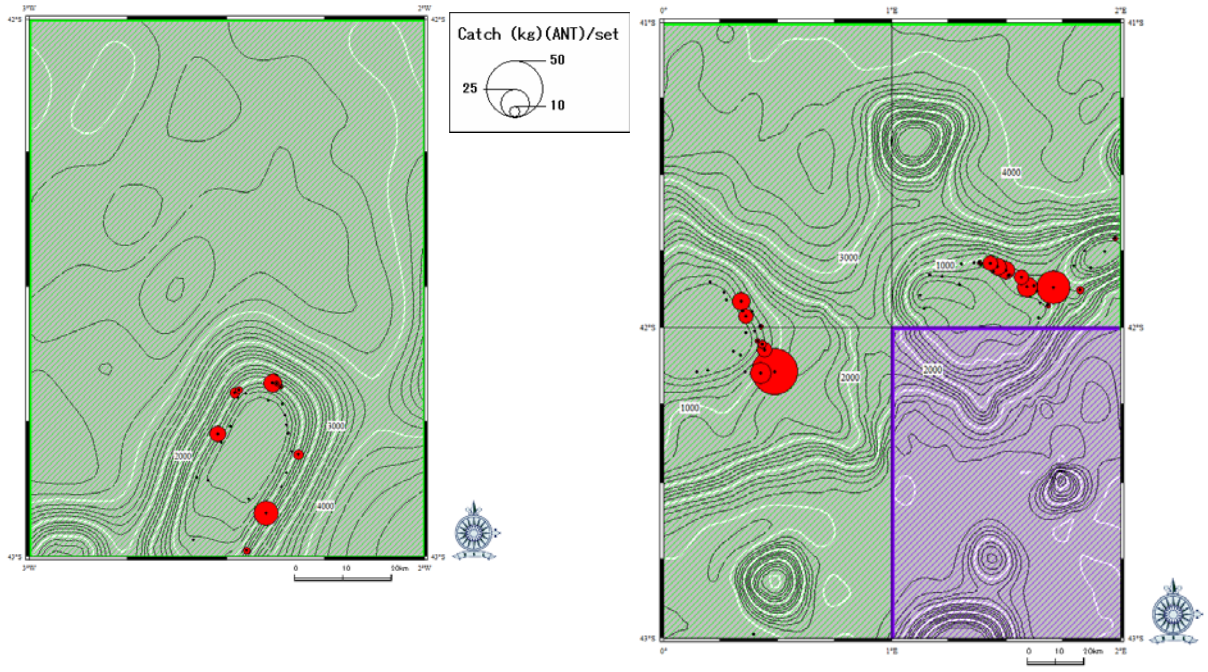
(Exploratory fishing area)



Map 4 (a) Distribution and densities of Patagonian toothfish (TOP) catch.

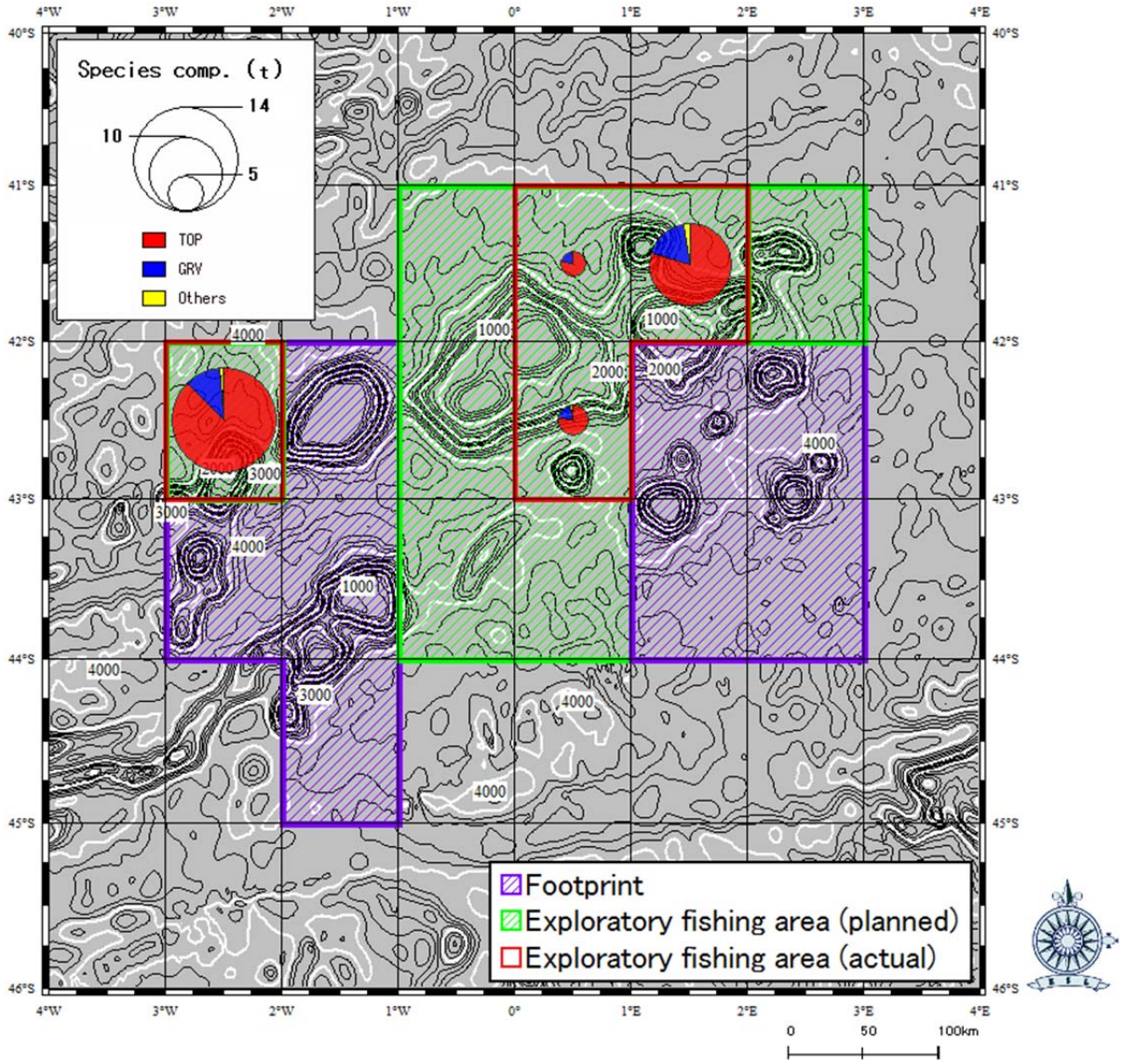


Map 4 (b) Distribution and densities of Rattail (GRV) catch



Map 4 (c) Distribution and densities of Deep sea cod (ATN) catch

SPECIES COMPOSITIONS (MAP 5)



Map 5 Species compositions of catch by 1^{o}x1^{o} area

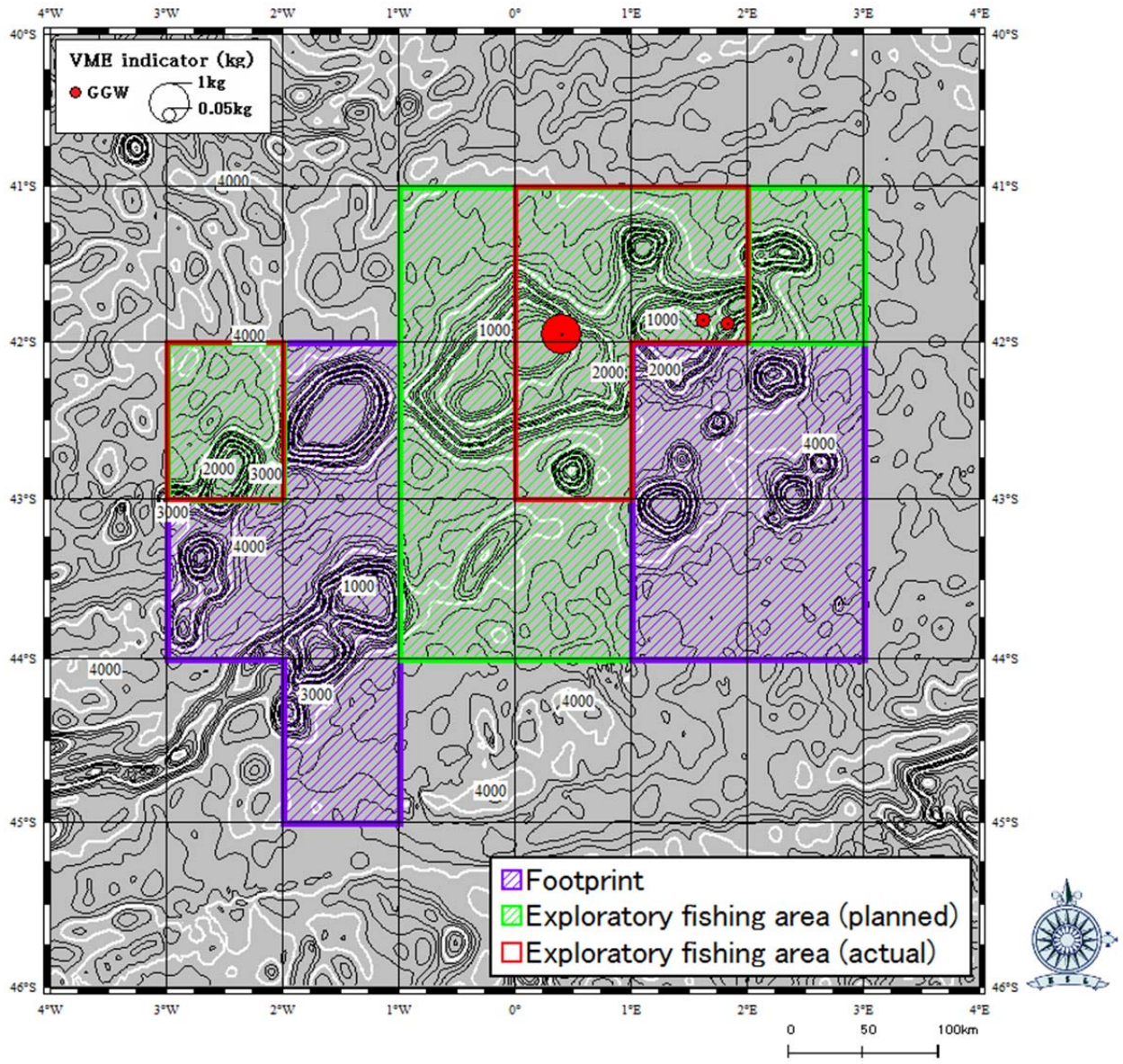
TOP: Patagonian toothfish (TOP)

GRV: Rattail

Others: Deep sea cod (ATN), Crab spp. (KCX) and Skates and rays (SRX)

2.4 VME

During the exploratory fishing, 3 VME indicators (all are gorgonian) were found in 3 separate locations (Map 6). Their weights were 1.0, 0.4 and 0.5 kg less than the threshold level of 10 VME units respectively.



Code	Scientific name	English name
GGW	Gorgoniidae	Gorgonian

Map 6. Locations and weights of corals caught by the exploratory fishing

2.5 Biological information (Patagonian toothfish)

Frequency distribution of total length and weight by sex (Fig. 1)

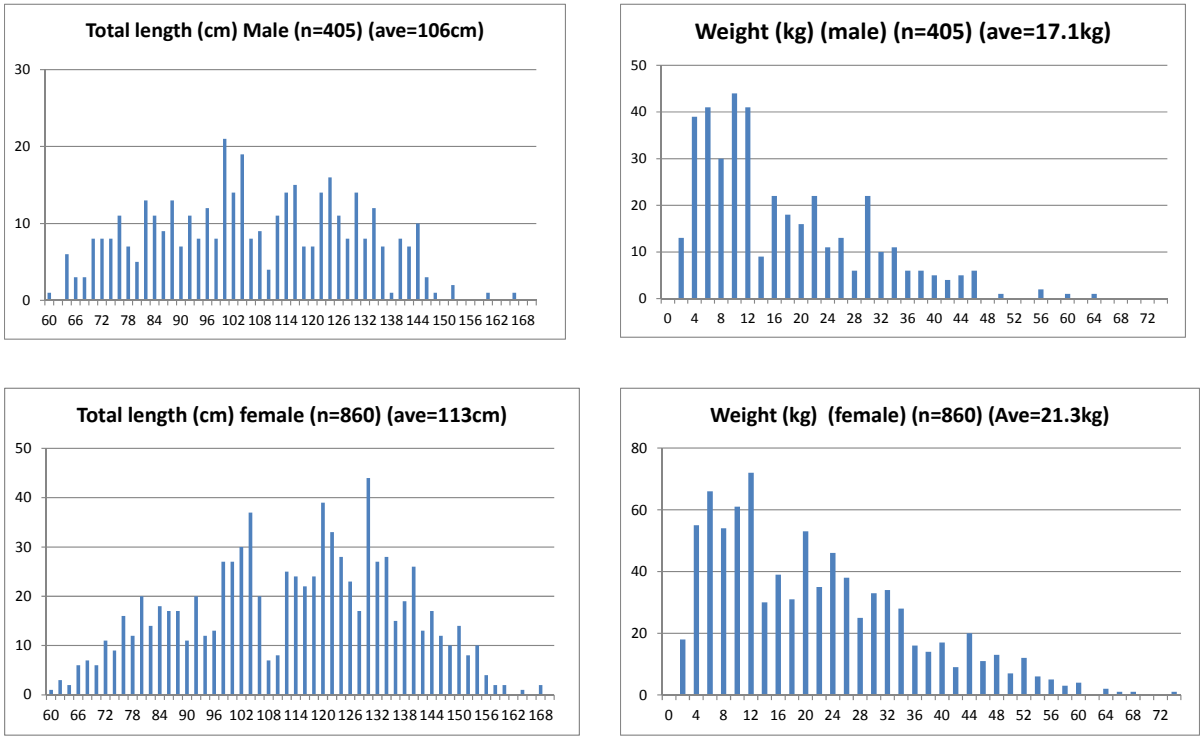


Fig. 1 Frequency distribution of total length (left) and eight (right) by sex

LW relations by sex (Fig. 2)

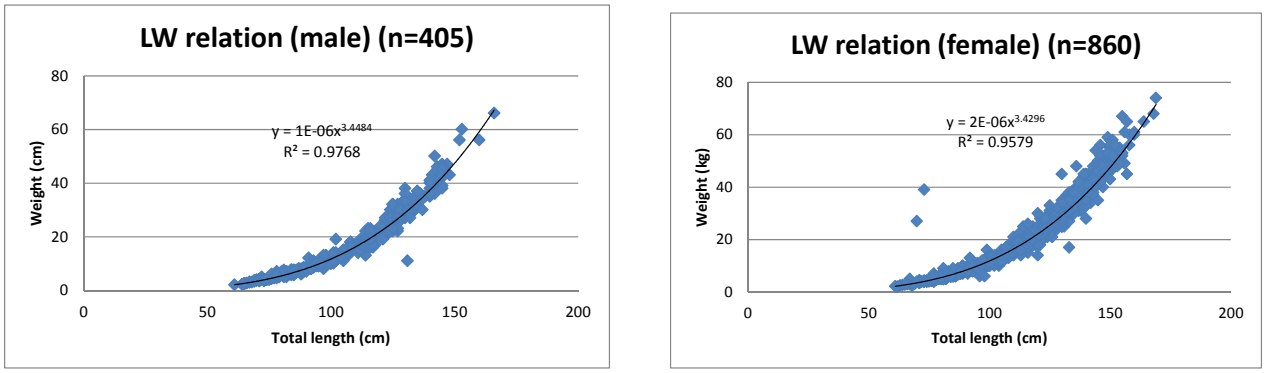


Fig. 2 LW relation of Patagonian toothfish by sex

2.6 Sea birds mitigation

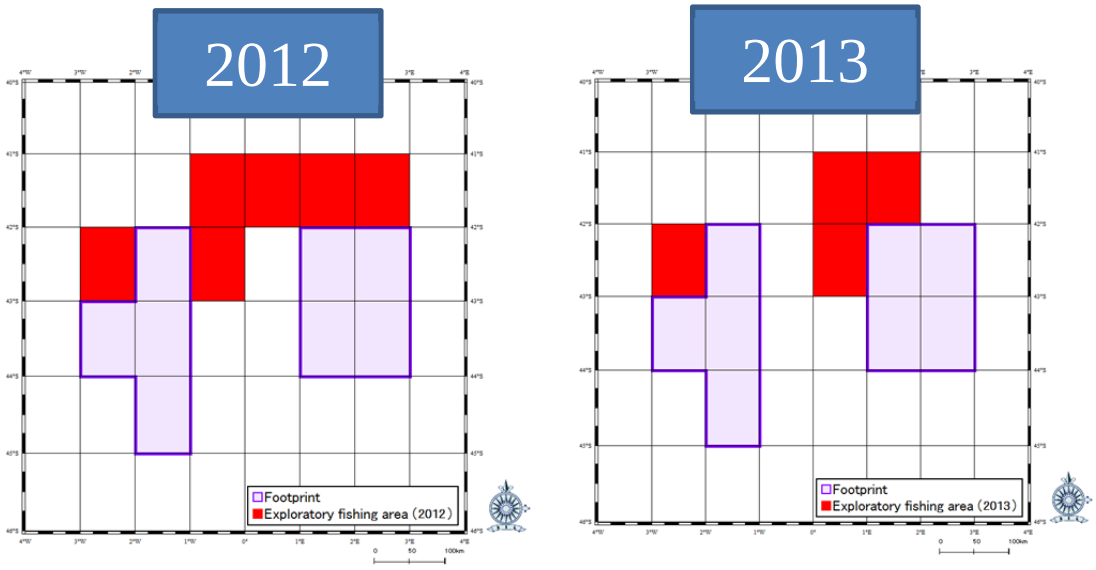
SEAFO Sea bird mitigation measure (CM25/12) was fully complied and there were no sea bird bycatch.

3. Discussion

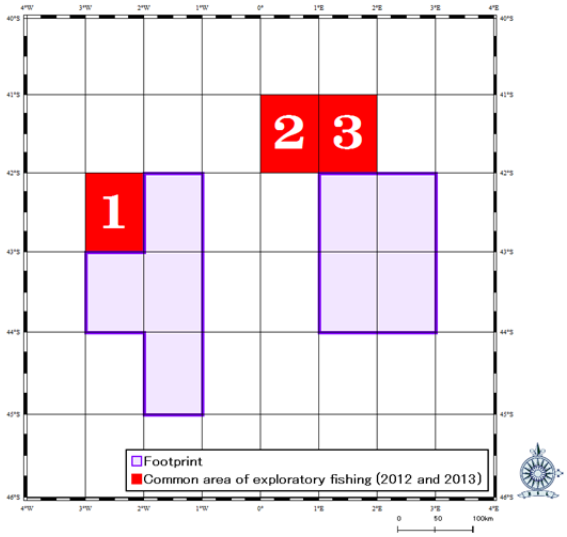
Based on the results of the exploratory fishing data from FV Shinsei maru No3, it was found that (a) there were negligible amount of VMEs (1.5 kg total) less than the threshold values and (b) Patagonian toothfish resources (catch and CPUE) were similar to those in the existence fishing (footprint) areas. The latter (b) implies that habitats of Patagonian toothfish resources in both existing and exploratory fishing areas are likely homogenous nature. In addition, it was realized again that the bottom longline is the VME safe gear (refer to page 18). Thus there are no doubts that VME will not be significantly affected in the exploratory fishing area and Patagonian toothfish resources will not be also significantly affected unless otherwise a large fishing pressure occurs.

Annex I - Additional information

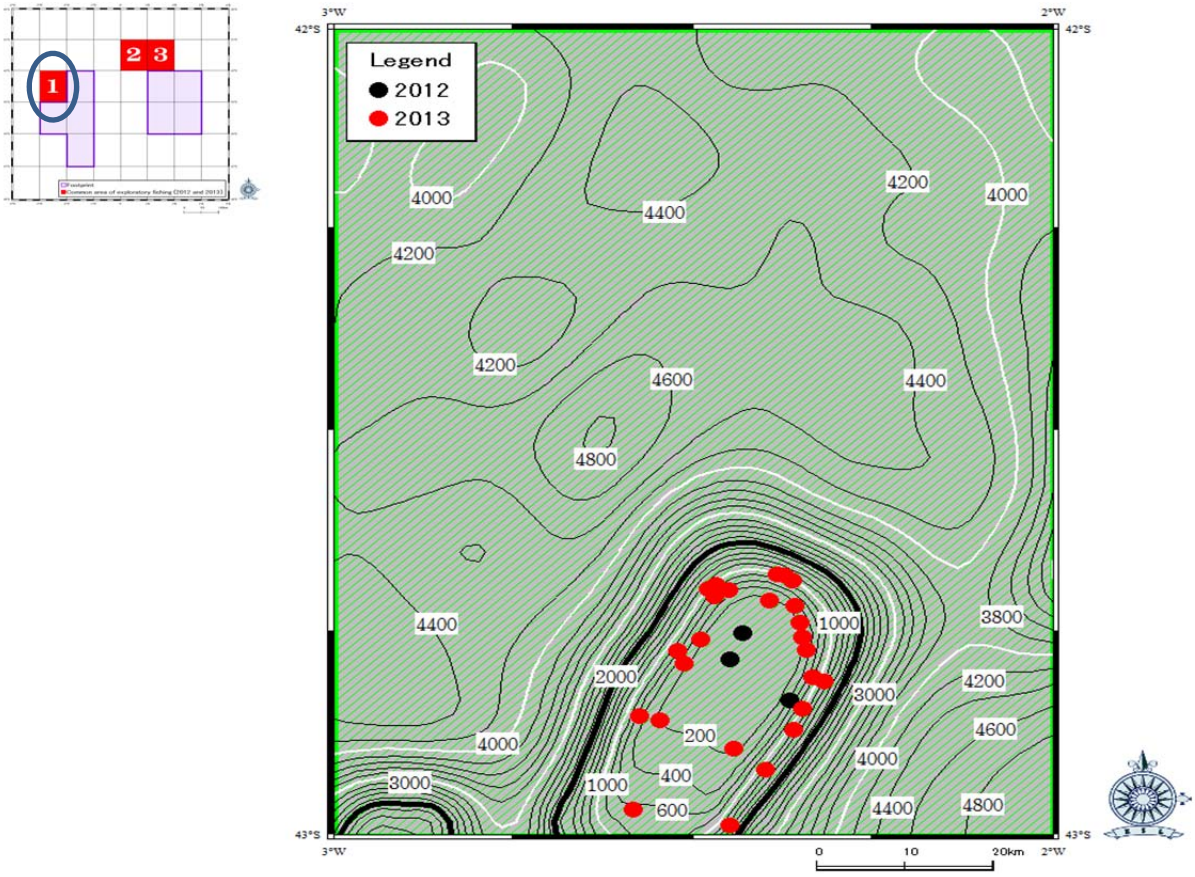
Evaluation of footprints



Map 1 Exploratory fishing 1ox1o areas (red cells)
2012 (left) and 2013 (right)

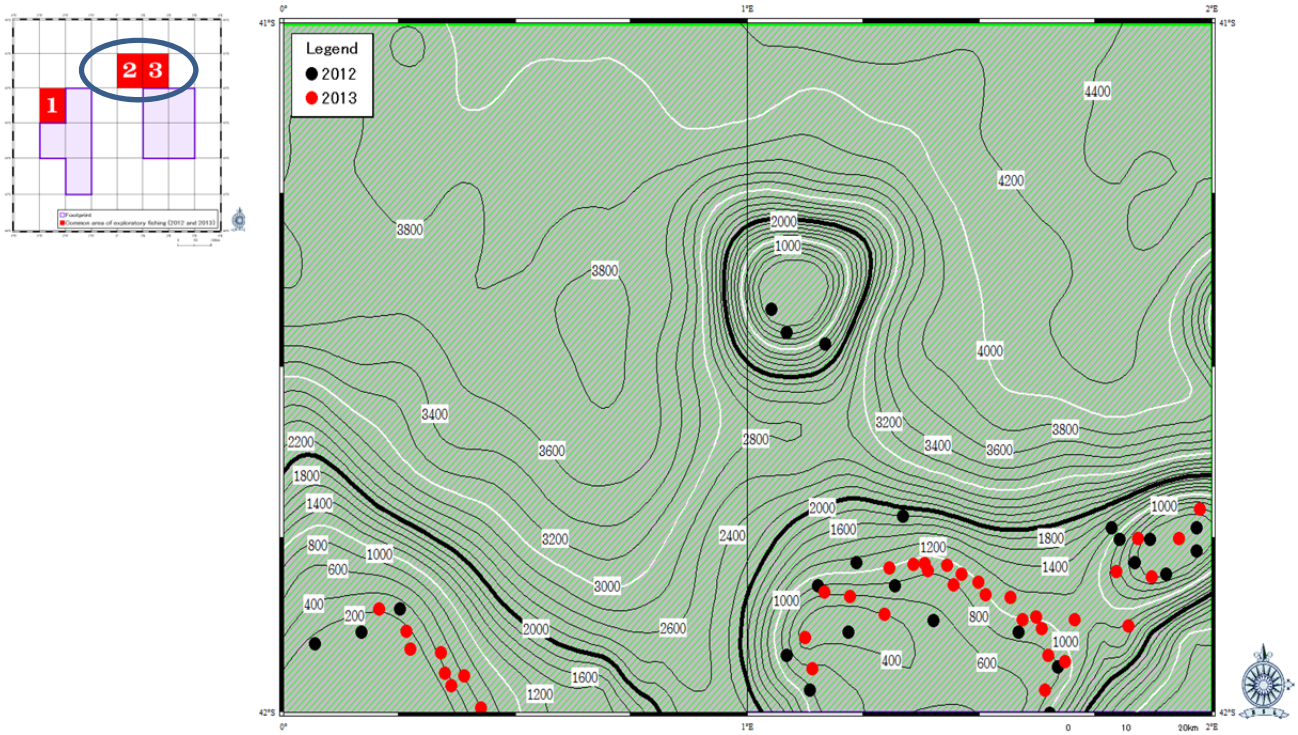


Map 2 Common (2 years of) 1°x1° areas (No. 1, 2 and 3) of exploratory fishing in 2012 and 2013



Map 3 Locations of experimental fishing in area 1(2012-2013)

(All operation points are shallower than 2000m in depth)



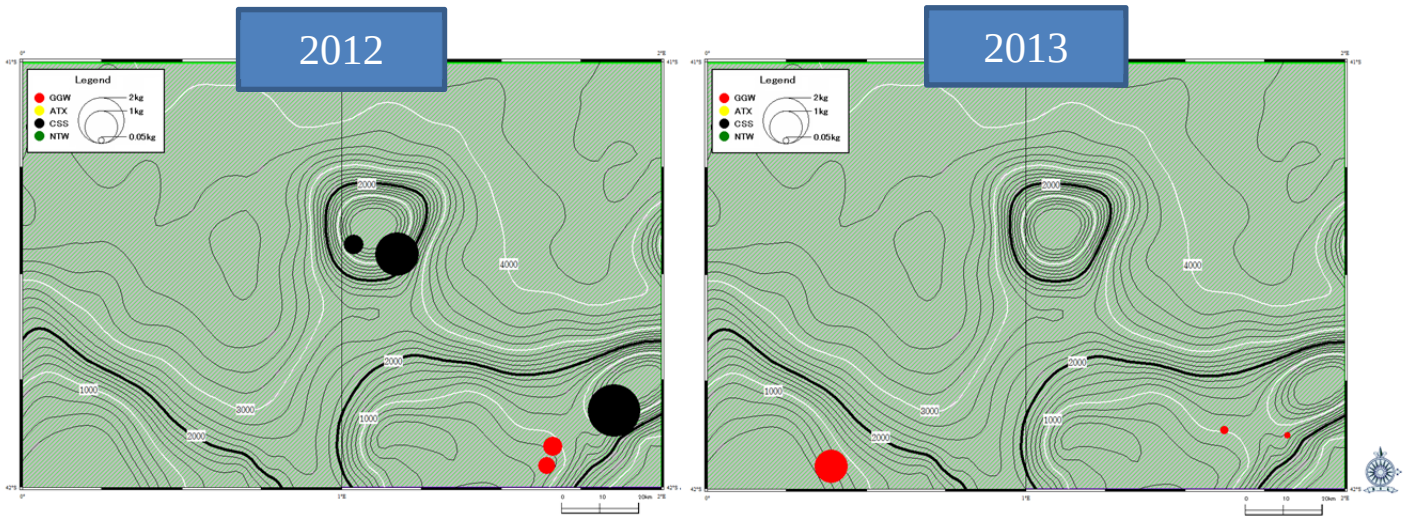
Map 4 Locations of experimental fishing in area 2-3 (2012-2013)

(All operation points are shallower than 2000m in depth)

code	Scientific name	English name
GGW	Gorgoniidae	Gorgonian
ATX	Actiniaria	Sea anemone
CSS	Scleractinia	stony corals
NTW	Pennatulacea	Sea pen

Map 5 Distribution of the VME indicators in area 1 (2012-2013)

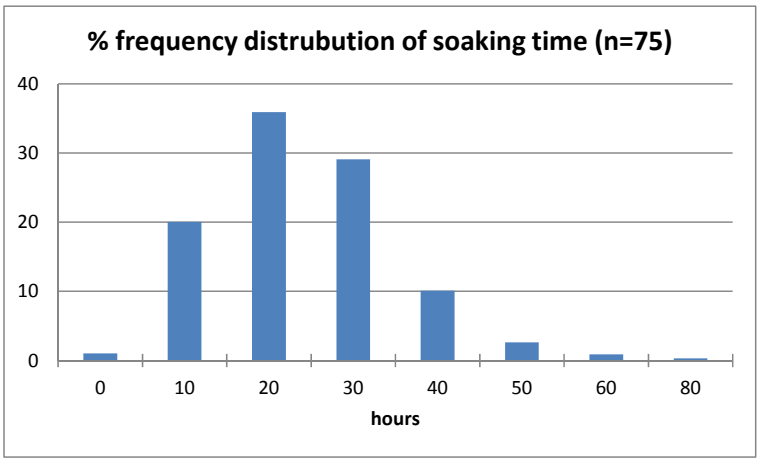
Weight of each individual VME indicator is less than the threshold level of 10 VME units.

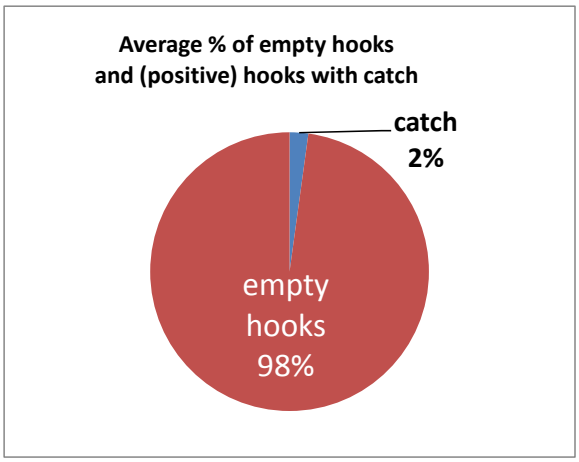


code	Scientific name	English name
GGW	Gorgoniidae	Gorgonian
ATX	Actiniaria	Sea anemone
CSS	Scleractinia	stony corals
NTW	Pennatulacea	Sea pen

Map 6 Distribution of the VME indicators in area 2-3 (2012-2013)

Weight of each individual VME indicator is less than the threshold level of 10 VME units.





APPENDIX IV – Exploratory Fishing Proposal for 2014

PROPOSAL FOR THE 2014 EXPLORATORY BOTTOM LONGLINE FISHING IN THE NEW FISHING AREA OF THE SEAFO CA

MEMBER COUNTRY : JAPAN
DATE OF SUBMISSION : SEPTEMBER 26, 2013

1. Harvest Plan

(1) Purpose

In 2011, existing bottom fishing areas have been identified in response to 2006 UNGA resolution 61/105. This has resulted to split some of fishable sea mountains shallower than 2000m such as Discovery Seamounts into existing and new bottom fishing areas.

There is no clear geographical (seafloor-topological) boundary around Discovery Seamounts so it is considered that fish might move across the boundary of existing and new bottom fishing areas. Furthermore VME information, fish distribution, detailed sea bed map, etc. in new bottom fishing areas will never be known unless fishing activities occur there.

We believe that collecting such primary information in new bottom fishing areas is meaningful and accumulating such information could contribute to achieve the objective of the SEAFO convention to ensure the long term conservation and sustainable use of fishery resources. Under this circumstance, we have developed a plan to conduct the exploratory longline fishing in new bottom fishing areas in 2014 as follows.

(2) Target Species

Dissosticus spp. (Patagonian toothfish)

(3) Period

Around Jun/2014 – Aug/2014 changeable due to fishing condition/plan

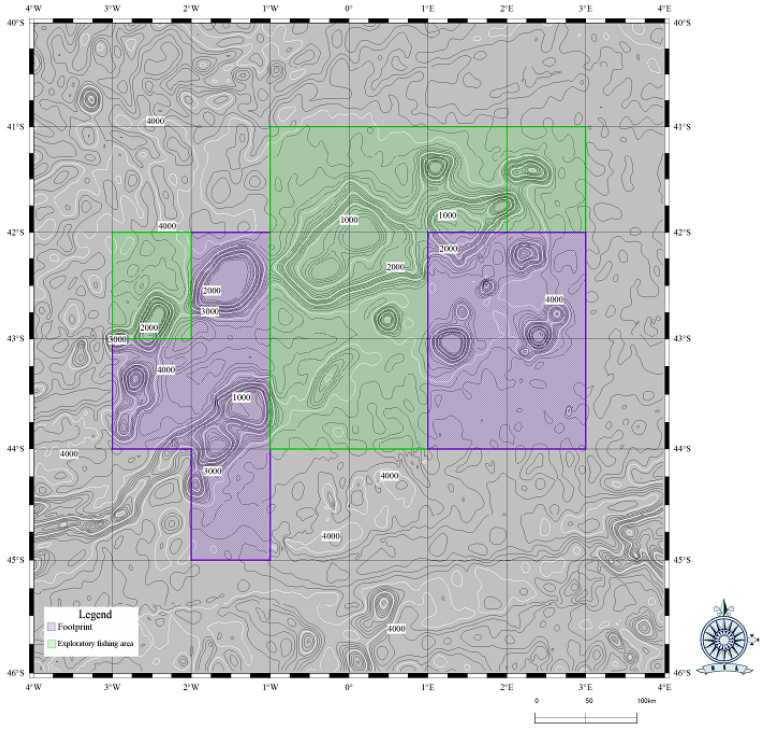
(4) Exploratory fishing area (Maps 1-2)

Area (1) Discovery Seamounts (Map 1)
(41:00-42:00°S/ 01:00°W-00:00°)(42:00-43:00°S/ 01:00°W-00:00°),
(41:00-42:00°S/ 00:00°-01:00°E)(42:00-43:00°S/ 00:00°-01:00°E),
(43:00-44:00°S/ 00:00°-01:00°E)(41:00-42:00°S/ 01:00°E-02:00°E),
(42:00-43:00°S/ 03:00°W-02:00°W)(43:00-44:00°S/ 01:00°W-00:00°),
(41:00-42:00°S/ 02:00°-03:00°E)
Please note above nine (9) $1^{o}x1^{o}$ area is regarded as one research area.

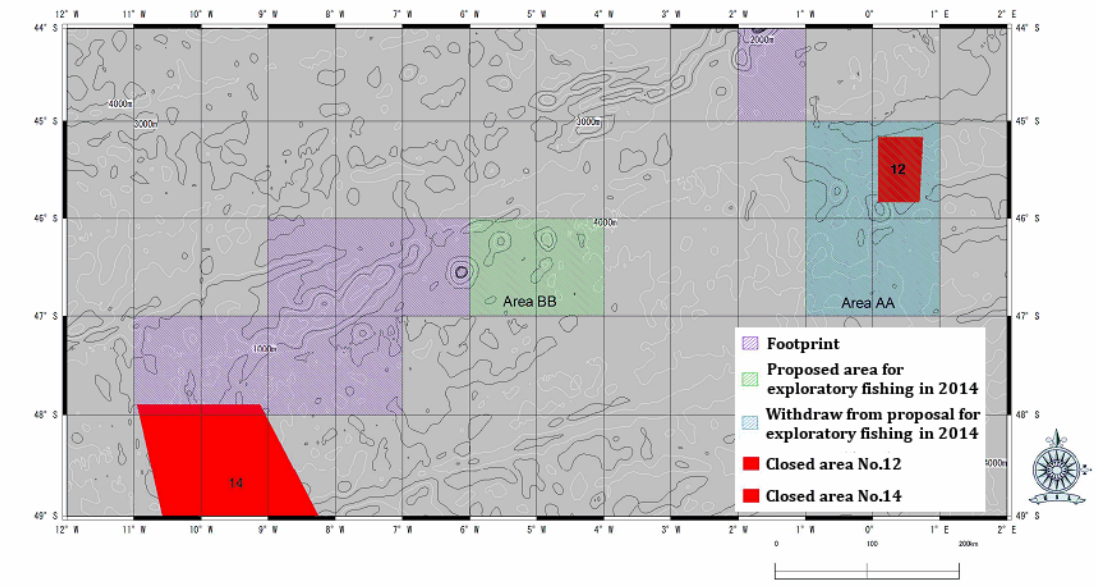
Area (2) Rectangle area (same area proposed in 2013 excluding area AA)
(46:00-47:00°S/ 04:00°-05:00°W) (46:00-47:00°S/ 05:00°-06:00°W)
Please note above two (2) $1^{o}x1^{o}$ area is regarded as one research area.

Please note that we had proposed AREA AA (Map 2) in 2013, but we decided not to cover. This is because we recognize that there are almost no fishable zones in AA, especially in one (potentially) good fishing $1^{o}x1^{o}$ area (45-

46°S/0-1°E), where is covered largely by Closed Area 12 (Sea mount). Hence we will withdraw the AREA AA in 2014 again. In the future, we plan to make a proposal to conduct the research activities in Closed Area 12.



Map 1 Exploratory fishing area (1): Green areas in the Discovery Seamounts



Map 2 Exploratory fishing area (2): Green areas in BB

Note: we had proposed AREA AA in 2013, but we decided not to cover. This is because we recognize that there are almost no fishable zones in AA, especially in one (potentially) good fishing $1^{o}x1^{o}$ area (45-46°S/0-1°E), where is covered largely by Closed Area 12 (Sea mount). Hence we will withdraw the AREA AA in 2014 again. In the future, we plan to make a proposal to conduct the research activities in Closed Area 12.

(4) Methods

The exploratory fishing will be conducted following the step 1 and 2 below.

Step 1

On the first entry of the research area, the first 10 hauls shall be research hauls and must satisfy following criteria.

- Each research haul must be separated by not less than 3 NM from any other research haul, distance to be measured from the geographical mid-point of each research haul.
- Each haul shall comprise at least 3,500 hooks and no more than 5,000 hooks.
- Each haul shall have a soak time of not less than 6 hours, measured from the time of completion of the setting process to the beginning of the hauling process.

Step 2

On completion of 10 research hauls, the vessel is exempted from setting research hauls and may continue to fish within the research area. The same data will be also collected as in the research hauls.

(5) Observer

One observer will be assigned to collect scientific information described in this proposal, which will be reported to the SEAFO Secretariat and the Scientific Committee meeting in 2014...

2. Mitigation plan to prevent significant adverse impact to vulnerable marine ecosystems.

The vessel will be fully compliant with Annex 3, 4 and 5 in Conservation Measure 22/12.

3. Data collection

The observer will collect the following data while the vessel is engaged in exploratory fishing.

- Patagonian tooth fish (*Dissosticus eleginoides*)
  - Total catch in weight/line
  - Length measurement / Maximum 50fish/line
  - Weight, sex, maturity, gonad state / Maximum 30fish/line

- Rattail (*Macrourid* spp.)
  - Total catch in weight/line
  - Length and weight measurement / Maximum 10pcs/line

- Other by-catch species
  - Total catch in weight/line by the lowest taxon possible

- VME
  - VME data according to interim VME data collection protocol set out in Annex 4 of Conservation Measure 22/11.

4. Impact assessment

The vessel has been using Trot line fishing method in the Convention area. During the exploratory fishing in new bottom fishing area, the vessel will employ the same fishing method.

- **Fishing gear configuration)(Fig. 1)**
  - 201 drop lines per standard main line of 9000m (one drop line every 45m of main line)
  - One drop line has 5 clusters with 5 snoods and hooks = 25 hooks per drop line.
  - Distance between clusters is about 40cm. Snood length is about 50cm.
  - Distance between the bottom cluster to concrete weight is about 1m.
  - See gear diagram below.

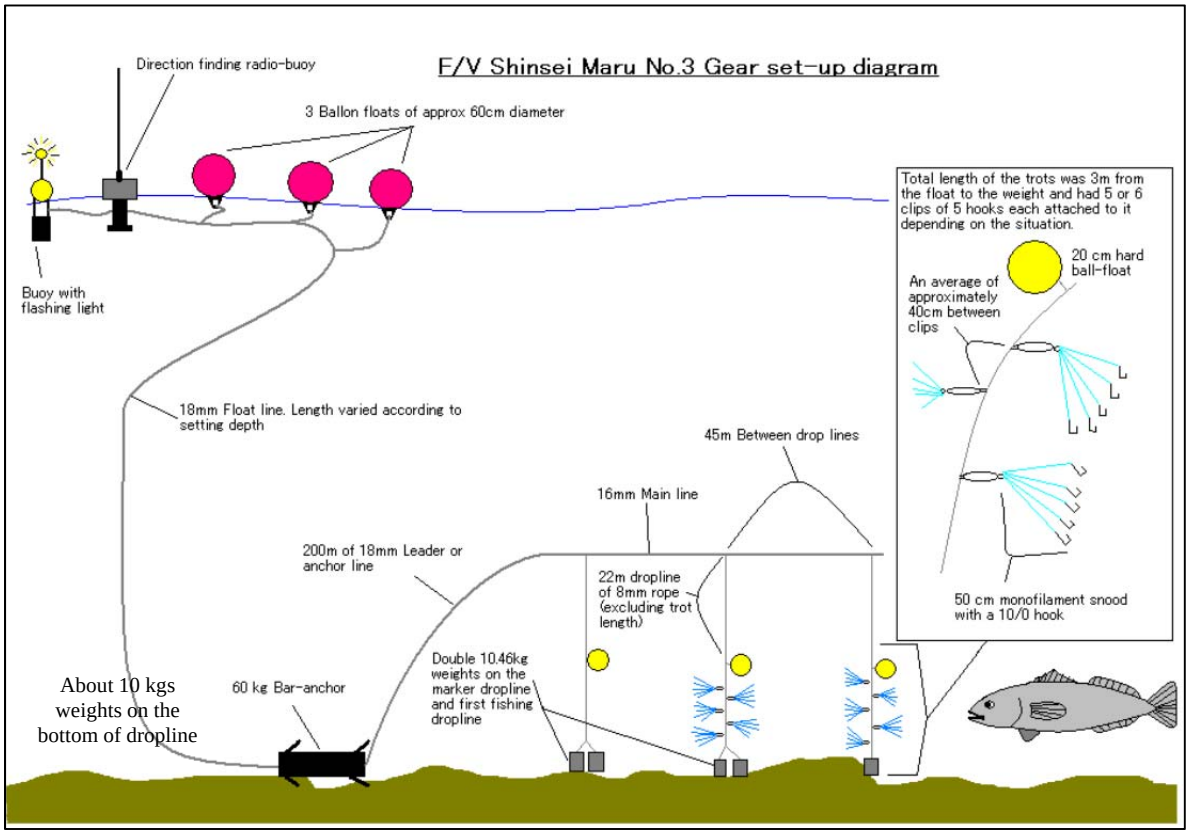


Fig 1. Fishing gear configuration

- **Expected behaviour and feature of fishing gear**
  - Trot line normally sinks vertically since the weight is attached on the bottom of each drop line.
  - The line is hauled vertically by using hydraulic driven line hauler.
  - Only both end of anchors and concrete weights are on the seabed constantly.
  - Bottom section of drop lines, hooks and snoods could be on the seabed occasionally.

Taking above into consideration, the trot line would have much less impact against VME in comparison with other fishing method such as Autoline and Spanish line since the most part of main lines and snoods with hooks are constantly on the seabed with these methods.

5. Vessel Information

(1)	Name of fishing vessel Previous names (if known) Registration number IMO number (if issued) External markings Port of registry	Shinsei Maru No.3 Same as above 128862 8520094 Vessel marked with name and international radio call sign. White hull and white superstructure Yaizu – Japan
(2)	Previous flag (if any)	N/A
(3)	International Radio Call Sign	JAAL
(4)	Name of vessel's owner(s) Address of vessel owner(s) Beneficial owner(s) if known	TAIYO A&F CO.,LTD. 4-5,TOYOMI-CHO,CHUO-KU,TOKYO,JAPAN Same as above
(5)	Name of licence owner Address of licence owner (operator)	Same as the owner
(6)	Type of vessel	Longline fishing vessel
(7)	Where was vessel built When was vessel built	Shimizu, Shizuoka, Japan 1985
(8)	Vessel length overall LOA (m)	47.2
(9)	Details of the implementation of the tamper-proof requirements of the VMS device installed	*The vessel is fitted with MAR-GE Argos VMS system. This is a sealed unit which has own GPS inside to ensure the independence from other acoustic devices and protected with official seals that indicate whether the unit has been accessed or tampered.*
(10)	Name of operator Address of operator	Same as the owner Same as the owner
(11)	Names and nationality of master and, where relevant, of fishing master	Master: Fuminori Kojima , Japanese Fishing master : Masayuki Matsumura , Japanese
(12)	Type of fishing method(s)	Bottom longline
(13)	Vessel beam (m)	8.7
(14)	Vessel gross registered tonnage	735
(15)	Vessel communication types and numbers (INMARSAT A, B and C)	INMARSAT -FB : 773190498 INMARSAT –C : 432521000@satmailc.com
(16)	Normal crew complement	33
(17)	Power of main engine(s) (kW)	735
(18)	Carrying capacity (tonne) Number of fish holds Capacity of all holds (m^3)	250M/T 4 holds 502.4 m^3
(19)	Any other information in respect of each licensed vessel they consider appropriate (e.g. ice classification) for the purposes of the implementation of the conservation measures adopted by the Commission.	*N/A*

APPENDIX V – SC Matrix of the FAO-ABNJ Project

SEAFO Scientific Committee and the Deep Sea ABNJ Project

Summary, October 08 2013

This is an overview of areas of work in which the SEAFO Scientific Committee might participate in for the Deep Sea ABNJ project

1. **Global and regional networks**

Participation only

- Participation by SEAFO Secretariat and/or SEAFO expert in inception meeting / Review of implementation of FAO Deep Sea Guidelines (Activity 1.2.1.1)
- Participation by SEAFO (Secretariat, experts and/or members states as appropriate) in a cross-disciplinary workshop for all involved in fisheries for the region, eg managers, scientists, industry, NGOs, port officials, lawyers, etc (Activity 1.2.1.2)
- Participation by SEAFO (Secretariat, experts, as appropriate) in "deep seas scientist days" to facilitate discussion on specific issues among deep sea RFMOs and in electronic forums (eg Deep Sea fisheries discussion group)

Leading of a process or activity

- Participation by SEAFO (Secretariat, experts, industry and member states) in development of or leading of sessions in a 2nd Deep Seas Global symposium (Activity 1.2.1.1)

2. **VMEs and EBSAs**

Participation only

- Participation by SEAFO Secretariat and/or SEAFO expert(s) in global collation of useful data and information that can be used for both VME and EBSA processes (Activity 2.1.1.1)
- Participation by SEAFO Secretariat and/or SEAFO expert in the workshop to review how different RFMOs have addressed VMEs (activity 2.1.1.5)
- Participation by SEAFO Secretariat and/or SEAFO expert in the development of a "sharing environment" for all data collected in the project (activity 2.1.2.1)
- Participation by SEAFO Secretariat and SC (individual scientists) contributions to the VME database and potential development of additional functionalities of the VME Database (Activity 2.1.2.2).
- If there is interest SEAFO experts to either participate in or assist other institutions in joint development of scientific input into relevant conferences or journals (eg presentations, posters, articles)

Leading of a process or activity

- SEAFO Secretariat and/or SEAFO expert(s) to work with FAO in digitization of former USSR fisheries surveys (including information useful for the VME process) for input into collation of useful data and information that can be used for both VME and EBSA processes (Activity 2.1.1.1)
- SEAFO SC members to lead analysis of interactions between DSF and key areas of biodiversity in SEAFO area (Activity 2.1.1.3)
- Participation by SEAFO Secretariat and/or SEAFO expert in drafting or review of the SE Atlantic chapter of the Worldwide review of deep-sea high seas fisheries (Activity 2.1.1.4)

- SEAFO Secretariat and SC (individual scientists) to review SEAFO information for the VME database (Activity 2.1.2.2).
- SEAFO SC would review the current VME indicators (Activity 2.1.3.1) and use new data layers to examine VMEs information for the SE Atlantic (Activity 2.1.2.2) including a specific application for the SEAFO area to review information on VMEs
    - Comment: iMarine has been proposed as the hosting platform for e.g. the GRID Arendal data layers, which offers the advantage of seamless access to processing resources if these layers have to be interpreted or merged with other information (such as on species)
- SEAFO SC (and individual scientists) to review needs for monitoring VMEs and EBSA information and species and review potential new technologies and species ID guides (Activity 2.1.3.3)
    - Includes SEAFO experts participation in workshops on ID guides and data collection manual and observer/crew training for use of guides and manual

EAF Process

Participation only

- SEAFO Secretariat and/or SEAFO expert and/or industry participate in and contribute to the development of a Toolbox/operational manual for Deep-sea fisheries management and associated workshops on EIAs, Encounter protocols, use of VME criteria and better collaboration with industry (Activity 3.1.1.1 and 3.1.1.2)
- SEAFO Secretariat and/or SEAFO experts to contribute to global reviews and best practices on assessment and management of key species and technological development (Activity 3.1.3)

Leading of a process or activity

- SEAFO to be one of the pilot areas or the EAF process in DSF including identification of issues, risk assessment, setting of objectives and discussing management options and indicator setting, etc (All activities under Outputs 3.1.2, 3.1.3 and 3.1.4)
- SEAFO to consider reviewing or resigning design of a statistically valid, practical and affordable monitoring programme (this could be where joint work between SEAFO and CCAMLR goes on collaboration on observer training, smart data forms, etc) (Activity 3.1.3.2)
- SEAFO Secretariat and/or SEAFO expert and/or industry to participate in the pilot testing to improve management measures (Activity 3.1.5.1.)

This is an overview of areas of work in which the SEAFO Scientific Committee might participate in for the Deep Sea ABNJ project

Type of activity	Year	Financing required from SEAFO (in-kind, etc.)
Global and regional networks		
Participation by SEAFO Secretariat and/or SEAFO expert in inception meeting / Review of implementation of FAO Deep Sea Guidelines (Activity 1.2.1.1)	Year 1	• Time of SEAFO Sec for participation • (possible) Time of SEAFO experts if interested in participating
Participation by SEAFO (Secretariat, experts, industry and member states) in development of or leading of sessions in a 2nd Deep Seas Global symposium (Activity 1.2.1.1)	Year 5	• Time of SEAFO experts for development of symposium • Time of SEAFO Sec and experts for participation
Participation by SEAFO (Secretariat, experts and/or members states	Year 3	• Time of SEAFO experts from

as appropriate) in a cross-disciplinary workshop for all involved in fisheries for the region, eg managers, scientists, industry, NGOs, port officials, lawyers, etc (Activity 1.2.1.2)		member states (eg managers, scientists, industry, NGOs, port officials, lawyers, etc) for participation
Participation by SEAFO (Secretariat, experts, as appropriate) in "deep seas scientist days" to facilitate discussion on specific issues among deep sea RFMOs and in electronic forums (eg Deep Sea fisheries discussion group)	Year 2 - 5	• Time of SEAFO experts for development of symposium • Time of SEAFO Sec and experts for participation
VMEs and EBSAs		
Participation by SEAFO Secretariat and SEAFO expert(s) in global collation of useful data and information that can be used for both VME and EBSA processes (Activity 2.1.1.1)	Year 1	• Time of SEAFO Sec and SEAFO experts for collaboration on collation of information (electronic only)
SEAFO Secretariat and SEAFO expert(s) to work with FAO in digitization of former USSR fisheries surveys (including information useful for the VME process) for input into collation of useful data and information that can be used for both VME and EBSA processes (Activity 2.1.1.1)	Year 1 - 2	• Time of SEAFO Sec and SEAFO experts for work on collation of data (electronic only)
SEAFO SC members to lead analysis of interactions between DSF and key areas of biodiversity in SEAFO area (Activity 2.1.1.3)	Year 3	• Time of SEAFO Sec and SEAFO experts for collaboration on collation of information (possibly within SC)
Participation by SEAFO Secretariat and/or SEAFO expert in drafting or review of the SE Atlantic chapter of the Worldwide review of deep-sea high seas fisheries (Activity 2.1.1.4)	Year 2	• Time of SEAFO Sec and experts for participation in meeting and drafting or review of SEAFO chapter
Participation by SEAFO Secretariat and/or SEAFO expert in the workshop to review how different RFMOs have addressed VMEs (activity 2.1.1.5)	Year 1 - 2	• Time of SEAFO Sec and experts for participation in meeting and drafting or review of SEAFO chapter
Participation by SEAFO Secretariat and/or SEAFO expert in the development of a "sharing environment" for all data collected in the project (activity 2.1.2.1)	Year 3	• Time of SEAFO Sec and experts to comment and discuss (electronic only)
SEAFO Secretariat and SC (individual scientists) to review SEAFO information for the VME database (Activity 2.1.2.2).	Now – Year 1	• Time of SEAFO Sec and experts to comment and review and input data (electronic only)
Participation by SEAFO Secretariat and SC (individual scientists) contributions to the VME database and potential development of additional functionalities of the VME Database (Activity 2.1.2.2).	Year 1 - 2	• Time of SEAFO Sec and experts for participation to comment and discuss (electronic only)
If there is interest SEAFO experts to either participate in or assist other institutions in joint development of scientific input into relevant conferences or journals (eg presentations, posters, articles - **OPTIONAL**	Year 2 - 3	• Where relevant, SEAFO scientist could participate in twinning arrangements
SEAFO SC would review the current VME indicators (Activity 2.1.3.1) and use new data layers to examine VMEs information for the SE	Year 3	• Time of SEAFO Sec and experts for participation to comment and

Atlantic (Activity 2.1.2.2) including a specific application for the SEAFO area to review information on VMEs *Comment: iMarine has been proposed as the hosting platform for e.g. the GRID Arendal data layers, which offers the advantage of seamless access to processing resources if these layers have to be interpreted or merged with other information (such as on species)*		discuss (electronic only)
SEAFO SC (and individual scientists) to review needs for monitoring VMEs and EBSA information and species and review potential new technologies and species ID guides (Activity 2.1.3.3). [Includes SEAFO experts participation in workshops on ID guides and data collection manual and observer/crew training for use of guides and manual]	Year 3	• Time of SEAFO Sec and experts for participation in meeting (back to back with workshop on monitoring below)
EAF Process		
SEAFO Secretariat and/or SEAFO expert and/or industry participate in and contribute to the development of a Toolbox/operational manual for Deep-sea fisheries management and associated workshops on EIAs, Encounter protocols, use of VME criteria and better collaboration with industry (Activity 3.1.1.1 and 3.1.1.2)	Year 1 - 2	• SEAFO to provide information and share lessons learned. (electronic) • Time of SEAFO Sec or SEAFO experts for participation in meetings (x3)
SEAFO Secretariat and/or SEAFO experts to contribute to global reviews and best practices on assessment and management of key species and technological development (Activity 3.1.3)	Year 2 - 4	• SEAFO/countries to contribute with specific expertise and background documents to networks and workshops. All scientific inputs seen as contribution.
SEAFO to be one of the pilot areas or the EAF process in DSF including identification of issues, risk assessment, setting of objectives and discussing management options and indicator setting, etc (All activities under Outputs 3.1.2, 3.1.3 and 3.1.4)	Year 2 - 4	• Support and input from Secretariat and countries required • Time of SEAFO Sec and experts for participation in meetings (x2) (back to back with SC or working groups where possible)
SEAFO to consider reviewing or resigning design of a statistically valid, practical and affordable monitoring programme (this could be where joint work between SEAFO and CCAMLR goes on collaboration on observer training, smart data forms, etc) (Activity 3.1.3.2)	Year 3 & 4	• Time of SEAFO Sec and experts for participation in review (together with SC or working groups where possible) • Training of staff (possibly including SEAFO/coastal state staff and fishing crew) shared between project and SEAFO/countries.(based on existing training programmes)
SEAFO Secretariat and/or SEAFO expert and/or industry to participate in the pilot testing to improve management measures (Activity 3.1.5.1.)	Year 2 - 4	• Time of SEAFO Sec and experts for participation in workshop • Time of SEAFO Sec and experts for development and review of results of techniques or methods