Public comment draft report

Assessment against MSC Principles and Criteria for:
ARGENTINE PATAGONIAN TOOTHFISH FISHERY
(*Dissostichus eleginoides*)

27th June, 2014

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CLIENT GROUP:
Argenova S.A., Empresa Pesquera de la Patagonia y Antártida S.A. (PESANTAR S.A.), Estremar S.A. and San Arawa S.A.

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Glossary

AA	Aduana Argentina
AEEZ	Argentine Economic Exclusive Zone
AFIP	Administración Federal de Ingresos Públicos
APJ	Area of Protection of Juveniles
ASPM	Age Structured Production Model
CA	Catch Authorizations
CAIPA	Cámara de la Industria Pesquera Argentina
CAPECA	Cámara de Armadores Pesqueros y Congeladores de la Argentina
CASPMeN	Comisión Asesora para el Seguimiento de la Pesquería de Merluza Negra
CCAMLR	Commission for the Conservation of Antartic Marine Living Resources
CDS	Catch Documentation Scheme
CEDEPESCA	Centro Desarrollo y Pesca Sustentable
CENADAC	Centro Nacional de Desarrollo Acuícola
CEPA	Consejo de Empresas Pesqueras Argentinas
CIC	Comisión de Investigaciones Científicas
CITEP	Centro de Investigaciones de Tecnología Pesquera y Alimentos Regionales
CITES	Convention on Internacional Trade in Endangered Species
CMS	Convention on Migratory Species
CoC	Chain of Custody
CONICET	Consejo Nacional de Investigaciones Científicas y Técnicas
CONVEMAR	Convención de las Naciones Unidades sobre el Derecho del Mar
CR	Certification Requirement
CSD	Comisión de Control de Descarga
CPUE	Catch Per Unit of Effort
CTMFM	Comisión Técnica Mixta del Frente Marítimo
DGA	Dirección General de Aduanas
EEC	European Economic Community
ETP	Endangered, Threatened and Protected
FAO	Food and Agriculture Organization
FFP	Federal Fisheries Council
FONAPE	Fondo Nacional Pesquero

FVSA	Fundación Vida Silvestre Argentina
H&G	Headed and Gutted
INIDEP	Instituto Nacional de Investigación y Desarrollo Pesquero
INTI	Instituto Nacional de Tecnología Industrial
IPI	Inseparable or Practically Inseparable
ISBF	Introduced Species Based Fisheries
ITQ	Individual Transferable Quota
IUU	Illegal, Unreported and Unregulated
JICA	Japan International Cooperation Agency
LTL	Low Trophic Level
MINAGRI	Ministerio de Agricultura, Ganadería y Pesca
MSC	Marine Stewardship Council
MSY	Maximum Sustainable Yield
NGOs	Non-Governmental Organizations
OIA	Organización Internacional Agropecuaria
PAN	Plan de Acción Nacional
PCDR	Public Comment Draft Report
PESANTAR S.A.	Empresa Pesquera de la Patagonia y Antártida
PI	Performance Indicador
PISGs	Performance Indicador Store Guideposts
PNA	Prefectura Naval Argentina
RBF	Risk Based Framework
SAGyP	Secretaría de Agricultura, Ganadería y Pesca
SAyDS	Secretaría de Ambiente y Desarrollo Sustentable
SENASA	Servicio Nacional de Sanidad y Calidad Agroalimentaria
SICAP	Sistema Integrado de Control de Actividades Pesqueras
SOMU	Sindicato de Obreros Marítimos Unidos
SSPyA	Subsecretaría de Pesca y Acuicultura
TAC	Total Allowable Catch
TED	Target Eligibility Date
UNCLOS	United Nations Convention of Law of the Sea
UNMDP	Universidad Nacional de Mar del Plata
UoCs	Units of Certification
VMS	Vessel Monitoring System

WG-EMM	Working Group on Ecosystem Monitoring and Management
WG-FSA	Working Group on Fish Stock Assessment
WG-SAM	Working Group on Multispecies Assessment Methods
ZCPAU	Uruguayan-Argentinean Common Fishing Zone

1. Executive Summary

The Argentine Patagonian toothfish (*Dissostichus eleginoides*) fishery entered in certified process in March 2013. The client group comprised by Estremar S.A., Empresa Pesquera de la Patagonia y Antártida S.A. (PESANTAR S.A.), Argenova S.A. and San Arawa S.A. represent the main Argentinean companies having 85,25 % of total allocated quota. The Public Comment Draft Report (PCDR) presents results of the assessment against the Marine Stewardship Council (MSC) Principles and Criteria of MSC for Sustainable Fishing as feedback received from the client and peer reviewers.

The fishery operates by bottom trawl net, bottom longline and traps. It is managed via an annual TAC (currently 3,500 t) which is divided into four licence holders (seven vessels). The TAC is set by management authority- Federal Fisheries Council (FFP). Although the TAC is reviewed every year, in practice it has been fixed at the same level for some years. A recent stock assessment suggests that it is precautionary and conforms to CCAMLR risk-based reference points. As well as toothfish, *Bathyraja spp.* and some species of grenadier (family Macrouridae) are taken as a retained bycatch (partially retained in the case of the rays with bottom trawl nets). Other bycatch is discarded. The existence of a management structure with a precautionary approach applied by the authority includes protection measures for juveniles, mitigation of adverse effects to non-target species (fish, birds and mammals), establishment of closed areas specifics to target species and creation of the "Comisión Asesora para el Seguimiento de la Pesquería de Merluza Negra (CASPMeN)" and the "Subcomisión de Control de Descargas" with responsible participation of companies in control.

The fishery operates in the Federal waters of the Argentine Continental Shelf within the Argentine Economic Exclusive Zone (AEEZ). It does have, however, a clearly defined and appropriate management structure, and all key CCAMLR measures are implemented in this fishery, including bird conservation measures, the observer system and protocols, the stock assessment methodology and reference points, VMS coverage, reporting of data to CCAMLR, estimates of IUU fishing, etc.

Three Units of Certification (UoCs) are considered to meet the MSC standard with high overall score. As such, it is recommended that these UoCs should be certified as MSC Sustainable Fishing. Summary of scores for each UoCs are provided in the following table:

Table 1. *Summary table showing final Principle level scores.*

Unit of certification		Principle	Score	Pass?
1	AEEZ – Bottom trawl net	P1 – Target species	80	Pass
		P2 - Ecosystem	80	
		P3 – Management system	94,8	
2	AEEZ – Bottom longline	P1 – Target species	80	Pass
		P2 - Ecosystem	82,3	
		P3 – Management system	94,8	
3	AEEZ – Traps	P1 – Target species	80	Pass
		P2 - Ecosystem	82,3	
		P3 – Management system	94,8	

The Assessment Team set 6 auditable and verifiable conditions for continuing certification if the fishery achieves a score of less than 80 but more than 60 for each PI. The Client Group prepared a "client action plan" that includes:

- How the conditions and milestones will be addressed (See Appendix 1.3)
- Who will address the conditions
- The specified time period within which the conditions and milestones will be addressed.
- How the actions is expected to improve the performance of the fishery
- How OIA will assess outcomes and milestones in each subsequent surveillance or assessment.

Under scientific evidence available, stock assessment and expert judgement, the management authority should identify:

Condition number	Condition	Performance Indicators involved
1	The target reference point is such that the stock is maintained at a level consistent with B_{MSY} or some measure or surrogate with similar intent or outcome. Score: 75	**1.1.2**
2	Sufficient relevant information related to stock structure, stock productivity, fleet composition and other data are required to support the harvest strategy. The stock abundance and fishery removals shall be regularly monitored at a level of accuracy and coverage consistent with the harvest control rules, and one or more indicators is required and monitored with sufficient frequency to support the harvest control rules. Score: 65	**1.2.3**
3	For trawl fishery, present evidences demonstrating that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm. Score: 60 by SICA	**2.4.1**
4	Develop some objective basis for confidence that the partial strategy will work, based on information directly about the fishery and/or habitats involved. Score: 75	**2.4.2**
5	Sufficient data must be available to allow nature of the impacts of the fishery on habitat types to be identified and there is reliable information on the spatial extent of interaction and the timing and location of use of fishing gear. Score: 75	**2.4.3**

6	For trawl fishery, present evidences demonstrating that the fishery is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm. Score: 60 by SICA	**2.5.1**

Organización Internacional Agropecuaria (OIA) has therefore concluded that the fishery should be certified as MSC Sustainable Fishing. This PCDR include the scores and weightings, the draft determination, conditions and the client action plan. OIA appreciates any comment by stakeholders during consulting period.

2. Authorship and Peer Reviewers

2.1 Assessement team

The assessment team was proposed to stakeholders in March 7th, 2013 and was consulted on for 12 days. Following consulting period, team members were confirmed within knowledge of stock status, ecosystem impacts and fishery management:

Dr. Stuart Hanchet – Team leader and Principle 1 advisor expert

Dr. Hanchet is leader of the international fisheries programme at the National Institute of Water and Atmospheric Research (NIWA), member of New Zealand Marine Sciences Society, and New Zealand delegate at various CCAMLR Meetings, including WG-FSA, WG-SAM, WG-EMM, and Scientific Committee Meeting since 1990. He has over 30 years of experience in stock assessment, Antarctic fisheries research, population and fisheries ecosystem modelling, hydro-acoustic biomass estimation and stock abundance using random stratified trawl surveys of demersal fish stocks.

Dr. Enrique Morsan – Principle 2 advisor expert

Dr. Morsan is professor of Fishery Biology, Oceanography and professional researcher member of Directive Council in Instituto de Biología Marina y Pesquera "Almirante Storni" of Universidad Nacional del Comahue. He has 28 years of experience is marine biology, populations dynamics of marine invertebrates, assessment and managements of fishery resources. Dr. Morsan has participated in various MSC assessment processes of fisheries as Southern Red King Crab (*Lithodes santolla*), Mullet (*Mugil platanus*) and Patagonian scallop (*Zygochlamys patagonica*), and has had training in the use of the Risk Based Framework (RBF).

Lic. Raúl Jorge Bridi – Principle 3 advisor expert

Lic. Bridi has served as Director of Fisheries of Río Negro's Province, holder executive representative of Río Negro's Province in Marine Fishery advisor provincial commission, member executive on committee of Inter of Marine Fisheries Council and a consultant in the area of fisheries management and development of fisheries project. He has 29 years of experience in marine fish science and management, fishery habitat protection and oceanography and is professor of Ecological Restoration in Rio Negro National University. Lic. Bridi has participated in various MSC assessment processes of fisheries as Patagonian scallop (*Zygochlamys patagonica*), Argentine hoki (*Macruronus magellanicus*) and Argentine anchovy (*Engraulis anchoita*).

2.2 OIA technical coordinator

In addition of the three experts who undertook the assessment, the OIA coordinator was Eng. Carolina Medina Foucher, with technical and MSC certification requirement support being provided to the assessment team.

Eng. Carolina Medina Foucher - OIA Technical and MSC's standards expert

Eng. Medina Foucher is Aquaculture Engineer and is in charge of OIA Sustainable Systems's Department since 2011. She is responsible for the technical implementation of all certification standards for fisheries products in Argentina and being qualified to perform pre-assessment, certification process and CoC audits. She participated in certification process and annual

surveillances audits against MSC Principles and Criterias as their respective chain of custody of the following Argentinean fisheries: Argentine anchovy (*Engraulis anchoita*), Patagonian scallop (*Zygochlamys patagonica*), Argentine hoki (*Macruronus magellanicus*) and Argentine Patagonian toothfish (*Dissostichus eleginoides*).

2.3 Peer reviews

Two suitably qualified experts were asked to conduct a peer review prior to the report proceeding to public consultation as a Public Comment Draft Report. Following a 10-day stakeholder consultation period, the following individuals were confirmed as peer reviewers:

Dr. Carlos Moreno Meier

Dr. Moreno is a professor and researcher member of Directive Council in the Universidad Austral de Chile with over forty-five years of experience in biology, ecology and oceanography of demersal fisheries, especially in Patagonian toothfish (*Dissostichus eleginoides*) fishery. From 1996 to 2005, he was ecologist advisor for Consejo Nacional de Pesca of Chile, designated by Republic President.

He has been scientist representative of the Government of Chile in the Committee for the Conservation of Antarctic Marine Living (CCAMLR), participating as First Convener, member of the working group on incidental mortality in CCAMLR fisheries and organizational committee member of Workshop on Marine Protected Areas.

He worked as member of FAO's expert group on Ecosystem Management and has been permanent member of the working group on bycatch in ACAP (Agreement of Conservation of Albatross and Petrels).

Dr. Leszek Bruno Prenski

Dr. Prenski is a fishery scientist, with over thirty-five years of experience in policy and management fishery issues. The last year, he developed activities in FAO Argentina as a Consultant and Assistant Coordinator in the project "Fisheries Policy Project Research" requested and funded by Federal Fishery Council. Since 2010, he has served as assessment team member in different certification process and surveillance against MSC's standard.

Among many others, he has been Executive Director of CAPECA (Argentinean Freezers Fishery Association) from 2000 to 2007, researcher and coordinator of the Demersal Program in INIDEP (National Fishery Research and Development Institute, Argentina) and he represented Poland at ICSEAF (International Commission for the Southern Atlantic Fishery).

He has been a member of the Animal Health and Food Sanitary Service (SENASA), administration council in representation of the fishery sector, external adviser in Foreign Office of Commission of Joint Marine Front between Argentina and Uruguay, and technical coordinator on CCAMLR (Commission for the Conservation of the Marine Living Resources).

3. Description of the Fishery

3.1 Unit(s) of Certification and scope of certification sought

The fishery proposed for certification is defined as:

Species: Patagonian toothfish ("merluza negra") *Dissostichus eleginoides*

Geographical area : The fishery under assessment is totally within the Argentine EEZ, extending from 35º S to 56º S; including Tierra del Fuego, Isla de los Estados and the Burdwood Bank (= Namuncura). Distribution area of the Patagonian toothfish fishery in the Southwest Atlantic is described by the following figure:

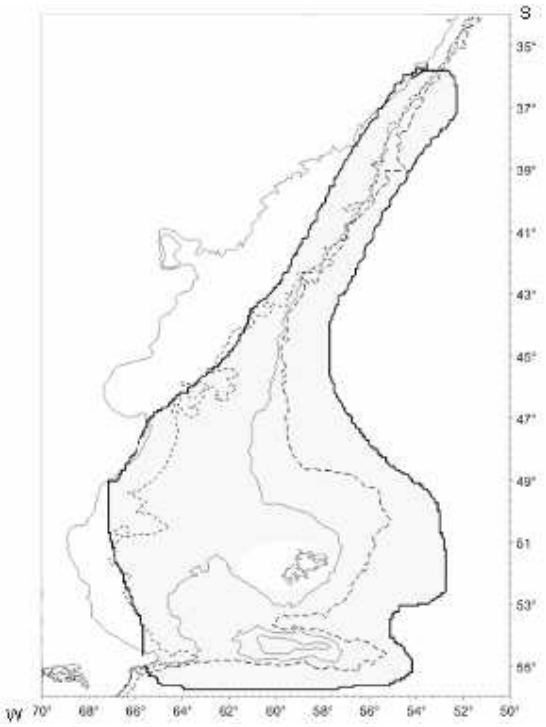


Fig. 1. *The Southwest Atlantic showing the coastline of Argentina with depth contours at 50 m, 100 m (dotted), 200 m, and 1,000 m (dashed), and the distribution area of Patagonian toothfish (shaded). (Source: INIDEP http://www.inidep.gob.ar/wp-content/uploads/Mer-negra.pdf).*

The fishery is distributed in the Argentinean Exclusive Economic Zone in two areas:

1) Longline and Traps: The area of more than 800 m deep on the south of parallel 52° LS from argentine limit with Chile up to the south of Burwood Bank.

2) Longline and Trawl Net: The area of caught are more than 800 m following the continental shelf break between 36° and 56° LS.

However, discussions about unit of certification between Assessment Team and Client Group determined that all distribution area of Patagonian toothfish (figure in black line) is under certification (from 35º S to 56º S, including Tierra del Fuego, Isla de los Estados and the Burdwood Bank).

FAO statistical area : 41

Method of capture : a) Industrial Bottom Trawl net; b) Industrial Bottom Longline; and, Industrial Traps.

Fishing season : Whole year

Fishery application authorities: Ministry of Agriculture, Liverstock and Fisheries (MINAGRI) and Sub-secretariat of Fisheries and Aquaculture (SSPyA)

Fishery management authorities: Ministry of Agriculture, Liverstock and Fisheries and fisheries dependencies (SSPyA) and Federal Fishery Council (FFP).

Client group : Estremar S.A., Argenova S.A., Empresa Pesquera de la Patagonia y Antártida S.A. (PESANTAR S.A.) and San Arawa S.A. List of vessels in unit of certification:

Company	Registration	Vessel	Length (m)	Fishing method
Estremar S.A.	0237	CENTURIÓN DEL ATLÁNTICO	112.80	Bottom Trawl
Argenova S.A.	0197	ARGENOVA XIV	52.30	Bottom Longline
Argenova S.A.	2661	ARGENOVA XXI	55.80	Bottom Longline / Traps
Argenova S.A.	2714	ARGENOVA XXII	37.70	Bottom Trawl
PESANTAR S.A.	0326	ECHIZEN MARU	89.60	Bottom Trawl
San Arawa S.A.	2098	SAN ARAWA II	56.46	Bottom Trawl
San Arawa S.A.	1530	TAI AN	100.50	Bottom Trawl

3.1.1 Confirmation of scope below MSC standard

The certification process of Patagonian toothfish caught in Argentine maritime area by private entities, according with the criteria, requirements and conditions unilaterally developed by Marine Stewardship Council (MSC) does not compromise neither prejudice in any way the position held by Argentina in competents multilateral forums that the certification of fishery products must be in accordance with WTO rules, in order to avoid unnecessary barriers or disguised restrictions on trade are created. Private standards adopted by MSC are not enforceable against Argentina and can not be interpreted as internacional standards in the light of WTO's agreements.

OIA verify that the fishery is eligible for certification by being in conformity with the MSC Certification Requirements v1.2 at 27.4:

- **Unilateral exemption:** There is an ongoing sovereignty dispute over the Malvinas Islands between United Kingdom and Argentina but the dispute is not affecting the Patagonian toothfish fishery sustainability, as the dispute does not affect the sustainability of the fishery. The main user of the resource is Argentina and the stock assessment includes

catches from the Malvinas fishery as well as from the Argentina fishery. Patagonian toothfish sustainability is not subject of any controversy affecting it is sustainability.

- **Destructive fishing practices:** There are not used destructive fishing practices.
- **Controversy – disputes in fishery:** There are mechanisms in place for resolving disputes between the fishery and the management system.
- **Fishery that has previously failed assessment or had a certificate withdrawn:** This fishery has not been assessed against the MSC Standard before.
- **Inseparable or practicably inseparable catches:** There are no non-target IPI species in the fishery.
- **Enhanced fishery:** This is not an enhanced fishery.

OIA concluded that the fishery is eligible to continue with the certification process.

3.2 Overview of the fishery

The knowledge of Patagonian toothfish fishery due to scientific development arises from fishing explorations during 1969-1970 and 1970-1971 by "Kaiyo Maru" (Japanese vessel) and "Walter Herwig" (German vessel), continuing between 1976-1977 by "Orient Maru" (Otero *et al.,* 1982).

The fishery of toothfish in the Argentine Sea started as a by-catch species in the late 1980s by trawlers from ex URSS and Bulgaria under Marco's Agreement. In 1992, the agreement between these countries and Argentina ended. In the early of 90's began the intensive catches by Argentine fleet, having a peak in 1995 of 18,000 – 20,000 t in the Southwest Atlantic.

Patagonian toothfish became a target species in the early 90s when 25 longline fishing vessels and 2 trawlers were incorporated into this fishery. The highest historical catch was nearly 20,000 t in 1995, including captures declared by Malvinas Islands toothfish fishery. Argentina established a TAC of 11,000 t in 1995 (SAGPyA Resolutions Nº 149/95 and Nº 317/96) reducing capture levels, which stabilized at approximately 12,000 t per year after 1998 (of which 80% was captured by Argentine fleet), and decreased to 7,300 t in 2003. Initially in the Malvinas Island, toothfish was taken as a by-catch associated with their trawling fleet, and then a TAC of 1,500 t was established in 2006. Actually, this fishery is under MSC certification for longline fleet. Moreover, Georgias Islands toothfish fishery, which is being administered by United Kingdom, has been certified as a sustainable fishery since 2004.

From 2004, research by INIDEP, FFP and the creation of "Comisión Asesora para el Seguimiento de la Pesquería de Merluza Negra (CASPMeN)" by the Resolution Nº 19/2002, has allowed the Patagonian toothfish fishery to become one of the best regulated and controlled fisheries in Argentina, considering different scenarios and associated risks, and recommending biological allowable catches that oscillated in about 2,500 and 3,500 t per year.

Characteristics of different vessels:

CENTURIÓN DEL ATLÁNTICO: Bottom trawl 620 mesh (length 56 m, vertical opening 5 m and mesh size 155 mm)

ECHIZEN MARU : Bottom trawl net type Carmen (length 74.40 m vertical opening 13 m and mesh size 130-150 mm)

ARGENOVA XIV	: Bottom longline fishing vessel with Mustad-Autocine system (840 snoods separated 1.2 m of each other, with circular hooks).
ARGENOVA XXI	: Bottom longline fishing vessel with Mustad-Autocine system (840 snoods separated 1.2 m of each other, with circular hooks) and traps with conical mouth (major diameter 0.45 m, minor diameter 0.25 m, length 0.50 m and mesh size 65 mm). Both gear fishing are interchanged according the operation and fishing area.
ARGENOVA XXII	: Bottom trawl net type Pedreira (length 43 m, vertical opening 4.5 m and mesh size 140 mm)
SAN ARAWA II	: Bottom trawl Lioness 127 (length 65.7 m, vertical opening 6 m and mesh size 152 mm)
TAI AN	: Bottom trawl Lioness 127 (length 65.7 m, vertical opening 6 m and mesh size 152 mm)

3.3 Principle One: Target Species Background

3.3.1 Target species

The fishery targets Patagonian toothfish *Dissostichus eleginoides*. The species is a member of the Family Nototheniidae and is one of two species in the genus, Antarctic toothfish (*Dissostichus mawsoni*) being the other. Both species have a bentho-pelagic distribution and are found in depths down 2,500 m, but adults are generally most common in depths of 600–1,800 m. Patagonian toothfish grow to over 2.2 m long and live to a maximum of over 50 years of age. The longevity of Patagonian toothfish, and hence the estimates of growth obtained from otoliths, has been validated using the bomb radiocarbon chronometer and through tag and recapture studies (refs). Sexual maturation occurs at 78 cm in males and 87 cm in females (Prenski & Almeyda, 1997).

3.3.2 Distribution

The species is widely distributed from the slope waters off Chile and Argentina south of 30º–35ºS to the islands and shelf areas in sub-Antarctic waters of the Atlantic, Indian and Pacific Ocean sectors of the Southern Ocean. In the Southwest Atlantic Ocean, *D. eleginoides* occurs throughout the Patagonian Shelf, from shallow depths of < 100 m to over 2,500 m depth around the periphery of the plateau. Its distribution is related to the Malvinas current, between 37º and 47º S in the area of the slope, and between 47º and 56º S on the slope and shelf. Commercial concentrations of the species are generally higher south of 48º S. The species is also common throughout the adjacent Chilean EEZ.

3.3.3 Fishery

The catch history for the Patagonian toothfish fishery in the Southwest Atlantic, including the area around the Malvinas, is shown by year for each nation and method below. It also shows the total catch and catch limits (TAC) for the Argentine and Malvinas fisheries.

Table 2. *Catch history for the Patagonian toothfish fishery in the Southwest Atlantic by year for each method and nation. It also shows the catch limits (TAC) for the Argentine (Pat) and Malvinas (Malv) fisheries.*

Years	Trawls (catch Plat Pat)	Longline (catch Plat Pat)	Traps (catch Plat Pat)	Trawl Arg Agree UR	Trawl (catch Malv.)	Longline (catch Malv.)	Traps (catch Malv.)	Total	TAC Patagonia	TAC Malvinas
1986	223	0			-	-		**223**		
1987	171	0		810	31	0		**1,012**		
1988	62	0		1,525	118	0		**1,705**	**25,000**	
1989	99	0		1,200	236	0		**1,534**		
1990	152	0		1,900	208	0		**2,341**		
1991	175	18		1,220	908	0		**2,433**		
1992	483	133		65	791	120		**1,591**	**25,000**	
1993	3,805	547		10	385	8		**4,755**		
1994	7,049	6,969			230	2,733		**16,981**		
1995	3,760	14,465			323	1,746		**20,295**	**11,000**	
1996	3,033	11,878			173	513		**15,597**	**11,000**	
1997	2,150	6,655			208	1,000		**10,176**	**11,000**	
1998	3,155	7,730			629	1,313		**14,172**	**8,600**	
1999	4,456	5,181			1,184	1,771		**13,480**	**8,000**	
2000	5,697	3,737			763	1,551		**12,306**	**6,000**	
2001	3,704	2,625			443	1,310		**8,082**	**6,000**	
2002	6,146	2,046			351	1,439		**9,951**	**6,000**	
2003	4,180	1,514	55		253	1,443		**7,323**	**4,800**	
2004	1,334	765			276	1,725		**4,100**	**2,250**	
2005	373	883	3		235	1,447		**2,695**	**2,250**	
2006	504	776	1		65	1,244	263	**2,852**	**2,500**	**1,500**
2007	484	948	320		53	1,407	59	**3,271**	**2,500**	**1,500**
2008	768	1,120	167		61	1,368		**3,484**	**2,500**	**1,380**
2009	648	1,760			285	1,134		**3,827**	**2,500**	**1,200**
2010	916	2,109			460	943		**4,428**	**3,250**	**1,200**
2011	1,012	1,727	250		338	1,221		**4,548**	**3,500**	**1,200**

The Argentine fishery for Patagonian toothfish on the Patagonian shelf started in the mid-1980s. It was initially a trawl fishery with predominantly small toothfish taken as bycatch on the Patagonian shelf in target fisheries for southern blue whiting (*Micromesistius australis*), common hake (*Merluccius hubbsi*), southern hake (*Merluccius australis*), kingclip (*Genypterus blacodes*) and red cod (*Salilota australis*). In addition, larger catches of toothfish (1,000–2,000 t) were made by USSR and Bulgarian vessels fishing as part of an agreement with Argentina between 1987 and 1991. The catch by Argentine trawl vessels remained at low levels until the early 1990s when the catch increased from <500 t in 1992 to almost 4,000 t in 1993. Trawl catches peaked at over 7,000 t the following year and remained high until 2004, subsequently dropping to 400–800 t per year before increasing to over 900 t in 2010 and over 1,000 t in 2011. The majority of the toothfish trawl catch is taken by trawlers targeting toothfish; the total amount of toothfish taken as bycatch by trawlers was was 117 t in 2011 and 97 t in 2012 (Martinez & Wohler 2012a; 2013). The majority of the target toothfish trawl catch from 2003 to 2012 was taken from the deep waters (>1,000 m) of the juvenile protection area.

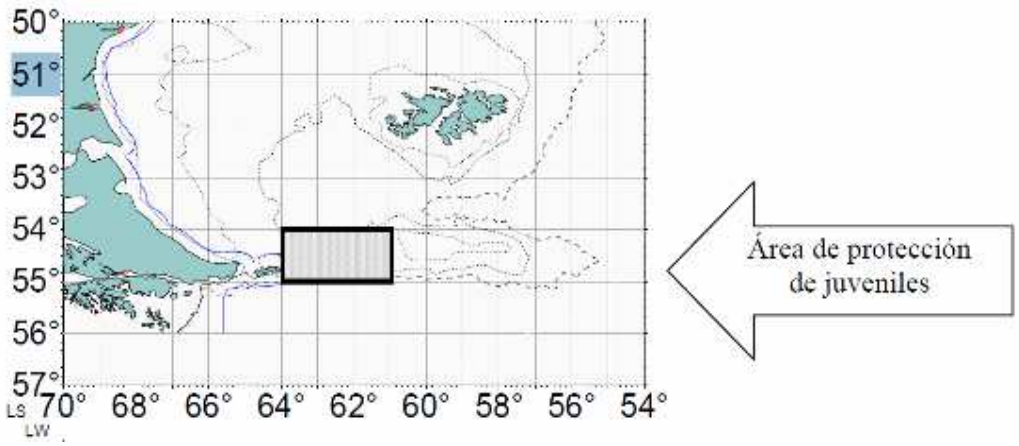


Fig. 2. *The southern Patagonian shelf showing (gray rectangle) the area established for the protection of juvenile toothfish (individuals <82cm).*

The Argentine bottom longline fishery started in 1991 and rapidly increased to a peak of 14,500 t in 1995 and almost 12,000 t in 1996. Catches steadily dropped to 1,500 t in 2003 and 750–950 per year from 2004 to 2007 before increasing again to a peak of 2,100 t in 2010 before dropping to 1,700 t in 2012. There has been a small catch by vessels using traps over the past decade peaking at 320 t in 2007. The target longline fishery currently includes a single autoline vessel and several Spanish line vessels. The fishing grounds of the various longline fleets is shown in the figure below. The autoline vessel uses an integrated weighted line (IWL) and targets toothfish on the northern slope at 37º–42º S and on the southern slope at 53º–55º S. The Spanish line vessels target kingclip fish in shallower waters from 43º–48º S. In the past few years the Spanish line vessels targeting toothfish have modified their gear to a trotline configuration with cachaloteras, to try and avoid depredation of catches by marine mammals (mainly sperm whales and killer whales). All the longline catch from 2003 to 2012 was taken from deep waters (>800 m). Around 50–60% of them were taken from the juvenile protection area.

The fishery for Patagonian toothfish around Malvinas has shown a similar pattern (Laptikhovsky & Brickle, 2005). Trawl catches began in 1987 reaching peaks of 900 t in 1991 and of 1,200 t in 1999, but averaging 300–400 t per year. The longline fishery began in 1992 and rapidly increased to a peak of 2,700 t in 1994 before dropping to 500 t in 1996. Since then it has ranged from 900 to 1,800 t averaging about 1,400 t. There has been a small catch by vessels using traps in 2006 and 2007.

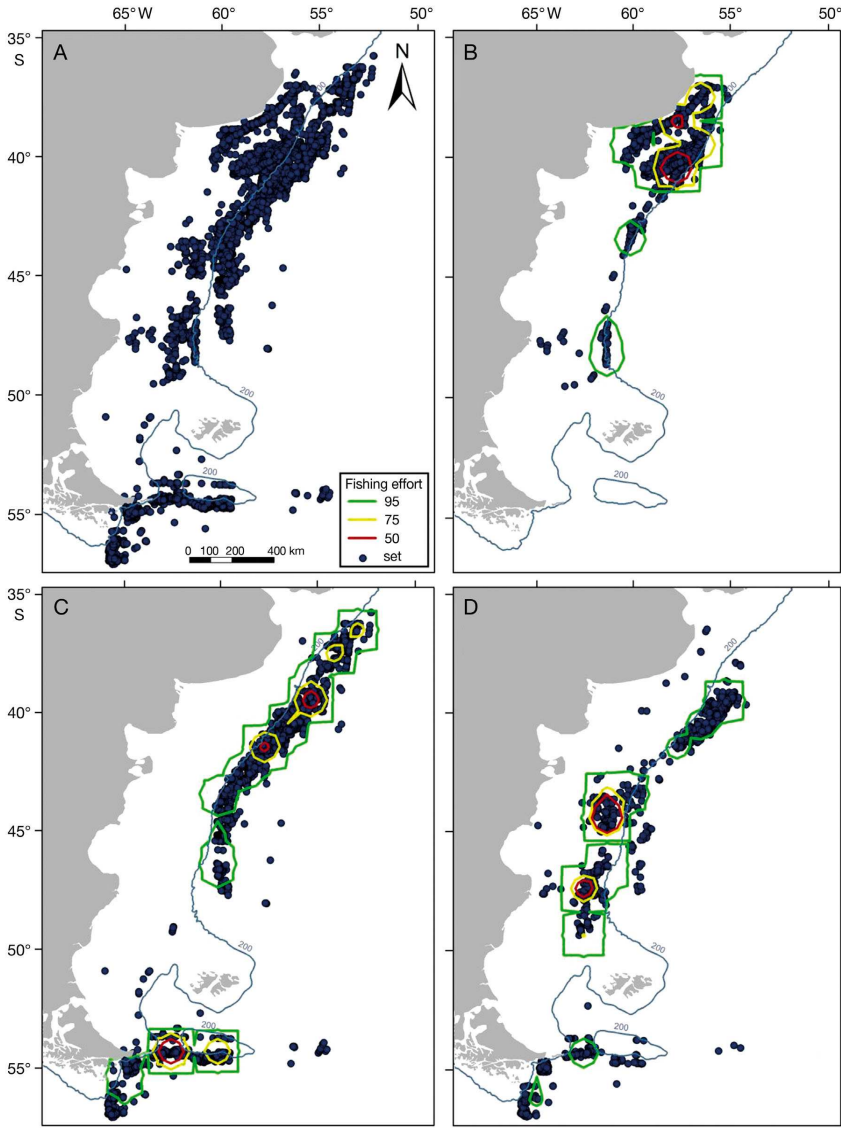


Fig. 3. *(A) Distribution of total fishing effort for demersal longline fishery from 2001 to 2010, and detailed by fishery fleet as follows: (B) Skate fleet, longliners targeting skate with the Spanish system; (C) Toothfish fleet, vessels targeting Patagonian toothfish (with autoline gear; and (D) Kingclip-Toothfish fleet, longliners targeting Patagonian toothfish and kingclip with Spanish or autoline systems. Points show the actual locations of line settings, and lines denote a kernel analysis (50%, 75%, and 95% contour plots) for distribution of fishing effort. (Source: Favero et al., 2013).*

3.3.4 Biology and ecology

a. Stock structure and movement

As noted above there is a continuous Patagonian toothfish population from 35º S off the coast of Chile around the southern tip of the South American continent to 35º S off the coast of Argentina.

Patagonian toothfish also extend to the east from Tierra del Fuego along the north Scotia ridge to Burdwood Bank and out to South Georgia. There are commercial aggregations and fisheries for toothfish throughout this region but the number of biological stocks is currently uncertain.

Several genetic studies have shown that the population of Patagonian toothfish at South Georgia is genetically distinct from the one found around the South American continent (Shaw *et al.,* 2004; Rogers *et al., 2006*). However, these and other genetic studies have found little genetic variation in toothfish collected from both coasts of the South American continent and no strong evidence for different stocks (Smith & McVeagh, 2000). A recent study looking at otolith microchemistry by Ashford *et al.* (2012) found some difference in elemental ratios in both the otolith core and otolith edge which was suggestive of two populations in the Southwest Atlantic. Spawning fish have been found in two locations in the region: one is around the southern tip of Chile and Argentina (Arana, 2009), whilst the second is on Burdwood Bank (Laptikovsky *et al.,* 2006). Ashford *et al.* (2012) hypothesised that eggs spawned by fish on Burdwood Bank were more likely to be retained on the bank to the south of the Malvinas Islands, whereas eggs spawned by fish to the south of Tierra del Fuego could be advected more widely across the Patagonian shelf, including the banks to the north and south of the Malvinas Islands.

In addition to these results from genetic and otolith microchemistry studies, the preliminary results of an Argentine tagging programme has also provided information on stock structure. As at the end of 2012, the programme had released 5,011 juvenile fish (<82 cm), of which 89 had been recaptured (Martínez & Wöhler, 2013). The majority of fish had moved less than 200 km, but there had been several long distance movements, and movements between fishing grounds. Five fish had been recaptured in Chilean waters, of which one had moved almost 2000 km from Burdwood Bank to 34ºS off the coast of northern Chile. Also, several fish had moved over 600 km from the northern fishing grounds at 40ºS off Mar del Plata to the southern fishing grounds off Cape Horn.

Studies in Chilean waters have found no differences in genetic structure of toothfish along the Chilean coast and Malvinas. Spawning of toothfish in Chilean waters has not been observed but fish in an advanced stage of maturity and spent fish have been found in the extreme south of their waters off Tierra del Fuego during the winter months (Arana, 2009). He hypothesised a southward movement of adult toothfish to the waters off Tierra del Fuego for spawning in winter followed by a reverse northward migration of spent fish during late winter/spring. He also noted the absence of juvenile fish from the Chilean trawl and longline fisheries suggesting that only adults, displaced from rearing zones in far southern Chile, or from Atlantic sectors, are present in Chilean waters.

In conclusion, although there have been several genetic, otolith microchemistry, and tagging studies in the region, there is still considerable uncertainty over the stock structure of Patagonian toothfish around the South American continent. It is clear from the genetic studies that the population of Patagonian toothfish at South Georgia form a separate genetic stock. However, it is unclear whether the rest of the toothfish form a number of small populations with shared juvenile grounds and spawning grounds but little mixing of adults between the main fishing grounds once they have recruited to those grounds, or whether it forms a single large meta-population – as appears to occur with Patagonian toothfish on the Kerguelen Plateau. In this regard, we note the successful implementation of the tagging study by Argentine scientists and endorse the widespread use of this approach throughout the region to further elucidate movement patterns and stock structure.

b. Reproduction and early life history

Antarctic notothenid fish typically produce large yolky eggs and mature at about half their maximum length. Spawning grounds have been identified off the southern tip of Cape Horn (Arana, 2009) and on Burdwood Bank (Laptikhovsky *et al.,* 2006). Toothfish appear to spawn during the winter months, and eggs and larvae are probably advected north on to the Patagonian shelf (Ashford *et al.,* 2012). As in other toothfish populations it is hypothesised that there is a gradual ontogenetic migration into increasing depths with age. Concentrations of juveniles occur at around 54ºS to the east of Staten Island, and also on the banks around the Malvinas Islands. As fish mature they may migrate to the spawning grounds and after spawning disperse back to their feeding grounds. The length at 50% maturity for Patagonian toothfish in Argentinian waters was estimated to be 78.3 cm for males, 87.1 cm for females and 82.2 cm for both sexes combined (Prenski & Almeyda, 2000).

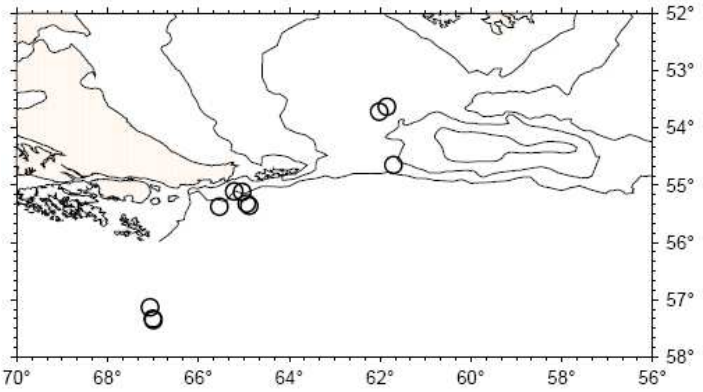


Fig. 4. *Areas of spawning (circles) of toothfish in the south of the Argentine continental shelf. Source: INIDEP 87-2005 technical report.*

c. Diet

D. eleginoides is an opportunistic carnivore whose feeding habits vary with age and depend on the local availability of food items. In the Southwest Atlantic, Garcia de la Rosa *et al.* (1997) reported *D. eleginoides* to be a mixed-species carnivore, feeding primarily on fish and secondarily on crustaceans and cephalopods. The diet changes with fish size and with depth as fish grow and move to deeper water, with juveniles feeding pelagically principally on krill in coastal waters, and fish making up a larger proportion of the diet as they migrate to deeper waters. Adults are mainly benthic feeders but capable of undertaking feeding migrations to pelagic waters. A similar pattern of feeding was reported for Patagonian toothfish caught around the Malvinas (Arkhipkin *et al.,* 2003).

d. Predation and depredation

Killer whales (*Orcinus orca*) and sperm whales (*Physeter macrocephalus*) have been observed to remove *D. eleginoides* from commercial fishery long lines on the Patagonian shelf and other Patagonian toothfish fisheries. Around South Georgia feeding by killer whales were found to depress CPUE on individual lines by about 50%, whilst sperm whales depressed CPUE by 20% (Moir Clark & Agnew, 2010). At Crozet Islands a similar pattern was observed where CPUE was depressed by 27% in the presence of killer whales and 9% in the presence of sperm whales. It is unlikely that *D. eleginoides* form part of the natural diet of killer whales because killer whales are unable to dive to the depths at which long lines are set and at which adult *D. eleginoides* occur and are only capable of

stripping long lines as they are harvested closer to the surface. In contrast, sperm whales are much deeper divers and readily dive to the depths inhabited by adult toothfish. They are thought to gather in areas of high toothfish concentrations in other parts of the world, and Yukhov (1971; 1972) recorded both Patagonian toothfish and Antarctic toothfish from the stomachs of sperm whales from throughout the Southern Ocean. It is therefore likely that Patagonian toothfish form part of the diet of sperm whales in the study area.

3.3.5 Stock assessment

The annual estimate of abundance and yield of toothfish in the Southwest Atlantic stock has been carried out annually by INIDEP since 2004 (Wöhler *et al.,* 2004 a-b; Wöhler & Martínez, 2005; 2006; Martínez & Wöhler, 2007 to 2012). During that time the assessment has been continually refined and updated to consider new input data series and alternative parameterisations. The most recent assessment of the stock (Martínez & Wöhler, 2013) is outlined below.

a. Catch history

The catch history used for the stock assessment is given below. The catches made by vessels using pots and traps have been included with the longline catches, whilst the catches made by the foreign trawl fleet from 1987 to 1993 have been included in the Argentina catch. All catches are included in the stock assessment (see below).

Table 3. *Total catch of Patagonian toothfish in the Southwest Atlantic by gear and location.*

Year	Trawl (Argentina)	Longline (Argentina)	Trawl (Malvinas)	Longline (Malvinas)	Total
1986	223	0	-	-	223
1987	981	0	31	0	1012
1988	1587	0	118	0	1705
1989	1298	0	236	0	1534
1990	2053	0	208	0	2341
1991	1348	18	908	0	2433
1992	499	133	791	120	1591
1993	3815	547	385	8	4755
1994	7049	6969	230	2733	16981
1995	3760	14465	323	1746	20295
1996	3033	11878	173	513	15597
1997	2150	6655	208	1000	10176
1998	3155	7730	629	1313	14172
1999	4456	5181	1184	1771	13480
2000	5697	3737	763	1551	12306
2001	3704	2625	443	1310	8082
2002	6051	2110	351	1439	9951
2003	4049	1578	253	1443	7323
2004	1334	765	276	1725	4100
2005	393	883	123	1559	2958
2006	474	612	156	1407	2649
2007	484	1268	53	1466	3271
2008	768	1287	61	1368	3484
2009	648	1760	285	1134	3827
2010	916	2106	400	1466	4888
2011	1011	1974	338	1466	4789

b. Population dynamics

The stock model was developed as an age structured production model (ASPM) of Patagonian toothfish in the Southwest Atlantic, and was implemented in Excel. Observations included catch, proportions-at-length in the catch, and standardised CPUE indices from the Argentine longline fleet.

The stock assessment model was structured with ages from 1–30, where the last age group was a plus group (i.e., an aggregate of all fish aged 30 and older). The model was run from 1986 to 2011, and initialised assuming an equilibrium age structure at an unfished equilibrium biomass. Recruitment was assumed to be the mean (unfished) recruitment (R_0) multiplied by the spawning stock-recruitment relationship (the deterministic Beverton-Holt relationship where steepness was estimated in the model).

The fishery operates over a large area and the catch is taken by both trawlers and longline vessels operating in different parts of the shelf and slope. The area fished has changed over time leading to differences in the size distribution of the catch between fleets and across years. A single stock was modelled but the catch was removed using the two concurrent trawl and longline fisheries. The selectivity for each fishery was described by a logistic curve which was then modified by a decreasing selectivity above a certain age. Years which appeared to have similar selectivities were grouped so that there were six time periods for trawlers and six time periods for longliners, with the time periods being different for the two fleets. Length data were only available for the Argentine target trawl and target longline fleets and so the other trawl and longline catches in the region were assumed to have the same length distribution as the Argentine trawl and longline fleets respectively. Also the catches from traps were assumed to have the same length distribution as the longline fleet.

c. Biological parameters

Natural mortality has not been estimated for this stock. Since 2004, it has been assumed equal to a value of 0.17, being an intermediate value within the range used for the assessment of Patagonian toothfish at South Georgia and Heard Island at the time (0.132–0.198).

The von Bertalanffy growth parameters were estimated for the Southwest Atlantic population by Cassia (2006). The mean weight-at-age and the maturity at age vectors were presented by Wohler & Martinez (2004). The maturity at age matrix was derived from the values calculated by Prenski & Almeyda (2000).

Table 4. *Estimates of the biological parameters used in the stock assessment.*

Parameter	Values
Natural mortality (M)	0.17
Length-weight	a = 0.02; b = 2.73
Von B growth parameters	K = 0.065 ; t_0 = -0.386 ; L_∞ = 184.7
Maturity at age	0,00; 0,00; 0,00; 0,00; 0,01; 0,05; 0,14; 0,33; 0,58; 0,78; 0,90; 0,96; 0,98; 0,99; 1,00; 1,00; 1,00; 1,00; 1,00; 1,00; 1,00; 1,00; 1,00; 1,00; 1,00; 1,00; 1,00; 1,00; 1,00; 1,00; 1,00; 1,00.

d. Observations and fits

Length frequency data were available for the Argentine trawl fleet for the years 1997, 2000, 2003–2011, and for the longline fleet for the years 2000, 2003–2011, and were weighted to the annual

catch of each year and respective fleet. Subsequently, they were transformed to numbers at age using the equation of the von Bertalanffy growth parameters and were used as indicators of the age structure of the population modified by the appropriate selectivity ogive.

Fine scale catch per unit of effort data were available for the longline fishery for the period 1993 to 2011. Preliminary analysis showed that vessels using "cachaloteras" had better catch rates, and their gear configuration was very different to conventional Spanish lines and autolines, and so these data were removed from the analysis (Martínez & Wöhler, 2012b). Catch (kg) per set was used as the measure of CPUE. A generalised linear model was used for modelling ln-transformed as a function of explanatory variables (including area, vessel, season etc), assuming normal error distributions. The resulting estimates of relative year effects, and their confidence intervals, provided abundance indices for the model.

There had been a marked change in the fleet composition and location and depth of fishing after the new regulations were introduced in 2004 (Martínez & Wöhler, 2012b). So the CPUE series was split into two series: 1993–2004 and 2005–2011 which had different catchability coefficients (q) for fitting in the model. The two CPUE series were fitted as indices of mid-season exploited biomass with an inverse variance weighting for each year.

Model parameters were estimated by minimising the total objective function, which was the sum of the negative log-likelihoods from the CPUE indices, catches, and age frequency data. Confidence intervals were estimated by parametric bootstrap based on the uncertainty in the CPUE indices. The parameters estimated included B_0, two catchability coefficients (q) (one for each of the CPUE series), the steepness parameter (h), 25 year class strengths (from 1985 to 2009), and 48 selectivity parameters (four for each fleet x period combination).

e. Stock assessment results

The results estimated the initial spawning stock biomass (B_0) for the model to be 130 000 t, whilst current biomass (B_{2011}) was 41 000 t (31% of B_0). Spawning stock biomass showed a steady decline from 1986 to 1994, followed by a steep decline to 2003 followed by a recovery to 2008 and a slight decline to 2011.

The pattern of recruitments (numbers of fish at age 1) show a marked pattern with a period of moderate strength year classes from 1986–1988, a period of strong year classes from 1994–1999 and a period of weak year classes since 2002. Martínez & Wöhler (2012b) note that the strength of the year classes in recent years may be biased low because of the lack of fishery independent data. The only data come from the commercial fishery, but in recent years the fleet has been required to fish in deeper waters, to avoid areas with high catches of juveniles (<82 cm), and has had a maximum allowable proportion of juveniles in their landed catch, so the proportion of juveniles in the catch has been lower than in the past.

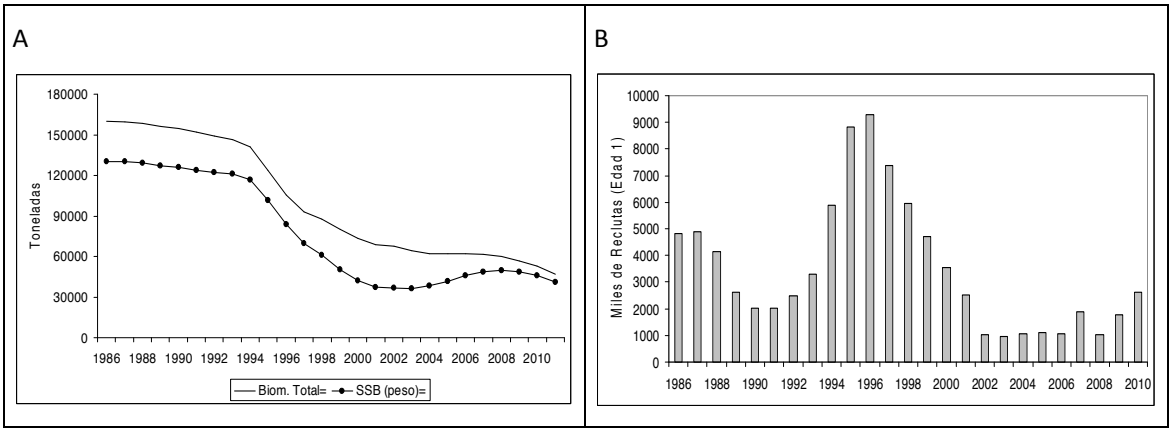


Fig. 5. *(A) Total biomass and spawning stock biomass trajectories (tonnes); (B) Estimated annual recruitment (thousands of specimens of age 1) to the population of West Atlantic toothfish (Source: Martínez & Wohler, 2012b)*

The model was unable to fit the high CPUE indices in 1993 and again in 2009, but was otherwise moderately good. Martínez & Wöhler (2012b) note that the observed decrease in CPUE in 2011 may be partly due to the non-inclusion of vessels using the "cachalotera" system in the final year. The fits to the catch data and numbers-at-age data were reasonable for most fleet and year combinations. There was strong evidence of domed shaped selectivity in all of the fisheries. The steepness parameter for the stock-recruit relationship was estimated to be 0.67.

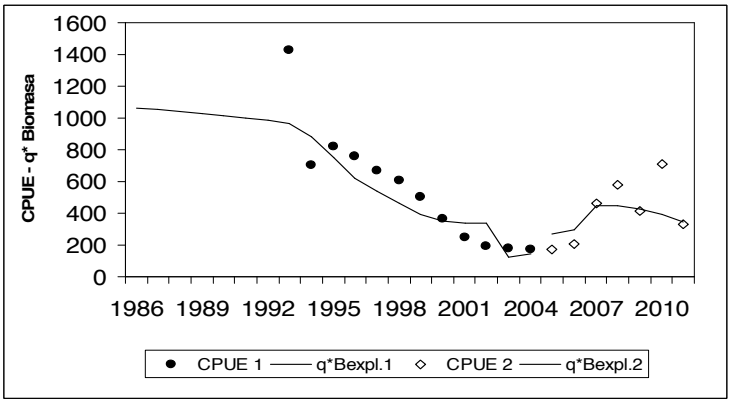


Fig. 6. *Model fit to the two longline CPUE indices of abundance (Source: Martínez & Wohler, 2012b).*

f. Management objectives

Projections of future abundance and yields were performed under 3 possible management rules in the long term, which were similar to those used in previous assessments of the Argentine toothfish fishery (Wöhler *et al.,* 2004 a-b; Wöhler & Martínez, 2005; 2006; Martínez & Wöhler, 2007; 2008; 2011).

I - Acceptable limit of spawning stock biomass fixed at 30% of B_0 (with an appropriate level of risk; see below)

II - Acceptable limit of spawning stock biomass fixed at 20% of B_0 (with an appropriate level of risk; see below). This is less conservative than objective I and hence is usually considered as a limit reference point for fisheries management.

III - Long-term maintenance of spawning stock biomass equivalent to the level estimated in early 2011. This rule aims to stop the downward trend observed in the resource, but does not involve a recovery of spawning stock biomass in the long-term.

In order to ensure the sustainability of such harvest strategy levels of the toothfish stock an F is estimated for objectives I and II that would, in the long-term, keep the population at levels at which the risk of not achieving these objectives is less than 10%. For objective III, a probability (risk) of 50% in considered as the reference level.

Martínez & Wöhler (2012b) note that Objective II as defined above is one of the reference points used to manage Patagonian toothfish fisheries in the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) area (Constable *et al.,* 2000, CCAMLR). The other reference point is to maintain the spawning stock biomass at 50%B_0. CCAMLR manages its fisheries by choosing the largest catch which satisfies both reference points as the catch limit for the following season (Constable *et al.,* 2000).

g. Yield calculations

Yield estimates were calculated by projecting the estimated current status for each model under a constant *F* assumption to meet each of the management rules,

$Rule_{I}$: Choose an *F* so that the probability of the spawning biomass dropping below 30% of its pre-exploitation level over a 38-year harvesting period is 10%.

$Rule_{II}$: Choose an *F* so that the probability of the spawning biomass dropping below 20% of its pre-exploitation level over a 38-year harvesting period is 10%.

$Rule_{III}$: Choose an *F* so that the median escapement of spawning stock biomass at the end of a 38-year harvesting period is 50% of the level in early 2011.

The probability of depletion and the level of escapement were calculated by projecting forward for a period of 38 years under a scenario of a constant annual F (i.e., for the period 2012–2049), for each estimate of current status. The depletion probability was calculated as the proportion of times where the predicted future SSB was below 30% of B_0 for objective 1, or 20% of B_0 for objective 2, at the end of the 38-year projected period. The level of escapement was calculated as the proportion of times where the predicted future SSB was below 50% of B_0 at the end of the 38-year projected period.

The numbers-at-age (and associated biomass) in the population at the beginning of 2011 estimated by the model were used to start the projection. Catches up to November 2012 were assumed known; recruitment, growth, and natural mortality were applied each year; and a constant fishing mortality was applied which met the decision rule criteria at the end of the projection period. Uncertainty was introduced into the projections by simulating a range of starting biomass estimates and stochastic recruitment. Random estimates of 2011 biomass were generated by assuming a normal distribution with mean B_{2011} of 46,800 t and standard deviation of 6,300 t.

For the yield calculations, recruitment for the years 2011–2049 was assumed to be lognormally distributed with maximum range of variation equal to that estimated by the model. It was assumed

that future catches from the longline and trawl fleets would be in the same proportion and have the same selectivities as occurred in 2011. A total of 250 simulations were performed in this way to evaluate the yields.

The results of the projections suggested that the 2013 catches for the entire Southwest Atlantic stock which met each of the three management rules were 3,251 for rule I, 4,004 t for objective II and 3,174 t for objective III. A catch limit of 3,500 t was set for 2013 by the FFC (ref).

The projected biomass trajectories shows that the spawning stock biomass is predicted to either reach, or drop below, 20%B_0 under each of the three harvest strategies for a period over the next ten years before increasing back to higher levels. Thus, under the more conservative management rule I, the biomass is projected to be at 20%B_0 in 2021 before increasing back to about 35%B_0. Under management rule II, the biomass is projected to drop more steeply and drop below 20%B_0 from 2018–2027 before increasing back to about 25%B_0. Under management rule III, the biomass is projected to drop below 20%B_0 from 2019–2023 before increasing back to the current biomass level (31%B_0). The reason for the initial decrease in projected biomass is primarily due to the series of poor recruitments since 2002 combined with the relatively low current stock status. The projected increase in spawning stock biomass after 2021 is because of the assumption that future recruitments (after 2010) will have returned to more average levels.

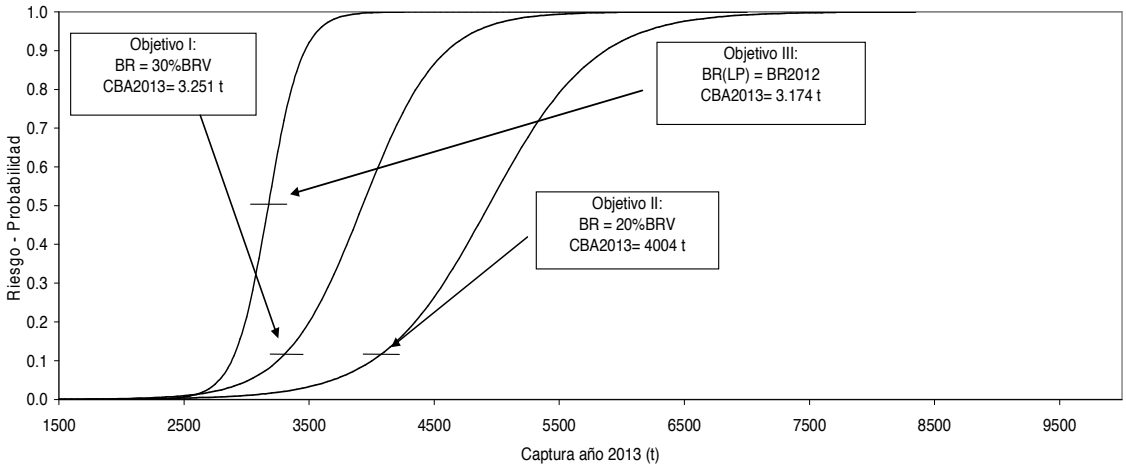


Fig. 7. *Estimated risks of achieving each of the three management objectives in 2013 under differing catch level (Source: Martínez & Wohler, 2013).*

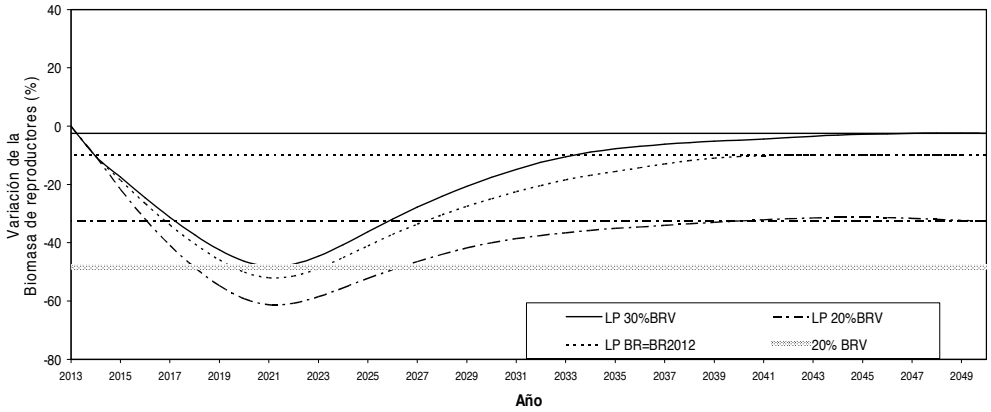


Fig. 8. *Percentages of variation of spawning stock biomass estimated according to the three management objectives compared to 2012. The double dotted line represents the level of 20% B_0 (Source: Martínez &Wohler, 2013).*

3.3.6 Management

Most aspects of the management of the fishery are considered below (Section 3.1.3). In this section we focus primarily on the outcome of the management measures implemented in 2004 to allow stock recovery and reduce the catch of juveniles. One of the key objectives of the management plan developed in 2004 was to prevent any further stock reduction and to rebuild the stock to 30% B_0. It can be seen from the table below that the catch limits set by managers for the fishery has been close to the projected yield for management rule I (the most conservative management rule) for that projected year in most years since 2004. Management rule I was to maintain spawning stock biomass above 30%B_0 in the long term, and management action to achieve that target seems to have been appropriate since 2004. Furthermore, as can be seen above the harvest strategy in place has meant that the spawning stock biomass has fluctuated around 30%B_0 over the past decade.

Table 5. *Annual projected yield estimates for each management rule (I–III) from stock assessments, subsequent catch limit for that year, and source of stock assessment results*

Projected fishing year	Rule I	Rule II	Rule III	Catch limit	Source
2004	2,196	2,980	3,264	2,250	Infotech 65–2004
2005	2,810	3,849	3,326	2,250	Infotech 15–2005
2006	2,067	3,046	2,875	2,500	Infotech 30–2006
2007	2,360	3,551	3,155	2,500	Infotech 42–2007
2008	2,497	3,478	3,405	2,500	Infotech 60–2008
2009				2,500	
2010	3,251	5,661	3,975	3,250	Infotech 19–2010
2011	3,513	5,615	4,369	3,500	Infotech 32–2011
2012				3,500	
2013	3,251	4,004	3,174	3,500	Infotech 32–2012

A second objective of the harvest strategy was to reduce the catch of juvenile toothfish (< 82 cm) in the fishery by the introduction of a juvenile protection area (APJ) and other management measures. The proportion of juvenile toothfish in the catch is shown in the table below. There has been a gradual reduction in the catch of juvenile toothfish both within the APJ, and for the area as a whole, from over 30% in 2003 to very low levels in 2011 followed by a moderate increase in 2012 (Martínez & Wöhler, 2013). It is believed that the very low value in 2011 was an underestimate (Patricia Martínez, INIDEP, *pers. comm*.). Nevertheless, the measures taken to reduce the catch of juvenile toothfish appear to have been successful.

Table 6. *Proportion of juvenile toothfish (in number) captured in the area of operation of the Argentinean commercial fleet and in the Area of Protection of Juveniles (APJ) by fleet, 2003-2012. (Source: Martínez & Wöhler, 2013).*

		2003 (%)	2004 (%)	2005 (%)	2006 (%)	2007 (%)	2008 (%)	2009 (%)	2010 (%)	2011 (%)	2012 (%)
Area Total	*Total*	37	38	32	28	16	13	12	9	3	16
	Trawl	44	57	71	45	20	2	13	10	1	16
	Longline	18	17	10	18	1	13	12	8	7	12
APJ	*Total*	25	18	84	23	23	15	18	10	6	18
	Trawl	25	18	84	27	20	15	22	10	1	16
	Longline	-	-	-	16	28	2	10	11	8	13

3.3.7 Low Trophic Level (LTL)

A species LTL is described as a species that in its adult life cycle phase the stock holds a key role in the ecosystem. The assessment team determines that the target species is not a key Low Level Trophic species based on its status at the time of the assessment process.

3.4 Principle Two: Ecosystem Background

3.4.1 Ecosystem characteristics

The extent of the American continent, until 55° S, places the Patagonian shelf under the effect of intense western winds of the Southern Hemisphere and generates large amplitude tides. The wind force the circulation of these relatively shallow water and contributes to vertically mix the water column. The combined effect of these forcings and the Malvinas Current, which runs along the outer edge leading source subantarctic waters rich in nutrients beyond 40° S, give the Patagonian continental shelf unique features in terms of physical, chemical and biological.

The Patagonian toothfish (*D. eleginoides*) has a wide distribution over the Argentinean and Chilean coast, Malvinas and Georgias islands, Southern Pacific Ocean and Antartic island of Indian Ocean. It southern limit of geograpical distribution is 55º S. In Argentina Patagoniann toothfish distribution is strongly related to subantartic waters: south Patagonic sector, Malvinas islands and west limit of Continental Shelf and Continental Slope until 35º S. This species of benthic-demersal behavior dwells among 70-1,500m deep, although there has been the presence of adult individuals up to 2,500m in submarine canyons (Prenski, 2000).

In general terms, it is accepted that the water masses of the Continental Shelf have a subantartic origin, which are then diluted by continental discharge, and modified by heat and mass exchange

with the atmosphere. The subantartic water mass enters the Continental Shelf around Malvinas and Tierra del Fuego islands where it is diluted by water mass from the Magallanes Strait (Krepper, 1977). The southern Patagonian marine environment is dominated by the effect of the Malvinas current. The flow of the superficial waters on the continental shelf is NNE (Figure 9). The friction between the Malvinas current and the continental slope causes an upwelling phenomenon which brings deeper waters (cold rich-nutrient waters) to the shallower Continental Shelf, where it is exposed to a higher luminous intensity and consequently they rise their temperature.

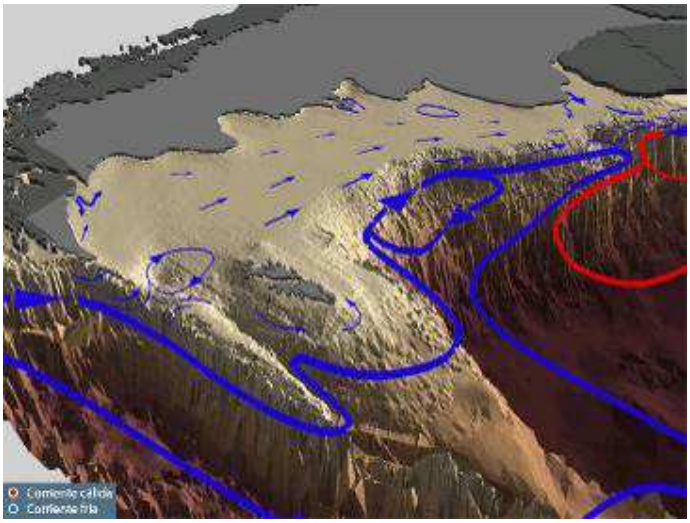


Fig. 9. *Threedimensional view of the circulation scheme of water masses over the continental shelf. Blue arrows indicate the circulation of the cold currents (Antarctic Circumpolar Current and Malvinas Current). (Source: http://www.capa.com.ar)*

The Burdwood bank, also called Namuncura, is a sensitive area within the distribution of Patagonian toothfish, and was set as a Protected Area ("Área Marina Protegida Namuncura - Banco Burdwood") by the Senate and Deputies Chamber of Argentina.

The Burdwood Bank is an undersea plateau with a prominence of approximately 200 m, part of the Scotia Arc projecting some 600 km from Cape Horn in the South Atlantic Ocean and located 200 km south of the Malvinas Islands. The Argentine defined the Bourdwood bank as a Marine Protected Area with the following objectives:

a) Conservation of Burdwood bank, due to its high environmental sensitivity and its relevance to protection and management of biodiversity of the marine seafloor. By Argentine law, it is a marine protected area.

b) Promotion of environmental and economic sustainable management of the marine benthic ecosystem

c) Promotion of scientific research addressed to the application of ecosystem approach of fishing activities and mitigation of global changes effects.

The Burdwood Bank is one of the four morphological features defined by the 200 m isobath off the coast of the Argentine - the other three being the Patagonian Shelf (Argentine Coastal Shelf), Isla de los Estados and the Malvinas Islands. It forms a barrier to the northward flow of the Antarctic

Circumpolar Current. The Bank itself (as defined by the 200 m isobath) is some 300 km from east to west and some 60 km from north to south. The channel to the west of the bank is about 80 km wide and 400 m deep while the channel to the east of the bank is 130 km wide and has a depth of up to 1,800 m deep.

Fig. 10. *Position of Burdwood-Namuncura Bank.*

Fishes from the cold Antarctic waters have a strong presence in the Continental Shelf and Continental Slope. The Gadiformes, like austal hake (*Merluccius australis*), hoki (*Macrorunus magellanicus*), and bacalao (*Salilota australis*) have a geographical distribution linked to subantarctic waters. Other species belonging to suborder Nothenioidei are fishes characteristic to antarctic waters, like the genera Patagonotothen, Paranotothenia, Notothenia.

3.4.2 Incidental capture, retained and bycatch species

a) Retained species

Characteristics of the comercial species caught in the Patagonian Toothfish fishery:

Grenadier (*Macrourus holotrachys*) **and Small Grenadier** (*Coelorinchus fasciatus*)

The grenadier inhabiting the South Atlantic West belongs to the subfamily Macrouridae comprising a large number of species. It is difficult to determine the boundaries of these species both because of the difficulty of conducting research on depth beyond 1200 meters, such as recognition of them by fishermen call all these species grenadiers.

The fishery is not significantly important due to the fact that concentrations are not schools or high density gains. It tends to be caught as bycatch in other fisheries under the common name of grenadiers.

It is a bathy-demersal species living between 300 – 1,400 m depth, along the continental slope, from 39º S a 57º S, to the South Georgia Islands. The grenadier is not commercially exploited, but is the main retained species in trap and longline fishery.

This species prefers cold waters, ranging from 2° to 7°C, but the highest concentrations (>100 t/nm2) were found between 480 and 825 m with temperatures from 2.1 to 4°C. Bigeye s I 40’ grenadier

seems to be concentrated in cool and deeper water s and dispersed, with lower values of densities, in warmer and shallower ones.

The banded whiptail seems to be more frequent between 52°S and 55°S to the north and west of Burdwood Bank, which could be then considered as its main area of distribution.

a) Biological aspects

Length frequency distribution of *M. holotrachys* ranged from 31 to 92 cm TL, but the most frequent sizes (4-5%) were between 51 cm and 62 cm TL. The notorious absence of smaller specimens suggests that juveniles inhabit different areas or at various depths or have a different behavior than adults.

C. fasciatus showed a total length range shorter than bigeye grenadier (12-40 cm TL). The most frequent sizes, 13% of the specimens, were from 27 to 32 cm TL.

For both species, but mainly *M. holotrachys* males are smaller than females.

b) Trophic ecology

M. holotrachys and *C. fasciatus* prey upon many organisms from different trophic levels. However the most important prey items are isopods, amphipods, echinoderms, polychaete worms and mysids and squids, fishes and jelly fishes.

C. fasciatus is an omnivorous predator, which consumed mainly benthic crustaceans, like amphipods and isopods. However, it had a wide trophic spectrum, including other benthic organisms (Le. Polychaeta worms, Ophiuroidea and Hydrozoa) and occasionally, juvenile and small size fishes (Le. notothenids).

Despite the fact that hoki *Macruronus magellanicus*, common hake *Merluccius hubbsi* and southern blue whiting *Micromesistius australis* are demersal pelagic species, their distributions overlap on the continental shelf with both species of grenadiers (Angelescu & Prenski, 1987). Considering their status in the food web, they prey over similar items, even though in different proportion (crustaceans, squid, notothenids), becoming in this sense a potential competitor. Finally, grenadiers are preyed by the southern hake *Merluccius australis* and Patagonian toothfish *Dissostichus eleginoides*, various mammals and the deep shark inhabitant *Notorhynchus cepedianus*.

There are also records of grenadiers captured by the shark *Somniosus microcephalus*.

In the South West Atlantic Ocean (SWAO), both the banded whiptail and the bigeye grenadiers are mainly captured as by-catch in' other important fisheries. Many fleets from different countries have operated on grenadiers without any regulations from 1970 onwards, when landings were declared for the first time and a high variability in them was observed in the whole period. The highest catches were obtained during the period 1983-1987, when the Soviet Union fleet was allowed, through different agreements with the Argentine government, to catch these species on the Patagonian shelf. That fleet operated mainly to the northwest of the Burdwood Bank and north of the Malvinas Islands.

Throughout this period, landings reached 30,000 tons and they rapidly declined afterward.

With the Patagonian toothfish comes some grenadier bycatch, especially when fishing between 300 and 500 m, more out of the 800 m down to 1500. This species is eventually targeted instead of being

retained in Patagonian toothfish fishery given that its catch concentration in the South is between 600-1000 m depth.

Chondrychthyans species

Argentina is part of several international agreements that are associated, directly or indirectly, to the conservation of cartilaginous fishes. These agreements include: CITES, which was approved by Law N° 22.344 (April 8th, 1981) and the Convention on Migratory Species (CMS), approved by Argentina through Law N° 23.918 (January 1st, 1992).

In May 2007, at the request of the Federal Fisheries Council (CFP), a first national workshop was developed to outline the basis for a National Action Plan for the Conservation and Management of Sharks. National Fishing and Environmental Secretaries (SSPyA and SAyDS) called for all institutions linked to this topic (research institutes, provincial and national agencies, and nongovernmental organizations). Thus, given the growing concern about the increase in catches and international trade of sharks the CFP signed the Resolution CFP N° 6/2009 to agree the National Action Plan for the Conservation and Management of Chondrichthyes (sharks, rays and chimaeras) in Argentina-PAN-Sharks, which is under the International Action Plan for the Conservation and Management of Sharks, PAI-Sharks.

The general objective of the National Action Plan for the Conservation and Management of Sharks (PAN-Tiburones: http://infoleg.mecon.gov.ar/infolegInternet/anexos/150000-54999/151432/norma.htm) was: on a participatory basis, in the frame of the Federal Fisheries Regime (Law N° 24.922), the General Environmental Law (Law N° 25.675), and international agreements, ensure the conservation and sustainable management of Chondrichthyes under the jurisdiction of Argentina following the guidelines of the Code of Conduct for Responsible Fisheries and the ecosystem approach to fisheries management.

a) Retained of cartilaginous fishes

The absence of detailed information on the impact of the Patagonian toothfish fishery on condrichthyans was the reason why the assessment group decided to apply the RBF.

Specifically the workshop provided the name of the species were considered most vulnerable.

The estimated growth rate in female *D. chilensis* (k = 0.07 per year) was lower than in males (k = 0.10) indicating that those growing more slowly, as common in most. The above coefficient values growths are the order of the estimates to study other species of striped large sizes, such as *D. chilensis*.

D. chilensis has an extensive juvenile stage until sexual maturity, from which the growth rate decreases. Both males and females reach the L∞ then 20 years. Obviously, this is a long-lived species and slow growing, which far to reproduce early. It is possible that the maximum reproductive efficiency of female *D. chilensis* in its southern most distribution is to produce a smaller quantity of eggs in order to invest more energy in each. This could also explain why the egg cases were larger in Patagonia.

In terms of population dynamics is necessary to indicate that this resource has the following features that make the management of the fishery should be particularly careful: Low fertility, low somatic productivity, high longevity (up to 20 years), late sexual maturity (10 to 12 years), and low resilience.

The food habits of the beaked skate (*Dipturus chilensis*) were studied utilising 274 individuals obtained from the incidental catches of the Argentine hake (*Merluccius hubbsi*) fishery. The most important prey were the Argentine hake, the southern cod (*Patagonotothen ramsayi*), the Argentine shortfin squid (*Illex argentinus*), the isopod (*Serolis schythei*), the ''raneya'' (*Raneya brasiliensis*, Pisces: Ophidiidae), and the Argentine anchovy (*Engraulis anchoita*).

A total of 45 prey species was identified. No differences in the diet between sexes, but significant differences among size classes and between immature and mature individuals were found. Two size-related dietary shifts previously reported in this species, at around 35 cm and 85 cm total length were confirmed and related to changes in habitat utilisation. The first shift entails a major change from benthic prey (mostly crustaceans) to demersal-benthic prey (mostly fishes) and the second change from demersal-benthic to demersal-pelagic prey (increased consumption of Argentine hake and decreased consumption of southern cod). The second shift coincides with sexual maturation and may reflect a behavioural response to maturation.

The results indicate that the beaked skate is a broad spectrum predator that exhibits demersal and benthic feeding habits. Also, its active predatory capabilities are illustrated by the consumption of demersal-pelagic prey like Argentine hake and Argentine shortfin squid.

In the work, “Síntesis de la información derivada de las Campañas de Evaluación de Peces Demersales Australes which includes hoki desarrolladas en el Mar Argentino, entre los 45° y 54°S, por los buques del INIDEP, durante el período 1992 al 2001. Peces Cartilaginosos”, 2005, the abundance of cartilaginous fishes in research cruises Southern 1992-2001, presents data from different Bathyraja spp. can variability associated mainly to capture of hake and *Macruronus magellanicus* (hoki) in the southern area (48 º -55 º S) of the Continental Shelf Argentina. The species mentioned are: *B. albomaculata, B. brachyurops* and *B. macloviana* were the species of the genus with the largest presence, with a wide distribution in the platform. *B. magellanica* filed a bounded distribution to the southern Patagonia region, between 48 º and 54.3 º S and depths between 44 and 143 m, associated with less saline waters than the rest of the stripes. B*. griseocauda, B. multispinis, B. scaphiops and B. cousseauae* presented a more restricted distribution with values of very low relative abundance. These species were caught mainly at depths greater than 100 m in dimensional ranges of temperature and salinity. *B. scaphiops* and *B. griseocauda* showed a distribution pattern with the highest relative abundances associated with the continental slope. The physical parameter which influences the distribution of *Bathyraja spp*. Continental Shelf Argentina is the temperature, showing the highest concentrations between 5 and 8 º C. Continental Shelf In Argentina, the capture of *Bathyraja spp*. was mainly associated with *Merluccius hubbsi* in the north sector (34 º - 48 º S) and *Macruronus magellanicus* in the southern area (48 º -55 º S) indicating the importance of these species as bycatch of species with commercial value.

The same report mentioned above as a cause of decline of some Bathyraja spp. densities the Malvinas fishery, being important in fisheries by-catch of Loligo and others of mixed demersal.

Catch of Spiny dogfish (*Squalus acanthias*) is associated with the hoki fishery. In the area of greatest concentration of hoki in the Continental Shelf Argentina (between 45 º and 55 º S) during the last years the indices of abundance of *S. acanthias* showed a stable trend.

Hoki (*Macruronus magellanicus*)

This is a pelagic- demersal species (depth range: 30 – 500 m) distributed between 42º S to 60º S. Its global distribution includes SE Pacific Ocean, SW Pacific Ocean, SW Atlantic Ocean, S of Chile and Argentina.

This species forms schools on the edge of the continental shelf, where they prey on anchovy, mysids, cephalopods, and euphausids. Migration pattern is to the South in spring and summer and to the North in winter.

In deeper waters, spawning takes place in late winter - early spring. Due to the presence of larvae under 12 mm length in November in the southern Patagonian region near the coast, it can be inferred that in this area spawning occurs in spring. The size at first maturity was estimated at 24 cm of preanal length (PAL) for males and 23 cm for females (equivalent to 59 and 56 cm total length respectively). The larvae of larger sizes taken from about 13 mm standard length have not yet completed their osteological development.

The maximum size observed was 117 cm total length (49 cm, PAL). Hoki has ability to regenerate caudal peduncle when it has been damaged, so it is safer to take into account the preanal length.

The diet includes small fish, crustaceans (especially amphipods and euphausiids), cephalopods and chaetognaths. Juvenile feeding differs from adults. Juveniles feed mainly on euphausiids, amphipods and chaetognaths as well as small fish and cephalopods. Adults, in addition to the aforementioned groups, eat fish (rock cod, Fuegian sardine) and cephalopods.

Its comercial value is high. Its maximum size is 115 cm and maximum weight 5 kg.

Southern blue withing (*Micromesistius australis*)

The southern blue withing is a pelagic demersal fish distributed on both coasts of southern South America and New Zealand. In the Atlantic Ocean it lives between 37º and 47º S closest to the continental slope and shelf (Otero, 1976; Otero *et al.,* 1982; Perrotta, 1982). It lives in cold-temperate waters from 100 m to 800 m (Madirolas, 1996). It has a high economic interest.

Their body shape is fusiform, characteristic of a good swimmer, at the maximum height of the first dorsal. It has lateral line parallel to the back, and small scales which are easily detached. The maximum length reaches 63 cm and ranges between 48 and 54 cm.

Individuals are found in waters with temperatures between 4.8 and 5.6° C. Thus two areas, one north of 48° S between Malvinas and 49° S (200 and 1,000 m) and one west of the islands at depths greater than 100 m were delimited. The breeding season is between the months of August and October, southeast of the Malvinas Islands. The size at sexual maturity corresponding to 35 cm and 39 cm in length for males and females, respectively, when they are in the third year of life. It is a

batch spawner with estimable fecundity. Fertilised eggs are spherical with a diameter of 1.26 to 1.43 mm, are therefore relatively large, and have no oil droplet.

The Southern Blue Whiting (SBW) diet is typical of carnivorous fish of subantarctic waters (levels 3-4), the main food consists of zooplankton (euphausiids and amphipods). In turn, it is important in the diet of hake, southern hake and hoki, so it can be considered a keystone species of the Patagonian shelf.

SBW is widely distributed in the Southern Hemisphere, in close relation to sub-Antarctic waters, south of New Zealand, Scotia Sea (near the Georgia Islands, South Shetland and Orkney), in the Atlantic and Pacific coasts of South America. It is distributed in Argentina waters from 37 ° S to 55° S, with bottom temperatures between 3° and 10° C; it is a typical species of the Malvinas Current.

In winter they can be located in five areas of concentration around the Malvinas Islands and on the slope and next to it in waters between latitudes 49° S - 52° S and depths of 200-1,000 m. During the spring the areas of higher concentrations northwest (48° S -50° S), northeast and southwest of the Malvinas Islands (51° 40' S and 52° 40'S) were found , in the summer season around the Malvinas Islands (46° - 48° S , up to 200 m deep) and the Bank Burdwood, near the 100 m isobath. Juveniles are distributed between 48° and 54° S, east of the Malvinas Islands, bottom temperatures between 4° and 6° C.

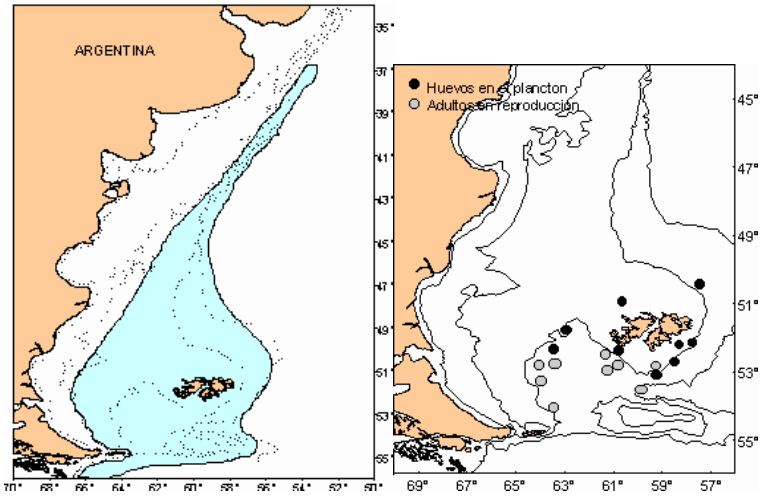


Fig. 11. *Geographic distribution and spawning area of M. australis (Source: Mandirolas, 1996).*

This species has a tendency to form schools, frequently placed close to the end of Continental Shelf. Their size, density, and position in the water column are variable (Madirolas, 1996).

It undergoes both high vertical and horizontal movements, and it is dispersed during night hours and concentrated during daytime hours. Spawning season occurs between August and September, at SW of Malvians Islands, although some individuals can be active until November (Weiss, 1974; Ciechomski *et al.,* 1981; Sánchez *et al.,* 1986; Sánchez & Ciechomski, 1995).

The southern blue witing is a long-lived species. The observed maximum age is 21 years, females live longer than males. Growth parameters indicated growth differences between sexes, with females greater than males at same age. Growth is fast until the age at first sexual maturity: 59% - 61% of maximum length in males and females, respectively (Cassia, 1996).

Historic recruitments have shown a negative trend, indicating that the stocks are being reduced. Currently, the harvest rate is high and fishing mortality (0.22) excedes the limit reference point (F30% =0.20) and is much higher than the target reference point ($F_{0.1}$= 0.14), suggested for management.

Austral hake (*Merluccius australis*)

This species is very similar to common hake, but can reach greater sizes (to 120 cm). Males reach 105 cm in total length. Apparently reproduce between late winter and early spring. The larvae are very similar to those of the common hake, but there are differences in the number of fin rays and vertebrae, pigmentation and in the process of ossification. It is a relatively long-lived species: with up to 24 years in females and 20 years in males.

Austral hake is ichthyophagous. Fish found in the stomach contents are myctophids, SBW, Creole cod, hoki, common hake, Patagonian toothfish, nototheniids and others. The second main food group consists of cephalopods (squid) and the third are crustaceans, which were found almost exclusively in the shallower portion of the main distribution range (47° - 55° S). Regional differences can be recognized in its diet of deep water between 40° and 47° S, where cephalopods and fish (almost exclusively represented by common hake) appear in equal proportions.

It inhabits from the Atlantic to New Zealand, likely constituting two populations, one inhabiting New Zealand and the other South America. On the Chilean side it can be found south of 40° S, at depths of 62 - 800 m; in Argentina inhabits on the continental slope between 38° and 55° S, from 50 to 400 m, closely related to the waters of Malvinas Current. There is no further evidence of displacement, but while in the fall and winter this hake can be found only on the level of 201 - 400 m during summer it is present in the same latitudes at less deeper waters. In the SW Atlantic its distribution follows the Malvinas current, in deeper waters near the continental slope. It has a low economic interest.

Creole cod (*Salilota australis*)

This species is called Patagonian cod. Its geographic distribution comprises both Atlantic and Pacific Oceans, below 40º S, from 90 to 300 m depth. It can be present inside the San Jorge and San Matias gulfs. Spawning area is around Malvinas Islands and Bahia Grande. It has vertical migrations, feeding on fish and cephalopods in neritic pelagic environment, and benthic organism like stomatopods,

crabs, and isopods. Population size is reduced and the catch in the hake fishery is around 6 t (Martínez & Wöhler, 2005).

The maximum size observed is higher in females (80 cm) than in males.

Spawning takes place in spring, south west of the Malvinas Islands, in areas with depths greater than 200 m. Eggs are spherical, with a diameter of 1,065 to 1,105 mm, with an oil globule. From 5 to 10 mm in size the larvae begin to feed independently. The size at first maturity is 35 cm in males and 33 cm in females. There are two nursery areas, one west of the Malvinas and another in Bahia Grande (49° 30'S – 52º S).

This species makes vertical displacements, which allow prey on elements of the neritic pelagic (fish and cephalopods) and benthic components (stomatopods, lobsters, isopods, crabs, etc.). Juveniles feed mainly on pelagic crustaceans (copepods, amphipods), fish eggs and larvae.

Squid (*Illex argentinus*)

The geographic distribution comprises the SW Atlantic, from 20º S to 55º S, beteen 50 – 1,000 m depth, along the continental shelf and slope. They are present throughout the year because there are four spawning groups (one in each season) which have different migration patterns. Squids are a semelparous species which live only one year and die after spawning, have a high growth rate, and its diet is varied.

It is a species with high comercial value, caught by a specific fleet equipped with jiggers.

b) Bycatch species

By-catch consists in the unintentional incidental catching of non-target species that may or may not be landed. The Patagonian toothfish fishery has different fishing gears that imply different types of interactions: trawl net, longline and traps (however, during the last four years, there were no operations with traps).

The most important by-catch species in the Patagonian toothfish trawl fishery is *Lamna nasus.*

Porbeagle (*Lamna nasus*)

From the species potentially affected by the Patagonian toothfish fishery, it should be noted that *Lamna nasus* (Porbeagle shark) has a conservation status of Vulnerable (UICN 2007).

The main species affected by the Patagonian toothfish fishery is the porbeagle shark (*Lamna nasus*) (called as porbeagle because of combination "porpoise" and "beagle", referencing this shark's shape and tenacious hunting habits). *Lamna nasus* is a species of shark in the family Lamnidae, distributed widely in the cold and temperate marine waters of the North Atlantic and Southern Hemisphere (Figure 12).

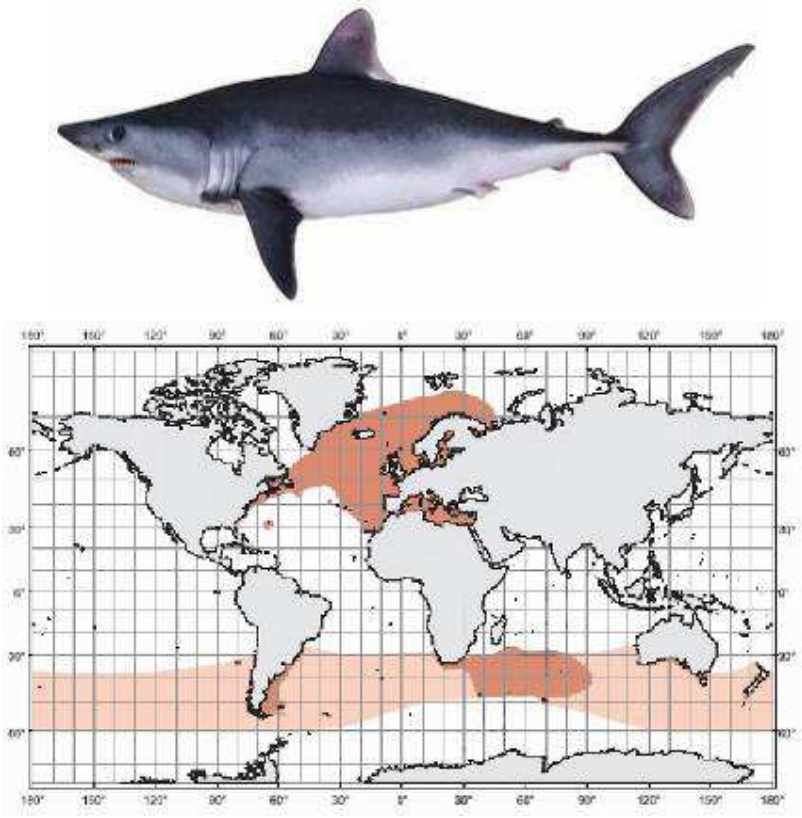


Fig. 12. *Portbeagle shark (Lamna nasus) and its geographic distribution*

The porbeagle typically reaches 2.5 m in length and a weight of 135 kg; North Atlantic sharks grow larger than Southern Hemisphere sharks and differ in coloration and aspects of life history. The most distinctive features of this species are its three-cusped teeth, the white blotch at the aft base of its first dorsal fin, and the two pairs of lateral keels on its tail.

The porbeagle is an opportunistic hunter that preys mainly on bony fishes and cephalopods throughout the water column, including the bottom. Most commonly found over food-rich banks on the outer continental shelf, it makes occasional forays both close to shore and into the open ocean to a depth of 1,360 m. It also conducts long-distance seasonal migrations, generally shifting between shallower and deeper water. This shark is fast and highly active, with physiological adaptations that enable it to maintain a higher body temperature than the surrounding water. It can be solitary or gregarious, and has been known to perform seemingly playful behavior. This shark is aplacental viviparous with oophagy, developing embryos being retained within the mother's uterus and subsisting on non-viable eggs. Females typically bear four pups every year.

This species cannot sustain heavy fishing pressure due to its low reproductive capacity. Direct commercial fishing for the porbeagle, principally by Norwegian longliners, led to stock collapses in the eastern North Atlantic in the 1950s, and the western North Atlantic in the 1960s. The porbeagle continues to be caught throughout its range, both intentionally and as bycatch, with varying degrees of monitoring and management. The International Union for Conservation of Nature (IUCN) has

assessed the porbeagle as Vulnerable worldwide, and as either Endangered or Critically Endangered in different parts of its range.

a. Biology and ecology

The streamlined shape and long gill slits of the porbeagle are adaptations for a fast, active lifestyle.

Fast and energetic, the porbeagle can be found singly or in groups. Its fusiform body, narrow caudal peduncle with lateral keels, and crescent-shaped tail are adaptations for efficiently sustaining speed, which have also been independently evolved by tunas, billfishes, and several other groups of active fishes. It and the salmon shark are the thickest-bodied members of their family (length-depth ratio approaching 4.5), and consequently have the stiffest swimming style: they oscillate their tails while holding their bodies mostly rigid, which confers propulsive power with high energy efficiency, but at the cost of maneuverability. The large gill surface area of the porbeagle allows more oxygen to be delivered to its tissues. It also has a short band of aerobic "red muscle" along each side, which can contract independently of the regular "white muscle" at a lower energy cost, enhancing the shark's stamina.

Great white sharks (*Carcharodon carcharias*) and killer whales (*Orcinus orca*) are plausible, albeit undocumented, predators of the porbeagle. Natural annual mortality is low, estimated to be 10% for juveniles, 15% for adult males, and 20% for adult females in the western North Atlantic.

The porbeagle is an active predator that predominantly ingests small to medium-sized bony fishes. It chases down pelagic fishes such as lancet fish, mackerel, pilchards, herring, and sauries, and forages near the bottom for groundfishes such as cod, hake, icefish, dories, sand lances, lumpsuckers, and flatfish. Cephalopods, particularly squid, also form an important component of its diet, while smaller sharks such as spiny dogfish (*Squalus acanthias*) and tope sharks (*Galeorhinus galeus*) are rarely taken. Examinations of porbeagle stomach contents have also found small shelled molluscs, crustaceans, echinoderms, and other invertebrates, which were likely ingested incidentally, as well as inedible debris such as small stones, feathers, and garbage fragments.

In the western North Atlantic, porbeagles feed mainly on pelagic fishes and squid in spring, and on groundfishes in the fall; this pattern corresponds to the spring-fall migration of these sharks from deeper to shallower waters, and the most available prey types in those respective habitats. Therefore, the porbeagle seems to be an opportunistic predator without strong diet specificity. During spring and summer in the Celtic Sea and on the outer Nova Scotian Shelf, porbeagles congregate at tidally induced thermal fronts to feed on fish that have been drawn by high concentrations of zooplankton. Hunting porbeagles regularly dive from the surface all the way to the bottom, cycling back every few hours; this vertical movement may aid in the detection of olfactory cues. There is a report of a one-year-old porbeagle 1 m long, which had fed on krill and polychaete worms.

b. Life history

The dissected reproductive system of an adult male shark: the paired testes are connected by the tubular epididymis to the base of a pair of cylindrical claspers. There are inset close-ups of the base, or head, of the epididymis, and the ampulla, which comprises the lower section of the epididymis. Another label indicates the epigonal organ, located near the lower end of the testes

The dissected reproductive system of an adult female shark: there is a single large, round ovary, which leads into a junction that splits off into the lower uterus, which leads to the vagina and then the cloaca, and a pair of anterior uteruses, each connected to an oviducal gland by a narrow tract or isthmus

The timing of the porbeagle's reproductive cycle is unusual in that it is largely similar in both hemispheres, rather than being offset by six months. This suggests that its reproduction is not significantly affected by temperature or day length, perhaps owing to its endothermic physiology. Mating takes place mainly between September and November, though females with fresh mating scars have been reported as late as January off the Shetland Islands. The male bites at the female's pectoral fins, gill region, and flanks while courting and to hold on for copulation. Two mating grounds are known for western North Atlantic porbeagles, one off Newfoundland and the other on Georges Bank in the Gulf of Maine. Adult females have a single functional ovary, on the right, and two functional uteruses. They probably reproduce every year. The litter size is typically four, with two embryos oriented in opposing directions sharing each uterus; on rare occasions a litter may contain as few as one or as many as five pups. The gestation period is 8–9 months.

Like other members of its family, the porbeagle is aplacental viviparous with oophagy, i.e. the main source of embryonic nutrition are unfertilized eggs. During the first half of pregnancy, the mother spawn enormous numbers of tiny ova, packed into capsules up to 7.5 cm long, into her uteruses. A newly conceived embryo is sustained by a yolk sac and emerges from its egg capsule at 3.2–4.2 cm long. At this time, the embryo has well-developed external gills and a spiral valve intestine. When the embryo is 4.2–9.2 cm long, it has resorbed its external gills and most of its yolk sac, but cannot yet feed as it lacks the means to open egg capsules. At a length of 10–12 cm, the embryo grows two massive, recurved "fangs" in the lower jaw for tearing open capsules, as well as two much smaller teeth in the upper jaw. It begins to feed voraciously on yolk, acquiring an enormously distended stomach; to accommodate this, the muscles on the belly split down the middle and the skin on the abdomen stretches greatly.

At 20–21 cm long, the embryo appears pink because it lacks pigment except in its eyes, and its head and gill region are laterally enlarged and gelatinous. The yolk stomach can comprise up to 81% of the embryo's total weight when it is 30–42 cm long. The embryo gains pigment and sheds its fangs at a length of 34–38 cm. Around this time, the mother stops producing ova. From then on, the embryo relies mainly on the yolk stored in its stomach, though it may continue to feed on remaining eggs by squishing the capsules between its jaws or swallowing them whole. It begins to transfer its energy stores from its stomach to its liver, causing the former to shrink and the latter to grow exponentially. The embryo is essentially fully pigmented by a length of 40 cm, and has assumed its newborn appearance by a length of 58 cm. By then, its stomach has shrunk enough for the abdominal muscles to close, leaving what has been termed an "umbilical scar" or "yolk sac scar" (neither is accurate). Several series of single-cusped teeth grow in both jaws, though they lie flat and remain non-functional until birth.

Newborn porbeagles measure 58–67 cm long and do not exceed 5 kg. Up to a tenth of the weight is made up of the liver, though some yolk also remains in its stomach and continues to sustain the pup until it learns to feed. The overall embryonic growth rate is 7–8 cm per month. Sometimes one pup in a uterus is much smaller than the other, but otherwise normal. These "runts" may result from a dominant, forward-facing embryo eating most of the eggs as they arrive, and/or the mother being unable to provide an adequate egg supply for all her offspring. Birthing occurs from April to

September, peaking in April and May (spring-summer) for North Atlantic sharks and June and July (winter) for Southern Hemisphere sharks. In the western North Atlantic, birth occurs well offshore in the Sargasso Sea at depths of around 500 m.

Both sexes grow at similar rates until the onset of maturation, with females maturing later and at a larger size than males. In the first four years of life, the annual growth rate is 16–20 cm and similar in both hemispheres; thereafter, sharks from the western South Pacific begin to grow slower than those from the North Atlantic. In the North Atlantic, males mature at a fork length of 1.6–1.8 m and an age of 6–11 years, and females at a fork length of 2.0–2.2 m and an age of 12–18 years. In the Southwest Pacific, males mature at a fork length of 1.4–1.5 m and an age of 8–11 years, and females at a fork length of 1.7–1.8 m and an age of 15–18 years. The oldest porbeagle on record was 26 years of age and measured 2.5 m long. The maximum lifespan of this species appears to be 30–40 years in the Atlantic, but could be as much as 65 years in the South Pacific.

c. Habitat

The trawl fishery for Patagonian toothfish operates mainly at East of Estados Island and at West of Banco Burdwood, over pre-established zones called “canchas” (fishing fields). In this area there is a strong depth gradient from 500 m to 1,500 m. The juveniles and adults are spatially separated accordingly to a vertical distribution where the separation point is 900 m. The long line fishery and the pot fishery have a large area of operation, because these gears can be use on rock bottom and at greater deeper, extending northward over the slope and continental shelf. There are no studies about the habitat and the impact of the fishery.

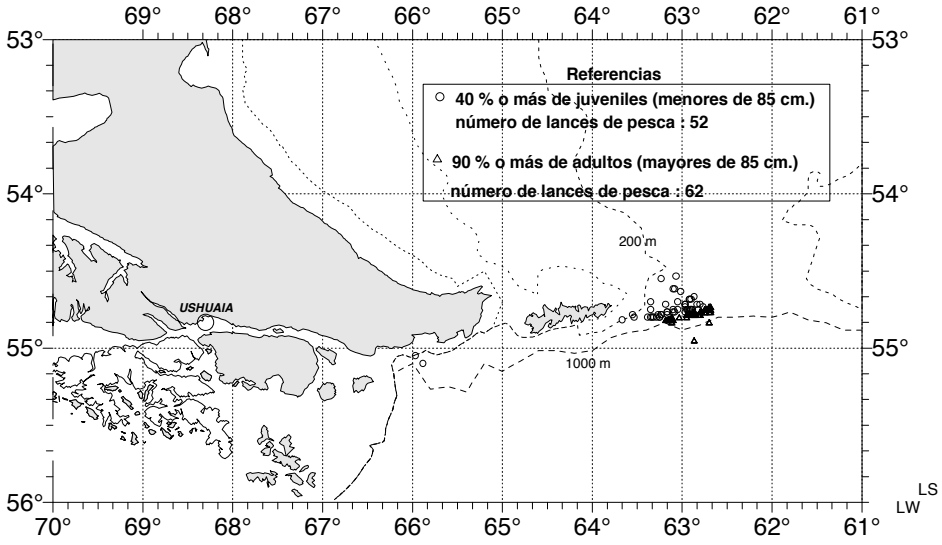


Fig. 13. *Location of adult and juvenile toothfish.*

Other species are:

i. Juveniles of *D. eleginoides*

The incidental capture of juvenile Patagoninan toothfish is more dependent on the depth at which the fleet operates than on the characteristic of the fishing gear (Cotrina, 1981; Cassia & Perrotta,

1996; Prenski & Almeyda, 2000). Such characteristic could be due to the spatial distribution of prey in relation with its size and the cannibalism of the adults on the juveniles.

Some selectivity studies testing of differents fishing gears have been done (Martínez & Wöhler, 2005). It is expected that longlining is more selective than trawling net. In both cases, it is recommended to develop comparative research addressing the selectivity of both fishing gears. These studies could improve the knowledge of selection pattern. Actually, Martinez and Wöhler assume that selection pattern is proportional to exploitation pattern.

According to Martínez and Wöhler (2005), the fishing actions affect the population of Patagonian toothfish from age 5 for longlining and from age 3 for trawl fishing. According to Payne *et al.* (2005) longlining selects fish from age 6, however they studied the selection of both fishing gear as a whole. For older ages, the longlining have a great contribution to fishing mortality rate.

One of the most important rules implemented in order to minimize the fishing mortality of Patagonian toothfish juveniles was related to depth. The Resolution SAGPyA 68/2001 regulates the mínimum depth (800 m) at which fishing operations targeting Patagonian toothfish must be carried out south of 54º S.

The bycatch species are distributed differentially according to depth and catches of hoki and southern blue whiting, are collected from hauls targeting these species in shallow waters. The grenadiers and Patagonian toothfish occur together, at greater depths.

ii. Fishes, crustaceans, squids and chondricthyans as by-catch species in the Patagoninan toothfish (*Dissostichus eleginoides*) trawl fishery

Table 7. *Other by-catch species in the Patagonian toothfish fishery. (Source: Prenski & Almeyda, 1997).*

Fishes	Crustaceans	Squids	Chondrycthyans
Pseudocrytus maculatus	*Pasiphaea acutifrons*	*Moroteuthis ingens*	*Somniosus pacificus*
Muraenolepis orangiensis	*Acanthephyra pelagica*		
Bathylagus sp	*Pandalopsis ampla*		
Notocanthus chemnitzi	*Thymops birsteini*		
Alepocephalus productus	*Lithodes santolla*		
Lepidion ensiferus			
Antimora rostrata			
Cottunculus granulosus			
Hoplostethus atlanticus			
Stomias boa			
Icichthys australis			

3.4.3 Interactions with seabirds

The Patagonian Shelf and its shelf break is a very important foraging area for seabirds, among other local and non-resident marine top predators (Croxall & Wood, 2002; Favero & Silva, 2005; Phillips *et al.,* 2006; Arata *et al.,* 2009). These waters are used as foraging grounds not only for species breeding in the area, such as wandering albatross *Diomedea exulans* and black-browed albatross *Thalassarche melanophrys*; northern giant petrel *Macronectes halli*, southern giant petrel *M. giganteus*, and whitechinned petrel *Procellaria aequinoctialis*, but also for those breeding in the southeast Atlantic such as the Tristan albatross *D. dabbenena*, and in the South Pacific, such as the

southern royal albatross *D. epomophora* and northern royal albatross *D. sanfordi*. Argentinean waters cover a substantial portion of the above-mentioned area, where the distribution of albatrosses and petrels overlap with large trawl, jigging, and longline fishing operations.

Favero *et al.* (2013) found that, in a 10 y period, the fishing effort decreased from almost 30 million to 5 million hooks set per year and the estimated total mortality was 7,470 ± 2,449 seabirds. The overall bycatch rate for the whole period was 0.033 (0.019 SE) birds per 1,000 hook (the majority being black-browed albatrosses and white-chinned/petrels). Seabird mortalities decreased by 1 order of magnitude towards the end of the decadal period, not due to lower bycatch rates but to a drop in the number of hooks set per year.

Interaction between marine mammals and fisheries may be classified in operational and specific. The former comprise damages to catches, to the fishing gear and marine mammals' involved (incidental mortality). The latter are interactions derived from ecological relations that connect marine mammals with fisheries (e.g. use of resources, parasites transmission). In different fisheries along the Argentinean waters operational interactions between marine mammals with the most fishing gear was registered and well documented. Specific interactions focused in the competitive relationship between top predators as marine mammals. The underlaying hypothesis is related with the likelihood of abundant marine mammal's populations can reduce catches, or, on the contrary, it can be affected by the catches from fishing. Such type of interactions was studied only in the Patagonian hake (Crespo *et al.,* 2007).

Killer whale (*Orcinus orca*) and sperm whale (*Physeter macrocephalus*) interactions with longline operations were recorded by CCAMLR observers between 2000 and 2002 at South Georgia. Demersal longlines, targeting Patagonian toothfish, were deployed in depths of 169 to 2,150 m. Most effort was concentrated along the 1,000 m depth contour. Sperm whales were the most abundant marine mammal observed in the vicinity of vessels when lines were being hauled, being present during 24% of hauling observations. Killer whales, the second most frequently sighted cetacean, were present during 5% of haul observations. A high inter-vessel variation was noted for interactions with both species. A comparison of geographic plots of cetacean sightings during hauls to fishing positions showed that interactions occurred over a wide geographic range. These were mostly correlated to the fishing effort on the different grounds, although some 'hotspots' for interactions were noted (Purves *et al.,* 2004).

3.4.5 Benthic habitats

There are scarces studies on bentos and no studies assessing the specific impacts of the hoki fisheries on the benthic habitat. The most complete benthic habitat studies were performed in the late 70's early 80's.

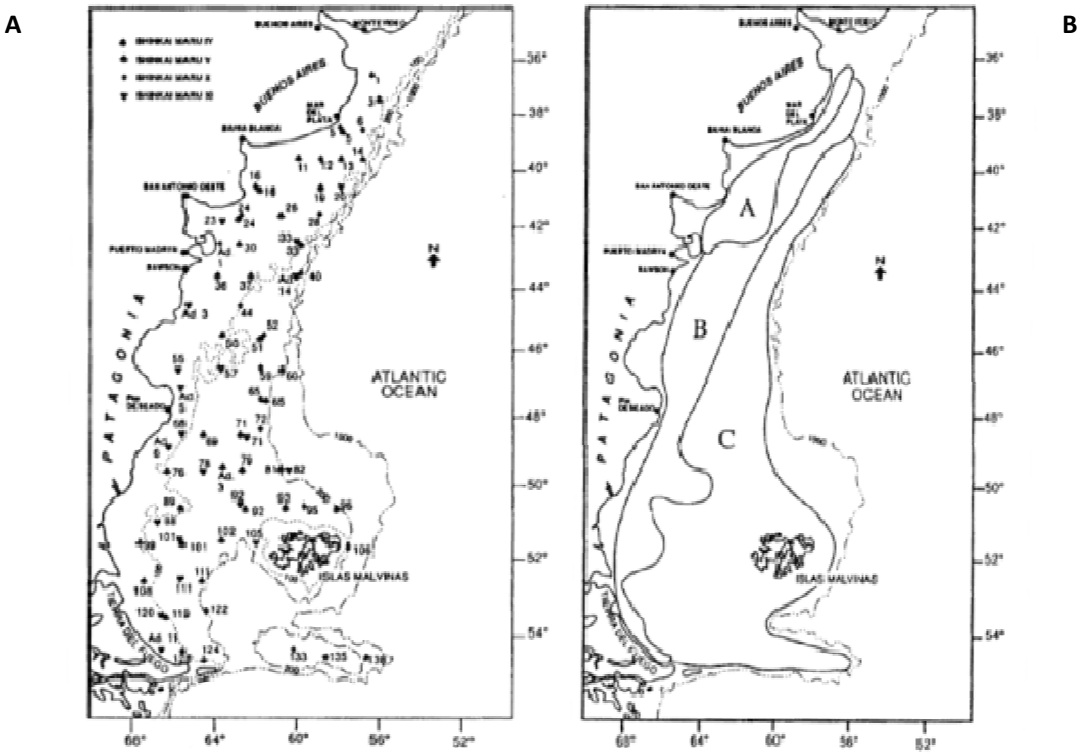


Fig. 14. *(A) Stations sampled for benthic communities during the Shinkai Maru R/V cruises. (B) The areas defined by the similarity on the composition of benthic mollusk, echinoderms and bryozoans. (Source: Bastida et al., 1992)*

These studies assessed the granulometric pattern and described and identified the macroinvertebrate assemblage, specially molluscs, echinoderms and bryozoans. 450 species were found. A total of 182 occurred in more than one sampling station. Based on the results of the study he Argentinean continental shelf can be divided in three areas:

i. **Area A** corresponds to the Bonaerensian district of the Argentine zoogeographic province, it occupies the inner shelf off Buenos Aires and northern Patagonia, and is under the influence of the subtropical waters of the Brazil current.

ii. **Area B** correspond to part the Atlantic sector of the Magellanic zoogeographic province and extends between the coast and area C off south and middle Patagonia and between areas A and C off Northern Patagonia and Buenos Aires; this area does not seem a characteristic group of exclusive species; several of the species that inhabit area C seemed unable to occupy the warmer waters of area B.

iii. **Area C** is also part of the Atlantic sector of the Magellanic zoogeographic province; it is the largest area and extends in the outer shelf (usually beyond the 100 m isobath) and the most diverse regarding benthic species; it is affected by the cold and highly productive waters of the Subantartic Malvinas current.

Within area C and inside the Burdwood bank, there is a special fragile type of habitat rich in cold water corals. The areas were granted a special protection status where no fishing is allowed (Federal Fisheries Council Act N° 18/2008, www.cfp.gob.ar). It has been considered as an area of interest for marine conservation by the Secretariat of Environment and Sustainable Development.

Although the exact impact is unknown, based on extensive worldwide literature, it is likely that the bottom gear impact the benthic habitat producing foodprints. However two factors may limit the extent of the impact of trawling on Argentinean benthic habitats:

(a) the existence of wide areas of untrawlable bottom, and,

(b) mandatory closed areas.

When comparing the haul-by-haul fishing distribution maps and the bathymetric map, it is possible to conclude that the untrawlable areas are in the same depth range than the areas where the fisheries concentrates. The untrawlable areas were also mentioned by the stakeholders during the interviews. There are several areas closed for trawl fishing in Area C which includes a part of a close area for protection of the juvenile of hake that may act as *de facto* protection of the benthic habitat and the whole ecosystem, as they are enforced using the vessel monitoring system. Those are:

(1) areas for the protection of hake juveniles (Federal Fisheries Council Act N° 265/2000);

(2) areas for the protection of Patagonian toothfish juveniles (Federal Fisheries Council Act N° 17/2002 of October 10 2002);

(3) areas closed for all trawling fisheries (Argentinean Federal Law Nº 23968);

(4) areas closed for the protection of cold water corals at the Burdwood Bank (Federal Fisheries Council Act N° 18/2008, the area is delimited by 54 ° 30' S and 60° 30' W, 54° 30' S and 59 ° 30' W, 54 °15' S and 60 ° 30' W, 54 ° 15' S and 59 ° 30' W).

3.4.6 Ecosystem impacts

An ecosystem unit –in fisheries- can be defined as "an ecological region composed of fish species that correspond or demand similar biotic and abiotic conditions, according to the relative abundance of the species, affinity indexes and specific diversity, and their location in the community trophic plots" (Angelescu & Prenski, 1987). Generally, they cover large areas of the continental shelf and open sea, with variable limits of geographic and barometric superposition.

a. Food web

Patagonian toothfish diet varies according to the age, size, and depth which are associated variables. It also varies according to the region of its wide distribution. The juveniles feed on krill in the region of South Georgia. At shallower depths (150 - 600 m), which are habitat of juveniles, the most important fish prey is SBW, Creole cod, hoki and *Stomias boa*. From 700 m, *D. eleginoides* prey on crustaceans such as *Pasiphaea acutifrons*, *Pandalopsis ampla* and *Acanthephyra pelagica*. At depths greater than 1,100 m, their main food is lobster (*Thymops birsteini*) and king crab (*Lithodes santolla)*. The grenadiers are particularly significant from depths greater than 900 m, accompanied by squid (*Moroteuthis ingens)*, for medium or smaller sizes toothfish. Another cephalopod, the octopus (*Octopus tehuelchus)*, appears at 700 m remained at depths greater than 1100 m.

Cannibalism reaches values higher than 9% and occurs throughout the year, especially at depths greater than 800 m where the presence of adults exceeds 80 %.

The diet of *D. eleginoides* corresponds to that of a carnivorous fish located in the trophic level 5-6. It is the largest predatory teleost inhabiting waters of the South Atlantic Ocean and has strong muscles to capture prey. Being a top predator, low biomass population is expected, and therefore carefull management measures must be aimed to rational exploitation (Prenski, 2000).

3.5 Principle Three: Management System Background

a. Area of operation of the fishery and under which jurisdiction it falls

According to INIDEP (INIDEP: http://www.inidep.gob.ar/wp-content/uploads/Mer-negra.pdf):

The Patagonian Toothfish (*Dissostichus eleginoides*) has a wide distribution in the southern hemisphere, which involves the oceans Atlantic, Pacific and Indian and North of the Antarctic convergence.

This nototenid of benthic-demersal behavior dwells among 70-1500 m deep, although there has been the presence of adult individuals up to 2500 m, in submarine canyons. Its distribution is related to the Malvinas current, between 37° and 48° S in the area of the slope, and between 48° and 56° S on talud and platform. The INIDEP report also mentions the presence of juveniles to the North of the Antartic Peninsula. However, commercial concentrations of the species are distributed more significantly south of 54° LS.

Argentine Patagonian Toothfish fishery is mostly captured in the southern demersal fishery. This fishery develop its activity in the Patagonian area located south of 54° LS which has a multi-species characteristics and has been largely exploited some of them as retained species. The trawl fishing fleet share time between toothfish, Blue Whiting (*Micromesistius australis*) and Hoki (*Macruronus magellanicus*) fisheries.

b. Particulars of the recognised groups with interests in the fishery

The assessment team identified a number of organizations and or people to contact and meet in order to properly evaluate the research and management activities associated with the Patagonian toothfish fishery:

o **Estremar S.A.**	Company
o **Argenova S.A.**	Company
o **PESANTAR S.A.**	Company
o **San Arawa S.A.**	Company
o **Consolidated Fisheries Ltd.**	Company (MSC-certified in toothfish fishery, www.msc.org)
o **SSPyA**	Fisheries National Enforcement Authority
o **FFC**	National Fisheries Authority
o **Chancellery**	Foreign Affairs Agency
o **SAyDS**	Environment Argentine Agency.
o **PNA**	Responsible for control of fishing vessels to prevent fishing within prohibited areas

o **INIDEP**	Research Institute
o **Mar del Plata National University**	Research
o **FVSA**	NGO Environment Foundation
o **CEDEPESCA**	NGO Environment Foundation
o **CAIPA**	Fisheries Enterprise Chamber
o **CAPECA**	Fisheries Enterprise Chamber
o **CEPA**	Fisheries Enterprise Chamber
o **SOMU**	Maritime Workers Union
o **Sidney Holt**	British Marine Scientist
o **Dr. Paul Brewin**	Fisheries scientist

c. Details of consultations leading to the formulation of the management plan

It is fishery with its technical development led by the scientific personal of INIDEP supported by the FFC. As a result a study of the most relevant aspects related to commercial fishing and the establishment of a solid management system has been feasible. The toothfish Fishery in the Argentine Sea is now one of the most heavily regulated and controlled by the National Fisheries Management System.

Traditionally, the Patagonian toothfish was caught as (bycatch) by the fleet of freezer trawlers targeting hake. While incidental capture by these traditional vessels did not represent significant percentages of the total catch on the catch of target species (hake, hoki, squid), it should not be neglected. Since then, because overfishing of hake, trawlers were forced after 1999 to fish in the Southwest Atlantic in deep waters south of 48º S, catching young toothfish, to increase the economic performance of the units.

The Argentine Patagonian toothfish Fishery begins to develop at the beginning of the Decade of the '90s and thereafter there was rapid growth starting in 1992, when fished 592ton, mostly coming from by catch of factory vessels that process fish paste (Surimi)

From the incorporation of new vessels to the fishery, mainly longliners, the catch grew rapidly until 1995, when they reached the 19,700 t in its historical maximum. This led to a situation of over-exploitation, which was advised by INIDEP (Wöhler *et al.,* 2001; Wöhler & Martinez, 2002) and prompted the recommendation of various management measures to achieve the sustainability of the resource and of the fishery.

Until 1996, the management measures consisted in an annual total allowable catch (TAC), stated following INIDEP recommendations from data collected on annual Austral Demersal Resources Research surveys. During 1996 by Resolution SAGPyA N° 446/96 it was established the minimum catch size in 85 cm total length.

On may 2000 by Resolution SAGPyA N° 177/00, the Argentine Republic adopted de VMS system and catch document stated by CCAMLR's Conservation Measure N° 170/XVIII. It also established the obligation to ship an On Board Inspector or Observer. This management measure join with Resolution SAGPyA N° 68/01, modified by Resolution SAGPyA N° 426/01, Act FFC N° 34/01, Resolution SAGPyA N° 19/02, Resolution FFC N° 17/02, Disposition SSPyA N° 14/02, Resolution FFC N° 1/03 and 9/03 delineate the Management Plan, adding same new regulations:

1. Bottom net trawlers must operate to more than 800m deep if done on the south of 54° LS parallel and more than 1,000 m deep if done northern.

2. Longliners can operate all over Argentine Exclusive Economic Zone and adjacent waters.
3. Bottom net trawlers must obtain a certification from Naval Engineering Collage that can operate to more than 1,000 m deep.
4. Minimum hook size 4 cm.
5. Decrease of minimum catch size (juveniles) to 82cm total length.
6. Compulsory shipment of on board Inspector and Observer.
7. Prohibition of fishing in the area delimited between 54º-55º LS and 61º-64º LO, in order to protect juveniles.
8. Patagonian toothfish is considered by catch up to 3% of total catch in the whole fishing trip.
9. 15% juveniles catch allowed for the whole fishing trip.
10. 5 miles displacement in the event of exceed allowed by catch or juveniles.
11. Haul by haul, biweekly and whole fishing trip catch report.
12. Creation the advisory follow-up Committee for Patagonian toothfish Fishery composed of representatives from the authority and owners of fishing vessels dedicated to the fishery.
13. The formation of a Joint Committee of Discharge/Landing Control composed of representatives of the Authority and the companies on the fishery, dedicated to verify the strict compliance with regulations in force.
14. Obligatory 96 hours prior to arrival to port announcement to fishing authority and Discharge Control Committee.
15. Additional penalties for non compliances.

In December 2004, by Disposition SSPyA N° 597/04, it was sanctioned the Patagonian toothfish Landing Control Procedures Manual, with the aim of controlling the capture of juveniles of the species. The Manual establishes the forms and types of controls to be carried out jointly the fisheries administration inspectors and representatives of the companies in the fishery (Landings Control Committee). It also establishes various measures (total length, length of the H&G and several fins long) that can be used for the detection of less than 82 cm size juvenile.

Even with these measures, the total biomass and reproductive biomass of species continued declining to alarming levels, so that in the year 2005 (Act FFC N° 5/05) the national fisheries administration began to implement a series of management measures which have led to a more conducive situation for the fishing resource. The biological objective was to retrieve the reproductive biomass to 30% of the original. The main measure were:

1. Establishment of a precautionary TAC.
2. Assignation of the TAC.
    a. 45% for bycatch.
    b. 55% for direct fishing.
3. Distribution of 55% between vessels with catch history in year 1989 to 1996, which 5 ships were assigned with Catch Authorizations (CA).
4. CAs were transferable between ships of the same company.
5. Administrative reservation of 226 ton, which was distributed among 3 ships from a single company.

With small variations in the percentage earmarked for fishing as a by catch and directed fishing of 30% and 70% respectively, there was continuity with the annual Catch Authorizations System

(Resolutions FFC N° 5/06 and 1/07), until Resolution FFC N° 9/07 when Catch Authorizations were granted for 5 years, from January 1, 2008, as a fraction of the TAC, in the following manner:

Fishing vessel	Company	C.A. (% of TAC)
ANTARTIC I (M.N. 6319)	ESTREMAR S.A.	25.11 %
ANTARTIC II (M.N. 6447)	ESTREMAR S.A.	9.20 %
ANTARTIC III (M.N. 6505)	ESTREMAR S.A.	5.69 %
ECHIZEN MARU (M.N. 6488)	PESANTAR S.A.	6.09 %
VIENTO DEL SUR (M.N. 1858)	PESPASA S.A.	9.58 %
ARGENOVA XI (M.N. 02199)	ARGENOVA S.A.	8.32 %
ARGENOVA XIV (M.N. 0197)	ARGENOVA S.A.	6.32 %
ARGENOVA XV (M.N. 0198)	ARGENOVA S.A.	10.76 %

Also the companies or enterprises group maximum percentage of concentration was established at 40% and a remaining percentage as administrative reserve (16%).

Additionally in 2007 (Act FFC N° 1 and 4/07) it was implemented the "Marking and Recapture Patagonian toothfish (*Dissostichus eleginoides*) Program", elaborated by the INIDEP, which remains effective until the date.

In November 2009, the FFC decided to change the Catch Authorizations System ant include the fishery in the Individual Transferable Quota (ITQ) System as prescribed for article 27° of Federal Fisheries Law 24.922 (Resolution FFC N° 21/09). Thus, from year 2010 the same companies and vessels granted with CAs received ITQs of Patagonian toothfish.

Finally, through Resolution FFC N° 21/12, the Council compiled all management measures sanctioned by the body.

The Undersecretary of Fisheries and Aquaculture (SSPyA) has the responsibility to implement the Management Plan.

In the last analysis on the evolution of the Patagonian toothfish fishery in the Argentine Sea, the stock, and the fishery was in stable condition in terms of landed catches l and the percentage of juveniles to the total catch (Martínez & Wöhler, 2005, 2006, 2008, 2009, 2010). The management strategy established by the fisheries authorities, particularly since 2005 and involving reduction of the total catch and limited allocation of fishing permits by ITQ, were the determining factors of stable conditions. Results also revealed a fairly stable total and reproductive biomass (Martínez & Wöhler, INIDEP, Technical Reports N°19/2010, 13/2011, 32/2011, 41/2011, 32/2012 and 31/2013).

d. Arrangements for on-going consultations with interest groups

Regularly, the National Institute of Fisheries Research and Development (INIDEP) updates the research program to obtain information and knowledge in order to advice the Management System (www.inidep.edu.ar). I.e, see Resolution INIDEP N° 133/2010. As well, Law N° 24.922 recognizes that scientific data can be provided by other research institutions.

The Federal Fisheries Council makes public their minutes (Acts), Resolutions, technical reports and other documents received. It also convenes regularly to researchers or interest groups for technical advice prior to the decision-making and report it in their minutes (www.cfp.gob.ar). Something similar happens with the Undersecretary of Fisheries and Aquaculture, although there are not saved detailed records (minutes) of these meetings.

Resolution SAGPyA N° 19/02 a created an advisory follow-up Committee for Patagonian toothfish Fishery, composed of representatives from the authority and each companies. This Commission has legal force as an advisor body and has been meeting regularly, producing a minute summarizing the issues discussed during its meetings and providing its conclusions to the FFC.

Law 24.922 specifically establishes that restrictive measures, such as close areas or seasons must be given widespread coverage and must be communicated adequately in advance to fishermen and to the proper authorities of control, surveillance and monitoring (Article 19 of Fisheries Law 24.922). As a general rule, it can be observed from legislation that fisheries regulations of lower hierarchy, generally set out the requirements in a comprehensible manner, with quite adequate extension and basis of its statements, about the reasonability of the measures adopted, which allow, among other things, understand adequately:

a. Facts and antecedents for the measures.
b. Regulated topic.
c. Motivation of measures, in the sense of knowing the reasons that inducted their establishment.
d. Objective of measures, in the sense that these are proportional and adequate.

An Honorary Consultant Commission at the Federal Fisheries Council does exist (Article 10° of the federal Fisheries Law and Resolution FFC N° 7/2004), composed of all the associations business and workers that exist in the country, and is used to advise on all matters related to fishing activities. Also de Federal Fisheries Council and the Secretary of Environment and Sustainable Development promotes stakeholders meetings on specific issues. In both cases stakeholders are encouraged to participate in different events according to the issue involved.

Decisions based on technical advice or consultation process are expressed throw FFC, MINAGRI or SSPyA regulations and applied on desired time on the fishery. So, the management of the fishery is adjusted as a result of the consultation process.

Finally Law 25.831/2003 establishes the free access to ambient public information.

e. Details of non-fishery users or activities, which could affect the fishery, and arrangements for liaison and co-ordination

The Assessment team didn't identify any non-fisheries users or activities affecting the fishery.

f. Details of the decision-making process or processes, including the recognised participants

f.1. Institutions Dealing with the Fisheries and Ecosystem Management, Control and Enforcement at International Level

f.1.1 Technical Commission of Rio de la Plata River and it Maritime Front Treaty

The Rio de la Plata River and it Maritime Front Treaty creates in its article 73° an Uruguayan - Argentinean Common Fishing Zone (ZCPAU), delineated by two curve lines traced at 200 nautical miles from both parts of Rio de la Plata river mouth, excluding 12 nautical miles from the coast in each country (Territorial Sea) (Figure 14). The decision making authority (Administrative Authority) is the Mix Technical Commission of Maritime Front (CTMFM) created by Treaty's article 80°, while Enforcement Authorities are different national administration offices of each country, depending on what it is concerned (fishing, navigation, contamination, trade, etc.).

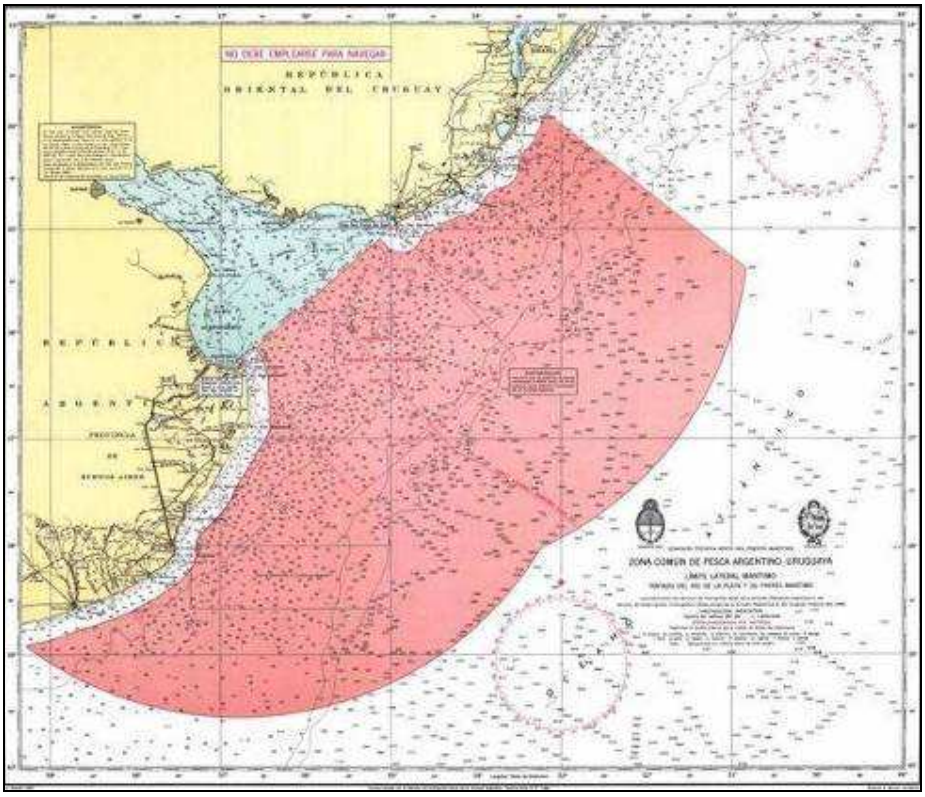


Fig. 15. *Extracted from CTMFM web page. Source: http://ctmfm.org/ with access April 10, 2011*

The CTMFM is responsible for establishing all fisheries regulation in the ZCPAU for those recourses inhabiting it. The Commission is integrated by 5 members and 3 advisor of each country, being in Argentinean case members of Ministry of Foreign, International Trade and Religious Affairs and fisheries administration. Argentinean advisor includes a representative of fisheries private sector.

Even Patagonian toothfish distribution area includes the zone of the convention, it is in a very minor portion with low commercial interest. So that there is no fishing nor regulation in force.

f.1.2 The Convention on the Conservation of Antarctic Marine Living Resources

CCAMLR is an international treaty that was adopted at the Conference on the Conservation of Antarctic Marine Living Resources which met at Canberra, Australia, 7–20 May 1980. It is a multilateral response to concerns that unregulated increases in krill catches in the Southern Ocean could be detrimental for Antarctic marine ecosystems particularly for seabirds, seals, whales and fish that depend on krill for food.

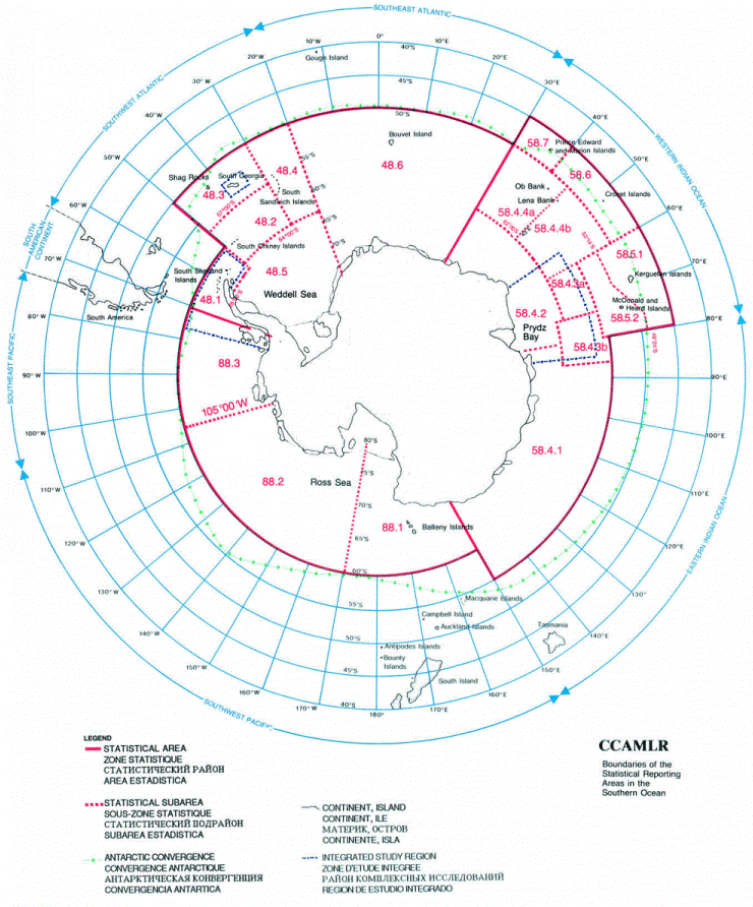


Fig.16. *Extracted from CCAMLR web page. Source: http://www.ccamlr.org.*

The CAMLR Convention applies to all Antarctic populations of finfish, molluscs, crustacean and sea birds found south of the Antarctic Convergence (the Convention Area). The marine resources managed by CCAMLR specifically exclude whales and seals, which are the subject of other conventions – namely, the International Convention for the Regulation of Whaling and the Convention for the Conservation of Antarctic Seals.

The Commission meets annually to, among other matters, adopt conservation measures and other decisions which apply to harvesting activities within the Convention Area. The Commission is also responsible for the financial affairs and administration of the organization.

The Convention establishes a Scientific Committee which provides scientific advice to a Commission.

Argentine Republic is a full member of CCAMLR and has ratified the treaty by laws 22.584/82. As party to the CCAMLR implements the decisions of the commission through the mechanisms established by Law No. 25.263/00, which sets the Collection System Marine Living Resources in the Area of Implementation of the Convention. The scheme provides for a system of penalties for violation of the law.

CCAMLR implements a comprehensive set of measures in order to support the conservation of Antarctic marine living resources and the management of fisheries in the Southern Ocean. These measures, which are known as 'Conservation Measures', are reviewed and developed at each annual meeting of the Commission, and subsequently implemented by Members during the ensuing intercessional period and fishing season. The measures are published in the annual Schedule of Conservation Measures in Force (http://www.ccamlr.org/en/conservation-and-management/browse-conservation-measures).

The Conservation Measures are binding on all Members and apply in CCAMLR's Convention Area. Some measures apply to a specific time period (e.g. a fishing season) while other measures remain in force at all times. Measures which are no longer applicable are removed from the schedule and archived by the Secretariat.

Argentine Republic has published CCAMLR Conservation Measures by mean of Resolutions SAGyP N° 702/11, 174/12 and 192/13, as it is stipulated in article 12° of Law 25.263.

Concerned that Illegal, unreported and unregulated (IUU) fishing for toothfish in the Convention Area threatens to deplete toothfish populations and to ensure vessels flagged to Members fishing for toothfish in the Convention Area comply with conservation measures, CCAMLR implements a Catch Documentation Scheme (CDS) for toothfish species (*Dissostichus spp.*).

Toothfish is marketed with a variety of names, including "bacalao de produndidad" (Chile), "butterfish" (Mauritius), "Chilean sea bass" (the United States and Canada), "merluza negra" (Argentina), "mero" (Japan) and "róbalo" (Spain).

The CDS was implemented in 2000 and is a web-based system (e-CDS) that tracks toothfish from the point of landing throughout the trade cycle. For all Members, the CDS is required to be used for the landing and/or trade of all toothfish whether caught inside or outside the Convention Area.

Argentine Republic has implemented the Catch Documentation Scheme by mean of Resolutions SAGPyA N°177/00 and Disposition SSPyA N°9/12.

f.2 Institutions Dealing with the Fisheries and Ecosystem Management, Control and Enforcement at Federal Level

f.2.1 Ministry of Agriculture, Livestock and Fisheries (MINAGRI)

The Ministry of Agriculture, Livestock and Fisheries (MINAGRI) is the national fishing agency of the Argentine Government and is responsible for the implementation of the national fishing legislation and resolutions emitted by the Federal Fisheries Council (FFC).

Some of its responsibilities as specified in the Law 24.922 (Article 7º of the Law) are:

ARTICLE 7º:

The Ministry of Agriculture, Livestock and Fisheries (Enforcement Authority) shall:

a) Conduct and execute the national fisheries policy, regulating the exploitation, control and research;
b) Conduct and execute the objectives respecting the technical and scientific investigation of the fishing resources;

c) Control the maximum licensed catch by species established by the FFC and issue the quotas of annual catch per vessel, per species, per fishing zone and per type of fleet, pursuant to being granted by the FFC;
d) Issue the licenses for fishing, with prior authorization of the FFC;
e) Calculate the available surplus and establish with the prior approval of the FFC the restrictions with respect to closed areas or seasons;
f) Establish with prior authorization of the FFC the requirements or conditions that vessels and fishing companies must fulfill in order to conduct the fishing activity approved;
g) Establish the methods and techniques of catching, and specification of prohibited equipment and nets, etc., with the advice of the National Institute of Fisheries Research and Development (INIDEP) and according to the fisheries policy established by the FFC
h) Impose sanctions, pursuant to the rules of infractions and create a record of transgressors within the prescriptions of the present Act and, inform the FFC of the sanctions applied;
i) Work on and develop statistical systems for the fisheries activity;
j) Intervene in bilateral or multilateral international negotiations related to the fisheries activity pursuant to the national fisheries policy;
k) Establish regulations of the fishing record created by this Act;
l) Collect the catching fees established by the FFC;
m) Intervene in the granting of the benefits that come from promotion per sector granted or to be granted to the fisheries sector;
n) Intervene in the plans of investment that require or count on specific international financing entities and/or that have been granted or to be granted to the Argentine Republic, pursuant to the criteria that it should determine together with the FFC;
o) Issue authorization for experimental fishing with prior approval of the FFC;
p) Establish and implement necessary and sufficient control systems to really determine the catch in the territorial sea and the exclusive economic zone and the catch unloaded in authorized Argentine ports and the fulfillment and truthfulness of the affidavits of catching;
q) Carry out national campaigns of promotion for the consumption of live resources of the sea and missions abroad to promote the commercialization of the products of the national fisheries industry;
r) Exercise all the faculties and responsibilities that the Ministry is hereby granted.

To meet its mission MINAGRI includes the Secretary of Agriculture, Livestock and Fisheries (SAGyP) and the Undersecretary of Fisheries and Aquaculture (SSPyA), agencies on which it has delegated same of its functions. The SSPyA acts by means a National Direction for Fisheries Coordination, a National Direction of Fisheries Planning, and a Direction of Fisheries Regulations, all of them with several Departments. MINAGRI also includes two operating decentralized agencies dealing with fisheries: the National Fisheries Research and Development Institute (INIDEP) and National Health Service and Food Quality (SENASA).

To control fisheries activities MINAGRI receives support from the Navy and Costal Guard, and has cooperative agreements with both entities. The National Fisheries Fund (FONAPE) gives financial support to the Costal Guard and Navy, who collaborates on control the fisheries activities within the argentine EEZ.

f.2.1.1 Secretary of Agriculture Livestock and Fisheries (SAGyP)

Under new federal fisheries law, SAGyP, through its Undersecretary of Fisheries and Aquaculture, is responsible for conducting and executing national fisheries policy established by the Federal Fisheries Council. SAGyP is required to conduct and execute scientific and technical research objectives and needs, control total allowable catches (TAC) by species, issue quotas according to the guidelines set by the Council, collect royalties determined by the Council, establish and implement control systems to determine catches in the territorial sea, EEZ, monitor landings in authorized ports, set sanctions and create an infraction regime, check the accuracy of fishing reports and promote the consumption of national seafood products both domestically and internationally.

The Undersecretary of Fisheries and Aquaculture has three main executive agencies: a) the National Directorate of Fisheries Coordination, to which the Aquaculture Division and the Fisheries Administration and Surveillance Division reports. The Fisheries Administration and Surveillance Division is in charge of fisheries management and regulation, surveillance, monitoring and enforcement; b) the National Fisheries Planning Directorate, which deals with statistics, sectorial analysis, fisheries strategic planning and seafood promotions; and c) the Direction of Fisheries Regulations, which is in charge of regulations sanction and enforcement.

The SSPyA has a permanent staff of 155 people and a contracted staff of 102 people, without counting on board inspectors and observers, who provide most of the technical expertise (Figure 16).

Since 1997 it was implemented an on board controls inspectors programme in charge of monitoring all fishing operations.

Fig. 17. *SAGPyA organization chart. Source: Administrative Decision N° 175/2010*

DECREE 156/2010: Main SAGyP Missions and Functions related to fishing activity

a) Develop and implement plans, programs and policies for the production, marketing, technology, quality and health in agriculture, fisheries, forestry and agribusiness, coordinating and reconciling the interests of national government, provinces and various subsectors.

b) Promote the use and conservation of natural resources for agricultural production, fruit and vegetable, livestock, forestry and fisheries in order to increase the country's productive capital and economic development of the sector.
c) Track production, national and international markets and programs, projects and activities under their purview.
d) Understand the design and implementation of policies for development, promotion, product quality and bio safety for food consumption, animal and/or vegetable, industrialized or not.
e) Coordinate activities with the different regions of the country to decentralize the implementation of the policies of the jurisdiction and facilitate integration with different sectors of agricultural endeavour, agro-forestry, food, fisheries and aquaculture.
f) Understanding on the implementation of policies for promotion, development and financing of agricultural activities, livestock and forestry, ensuring the sustainability of natural resources.
g) Monitor programs, projects and activities of the National Agricultural Technology Institute, the National Seeds Institute, the National Research Institute and Fisheries Development, the National Health Service and Food Quality, the National Wine Institute and the National Board of Trade Control Agricultural and evaluate their performance.
h) Understand the proposal and implementation of policy development and regulation of fisheries and aquaculture, as well as industrialization, commercialization and transportation of their products.
i) Understanding on bilateral agreements and/or multilateral agreements that enable better management, conservation and resource management, including high seas and take part in international negotiations in which topics of interest for the activity.
j) Understand by the study of the factors affecting the development of food production, their trends, both, national and international by proposing those global or sector measures, which drive the development that allow such activity.

f.2.1.1.1 Undersecretary of Fisheries and Aquaculture (SSPYA)

Within SAGyP, the Undersecretary of Fisheries and Aquaculture (SSPyA) that has three main fisheries dependant offices created by Decree 373/2007: National Direction for Fisheries Coordination, National Direction of Fisheries Planning and Direction of Fisheries Regulations.

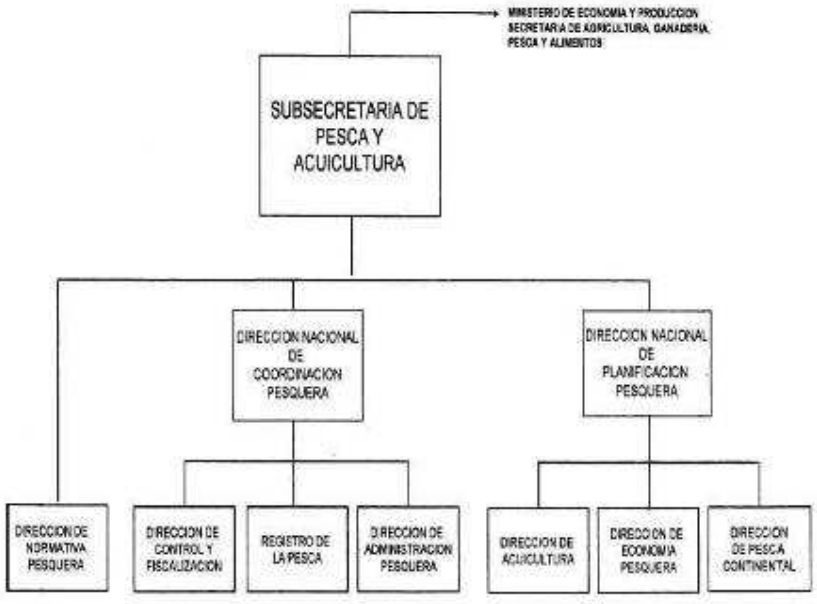


Fig. 18. *SSPyA organization chart. Resolution MINAGRI N° 1091/2012*

DECREE 156/2010: Undersecretary of Fisheries and Aquaculture Missions and Functions

a) Propose and implement, within the framework of Law No. 24.922, its amendments and supplementary national fisheries policy for the effective protection of national interests related to marine fisheries and the sustainability of fisheries activities in pursuit of maximum development compatible with the rational use of marine living resources.
b) Propose and implement policies to manage inland fisheries.
c) Promote the development of aquaculture as farming activity and exploitation of aquatic species.
d) Coordinate with national and provincial authorities for the management actions, protection and cultivation of living aquatic resources, aimed at their conservation in the long term.
e) Assist in the provision of benefits from sectorial promotion or grant awarded to fisheries and aquaculture.
f) Intervene in all matters relating to health policy relating to fishing.
g) Participate in negotiations on setting the tax and customs policies and foreign trade linked to the fisheries sector, in coordination with relevant agencies.
h) Coordination of work relating to the operation of the Register of Fisheries, in accordance with the provisions of Law No. 24.922 and other records of the area.
i) Attending, with approval of the Federal Fisheries Council, in granting fishing permits.
j) Assist in approving the transfer of licenses between vessels fishing within the framework of established norms.
k) Propose or provide, as appropriate, the suspension of fishing permits, the immediate arrival in port and any other action deemed necessary where the law defines as serious violations and penalties resulting from infringement proceedings concerning current regulations.

l) Propose to the approval of the Federal Fisheries Council, closed areas or seasons and/or reservations and delimitation of fishing areas based on specific technical reports.
m) Propose the requirements and conditions to be met by ships and companies to develop marine fisheries, including capture methods and techniques, as well as equipment and fishing gear use and which are prohibited, with the advice of the INIDEP.
n) Assisting in controlling the allowable catch by species and the issuing of annual catch quotas for vessels, by species, fishing areas and fleet type, as approved by the Federal Fisheries Council.
o) Attend to the Secretary of Agriculture, Livestock and Fisheries in international negotiations in which topics of interest to the theme of the sector, working on efforts related to the expansion of areas of activity for the national fishing fleet and improved management of living aquatic resources, including offshore.
p) Propose measures to regulate the exploitation activities, culture, monitoring and research carried out on living aquatic resources in all subject areas under national jurisdiction and on the marine resources of migratory species in the area adjacent to the Exclusive Economic Zone or resources that belong to the same population or populations of species associated with the Exclusive Economic Zone.
q) Involved in review of the development of environmentally sound industrial processes that promote the maximization of value added and increased use of labour in Argentina.
r) Propose and implement measures to regulate the transport and documentation requirements for the transit of fisheries and aquaculture.
s) Propose policy adjustments on fisheries and aquaculture, which are necessary to better manage them.
t) Approve and propose the dissemination of information produced in the area, through means deemed appropriate.
u) Attend to the Ministry of Agriculture, Livestock and Fisheries in the coordination of relations between the INIDEP and the Federal Administration.

f.2.1.1.1.1 National Direction of Fisheries Coordination: Primary Responsibility

Administrative Decision N° 175/2010

Understand in the control and management of fishing activities within the framework of the existing legislation and managing the Registry of Fisheries.

Actions:

a) To oversee the commercial fishing activities at the national level.
b) Driving the action of decentralised delegations (Port Districts Offices).
c) Coordinate the actions of organization and updating of the Fisheries Register.
d) Raise the proposed issuance of fishing permits.
e) Raise the proposed transfer of fishing permits and/or catch quotas by species.
f) Assessing requests for authorization to make changes in the vessels registered in the Fisheries Register.
g) Analyze the requests made on fishing permits, fishing vessels and fisheries related activities.
h) Involved in the management of requests for authorization for experimental fishing projects.

i) Coordinate the tasks of monitoring and control of compliance with the allowable catch by species, established by the FFC, as well as for Individual Transferable Quotas Capture, capture authorizations and catch quotas for species assigned to each ship.
j) Oversee the preparation and development of data systems of marine fisheries, coordinating its sanctions with the National Fisheries Planning directorate.
k) Monitor follow-up accreditation of fines, tariffs, duties and payment plans, and intimate in case of default.
l) Coordinate with the bodies of the security forces and the armed forces who collaborate with the Undersecretary of Fisheries and Aquaculture in control and monitoring tasks.
m) Evaluate the alleged violations of rules governing fishing activities in order to substantiate relevant summaries and propose the measures that are applicable in each case.
n) Monitor compliance with the sanctions that had been decided to apply to citizens.
o) Propose the dissemination of information on fishing activities in national jurisdiction.

f.2.1.1.1.2 National Direction of Fisheries Planing: Primary Responsibility

Administrative Decision N° 175/2010

Integrating scientific and technical information to facilitate decision-making for management measures, management and expansion of the sector, to implement in the short, medium and long term, developing permanent fishing statistical systems.

Actions:

a) Coordinate analysis of financial projections and estimates for predicting possible future scenarios for the design of policies in the area.
b) Coordinate the preparation of periodic reports and situation of fisheries and aquaculture in the local and international and economic activities linked.
c) Coordinate analysis of information on fishing activities developed by the National Fisheries Coordination and scientific and technical information provided by the INIDEP to project all those management measures to facilitate the receipt of fishing resources.
d) Supervise the work of reconciling the information analyzed and the instruments proposed, based on these design models and future scenarios indicating the financial and budgetary requirements for effective compliance.
e) Understanding the development and proposed management measures aimed at strengthening the sustainable use of marine fishing resources and their habitats.
f) Coordinate actions with related areas of provincial governments in order to promote joint actions with respect to inland fisheries.
g) Relationships for the exchange of technical information with public or private, national or international issue related to the sector and advise on the country's position in the various technical forums.
h) Understand the proposed plans, programs and projects developed on the basis of analysis of socio-economic data obtained in order to minimize undesirable effects and/or ensure the efficient implementation of national policies on fisheries and aquaculture.
i) Advise on the desirability of carrying out programs and/or research projects for the development of fisheries and aquaculture.
j) Understood in the context of integrated management of the fisheries in the development and proposed management measures for the conservation of biological diversity at different

levels, as a contribution to the maintenance of essential processes in the fisheries ecosystems.

k) Coordinate the activities carried out in the National Aquaculture Development Centre (CENADAC) and other centres run by the Undersecretary of Fisheries and Aquaculture.

l) Promote relations with international institutions associated with fisheries management (Joint Technical Commission of the waterfront, Atlantic Fisheries Commission of Southern Organization of the United Nations Food and Agriculture, International Council for the Exploration of the Sea, Oceanographic Commission International Commission for the Management of Antarctic Marine Living Resources, International Commission for the Conservation of Atlantic Tuna, NGOs, etc.) for which there are agreements and/or arrangements.

m) Participate in advisory committees on the operation of specific fisheries.

n) Promote relations with other units of the National State-related issues of interest to the area.

o)Process the information produced in the area and proposing its dissemination through means deemed appropriate.

f.2.1.1.1.3 Direction of Fisheries Regulations: Primary Responsibility

Administrative Decision N° 175/2010

Assist in everything related to the harmonization, alignment and implementation of the regulations governing fishing and aquaculture, proposing appropriate action.

Actions:

a) Advising on the regulatory body that regulates the activities of the Undersecretary of Fisheries and Aquaculture.

b)Develop and propose policy instruments to facilitate the effective implementation of institutional goals Undersecretary of Fisheries and Aquaculture.

c) Organizing and implementing the Fisheries Regulations Digest and meet constantly updated.

d) Organize and implement the International Fisheries Law File and serve its updating.

e) Develop and propose policy adjustments in fishing activities that are necessary to better manage them and if appropriate, suggest the intervention of the Federal Fisheries Council.

f) Propose actions that are necessary to safeguard the interests of the State with regard to fishing.

g) Prepare technical reports, proposals trades answering and administrative acts which are relevant.

f.2.2 Animal Health and Food Safety Service (SENASA)

SENASA is an autonomous body responsible for the supervision and control of animal products health control. Its objectives are: To understand the activities of inspection, certification and registration of food products of animal and plant, overseeing the health, hygiene and quality of the data, making both domestic consumption, as in foreign trade operations , harmonizing and verifying compliance with the rules and terms of agreements concluded by the SENASA with third countries in this regard, it shall adhere to the recommendations of international bodies, and other official services of international prestige.

In the fisheries sector, SENASA supervises compliance with hygienic sanitation procedures for manufacturing, transportation, packaging and marketing of products for domestic consumption and export. It also ensures the quality of food products of marine origin.

f.2.3 Federal Fisheries Council (FFC)

The FFC is a Federal Entity which is not dependent on either the Federal Government or the Provincial Governments and, in accordance with Law 24.922, is integrated as follows (Article 8º of the Law):

ARTICLE 8º:

The Federal Fisheries Council is hereby created, and shall be composed of:

1. One representative by every province with maritime coast;
2. The Secretary of Fisheries (actual MINAGRI);
3. One representative for the Secretary of Ambient and Sustainable Development;
4. One representative of the Ministry of Foreign Affairs, International Trade and Culture;
5. Two representatives designated by the National Executive Power;

The Secretary of Fisheries shall presides it. All the members of the Council shall have only one vote. A qualified majority shall adopt the resolutions.

The primary responsibilities of the FFC are (Article 9º of the Law):

ARTICLE 9º:

The Federal Fisheries Council shall:

a) Establish the national fisheries policy;
b) Establish the fisheries research policy;
c) Establish the Total Allowable Catch per species, bearing in mind the maximum sustainable production of each one of them according to data provided by the National Institute of Fisheries Research and Development (INIDEP). Furthermore, establish the quotas of annual catch per vessel, per species, per fishing zones and per type of fleet;
d) Approve the licenses of commercial and experimental fishing;
e) Advise the Undersecretary of Fisheries and Aquaculture in matters of international negotiation;
f) Plan the national fisheries development;
g) Fix the guidelines of co-participation of the National Fisheries Fund (FONAPE);
h) Pronounce on experimental fishing;
i) Establish the catching fees and fix canons for the practice of fishing;
j) Modify the distribution percentages of the National Fisheries Fund (FONAPE) established in the sub section e) of article 45 of the present Act;
k) Rule on the practice of the artisanal fleet establishing a reserve of the fishing quota for the different species assigned to this sector;
l) Establish the items to be considered by the FFC that require a qualified majority in the voting of its members;
m) Promulgate its own functioning regulations, which shall be approved with the affirmative vote of the two third parts of its members.

In addition to the responsibilities mentioned above, the FFC shares several others with the Management Authority (MINAGRI), which are specified in most of the articles of the Law 24.922. The FFC has an Advisory Commission integrated by all fishing unions and labor forces (Federal Fishing Law, Article 10°).

The new federal fisheries law establishes the Federal Fisheries Council as the main body governing national fisheries policy. The ex Secretary of Agriculture, Livestock, Fisheries and Food holding the presidency of the Council delegated this function on the Undersecretary of Fisheries and Aquaculture (Federal Decree N° 748/1999 and ex SAGPyA Resolution N° 27/2003).

f.2.3.1 FFC Internal Rules: Resolution FFC N°16/2009

The Federal Fisheries Council is authorized to issue its own rules of operation (Article 8º of Law No. 24.922).

f.2.3.1.1 Faculties of the Federal Fishing Council to regulate fishing operations

CHAPTER I: Duties and Incumbencies

SECTIONS 1 - The incumbencies of the Federal Fisheries Council are under Law Nº24.922

They must also be submitted to the vote of the Council:

a) The adoption of the budget prior to the start of the annual budgetary exercise;
b) The amendments to these rules and issues that arise regarding its interpretation;
c) Matters raised by the President of the Council for the Enforcement Authority or by the members it comprises;
d) The creation of technical and administrative bodies, advisory, working committees and the appointment and removal of its members, a task that may be delegated to the President;
e) The approval of its meeting schedule;
f) Any other matter on the Agenda; and
g) The monitoring and control measures relating to budgetary and administrative management of the Council.

ARTICLE 2º: About the Presidency

In accordance with Article 8 of Law Nº24.922 and Decree No. 214, dated February 23, 1998, the ex SAGPyA (actual MINAGRI) holds the Presidency of the Council.

ARTICLE 3º: The assignations and duties of the FFC's President:

a) Chair the meetings. Shall delegate its exercise to another member in case of absence or disability. In the absence of delegation, Council members will elect a Chair ad hoc;
b) Call and summon the meetings, communicating the Agenda;
c) Open, manage and close the meetings of the Council in accordance with this Regulation, or move to adjourn;
d) Cast a vote and announce the results of the vote;
e) Propose the inclusion of topics on the agenda, by itself or at the request of Council members;
f) To authenticate with his signature all acts, instructions and procedures of the Federal Fisheries Council;
g) Provide regarding the operation of technical and administrative organizational structure of the Council and have, within the budget approved by the Panel, the funds allocated;

h) Appoint and remove, in accordance with decisions reached by the Council, the members of the technical and administrative organs of the Council;
i) Prepare the annual budget proposal and administer the FFC; and
j) To submit for consideration by the FFC the results of the administrative and financial management of funds at the end of each year.

ARTICLE 4º: About the Members

The members have the following duties and assignations:

a) Attend meetings of the Council participating in the discussion of the agenda and casting their vote;
b) To negotiate on behalf of the FFC and with the parties represented, and timely provision of information, records, data and other required documents to the Council; and
c) Seek the assistance of a deputy when he is prevented from attending meetings.

ARTICLE 5º:

Each member of the FFC will adopt the necessary measures to ensure the normal functioning of the Council and carry out the functions assigned by Law Nº24.922.

ARTICLE 6º:

Integration of the FFC members shall take effect from the date of submission of the relevant legal instrument of appointment issued by the competent authorities under Article 8 of Law Nº24.922.

For the purpose of enabling the continued presence of members of the Council in all its meetings, they may have up to TWO (2) alternates appointed by the same authority.

The appointment of members will remain valid until the Council has received certified notice of revocation and/or modification.

Each member may have during the session for consultation with partners, who have neither voice nor vote.

ARTICLE 7º:

The exercise of the roles that they are members of the FFC shall become "pro bono." However, members may receive travel expenses, per diem and/or compensation in the exercise of its functions in accordance with rules established by the current.

CHAPTER II: Address

ARTICLE 8º:

The headquarters of the FFC is at Humberto Primo Nº133, 5th Floor, Autonomic City of Buenos Aires.

CHAPTER III: About the Federal Fisheries Council meetings

ARTICLE 9º:

The Council shall meet valid with the presence of seven (7) members, at the time stipulated in the notice of the meeting. After an hour, it can operate validly in the presence of SIX (6) of its members. If not will tell with that number, through its President, or at least three members present, set a new date for the meeting.

ARTICLE 10º:

The FFC express its will through resolutions or through their records, when the affirmative vote of its members is mandatory for the issuance of a legal act by the Enforcement Authority.

ARTICLE 11º:

Require an affirmative vote of TWO-THIRDS (2/3) of all its members the adoption or amendment:

a) The internal regulations of the FFC;
b) The budget and balance;
c) The matters governed by Article 27 of Law 24.922 (ITQs); and
d) Fisheries projects.

Other decisions to be taken by the Board shall be valid by the affirmative vote of TWO-THIRDS (2/3) of the members present.

ARTICLE 12º:

The Board will make at least twelve (12) regular or special meetings per year. Special sessions will be held when convened by its President, or at the request of at least two (2) of its members.

Council meetings may be conducted at its headquarters or any of the provinces with the coastline, should be aware of it in the respective call.

ARTICLE 13º:

Will be communicated reliably to all members with four (4) calendar days prior to regular meetings, and five (5) days for the extraordinary.

The call is accompanied by the agenda and copies of materials that may be necessary.

f.2.4 Secretary of Environment and Sustainable Development (SAyDS)

The Secretariat mandate is to assist the Argentine President in all areas concerning the preservation and restoration of environment and conservation of renewable resources as to achieve a healthy environment apt for human development as mandated by Article 41 of the Argentine Constitution. The Secretariat has four Sub-secretariats: Undersecretary of Coordination and Environment Policies, Undersecretary of Planning and Environment Policies, Undersecretary of Promotion and Sustainable Development, Undersecretary of Control and Environmental Control and Pollution Prevention. Within the Undersecretary of Promotion and Sustainable Development, the Division of Fish and Aquaculture Resources is primarily involved in marine fisheries issues.

The SAyDS has an important formal role in setting fisheries' policy as it sits on the FFC. In addition to their participation in fisheries conservation management issues with the FFC, the SAyDS is involved in in-land fisheries, coastal zone, biodiversity and wetland issues. One of the areas of main interest within their biodiversity initiative is the preservation of marine fauna, in particular birds, reptiles and marine mammals. The SAyDS is working on reduce the incidental catch of marine birds by fishing gear, especially long lines.

f.3 Fisheries Research Institutions

f.3.1 National Institute for Fisheries Research and Development (INIDEP)

INIDEP is a decentralized body under the Ministry of Agriculture, Livestock and Fisheries, created by Law N°. 21.673 of October 21, 1977, whose roles and functions in the field of research were set forth in the Act, defining institutional objectives and responsibilities and actions essential to each of its directorates by Decree N°1.187, dated June 20, 1991, as amended by similar N°2.837 of December 29, 1992, Decree N°1.458 of December 13, 1996, Decree N°1063 of August 17, 2004 and Law Nº24.922 (Federal Fisheries Act) of January 12, 1998.

Under current legislation the INIDEP's research program generates and adapts knowledge, information, methods and technology for development, utilization and conservation of fisheries in Argentina. INIDEP is the only organization in the country that fully embraces the scientific, technological and economic indispensable for the implementation and development of national policy in the field of fisheries. INIDEP has recently adjusted its goals and activities to adapt its actions to the profound changes in the fisheries sector and its legal context and to prepare strategically to changes. Therefore, it has carried out intense activity in both the aspects related to fisheries research, as relations with institutions and countries which are related to fact or law to renewable resources of the South Atlantic.

INIDEP provides a set of goods and services. As a result of the above in last years there has been a significant increase of the requirements of institutional advice by following institutions: Ministry of Agriculture, Livestock and Fisheries, Federal Fisheries Council, Undersecretary for Fisheries and Aquaculture, Joint Technical Committee Maritime Front and Advisory Committees to the Rio del Plata and Uruguay River, Department of Malvinas and South Atlantic, the Ministry of Foreign Affairs, Honourable Chamber of Deputies, National Food Safety and Quality, International Commission Conservation of Atlantic Tunas, Convention on the Conservation of Antarctic Marine Living Resources, Argentina Naval Prefecture, business chambers and companies in the sector.

The Institute coordinates the implementation of the Programme Board Observer. It depends directly on the conduct of SAGyP and participates in meetings of the FFC but without voting. INIDEP's staff is around 337 people, 48 belong to other institutions (8 from the University of Mar del Plata, 29 from CONICET, and other 11 are hired through other agencies). INIDEP has 87 researchers, 49 technicians, and 88 people in administration, services and research support and 65 people in on board and in land research ships operation (source: http://www.inidep.edu.ar/home.htm (human resources), with access on July 24, 2011).

Institutional objectives and goals:

a) To generate and adapt knowledge, information, methods and technology for the development, utilization and conservation of the Argentine fisheries in coastal, continental shelf, oceanic (mile 201) and continental waters;
b) To establish economic technical bases which permit their conservation and sustainable management and contribute to increase the benefits obtained from the aquatic living resources; and
c) To adapt it's functioning to the deep changes which have occurred in the fishing sector and its legal context, and to satisfy the increased demand of scientific and technical knowledge

required for the sustainable management and use of Argentine fishing resources and those shared with other countries.

The main tool to meet the objectives mentioned above has been the oceanographic-fishing research surveys carried out with the three national research vessels belonging to INIDEP. The sustained use of these vessels (each with unique characteristics) in Argentina since 1993 has permitted, adequate and timely prospecting of the Argentine Continental Shelf and Slope, including the surrounding waters of the Malvinas Islands and South Georgia Islands.

In hierarchical order, the lines of action to meet the goals are:

1. Re-equipment and preparation of the research vessels to guarantee them fully operative and available, and increase its research capacities in deep oceanic and sub-Antarctic waters;
2. Annual evaluation of the status of all fishing resources (freshwater, coastal, continental shelf and adjacent oceanic resources) and their associated environments;
3. Prediction of the future tendencies in the evolution of the resources and interpretation of the causes for fluctuations in them based on the results of the annual evaluations;
4. To adequately advise and report scientific information in a timely manner with associated uncertainty levels, to management authorities, the fishing sector, other users and clients;
5. Encourage research to develop alternative fisheries in order to compensate for the decreases in capture from traditional resources;
6. Improvement and development of the fishing methods, fishing gears and new products and technological processes;
7. Development and adaptation of aquaculture technologies for marine and freshwater organisms of commercial interest;
8. Purchase information and knowledge to economically evaluate the fisheries, fishing resources and coastal marine biodiversity:
9. To increase the number of studies which permit the identification of management units;
10. To provide technical support in order to implement Individual Transferable Quota management systems;
11. To strengthen the activity of the On Board Observer Program on commercial vessels and sampling of landings, in order to fulfill the new fishing requirements; and
12. To establish INIDEP as a regional training center for oceanographic and fishing research, thus creating opportunity for participation and interchange of knowledge between the various scientific-technological sectors in Latin America who deal with fishing resource assessment problems, through a Seminar on Methods for the Assessment and Monitoring of Fishing Resources, with the technical cooperation of Japan and the assistance of JICA (Japan International Cooperation Agency).

INIDEP has five main research areas: demersal resources program, inland water program, pelagic and invertebrate fisheries program, marine environment program and the technology and information program. The demersal program assesses the health of many commercially important stocks (hake, croaker, stripped white fish, hoki, southern blue whiting, Patagonian toothfish and kingclip, among others) and provides scientific advice for their conservation and management. The inland waters program studies the impact of damming activities, primarily in the Río de la Plata basin. The pelagic and invertebrate fisheries program assesses the state of squid, shrimp, king and soft shell crab and anchovy stocks to provide timely management information and advice. The marine environment program focuses on red tides and understanding the coupling between

environmental fluctuations and population changes. Lastly, the technology and information program conducts research on acoustic technology, gear selectivity and snapper aquaculture and conducts dockside and open-sea sampling (i.e., size and age structure). INIDEP also has a small economic unit, which works closely with the National University of Mar del Plata, among other institutions.

f.3.2 Research Centre for Fishing Technology and Regional Foods (CITEP)

CITEP was created in 1975 by agreement between the National Institute of Industrial Technology (INTI), the Scientific Research Commission of the Province of Buenos Aires (CIC) and the National Council for Scientific and Technical Research (CONICET). CITEP is mainly devoted to the post-harvest aspects of fish utilization. The goal of CITEP is to improve the quality of foodstuffs and the efficiency and competitiveness of the production processes. CITEP's research is funded by several provincial, national and international organizations, including CIC, CONICET, FAO and the European Union.

f.4 Foreign Affairs and Fisheries

f.4.1 Ministry of Foreign, International Trade and Religious Affairs

The Ministry of Foreign Affairs fulfils two major roles in the fisheries sector. It is responsible for developing foreign policy in Argentina's EEZ and adjoining regions and for fostering the fisheries sector through international economic relationships. In the foreign policy arena, the Undersecretary for Foreign Policy, the Malvinas Bureau and the Legal Advisory Office play an instrumental role in developing policies that promote the interests of the fisheries sector. For instance, under the sovereignty "umbrella," Argentina and the United Kingdom advanced the protection of South Atlantic marine living resources by establishing the South Atlantic Fisheries Commission in 1990. The Ministry also participates in many international discussions and negotiations. Recently it has participated in the United Nations Conference of Straddling Fish Stocks and Highly Migratory Fish Stocks and the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas. The Ministry also acts in the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR).

Argentina is part of two international committees related to the conservation and wise use of fisheries resources: the Joint Technical Commission for Maritime Front (CTMFM) and the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR). Additionally is part of various intergovernmental treaties:

- Convention on International Trade in Endangered Species of Fauna and Flora (CITES). Approved by Law 22.344/82.
- Convention on Migratory Species, also known as CMS or Bonn Convention. Approved by Law 23.918/91.
- Convention on Wetlands of International Importance. Approved by Law 23.919/91.
- International Convention for the Prevention of Pollution from Ships. Approved by Law 24.089/92.
- Convention on Biological Diversity. Approved by Law 24.375/94.
- United Nations Convention on the Law of the Sea (UNCLOS). Approved by Law 24.543/95.
- Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (Compliance Agreement). Approved by Law 24.608/96.

- Agreement on the Implementation of the Provisions of the United Nations Convention on the Development of the Sea –10 December 1982-, relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks. Approved by Law 25.290/00.
- Conservation of Albatrosses and Petrels. Approved by Law 26.107/06.

With regard to non-binding international instruments, Argentina endorsed the Code of Conduct for Responsible Fisheries and adopted a National Action Plan to Prevent, Deter and Eliminate the Illegal, Unreported and Unregulated Fishing (IUU PAN), the National Action Plan for the Conservation and Management of Chondrichthyes (Resolution FFC N 6/09) and the National Action Plan for the Conservation and Management of the Bird in Argentina (Resolution FFC N 15/10).

g. Objectives for the fishery

The Federal Fishing Law 24922 (Article 1°) establishes that Argentina will foment the practice of maritime fishing in function of a maximum development compatible with the rational exploitation of living marine resources, will promote the effective protection of national interests related with fishing and will promote the sustainability of the fishing activity, the long-term conservation of the resources, the development of industrial processes environmentally appropriate to reach the maximum *added* value and the maximum argentine employment. These minimal premises must be complied by all fisheries in Argentine waters, because Article 1 defines the Argentine Fishery Policy and it is mandatory for the whole fishery system, and particularly, for the administration system, which task is to design management policies in order to achieve the Law objectives.

The concept of Maximum Sustainable Yield (MSY) included in Law 24.922 is expressed in its Article 8° of its Regulatory Federal Decree N° 748/99: "It must be understood as Maximum Sustainable Yield (MSY) of a desired species, the maximum biomass that can be captured annually without affecting its conservation.

Additionally, other sections of the Federal Fisheries Law 24.922 are related with preventing excesses on exploitation and the sustainable utilization fishery resources:

a. Article 17°, by prescribing that fishing in the whole Argentine maritime jurisdiction will be subjected to restrictions established with the objective of avoiding exploitation excesses.
b. Article 21°, by banning every method, technique, equipment and fishing gear that may cause damage on the live aquatic resources.
c. Article 22°, by referring to the organization and maintenance of a fishing regulation within the Economic Exclusive Zone, establishing measures for organization and conservation directed to the rationalization of the exploitation and insurance of the conservation of resources.
d. Article 37°, related to the access to fishing activity in the maritime areas under Argentine jurisdiction to fishing vessels with foreign flat. This articles indicates that determination of the capture fishing capacity by the Argentine fleet in order to estimating the available biomass for foreign fleets, could only be done considering biologic features of the exploited resource, and not considering normal cyclic reductions on fleet common in fishing activity nor due to specific situations or extraordinary events that could have affected the operation of a particular fleet.

Incorporating an adaptive criterion, both operational and long-term measures were implemented. The first are in connection with annual survey results, like establishment of a Total Allowable Catch (TAC) and Individual Transferable Quota volume assignation. The long-term measures are:

(i) Minimum legal size was set at 82cm of total length.
(ii) Permanent juvenile protection zone delimited by 54º y 55º LS y 61º y 64º LO.
(iii) TAC: harvest rate fixed considering long term biomass and reproductive biomass objectives.
(iv) Minimum Hook size 4 cm.
(v) 15% juveniles catch allowed for the whole fishing trip.
(vi) 5 miles displacement in the event of exceed allowed by catch or juveniles.
(vii) Haul by haul, biweekly and whole fishing trip catch report.
(viii) Creation of a government – private Technical Fisheries Advisor Commission.
(ix) The formation of a Joint Committee of Landings Control composed of representatives from the Authority and the companies on the fishery, dedicated to verify the strict compliance with regulations in force.
(x)Obligatory 96 hours prior to arrival to port announcement to fishing authority and Discharge Control Committee.
(xi) Compulsory shipment of on board Inspector and Observer.
(xii) Bottom net trawlers must operate to more than 800 mts. deep if done on the south of 54° LS parallel and more than 1.000m deep if done northern.
(xiii) Bottom net trawlers must obtain a certification from Naval Engineering Collage or INIDEP they can operate to more than 1.000 mts. Deep.
(xiv) Patagonian Toothfish is considered by catch up to 1,5 % of total catch in the whole fishing trip.
(xv) Additional penalties for non-compliance.
(xvi) Compulsory training of crew on National Actions Plans on birds and Chondrichthyes.
(xvii) CCAMLR Catch Document required.
(xviii) VMS required.
(xix) Obligation to longliners to participate with INIDEP Mark and Recapture Program, marking two individuals per each tons captured.

Long-term political objective on rational exploitation, stocks productivity protection, social and inter generation equinity and species conservation, are explicit referenced in all relevant legislation and same precautionary approach is included in technical recommendations.

Incentives to rational exploitation have been introduced by means of the Individual Transferable Quota System (ITQs).

The precautionary approach is established by the Argentine fisheries legislation by means of the prescriptions present in Article 17° of the Federal Fisheries Law 24.922, which establishes that “Fishing activity throughout all maritime areas under Argentine jurisdiction, will be subjected to restrictions set by the Federal Fisheries Council for the conservation of resources, in order to avoid excesses of exploitation and prevent damages over the environment and the ecological system unit. Issues related with the conservation of fisheries resources can be also found in Articles 1°, 21° and 27° of the Federal Fisheries Law 24.922 and in Articles 1° and 12° of its Regulatory Decree N°748/99. As well, the precautionary approach is explicitly contemplated in Article 5° of Resolution FFC

N°21/09, through establishment of an Administration Reserve (15% of the TAC) when assigned ITQs (see also Act FFC N°48/07).

The precautionary approach is also present in the stock assessment models and in the technical recommendations of biologically acceptable capture, as a result of the uncertainty surrounding recruitment of new individuals. TACs are established considering biomass and reproductive biomass recovery in the long term an also considering catches out of Argentine Economic Exclusive Zone.

Data collection of environmental aspects of the fishery during fishing operations is in charge of on board observers program (see data collection onboard observer's protocol. The data analysis and conclusions are on charge of the INIDEP research program (see Resolution INIDEP N°133/2010) - INIDEP: Program of Demersal Austral and Sub-Antartic Finfish Fisheries (AUST), page 57), which estates the objectives and associated species research objectives

Objectives for marine bird's protection are established in the National Action Plan for Birds (Resolution FFC N° 15/10).

Objectives for Chondrichthyes protection are established in the National Action Plan for Chondrichthyes (Resolution FFC N° 6/09) and Resolution FFC N° 4/13).

The federal Law 25.577/02 protects Cetaceans from any kind of intentional catch. Federal Law 25.052/98 and its complementary Decree N°598/03 prohibits catch and commercialization of Killer Whale (*Orcinus orca*).

The Federal Fisheries Council also regulated by means of its Resolution N°3/2001, the data collection and analysis of birds, reptiles and mammals bycatch during fishing activities.

No more clear objectives for mammal's protection still exist but there is in the stakeholders consulting process the National Action Plan for Marine Mammals Protection.

h. Outline the fleet types or fishing categories participating in the fishery

At present the fishery is operated by eight factory vessels (seven bottom trawler and one longliner), working 24 hours per day, throughout the year elaborating products in the form of trunk (HG&T) and filets. The processing that takes place on land is minor. The artisanal fleet does not fish for Patagonian Toothfish because fishing grounds are far from the coast.

The freezer fleet (longliners and trawlers) consists of vessels ranging from 29 to 118 m operating bottom and semipelagic long lines and trawls nets. Ships have processing plants with capacity of freezing (in tunnels and plates) and cameras to maintain the frozen products.

i. Details of those individuals or groups granted rights of access to the fishery, and particulars of the nature of those rights.

In essence, the Argentine Government established a legal regulation in order to ensure that the fishery is developed in a way that follows scientific advice. This resolution also established basic principles for the Management Plan which was signed on May 2002 (Resolution SAGPyA N°19/02) and revised or complemented by Resolution FFC N°17/02, Disposition SSPyA N°14/02, Resolutions FFC N°1/03 and 9/03, Disposition SSPyA N°527/04, Act FFC N°5/05, Resolutions FFC N°9/07, 21/09 and 21/12.

The only groups that have access rights to the fishery are the companies and workers of the fishing vessels which have individual transferable quota of the species (Resolution FFC N° 21/09). The transferable nature of ITQs makes possible for other interested groups to enter in the fishery by buying their access to those who today have the right.

There are no other interest groups with fishing or customary rights on the fishery.

j. Description of the measures agreed upon for the regulation of fishing in order to meet the objectives within a specified period. These may include general and specific measures, precautionary measures, contingency plans, mechanisms for emergency decisions, etc.

j.1 Legal Framework

j.1.1 Constitution and Environmental Norms

Argentina is a Federal Republic. The National Constitution (of 1853 with various reforms, the latest in 1994), delineates a federal structure of government, with three branches of power: Executive, Legislative, and Judiciary. These three branches are interrelated through a complex system of checks and balances.

The country has 23 provinces and an autonomous city (City of Buenos Aires, capital of the Republic). Although the National Constitution delineates a federal model and a division of power, real political practice has been one of very marked centralism and a very strong Executive power, to the detriment of other branches. It should be said that is not the same for fishing activities because of the existence of a Federal Organism: the Federal Fisheries Council.

The federal structure of Argentina divides powers and responsibilities between the Federal Government and the provinces. Traditionally, under Article 121 of the National Constitution, all powers not specifically delegated to the Federal Government are reserved to the provinces.

Argentina has, in the 1990s, carried out numerous normative changes in order to bring its legislation up-to-date, as well as to accompany structural economic reforms. The main comprehensive change has been the Constitutional Reform of 1994. This reformation imbeds at the constitutional level the "right to a healthy environment…". Also, a new specific division of legislative responsibilities between the Federal Government and the provinces has further been created. The Constitution states that:

> *"All the inhabitants have the right to a healthy environment.... productive activities should satisfy the current necessities without compromising those of future generations ..."*
>
> *"Authorities should provide protection of this right, the rational utilization of natural resources, the preservation … of biological diversity...."*

Nevertheless, although the normative changes introduce principles of sustainable development to the National Constitution, several different jurisdictions and rights over natural resources compete. For example, navigation activities and international trade as well as inter-provincial trade fall under federal jurisdiction (Article 67 inc. 13). On the other hand, the 1994 Constitutional Reform incorporated a new definition over resource dominion, where it is stated that provinces have "original dominion of its natural resources" (Article 124) existing in their jurisdiction (12 nautical miles from the sea coast).

Adhesion is a legislative and juridical practice whereby a province voluntarily takes on a national law ratified by the Legislative Power for their own jurisdiction. Environmental issues per se, not being a delegated jurisdiction, means that provinces must legislate over these specific matters within their borders. Many provinces have environmental issues enshrined in provincial constitutions (particularly those constitutions that have been recently reformed); most have enacted environmental laws or laws which contain partial environmental aspects, and/or have environmental dependencies within their executive branches.

Argentina also has a general comprehensive federal law of the environment and in the case of fisheries, there are particular norms, which, however, do not adequately converge all the important frameworks related to the environment. The Federal Environment Council do not deals with fisheries environmental matters, except when fisheries interact with mammals, birds or marine reptiles.

j.1.2 Background to the Federal Fisheries Law

In 1966, through Federal Law 17.094, the Argentina declared its sovereignty over the maritime 200 nautical miles offshore. Federal Law 17.500/67 establishes measures to promote the fisheries activities. Federal Law 18.502/69 establishes the provincial jurisdiction 3 nautical miles offshore while federal waters remains to be the 200 nautical miles offshore excluding provincial jurisdiction.

In 1971 it was promulgated Federal Law 19.000 to promote patagonian port activities. There were established exemptions, reductions and differential taxes to production concreted and exported from Colorado River to the south. Federal Law 20.136/73 restricted fishing practices inside the Argentinean Economic Exclusive Zone to Argentinean vessels exclusively.

In 1973 the Rio de la Plata River and it Maritime Front Treaty was signed by Uruguay and Argentine Republics, establishing a Common Fishing Zone (ZCPAU) of 200 nautical miles from each point of Rio de la Plata river mouth. The Treaty was ratified by Law 20.645/74.

In 1979 it was established that fishing licences should be given previous approval of a project presented to the Federal Undersecretary of Fisheries and Aquaculture. Later in 1982, in absence of a Federal Fisheries Law, Federal Decree 1.533/82 established norms for obtaining fishing licences. This was later modified by the Federal Decree 945/86, creating a restricting licence type which allowed fishing only certain species.

Later, Federal Decree 2.236/91 substituted Decree 945/86 and regulated federal fisheries until 1997; it was complemented, inter alia, with Resolution SAGPyA N° 245/91. The decree determined the way to obtain a fishing licence and established that the fishing licences could be unrestricted, excluding some species, for all areas or limited to a specific area. Furthermore, it established that fishing licences will be given in relation to the vessel characteristics. Those licences could be transferred under the conditions established by that decree. It also established the obligatory landing of catch in Argentinean port with some exceptions, as well as the obligation to inform the catches. The complete legal system, also requires a compressive project approval to obtain fishing licenses and anticipates how to regulated conservations measures like closed areas, fishing gears, TAC for each specie, among others. The mentioned Decree partially fulfilled the vacuum of the lack of a fisheries law, modifying some before dispositions about the existent licence system from the beginning of the activity.

In 1994 the Congress gave the approval by the law 24.315 to the Agreement on Relationships in Fisheries Matters with the European Economic Community (EEC), making it possible to obtain licences to communitarian fishing vessels in the condition to constitute a Argentinean-communitarian mix enterprises temporally associations, by means of replacing the argentine vessel. Also, tax exceptions were established for imported communitarian ships meanwhile CEE compromised tax reduction for Argentineans fishing products and financial helps for the enterprises and Argentinean administration and research systems.

In 1995 it was ratified the Convention for the SEA Rights (CONVEMAR) that established a juridical regime that is Internationality in use today with the definition of the territorial Sea, Adjacent Zone and the Exclusive Economic Zone (EEZ). Privileges and responsibilities for the coastal countries were established, related to the exploitation and conservation of the fishing resources under their jurisdiction. Being an international treaty, it has a superior juridical status than regular Laws: constitutional status (Reform Convention 1994).

During 30 years the fish Industry claim for a Fisheries Law, regulating fisheries activities. The Federal Fisheries Law 24.922/98 accomplishes that hope.

The Federal Fisheries Law has been the first legislative attempt to include in on whole legal act different elements referred to exploitation of fishing resources. The Law, its Complementary Federal Decree N° 748/99 and several resolutions and norms dictated by the FFC, the SAGyP and the SSPyA, regulates marine fishing activities in Argentinean jurisdictional waters explicitly referring to very important issues as creation a Federal Fisheries Council and his private Honorary Advisor Commission; the conservation of the fishing resources; research programmes; coordination of control and enforcement; states a new administration system based on individual transferable quotas (ITQs); regulation of the foreign fishing vessel activity; extractive taxes; sanction regime; creation of a fisheries register and the control of on board workers; among others. The Federal Fisheries Law specifies all the requirements that control fishing activities, a regimen of sanctions and the responsibilities of the agencies in charge of its implementation (FFC and MINAGRI).

In its article 1°, the Law states the political framework for fisheries in order to develop a sustainable fishing industry, social and environmentally responsible, fostering the long-term preservation of the resources, favouring the development of environmentally appropriate industrial processes that promote the obtaining of the maximum added value and the employment of Argentine labour.

The articles 3° y 4° consider two jurisdictional and dominion scope over the fishing maritime areas, that which correspond to the Nation and to the Provinces with maritime littoral. The live resources that inhabit the domestic waters and the Argentine territorial sea adjacent to their coasts, up to twelve (12) nautical miles measured from the baselines, belongs to province dominion and will exercise this jurisdiction with the aims of their exploration, exploitation, conservation and administration. In an other hand, are from dominium and jurisdictional exclusive of the Nation the existent marine living resources in the waters of the argentine EEZ, excluding Continental Sea.

Therefore the Argentine Republic as a coastal state could adopt conservation measures in its EEZ as in the adjacent area in the case of the transboundary and highly migrating species or other which are associated with those present the EEZ (Article 4°). Law Article 5° determines the application scope of the state's responsibility and include the fisheries regulation in maritime spaces subject to the national jurisdiction; the coordination of the protection and administration of maritime live resources that are located both in the national and provincial jurisdiction; the faculty of the National

Government authority to limit the access to the fisheries in the marine space under the provincial jurisdiction when the existence of national interest committed in the conservation of one species or certain resource is declared, with foundation in scientific reasons that guarantee the imposition of such measure; the regulation of fishing in the adjacent zone to the EEZ related to the migratory resources or that belong to a same population or to populations associated to the Argentine EEZ; and to the regulation of the fishing activities of processing and transformation, storing, transport and commercialization of fishing products.

Articles 7°, 8°, 9° and 10° clearly define Argentinean Fisheries Authorities, constituted by a Federal Organism, a National Authority (Administrative/Enforcement Authority) and a private advisor commission. Additionally each maritime province has its own fisheries authority and administrative structure.

The FFC's Adviser Commission is integrated by representatives from the different Enterprises Chambers and unions of workers. Even this commission was formally constituted (Resolutions FFC N°7/1998 and 7/2004) it is not functioning as it is expected because of conflict existing between same interest groups.

The principal functions of the national fisheries authority (MINAGRI) according the article 7º, are to conduct and execute the national fisheries policy, regulating the exploitation, control and assure the adequate enforcement of fisheries regulations. It also is in charge of the fisheries registers and any other operative activity dealing with administration of fisheries, control of catch limits, control of fishing gears, perceiving catching fees and processing and commercialization of marine products. In relation with the conservation, protection and administration of the fishing resources, the Enforcement Authority could establish different zones and time closed areas; reserve zones and fishing areas delimitation (Law 24.922 article 19°).

The Federal Fisheries Law (24.922) has assigned to INIDEP a high responsibility as the technical advisor to FFC and MINAGRI. In that sense are of high importance their reports in the TAC determinations of the different species and the scientific and assessment research of fishing resources to protect them and obtain the maximum sustainable yield. It also cooperates with province organism in the research duties and experimental fisheries (Articles 11°, 12° and 13°) In addition, Articles 14°, 15° and 16° state that experimental fishing (scientific or exploratory) must be supervised by INIDEP.

Chapter VII, in its Articles 17°, 18°, 19°, 20° and 21°, regulates the faculties of FFC and the national fisheries authority to establish restrictions on fishing, based on the conservation of fishery resources, avoid over-exploitation and prevent harmful effects on environment and ecological system. Such restrictions can be management measures such as establishment of TACs by species and fishing area, closing areas, prohibited gear and fishing methods, control and supervision measures, etc.

The article 22° refers to the preference rights corresponding to the Nation as Coastal State, relating to organize and sustain a fishing regulation system in the adjacent zone to the argentine EEZ, with respect to the migratory resources or that belonging to a same population or populations of species associated to those ones inhabitating the argentine EEZ.

The fisheries regime established by articles 23°, 24°, 25°, 26°, 27° and 27° bis, is based on fishing licenses allocated for a 10 to 30 years-period and Catch Authorizations or Individual Transferable Quotas (ITQs). Transference of catch authorizations is regulated by article 30°, while approval of new projects and fishing licenses is regulated by article 34°.

Fishing licenses authorize vessels to conduct the fishing activity, while Catch Authorizations or Individual Transferable Quotas award the right to capture a percentage of the maximum sustainable catch of a particular species, within a certain zone or stock. Quotas are determined as a percentage of the TAC and are totally or partially transferable, provisory or definitively.

Article 26° establishes the obligation to landing the catch in Argentine ports, article 32° establishes the obligation to declaring catches and article 29° enforces a fishing fee by ton, species and fishing gear.

Other articles regulate issues such as: the Fleet Satellite Monitoring Sytem (art. 33°), exceptions to the reservation of the National Flag vessels (arts. 35° to 38°), crew (art. 39° and 40°), fishing activity registry (41° and 42°), National Fishery Fund (Arts. 43° to 45°), infringement and penalty regime (arts. 46° to 65°) and finally complementary and provisional dispositions (arts. 66° to 75°).

j.2 Specific Regulations of Patagonian toothfish Fishery

All fisheries decision making authority (Administrative Authority) in the Argentine EEZ, is carried out by the FFC and MINAGRI in the framework of the Federal Fisheries Law 24.922, its Regulatory Federal Decree N° 748/99 and Federal Decrees N° 571/08 and N° 156/10.

In Argentine EEZ the FFC establishes de TAC based on INIDEP Technical Report. Last TAC established are in the following table:

Table .8. *Patagonian Toothfish TACs established: Tons, INIDEP advice document and regulatory act.*

Year	TAC	INIDEP Technical Report	FFC Resolutions N°
2000	6.000	41/00	1/00
2001	6.000	Nd	9/01
2002	6.000	Nd	8/02
2003	4800	21 and 99/03	1, 7, 14 and 19/03
2004	2.250	4,13 and 65/04	4, 12,13 and 24/03
2005	2250	1/05	FFC Act 5/05
2006	2.500	30/06	12/06
2007	2.500	42/07	7/07
2008	2.500	60/08	17/08
2009	2.500	60/08 and INIDEP Notes N° 92 and 122/09	17/09
2010	3.250	19/10	10/10
2011	3.500	32/11	9/11
2012	3.500	41/11	15/11
2013	3.500	32/12	26/12
2014	3950	31/13	19/13

The FFC establish the national fishery policy and some management operational matters (Federal Fishing Law 24.922, Articles 7°, 9°, 10°, 11°, 14°, 17°, 18°, 21°, 26°, 27°, 28°, 29°, 36°, 40°, 44° y 45°). The Management Plan is proposed by National Institute of Fisheries Research and Development (INIDEP) to the FFC, who includes the legal and administrative aspects and approve it. The Sub-Secretariat of Fisheries and Aquaculture (SSPyA, MINAGRI) has the responsibility to implement the Management Plan. The first management measures were outlined in 1996 (Resolution SAGPyA N° 446/96) and the whole management plan was outlining through several management measures, as it has been described in previous sections (see section c) and g)).

The FFC's policy related to Individual Transferable Quotas (ITQs) is detailed in Acts FFC N° 49/09 (http://www.cfp.gob.ar/index.php?inc=actas&anio=2009&lang=es), while the allocation ITQs for Patagonian Toothfish have been made by Resolution FFC N° 21/09 and following these criteria and regulations:

- ITQs are established as a percentage of the specie's TAC.
- ITQs are allocated for a period of 15 years, from January 1st, 2010.
- Allocation of ITQs corresponds to only the 85 % of the TAC. The remaining 18,8% is an Administration's Reserve.
- ITQs are allocated to fishing license holders registered in the appropriate Register of Fishing Activities with catches higher to 1 % of the total landings between 1989 and 1996.
- ITQs are allocated taking into consideration the historical captures of each vessel and the lack of sanctions.
- A maximum concentration percentage is set for each company or company group, at 40 % of the TAC.
- The ITQs are total or partially transferable.
- Each year the National Direction of Fisheries Coordination determine the volume of Quota allocated for each vessel, accordingly the year established TAC.
- Regulations for ITQs extinguish in case of no use.

ITQs owners during 2014 are (ACTA CFP N°01/2014):

Fishing Vessel	Enterprise	ITQ (% of TAC)
CENTURIÓN DEL ATLÁNTICO	ESTREMAR S.A	40,00%
ECHIZEN MARU	PESANTAR S.A.	14,98%
ARGENOVA XXI	ARGENOVA S.A.	12,72%
ARGENOVA XIV	ARGENOVA S.A.	8,54%
TAI AN	SAN ARAWA S.A.	2,79%
ARGENOVA XXII	ARGENOVA S.A.	1,76%

Other general regulations applicable to Patagonian Toothfish Fishery include number requisites:

- Fishing permit requirements (article 23°, 24° and 26° of Law 24.922),
- Requirement to hold annual catch entitlement to cover target and bycatch species caught (article 27°, 27° bis and 28° of Law 24.922, article 21° of Federal Decree 748/99 and Resolution FFC N° 21/12),
- Fishing permit and fishing vessel registers (article 41°, 42° and 71° of Law 24.922 and article 14° of Federal Decree 748/99),
- Vessel Monitoring System (VMS) requirements (article 33° of Law 24.922 and Disposition SSPyA N° 2/03 and 206/10),
- Vessel and gear marking requirements,
- Fishing gear and method restrictions (article 17° and 21° of Law 24.922 and Resolution FFC N° 21/12),
- On board observer or inspectors in all fishing travels (Resolution SAGPyA N° 19/02 and Resolution FFC N° 21/12),
- Reporting (including catch and effort reporting) requirements (article 19°, 25° and 32° of Law 24.922, article 30° of Federal Decree 748/99, Resolution SAGyP 167/09 and Disposition SSPyA N° 8/09 and 9/12),

- Electronic log book by haul (Resolution SAGyP N° 167/09),
- Vessel inspections,
- Control of landings (*e.g.* requirement to land only to licensed fish receivers) (SAGyP Resolution N° 167/09),
- Record keeping requirements (article 19° of Law 24.922),
- Control of transshipment (article 15° and 16° of Federal Decree 748/99),
- Information management and intelligence analysis,
- Analysis of catch and effort reporting and comparison with VMS, observer, landing and trade data to confirm accuracy (Resolution SAGyP N° 167/09),
- Boarding and inspection by fisheries officers at sea,
- Aerial and surface surveillance,
- Fishing and gear surveillance by on board video camera recording and transmitting (Disposition SSPyA N° 206/10 and 1/11), and
- Legal Catch Certification System (Disposition SSPyA N° 8/09)

j.3 Synthesis of Management Legal Framework for the Argentinean Patagonian toothfish Fishery

Summary of management measures related to current and historical management of the Patagonian toothfish fishery in the Argentine Sea.

Federal Decree N° 4.268 / 1968 (July 19, 1968)
• Animal products and by products sanitary regulation.

Law 18.398 (October 10, 1969) and Law 20.325 (May 10, 1973)
• Costal Guard Law

Law 19.549 (April 03, 1972) and Federal Decrees 1.759/72, 101/85 and 1.883/91
• Administrative Procedure of argentine national public administration.

Law 22.584 (May 12, 1982)
• Approved the Convention on the Conservation of Antarctic Marine Living Resources CCAMLR (CCAMLR in English)

Resolution SAGPyA N° 446 / 1996 (July 30, 1996)
• First Patagonian Toothfish management measures.

Law 24.922 (January 12, 1998)
• Federal Fisheries Law

Law 25.052 (January 12, 1998)
• Prohibit catch or fishing of killer whale.

Resolution FFC N° 7 / 1998 (July 22, 1998)
• Creates FFC advisory commission.

Federal Decree N° 748 / 1999 (July 14, 1999)
• Regulatory decree of Federal Fisheries Law 24.922

Resolution SAGPyA N° 177/00 (May 2, 2000)
• Argentine Republic adopted de VMS system and catch document stated by CCAMLR's Conservation Measure N° 170/XVIII

Resolution FFC N° 1 / 2000 (July 14, 2000)
• Patagonian Toothfish TAC.

Resolution FFC N° 3 / 2001 (April 5, 2001)
• Order INIDEP incidental birds, mammals and marine reptiles catch registering.

Resolution SAGPyA N° 68 / 2001 (May 7, 2001)
• Patagonian Toothfish management measures.

Resolution FFC N° 9 / 2001 (May 9, 2001)
• Patagonian Toothfish TAC.

Resolution SAGPyA N° 426 / 2001 (August 15, 2001)
• Resolution SAGPyA N° 68/01 modification.

Law 24.470 (October 12, 2001)
• Adequate Fisheries Law 24.922 on how to punish violations of the Law 24992.

Act FFC N° 34 / 01 (October 25, 2001)
• Patagonian Toothfish administrative politic/administrative definitions

Law 25.577 (April 11, 2002)
• Prohibit catch or fishing of cetaceans.

Resolution SAGPyA N° 19 / 2002 (May 17, 2002)
• First Patagonian Toothfish Management Plan.

Resolution FFC N° 8 / 2002 (June 20, 2002)
• Patagonian Toothfish TAC.

Resolution FFC N° 17 / 2002 (October 10, 2002)
• Patagonian Toothfish Management Plan complementary measures.
• Juveniles Protection Zone.

Disposition SSPyA N° 14 / 2002 (October 11, 2002)
• Juveniles Protection Zone.
• Joint Committee of Landings Control Creation

Resolution FFC N° 4 / 2003 (June 19, 2003)
•Obligatory discard of sharks more than 160 cm. long.

Resolution SAGPyA N° 27 / 2003 (June 24, 2003)
• Fisheries functions delegation on SSPyA

Disposition SSPyA N° 2 / 2003 (July 31, 2003)
• Vessel Monitoring System (VMS).

Federal Decree N° 598 / 2003 (August 13, 2003)
• Regulatory decree of killer whale Law 25.052.

Resolution FFC N° 19 / 2003 (September 25, 2003)
• Patagonian Toothfish TAC.

Law 25.831 (November 26, 2003)
•Free access to ambient public information regimen.

Resolution FFC N° 24 / 2003 (December 18, 2003)
• Patagonian Toothfish TAC.

Resolution FFC N° 7 / 2004 (April 29, 2004)
• Modify FFC advisory commission.

Federal Decree 1063 / 2004 (August 17, 2004)
• INIDEP new flow chart and missions of its dependences.

Disposition SSPyA N° 424 / 2004 (September 29, 2004)
• On board inspectors functions.

Disposition SSPyA N° 554 / 2004 (October 28, 2004)
• Obligatory shredder waste in factory ships.

Disposition SSPyA N° 597 / 2004 (November 13, 2004)
• Landing Control rules of procedures.

Act FFC N° 5 / 05 (February 2/05)
• Patagonian Toothfish TAC.
• Annual Catch Authorizations.

SENASA Resolution SAGPyA N° 122 / 2006 (March 7, 2006)
• Fishing ships sanitary registration.

Resolution FFC N° 12 / 2006 (September 17, 2006)
• Patagonian Toothfish TAC.

Resolution FFC N° 7 / 2007 (December 5, 2007)
• Patagonian Toothfish TAC.

Resolution FFC N° 9 / 2007 (December 6, 2007)
• Patagonian Toothfish 5 years Catch Authorizations.

Act FFC N° 48/07 (December 6, 2007)
• Catch Authorizations Allocation: Methodology.

Resolution FFC N° 1 / 2008 (February 27, 2008):
• National Action Plan to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Catch (IUU).

Act FFC N° 27/08 (August 14, 2008)
• Catch Authorizations Management Policy.

Resolution FFC N° 10 / 2008 (August 14, 2008)
• Establishes the causes for the extinction of Capture Authorizations assigned by the Consejo Federal Pesquero under Act No. 48 of December 6, 2007.

Resolution FFC N° 17 / 2008 (November 6, 2008)
• Patagonian Toothfish TAC.

Act FFC N° 48 / 2008 (December 11, 2008)
• Catch Permissions
• Policies for transfer of permits
• Commercial Inactivity

Resolution SAGPyA N° 167 / 2009 (March 5, 2009)
• Approval of the form "Final Fishing Log Book" and their respective instructions, which must be provided by fishing vessels owner/captains operating in marine waters under national jurisdiction.

Resolution FFC N° 6 / 2009 (March 12, 2009)
• Shark PAN, National Action Plan for the Conservation and Management of Chondrichthyes (sharks, rays and chimaeras) in Argentina.

Resolution FFC N° 6 / 2009 (March 12, 2009)
Annexes

- Annex I - Argentine maritime spaces.
- Annex II - institutions that participated in drafting the national plan for the conservation of sharks.
- Annex III - Systematic list of fish Chondrichthyans Argentine maritime spaces.
- Annex IV - List of priority species.
- Annex V - Chondrichthyes abundance estimates made by the INIDEP from research cruises in the maritime areas in Argentina:
    - a - Estimation of the abundance of smoothhound (*Mustelus schmitt*i).
    - b - Estimating the abundance of different species of cartilaginous fish in the spring in the coastal region of Buenos Aires. Reprinted with modifications of Massa *et al.,* (2001b).
    - c - Estimating the abundance of different species of cartilaginous fishes in Patagonia during the summer. Reprinted with modifications Marí (2005). Except when specifically indicated, the estimates correspond to the designated area between 45 º and 54 º S.

d - Estimating the abundance of species of Bathyraja.

• Annex VI - Estimates of relative abundance (stratified mean catch per set) and absolute (t biomass) from research surveys conducted by the IBMPAS in the San Matías Gulf.

• Annex VII BIBLIOGRAPHY

Resolution FFC N° 10 / 2009 (May 27, 2009)

• ITQs General Regime.

Resolution FFC N° 13 / 2009 (July 8, 2009)

• Damage mitigation during catch and release of Chondrichthyes (sharks, rays and chimaeras)

• Obligatory discard of sharks more than 160 cm. long.

Resolution FFC N° 7 / 2009 (September 24, 2009)

• FFC Internal Rules of Functioning.

Resolution FFC N° 17 / 2009 (October 1, 2009)

• Patagonian Toothfish TAC.

Act FFC N° 49 / 09 (Nobember 11, 2009)

• ITQs Political Framework.

Resolution FFC N° 21 / 2009 (November 12, 2009)

• Patagonian Toothfish ITQs specific regimen.

Disposition SSPyA 8 / 2009 (December 29, 2009)

• National Legal Catch Certification System

Federal Decree 156 / 2010 (January 27, 2010)

• SAGyP and SSPyA Objectives.

Administrative Decision N° 175 / 2010 (April 9, 2010)

• Establishes the structure of SAGyP and SSPyA and objectives, missions and functions of the Undersecretary for Fisheries and Aquaculture dependences.

Resolution FFC N° 3 / 2010 (April 21, 2010)

• Bird PAN: Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (IPOA-Seabirds)

Resolution FFC N° 3 / 2010 (April 21, 2010)

Annexes

• Annex I. Main species of seabirds in the Argentine Sea

1.Critically Endangered Species

2.Endangered Species

3.Vulnerable species

4.Near threatened species

5.Species of least concern

- Annex II. Mitigation Measures
  - 1.Mitigation measures in longline fisheries
    - 1.1.Technology solutions for the draft
      - 1.1.1.Scaring lines (Tori-lines)
      - 1.1.2.Water cannon water jet
      - 1.1.3.Repelling magnetic
      - 1.1.4.Acoustic deterrents
      - 1.1.5.Hook size
      - 1.1.6.Depth of hooks
      - 1.1.7.Combination of setting speed, distance weighting and weights
      - 1.1.8.Thawed bait or puncture the swim bladder in fish
      - 1.1.9.Calado lateral line
      - 1.1.10.Machine timing
      - 1.1.11.Underwater Depth
      - 1.1.12.Depth in water (reference)
      - 1.1.13.Night setting
      - 1.1.14.Dyed bait
      - 1.1.15.Artificial bait
    - 1.2.Technological solutions for hauling
      - 1.2.1.Strategic dumping of garbage
      - 1.2.2.Water curtain
  - 2.Mitigation measures trawling
    - 2.1.Bird interactions with trawlers
    - 2.2.Reduced contact with cables and ship
      - 2.2.1.Elimination of the probe cable
      - 2.2.2.Cones
      - 2.2.3.Streamer lines
      - 2.2.4.Terrified of dragline
      - 2.2.5.Brady Repeller
      - 2.2.6.Float rod and line
      - 2.2.7.Pulley and deterrents in the probe cable
    - 2.3.Mitigation in the Network
      - 2.3.1.Strap network
      - 2.3.2.Weighting network
      - 2.3.3.Cleaning Network
    - 2.4.Other mitigation measures
      - 2.4.3. Night setting
      - 2.4.4. Fish Oil
  - Annex III. Institutions that participated in drafting the National Plan for reducing bird interactions with fisheries.

Resolution INIDEP N° 133 / 2010 (August 20, 2010)

- 2010 INIDEP Scientific Activities Planning.

Resolution FFC N° 10 / 2010 (September 1, 2010)

- Patagonian Toothfish TAC.

Disposition SSPyA N° 206 / 2010 (September 7, 2010)
• Video Camera Control System.

Disposition SSPyA N° 1 / 2011 (January 11, 2011)
• Video Camera Control System implementation delay.

Resolution FFC N° 9 / 2011 (August 25, 2011)
• Patagonian Toothfish TAC.

Resolution FFC N° 15 / 2011 (December 7, 2011)
• Patagonian Toothfish TAC (2012).

Resolution FFC N° 21 / 2012 (December 13, 2012)
• Patagonian Toothfish FFC management decision ordering.

Resolution FFC N° 26 / 2012 (December 19, 2012)
• Patagonian Toothfish TAC (2013).

Resolution FFC N° 1 / 2011 (January 24, 2013)
• ITQs General Regimen actualization.

Resolution FFC N° 4/ 2013 (Apryl 25, 2013)
• Chondrichtyes general by catch mitigation measures.

k.Particulars of arrangements and responsibilities for monitoring, control and surveillance and enforcement.

k.1 Institutions Dealing with Fisheries Monitoring and Enforcement

k.1.1 Ministry of Agriculture, Livestock and Fisheries (MINAGRI)

Within the Undersecretary of Fisheries and Aquaculture (SSPyA), the Fisheries Administration and Surveillance Division is responsible for monitoring and enforcement. There are approximately 85 active inspectors, although 419 people have been trained to be inspectors. Under agreements with the Coast Guard and the Navy, SSPyA trains their personnel as inspectors and then hires them as required. The trained personnel, however, remain part of their original institution. The Federal Fishing Found also provides funds to the Coast Guard and Navy to conduct aerial and marine monitoring and surveillance, including boarding at sea.

Since 1997 there has been an onboard inspector program that controls the accuracy of fishing reports, monitors the compliance of closed areas, minimum fish size and mesh size regulations, monitors discards and other resolutions. Since the inception of the program, 57.1% of the inspectors came from the Coast Guard, 34.4% were contracted, 6.6% came from National Direction of Fisheries Coordination and the rest came from the Navy. Most of the inspector onboard program efforts (measured in days of effective monitoring) have been devoted to the hake, costal and red shrimp fisheries. The fisheries registering more cover percentage is Patagonian toothfish Fishery. In addition to performing onboard inspections, the Fisheries Administration and Surveillance Division conducts port inspections where they monitor landings, holds and transhipments, measure fish and monitor fishing gears.

Fishing vessels are obliged to take an on board Inspector (Disposition SSPyA N°424/04 and its amend Disposition SSPyA N°57/09), unless they are exempted by the management authority. Roles of on board Inspectors are prescribed in article 4° of Disposition SSPyA N°424/04. These are:

a) Gather technical details of the vessel.
b) Verify fishing gear used.
c) Control the validity and correct use of the fishing license,
d) Take samples to establish the presence of juveniles in the catch.
e) Order the vessels' Captain the change of fishing zones.
f) Verify that the vessel do not operate in closure areas.
g) Verify that fishes are not returned to sea.
h) Register data from each fishing towl, indicating: day, time and exact position, providing all information required in forms regarding the fishery, including additional information considered relevant.
i) Produce the infringement Acts when required. These must be notified to the vessel's Captain.
j) Any other additional task required in order to control the accomplishment of the regulations of fishing activities.

SSPyA satellite-based vessel monitoring system (VMS) has been working since 2004 (Disposition SSPyA N°2/2003). It uses vessel mounted transponders and global positioning system to track and monitor the activity of the fishing fleet. In addition to SSPyA, the provincial administrations, the Navy, Coast Guard and INIDEP receive "on time" information generated by the system. Currently, the system is used in almost all the Argentinean fishing vessels, which report with hour frequency data as position, speed, direction, and same vessels also report oceanographic condition.

The VMS is being updated with optical devices and fishing gear openness and oceanographic sensors. During March 2011 the incorporation of the fishing activity control by cameras on board started (Disposition SSPyA N°206/2010 and 1/2011).

k.1.2 Coast Guard (PNA)

The Coast Guard is housed in the Ministry of Interior having a staff of approximately 13,000 people. It is responsible for ensuring that fishing vessels meet navigation safety requirements, certifying crews, monitoring and enforcing fisheries regulations (e.g. closed areas, fishing gear regulations), monitoring and controlling the departure of boats, controlling, surveillance, and apprehending domestic and foreign vessels, and conducting oil response and search and rescue operations. Coast guard officials also act as Inspectors and onboard observers and provide policing support to SSPyA officials in port. The Coast Guard has collaborative agreements with coastal provinces, which provide financial support to expand the Coast Guard's policing activities.

In regard to the powers that Laws 18.398/69 and 20.325/73 confer to the Coast Guard on navigation security, this organism has enacted the following Naval Regulations which are relevant to the operating maritime fisheries. These are available in the website www.prefecturanaval.gov.ar:

- Nº 40/66 – Security bearing for sea fishing vessels.
- Nº 8/77 – Rules for professional diving for fishing purposes.
- Nº 2/81 – Maximum distance and time absence for deep-sea fishing vessels, coastal vessels and smaller vessels.

- Nº 2/86 – Rules from title 2, chapter 4 of REGINAVE, inspections regime of Vessel Security and Naval Devices and awarding of National Certificate for Naval Security.
- Nº 3/86 - Norms and forms used for Registration of National Vessels.
- Nº 2/87 – Nautical equipment, publications, pointing and fireworks material on vessels.
- Nº 3/87 –On board required elements and naval devices,
- Nº 5/87 – Flag size to be used in vessels with national register.
- Nº 6/87 – Rules on longitudinal bottom settlement of vessels.
- Nº 8/87 – Pollution prevention. Norms related to scraping or application of anti-fouling paints on vessels, naval devices, exploitation platforms, offshore or other fixed or floating constructions in waters within national jurisdiction.
- Nº 10/87 – Aptitude in the operation of survivorship boats.
- Nº 11/87 – Sailing of vessels during renewal/updating of certificates.
- Nº 13/87 – Payment and procedure of application of security inspections.
- Nº 2/88 – Security for navigation in waters within national jurisdiction where offshore facilities may exist.
- Nº 4/88 – Signs related to vessel rescue devices (Rule III 9.2 SOLAS 1974).
- Nº 3/89 - Provison and exposure in vessels' visible places of information related to the maneuver.
- Nº 4/89 – Means for pilot transfer.
- Nº 5/89 – Crew´s Security.
- Nº 1/91 – Instructions for survivorship in live rafts and index for elaboration of instructions or survivorship manuals.
- Nº 1/94 – Mandatory use of lifejacket in pilots' embarking and disembarking.
- Nº 1/97 - Norms for painting and identification signings of fishing vessels.
- Nº 7/99 – System of inspections payment.
- Nº 8/99 - Norms for compartmentalizing, system and devices against flooding.
- Nº 2/00 – Information system for geographic position in argentine fishing vessels, authorized to operate in the protected area of the Convention on the Conservation of Antarctic Marine Living Resources (CAMELAR).
- Nº 3/00 – Regime for protection of the environment.
- Nº 2/02 - Norms for passive protection against fires on board of fishing vessels and naval devices.
- Nº 3/02 – Norms for building of ships and naval device.
- Nº 4/02 - Security norms for installation of naval machine.
- Nº 5/02 – Security measures for cargo transportation.
- Nº 9/02 - Norms and forms to be used in registration procedures.
- Nº 3/05 – Security measures against fires and general system for extinguishing fire.
- Nº 4/05 – Evacuation procedures in merchant ships.
- Nº 5/05 - Norms on fixed systems for fire extinguishing, fire detection, and alarm against fires in merchant ships.
- Nº 6/05 – Implementation of embarkation book with new security measures.
- N° 1/08 – Security measures for navigation.
- N° 2/08 – Prohibition of newon board installations containing asbestos.

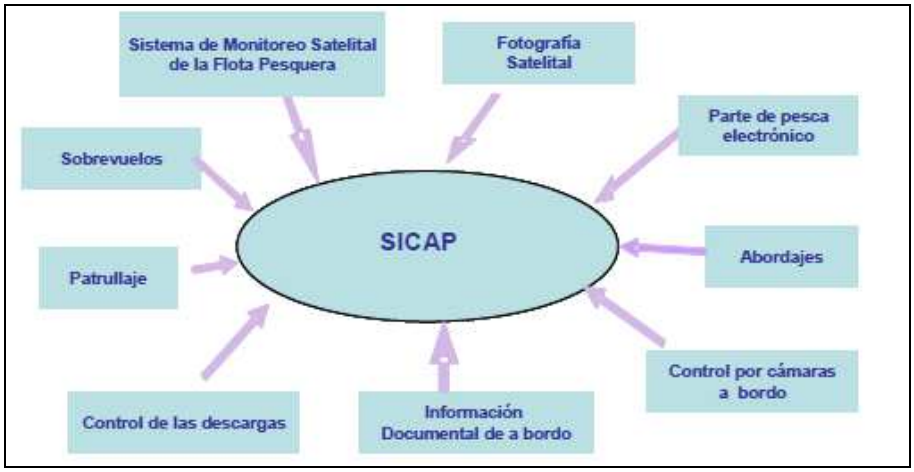
k.1.3 Argentine Navy (AA)

The Argentine Navy is under the Ministry of Security. The Navy's responsibilities in the fisheries sector include aerial surveillance, sea patrolling, surveillance and apprehension of foreign vessels. The Navy has about 29,000 people under its command. An important part of the naval air force and fleet are involved to some extent in the fisheries sector.

One of the most important challenges for the Navy and the Coast Guard alike is monitoring and enforcing regulations against foreign vessels that illegally operate in or near the Argentina's EEZ. Although the exact extent of this activity is unknown, a navy plane reported that during the squid season it had sighted 161 foreign jiggers fishing vessels operating illegally in Argentina's EEZ. In addition, many intruder ships are painted red to look like Argentine fishing vessels; it is believed some are "twins" of other licensed Argentine vessels.

k.2 Monitoring, Control and Surveillance of Fishing and Marketing of Fisheries Products

With regard to the operative control of the fleet, SSPyA has implemented the Integrated Control of Fishing Activities System (SICAP), comprising: a) Satellite Positioning System of the National Fishing Fleet, b) all satellite data from the area where foreign fishing vessels operating outside the ZEEA provided by the National Commission on Space Activities, and c) the activity of control and surveillance conducted by the PNA, Navy and Air Force, which have water units (Coast Guard and corvettes) and air units (aircraft and helicopters) to control illegal fishing. This information is supplemented with that from the control of discharges and documentary information on board. In the 2009 was incorporated the electronic log book by haul (Resolution SAGPyA N° 167/2009) and in 2011 has been sanctioned the fishing activity control by cameras on board (SSPyA Dispositions N° 206/2010 and 1/2011).



The responsible organizations for control and monitoring of international trade in food products in Argentina are SENASA and the Customer General Direction (DGA).

As already mentioned, SENASA (National Service of Sanitary and Food Quality) is the agency responsible for health inspection and certification of products and by-products of animal and vegetable control, habilitating the processing vessels and processing plants on land and packaging, transport and marketing of fishing and aquaculture products, in addition controlling federal traffic, as well as imports and exports of products, and products derived from the fishing or farming.

The DGA (Customer General Direction) is a national organism under the Federal Administration of Public Revenue (AFIP) and is responsible for implementing the legislation on the import and export of goods, as well as traffic control goods entering or leaving in the customs territory. Its main function is to assess, classify, monitor and control the entry and exit of goods, as well as media that are transported, ensuring compliance with existing provisions.

This institutional framework and tools generated can make the following points in relation to control the extraction and marketing of fishing products:

a) Prior to set sail

1. Release fishing: control by the PNA set sail through the output document entitled Statement showing the date and time of departure of the vessel, all features, certificate validity, the role of the crew, the ship does not have any impediment to sail, which have permission for fishing target species, the VMS equipment is working and that the fisheries inspector is empowered to fulfil this role.

2. Additionally, SSPyA port officers control randomly documents and gears on departure ships.

b) During the tide

3. Satellite monitoring during the trip, as set out in Disposition SSPyA No. 2/03, all fishing vessels must have satellite monitoring equipment on board, in perfect working order. The system should inform the vessel's position every hour. In the event that the ship stops emitting its signal by a space over two hours, ordered the immediate return to port. Regardless, the office SSPyA control, special individual can query (polling) at any time for any doubt about the positioning of the vessel. At present the entire commercial fleet of over 13 m in length, operating in national waters, has satellite monitoring system. This makes a total of 554 fishing vessels with equipment on board, with a daily average operation between 225 and approximately 300 vessels in navigation. Twice a day MINAGRI updates the system information in its website (www.minagri.gob.ar) for public open consultation.

4. Inspections on board: the inspector prepares a Tide Monitoring Report and the minutes till if applicable.

5. Fishing Log Books: affidavit of catches by species and fishing area signed by the ship's captain. The master prepares a statement with the information for each fishing haul (haul by haul fishing report) and a statement with the information of the whole trip. Both documents are delivered to fisheries control authorities during the fishing trip and when the ship arrives in port.

c) At the end of the tide

6. Entry declaration: control port entrance documented by the PNA (Argentine Cost Guard).

7. Control and Verification Landing Act: fisheries control authorities verify landings (species, weight, fishing gears and fishing documents), confectioning a document delivered to National Direction of Fisheries Coordination to be processed. This control I made by an especial committee in the case of Patagonian toothfish, named Joint Committee of Landings Control (Disposition SSPyA N°14/02), following special procedures stated in the Patagonian toothfish Landing Control Manual (Disposition SSPyA N°597/04)

8. Movement control of catches (Mar del Plata): In order to verify the destination of the goods circulating in Mar del Plata Port there is an unified Integrated Control Centre for fishing activities (CINCOPE), composed by members of the national enforcement authorities, of the Buenos Aires Province sanitary authority, PNA (Argentine Cost Guard), the Municipality of Mar del Plata, SENASA (National Service of Sanitary and Food Quality) and the AFIP (Federal Administration of Public Revenue). The CINCOPE, controls and validates the company refer prepared and presented by the truck driver who transports the goods to the factory. The validation is performed by the agent of the municipality or SENASA, as appropriate.
9. Factory audit of books: income and expenditure of goods to be processed are reordered in foliated books audited by a veterinarian of the Municipality or SENASA, as appropriate.
10. Control of plant exit: a Transit Guide is required to deliver fishing product or by products from the processing plants.
11. Export controls: the goods for export must be accompanied by Export Health Certificate issued by SENASA, Export Manifest (Shipping Permit) issued by the AFIP and CCAMLR/CITES export document.

l.Details of any planned and training for interest groups

Excep crew training in National Actioon Plans on Birds and Chondrichties, no other interested groups training was detected.

m.Date of next review and audit of the management plan

Patagonian toothfish Management Plans is permanently under revision by FFC, SSPyA and the Follow up Committee. So there is not a desired review date programmed.

The Research system is reviewed every year and in case of necessity, the INIDEP Research Plan is changed as needed.

n.Description of fishery's research plan

See section 3.3 and 3.4.

4. Evaluation Procedure

4.1 Harmonised Fishery Assessment

On the technical side at this point, on 13th May 2013, OIA and IMM held a harmonisation meeting (via Skype) for the Patagonian toothfish fishery. In this instance, IMM concluded that the toothfish stocks in the units of certification were separate, and that the two units of certification operate under different management regimes, and use different fishing methods in separate areas of the ocean. OIA have announced the fishery assessment and have just completed the consultation on the assessment tree and use of the RBF for the fishery. At this moment, OIA analyzed the fishery and there were not sufficient evidences to accept or reject the hypothesis provided by IMM about the independence of stocks. Therefore, the hypothesis handled by Argentina about the evidence of a biological interconnection of both stocks must be evaluated in certification process. For this reason, IMM and OIA consider appropriate to continue both assessments and if it is necessary invoke all procedures set out in CI 3.2. of the MSC Certification Requirements.

IMM and OIA agree to maintain close liaison throughout their respective assessment processes to ensure that any response contrary stakeholder views were addressed appropriately.

MSC HARMONISATION: SOUTH ATLANTIC PATAGONIAN TOOTHFISH

Record of Skype Conference, 13th May 2013.

Attendance

Carolina Medina Foucher	Organización Internacional Agropecuria (OIA)
Jason Combes	Intertek Moody Marine (IMM)
Jim Andrews	Intertek Moody Marine (IMM)

Background

IMM started an assessment of Toothfish Longline Fishery in August 2012. OIA started an assessment of the Patagonian Toothfish fishery in March 2013.

IMM and OIA discussed the need for harmonisation between these two assessments in accordance with the MSC Certification Requirements v1.3 (§CI3.2) in a Skype conference on 13th May 2013.

Key Points Discussed

a) IMM have completed the site visit and scoring for their fishery, and are about to send the report for Peer Review, following this harmonisation discussion.

b) OIA have announced the fishery assessment and have just completed the consultation on the assessment tree and use of the RBF for the fishery.

c) IMM have examined the available evidence and concluded that the Patagonian Toothfish stock around the Islands is separate from the stock prosecuted by the Argentinian fleet to the north and west.

d) IMM outlined the key findings of their assessment, which were that the fishery met the MSC requirements except in respect of 3 Performance Indicators, outlined below:-
   - Limit Reference Point (PI 1.1.2) – we felt that this had not been adequately defined.
   - Harvest Control Rules (PI 1.2.2) – we felt that the rules relating to stock rebuilding had not been adequately tested & defined.
   - Benthic Habitat Information (PI 2.4.3) – we felt that work should be carried out to identify whether the fishery might impact any sensitive benthic habitats.

e) IMM indicated that they had received correspondence from the Argentinian ambassador raising concerns about the relationship between the fishery assessment and political relations between the UK and Argentina. IMM were due to respond to this letter, and would ensure OIA were kept informed of any political developments that might affect either CAB.

Conclusions

a) At the moment, OIA is analyzing the fishery and there are not yet sufficient evidences to accept or reject the hypothesis provided by IMM about the independent of stocks. Therefore, the hypothesis handled by Argentina about the existence of a biological interconnection of both stocks must be evaluated in certification process. For this reason, IMM and OIA should be appropriate to continue both assessments and if it is necessary to invoke all procedures set out in §CI3.2 of the MSC Certification Requirements.
b) IMM and OIA agree to maintain close liaison throughout their respective assessment processes to ensure that any response contrary stakeholder views were addressed appropriately.

Signed

JIM ANDREWS
For Intertek Moody Marine

CAROLINA MEDINA FOUCHER
For Organización Internacional Agropecuria

On 30th September 2013, IMM was updated the PCDR of Patagonian toothfish. OIA analyzed the PCDR by IMM about stock structure, geographical area under assessment, method of fishing, class of boats and purpose of the activities. IMM define the stock identity as "a single fish stock, separate from neighbouring Argentine stocks to the south-west and north of the FICZ". For IMM, there are four main bodies of evidences supporting the management of Malvinas Islands toothfish fishery as a discrete stock.

Moreover, there are not overlaps in fishing areas and both fisheries have TACs based in their stock models. The abundance estimation and the fishing potential of Patagonian toothfish by Argentine stock assessment, in the Southwest Atlantic, is done assuming the whole stock as a single stock and consider the uncertainties in the stock structure.

Finally, OIA concluded that both full-assessments are based in different hypothesis of stock structure, which defines two units of certification separated that operate under different management regimes, and harmonization process it is not required. Using the precautionary stock assessment by Argentine models, sustainability of fishery is unaffected.

On 13th December 2013, OIA send to MSC a variation request with this argument to not harmonize with IMM:

VARIATION REQUEST FORM V.1.3

Date submitted to MSC	December 13th, 2013
Conformity Assessment Body	Organización Internacional Agropecuaria S.A.
Fishery Name/CoC Certificate Number	Argentine Patagonian Toothfish Fishery
Lead Auditor/Programme Manager	Eng. Carolina Medina Foucher
Scheme requirement(s) to vary from	27.4.13 – "The CAB shall determine if the assessment of the applicant fishery will result in an overlapping assessment." 27.4.13.1 – "If the assessment is based on overlapping fisheries, the CAB shall follow the necessary steps in Annex CI." CI 3.2 – "CABs shall coordinate their assessments where assessments of two or more applicant fisheries occur at the same time to make sure that harmonisation of important steps in the assessment and subsequent surveillance audits take place."
Is this variation sought in order to undertake an expedited P1 assessment (CR annex CL)?	Not applicable.

1. Proposed variation

OIA proposes not to follow the steps in Annex CI with IMM about the assessment of Patagonian toothfish fishery:

- Mediation where appropriate
- Coordination meetings
- Coordinated assessment planning and conduct, including coordinated process steps and publications of assessment products
- The use of common assessment trees
- The sharing of fishery information
- Ensure that conclusions are consistent between the two fisheries, with respect to evaluation, scoring and conditions

2. Rationale/Justification

On the technical side at this point, on 13th May 2013, OIA and IMM held a harmonisation meeting (via Skype) for the Patagonian toothfish fishery. In this instance, IMM concluded that the toothfish stocks in the units of certification were separate, and that the two units of certification operate under different management regimes, and use different fishing methods in separate areas of the ocean. OIA have announced the fishery assessment and have just completed the consultation on the assessment tree and use of the RBF for the fishery. At this moment, OIA analyzed the fishery and there were not sufficient evidences to accept or reject the hypothesis provided by IMM about the independent of stocks. Therefore, the hypothesis handled by Argentina about the evidence of a biological interconnection of both stocks must be evaluated in certification process. For this reason, IMM and OIA consider appropriate to continue both assessments and if it is necessary invoke all procedures set out in CI 3.2. of the MSC Certification Requirements.

IMM and OIA agree to maintain close liaison throughout their respective assessment processes to ensure that any response contrary stakeholder views were addressed appropriately.

On 30th September 2013, IMM was updated the PCDR of Patagonian toothfish. OIA analyzed the

PCDR by IMM about stock structure, geographical area under assessment, method of fishing, class of boats and purpose of the activities. IMM define the stock identity as "a single fish stock, separate from neighbouring Argentine stocks to the south-west and north of the FICZ" (page 18). For IMM, there are four main bodies of evidences supporting the management of Malvinas Islands toothfish fishery as a discrete stock (page 18-19). Therefore, OIA as IMM define theirs UoCs under the respective existing hypotheses and assessments are developed under these investigations and management.

Moreover, there are not overlaps in fishing areas and both fisheries have TACs based in their stock models. The abundance estimation and the fishing potential of Patagonian toothfish by Argentine stock assessment, in the Southwest Atlantic, is done assuming the whole stock as a single stock and consider the uncertainties in the stock structure. Therefore, both stocks are managed and monitored by different regimes.

Finally, OIA concluded that both full-assessments are based in different hypothesis of stock structure, which defines two units of certification separated that operate under different management regimes, and harmonization process it is not required. Using the precautionary stock assessment by Argentine models, sustainability of fishery is unaffected.

3. Implications for assessment (required for fisheries assessment variations only)
At the moment, the main implication is a fisheries assessment independently, whose times delays, stakeholders input and findings, not affect to the other assessment process.

4. Have the stakeholders of this fishery assessment been informed of this request? (required for fisheries assessment variations only	Stakeholders will be informed of the change if approved.

5. Further Comments
There are not further comments.

EXPEDITED PRINCIPLE 1 ASSESSMENT FOR MAIN RETAINED PRINCIPLE 2 STOCKS

6. Main retained Principle 2 stock(s) for which an expedited Principle 1 assessment is sought	Not applicable.
7. Evaluation of potential impact on Principle 2	
Not applicable.	
8. Evaluation of potential impact on Principle 3	
Not applicable.	
9. Based on the potential impacts identified in 8 and 9, please list any additions to the expedited assessment requirements given in Annex CL that will be necessary to ensure the fishery is accurately assessed against Principles 1, 2, and 3 with the proposed additional P1 stocks.	
Not applicable.	

10. Confidential Information
Not applicable.

The MSC do not accept the variation request. They consider that OIA have already considered 27.4.13 and communicated with IMM about this. Given that both CABs have concluded that there are different stock hypotheses, there is no need to follow 27.4.13.1 and the procedures in Annex CI for Principle 1 at this time. However, MSC would expect that OIA provide some text in the PCDR indicating that there had been correspondence with the CAB of the other fishery and that both OIA and IMM have established that there are competing stocks hypotheses, the fisheries are not "overlapping".

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Carolina Medina Foucher
OIA
Av. Santa Fe 830
Acassuso , Buenos Aires
Argentina

Sent by email

Date: 20 December 2013

Subject: Request for variation to the MSC Certification Requirement 27.4.13, CI3.2 for Argentine Patagonian toothfish fishery

Dear Carolina,

I write with reference to your submission on 13 December of a request for variation to the MSC Certification Requirement (CR) to allow OIA to not follow the steps in Annex CI with regard to harmonisation.

As you are aware, the CR procedures relating to harmonisation are integral to ensuring all MSC accredited Conformity Assessment Bodies operate in a consistent and transparent manner. The MSC intends that these requirements be met across all fisheries and CoC certificate holders, except in exceptional, well-justified circumstances, as part of the MSC programme.

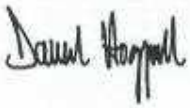
The MSC do not accept the variation request because we consider that OIA have already considered 27.4.13 (CAB shall determine if the assessment of the applicant fishery will result in an overlapping assessment) and communicated with IMM about this. Given that both CABs have concluded that there are different stock hypotheses, there is no need to follow 27.4.13.1 and the procedures in Annex CI for Principle 1 at this time. We would expect that OIA would provide some text in the PCDR indicating that there had been correspondence with the CAB of the other fishery and that because both OIA and IMM have established that there are competing stock hypotheses, the fisheries are not 'overlapping' and the following steps in Annex CI do not need to be undertaken, including:

- CI3.2 'CABs shall coordinate their assessments where assessments of two or more applicant fisheries occur at the same time to make sure that harmonisation of important steps in the assessment and subsequent surveillance audits take place';
- CI3.2.1 'CABs shall undertake the following activities:
  - CI3.2.1.1 Mediation where appropriate;
  - CI3.2.1.2 Coordination meetings between CABs;
  - CI3.2.1.3 Coordinated assessment planning and conduct, including coordinated process steps and publication of assessment products;
  - CI 3.2.1.4 The use of common assessment trees and
  - CI3.2.1.5 the sharing of fishery information.'

However, there may be some other aspects that would justify harmonisation, e.g. P2 species, if these stocks are overlapping. This would simply need looking at the other fishery assessment and ensuring that where overlaps of species occur, the biological information used to determine status is considered and any differences in outcomes provided in rationale.

I hope this helps clarify why the variation request is not needed in this instance and will therefore not be granted. If you have any questions regarding this response, please do not hesitate to contact Stephanie Good, the Fisheries Assessment Manager for this fishery either by email stephanie.good@msc.org or phone +44 (0)20 7246 8926.

Best regards,



Dr. Daniel Hoggarth
Fishery Oversight Director
Marine Stewardship Council

cc: ASI; MSC Outreach

It must make clear that Argentinean hypothesis indicates that Argentine and Malvinas toothfish stocks are a single stock. So both fisheries are overlapping. The abundance estimation and the fishing potential of Patagonian toothfish by Argentine stock assessment, in the Southwest Atlantic, is done assuming the whole stock as a single stock and consider the uncertainties in the stock structure. There are evidences that Argentina and Malvinas have a single stock, if both fisheries areas are provided by juveniles that migrate of Burdwood Bank. There are not yet any scientific reports that indicate "particular population is a biological distinct unit".

On 30th December 2013, OIA sent to IMM the following note that indicates the possibility to harmonize Principe 1 as whole stock (Argentina and Malvinas toothfish stock as single stock). In March 2014, Malvinas toothfish fishery has been certified against MSC Principle and Criteria for Sustainable Fishing.

MSC HARMONISATION: SOUTH ATLANTIC PATAGONIAN TOOTHFISH

27th December 2013

James Andrews
Intertek Moody Marine Ltd
Merlin House
Stainer Way
Wyvern Business Park
Derby DE21 6BF
UK

Subject: Harmonization in accordance with the MSC Certification Requirements v 1.3 (SCI 3.2)

Dear James,

We write about the harmonization and CR procedures which ensure that all CBs operate in a consistent and transparent manner.

Background

IMM started the assessment of Toothfish Longline Fishery in August, 2012 and OIA started the assessment of the Patagonian Toothfish in March 2013.

IMM and OIA discussed the need for harmonization between these two assessments in accordance with the MSC Certification Requirements v 1.3 by a Skype conference on 13th May 2013. In that instance the following key points were discussed:

a. IMM have completed the site visit and scoring for their fishery, and were about to send the report for Peer Review, following this harmonisation discussion.
b. OIA have announced the fishery assessment and have just completed the consultation on the assessment tree and the use of the RBF for the fishery.
c. IMM have examined the available evidence and concluded that the Patagonian Toothfish stock around the Islands was separated from the stock prosecuted by the Argentinean fleet to the north and west.
d. IMM outlined the key findings of their assessment, which were that the fishery met the MSC requirements except in respect of 3 Performance Indicators, outlined below:-
    1. Limit Reference Point (PI 1.1.2) – *we believe that this had not been adequately defined.*
    2. Harvest Control Rules (PI 1.2.2) – *we believe that the rules relating to stock rebuilding had not been adequately tested & defined.*
    3. Benthic Habitat Information (PI 2.4.3) – *we believe that the work should be carried out to identify whether the fishery might impact any sensitive benthic habitats.*

Submitted: 27/12/2013

e. IMM indicated that they had received correspondence from the Argentinean ambassador raising concerns about the relationship between the fishery assessment and political relations between the UK and Argentina. IMM were due to respond to this letter, and would ensure OIA were kept informed of any political developments that might affect either CAB.

At that moment, OIA was analysing the fishery and there were not yet sufficient evidences to accept or reject the hypothesis provided by IMM about the independent of stocks. For this reason, IMM and OIA had considered appropriate to continue both assessments and if it were necessary to invoke all procedures set out in §CI3.2 of the MSC Certification Requirements.

Harmonised fishery assessments for overlapping fisheries

On December 5, IMM has published the Final Report of Toothfish Longline Fishery and it is in objection period until 30 December. OIA, for its part has completed the site visit from 12 to 14 August 2013 and is in the final stages of writing the PCDR. To continue with the certification process OIA proposed to ***IMM harmonized in accordance with the certification requirements MSC v 1.3 (SCI 3.2).***

The assessment team and scientists consider that there is sufficient evidence to suppose that in the Southwest Atlantic there is **a stock unit** of toothfish that includes fish that are distributed from 37 ° S to 58 ° S.

Therefore considering the stock definition of MSC, there is no evidence of any aspect that distinguishes more than one stock of Patagonian toothfish (*Dissostichus eleginoides*) in the Southwest Atlantic, i.e. that **there is an overlap** between the two fisheries making it necessary to move forward with the harmonization process.

In this way OIA remains at your disposition. If you have any questions regarding this letter, please do not hesitate to contact **Jose Amaral Wagner Neto**, the Technical Director of OIA Brasil.

Jose Amaral Wagner Neto
Technical Director of OIA Brasil

Submitted: 27/12/2013

4.2 Previous assessments

There are not a summary of previous assessments of the client operation, conclusions reached and past compliance with specified conditions.

4.3 Assessment Methodologies

The assessment process of Argentine Patagonian toothfish fishery used the MSC Certification Requirements version 1.3, while the report was based on the MSC Full Assessment Reporting Template v.1.3.

In the beginning of the process, the assessment team proposed using Risk Based Framework (RBF) in the following performance indicators: PI 1.1.1 Stock status, PI 2.1.1 Retained species, PI 2.2.1 Bycatch species, PI 2.4.1 Habitats and PI 2.5.1 Ecosystems. Details were published in March 21st, 2013 on the MSC website: http://www.msc.org/track-a-fishery/fisheries-in-the-program/in-assessment/south-atlantic/argentine_patagonian_toothfish/assessment-downloads-1/20130321_DAT_RBF_TOO.pdf.

The rationale of the use RBF in these PIs is that information available to describe impact of the fishing gears on the ecosystem aspects is insufficient to assess their effects.

The Assessment Team had considered using a precautionary approach to assess the PI 1.1.1 "Stock Status", using RBF. This is because there is uncertainity about the stock structure of Patagonian toothfish in the Southwest Atlantic (see also Section 3.3). Since 2005, several fish tagged in the Southwestern Atlantic as part of INIDEP's Marking and Recapture of Toothfish Program have been recovered in Chilean waters. The tagging studies are still evolving with the appearance of Argentinean individuals tagged in Chilean waters. For this reason, it would be possible to consider toothfish from the Atlantic and Pacific as a single interconnected biological stock, or metapopulation. However, there is still uncertainty about this, and the stock structure of the Patagonian Toothfish *(Dissostichus eleginoides*) in Southwest Atlantic and Southeast Pacific is still the subject of ongoing research using genetic and tagging studies.

After consideration of comments submitted by stakeholders, the Team agreed there was sufficient and available information to evaluate Principle 1 according to the default PISGs. Stakeholder responses to the proposed modifications as well as OIA response to the comments and final confirmation of the assessment tree is included in this report as Appendix 3.

4.4 Evaluation Processes and Techniques

4.4.1 Site Visits

Following the finalised stakeholder consultation on proposed trees, an invitation for stakeholder participation in the assessment process was announced in July 2nd, 2013, in order that all relevant stakeholders were aware of the opportunity to meet with the assessment team.

In August 2013, team members supported by OIA staff members, undertook a site visit to Mar del Plata, Argentina. This enabled a scheduled programme of consultations to take place with key stakeholders in the fishery – including skippers, scientists, fishery protection officers, NGOs, fishery managers and technical support staff.

Itinerary of field activities

Days 1 and 2 – August 12nd and 13rd, 2013

Conduct stakeholder interviews to make sure that the team is aware of any concerns or information that stakeholders may have.

Day 3 – August 14th, 2013

Carry out a stakeholder RBF's workshop to gather data and seek expert opinions. Input from stakeholder to: permit assistance in the identification of scoring elements which are affected by the fishery; provide information suitable for the qualitative evaluation of the risks that the activities pose to the species or habitats included in the risk assessment; assist in scoring the spatial and temporal scales and the intensity of the relevant risk causing activities; and, assist in scoring the consequences for the particular species, habitat or ecosystem.

Conduct stakeholder interviews to make sure that the team is aware of any concerns or information that stakeholders may have.

4.4.2 Consultations

Written and verbal representations were provided to the assessment team expressing a range of views, opinions and concerns. The team is of the view that matters raised have been adequately debated and addressed as a part of the scoring process for this fishery, and that none of the issues raised, therefore, require separate attention beyond that represented in this report.

Meetings and RBF's workshop were held as follows:

Name	Position	Organisation
Day 1 – Individuals meetings		
Alejandra Cornejo	Technical Advisory	CEDEPESCA
Daniel Valdovinos	Technical Advisory	CEDEPESCA
Ana Massa	Jefa del Programa Pesquería de Condrictios	INIDEP
Jorge Colonello	Scientific Researcher	INIDEP
Juan Waessle	Technical Researcher	INIDEP
Claudia Bremec	Scientific Researcher	INIDEP
Anabela Zavatteri	Scientific Researcher	INIDEP
Analía Giussi	Jefa del Programa Pesquerías de Peces Demersales Australes y Subantárticos	INIDEP
Gabriel Blanco	Jefe del Programa Observadores a Bordo de Buques Comerciales	INIDEP
Day 2 – Individuals meetings		
Diego Rodríguez	Scientific Researcher	UNMdP
Agustina Mandiola	Scientific Researcher	UNMdP
Guillermo Cañete	Coordinador del Programa Marino	Fundación Vida Silvestre Argentina
Verónica García	Technical Advisory	Fundación Vida Silvestre Argentina
Day 3 – Stakeholder RBF's Workshop		
Analía Giussi	Jefa del Programa Pesquerías de Peces Demersales Australes y Subantárticos	INIDEP
Anabela Zavatteri	Scientific Researcher	INIDEP

Marcelo González	President	Estremar S.A.
Juan Benegas	General Assistant	PESANTAR S.A.
Daniel Valdovinos	Technical Advisory	CEDEPESCA
Federico Gorini	Scientific Researcher	INIDEP
Verónica García	Technical Advisory	Fundación Vida Silvestre Argentina
Ana Massa	Jefa del Programa Pesquería de Condrictios	INIDEP
Alejandra Cornejo	Technical Advisory	CEDEPESCA
Agustina Mandiola	Scientific Researcher	UNMdP
Jorge Colonello	Scientific Researcher	INIDEP
Eduardo González Lemmi	President	San Arawa S.A.
Guillermo Cañete	Coordinador del Programa Marino	Fundación Vida Silvestre Argentina
Gabriel Blanco	Jefe del Programa Observadores a Bordo de Buques Comerciales	INIDEP
Claudia Bremec	Scientific Researcher	INIDEP
Diego Rodríguez	Scientific Researcher	UNMdP
Juan Agustin Ocampo	Director – Sales Manager	San Arawa S.A.
Patricia Martínez	Directora del Programa Pesquerías Demersales	INIDEP
Juan Waessle	Technical Researcher	INIDEP
Raúl Reta	Scientific Researcher	INIDEP
Martin Irueta	General Manager	Argenova S.A.
Day 3 – Individuals meetings		
Patricia Martínez	Directora del Programa Pesquerías Demersales	INIDEP
Otto Wöhler	Director Nacional de Investigación	INIDEP
Juan Agustin Ocampo	Director – Sales Manager	San Arawa S.A.
Marcelo González	President	Estremar S.A.
Juan Benegas	General Assistant	PESANTAR S.A.
Martin Irueta	General Manager	Argenova S.A.
Eduardo González Lemmi	President	San Arawa S.A.

Summary of information obtained

Stakeholder meetings discussed a wide range of issue relevant to the Argentine Patagonian toothfish fishery.

- Industry representation, business structure and relationships within the client group. Basic information about 4 companies (ownership, history, organizational structure, roles and responsibilities in MSC Fisheries certification process).
- Management of Argentinean fleet and fishing entitlements. Review of fishing operations (fishing season, fishing areas, gear used, TAC and historical fishing levels).
- National and International management of Patagonian toothfish management along with division of TAC.
- Stock status, structure and recruitment. Review of limit and target reference points established by stock assessment.

- Management of bycatch species of marine mammals, ETP species and birds (species and quantities) was discussed with all stakeholders.
- Review of impact on ecosystem. Identification about commercial and non-commercial species, loss of fishing gear and recovery (ghost fishing), does the fishery overlap with sensitive habitats? And which areas are protected / closed?
- Environmental indicators such as retained species, bycatch species, ETP species, habitats interactions as well as ecosystem effect of fishing.
- Illegal fishing, control and enforcement in the toothfish fishery.
- Stock status for target and main retained stocks were discussed along with scientific advice for recent years.
- Compliance with rules and regulations: control, surveillance and monitoring routines/regulations, disputes with national/international authorities, harvest control rules and mitigation measures to reduce impact in the ecosystem.
- Chain of custody start (review of traceability system from on board process to delivery at client, labelling of products, first point of landing, first point of sales and main producs and market).

4.4.3 Evaluation Techniques

Site visits to the fishery were performed by OIA and the assessment team and consultations were done with interested stakeholders. The performance indicators and the pertaining scoring systems were evaluated, and it was judged if the fishery meets the requirements for MSC certification.

In order to fulfil the requirements for certification the following minimum scores are required:

- The fishery must obtain a score of 80 or more for each of the three MSC Principles, based on the weighted aggregate scores for all Performance Indicators under each Criterion in each Principle.
- The fishery must obtain a score of 60 or more for each Performance Indicator under each Criterion in each Principle.

Even though a fishery fulfils the criteria for certification, there may still be some important potential risks to future sustainability that are revealed during assessment. These are performance indicators that score less than 80, but more than 60. In order to be granted a MSC fishery certificate, the client group must agree to further improvements to raise the score to 80. OIA sets a timescale for the fishery to improve the relevant areas, so that the certification process can continue.

Default performance indicators and the scorings allocated in the evaluation are enclosed in section 6.2.

a. Risk Based Framework

The first proposal to use the Risk Based Framework (RBF) for this fishery was notified to all stakeholders. This consultation advised that the RBF could be used in the assessment of Performance Indicators: 1.1.1, 2.1.1, 2.2.1, 2.4.1 and 2.5.1. Comments were received on this proposal about to use of RBF in PI.1.1.1 (see Appendix 3). It was considered all stakeholder

comments and it was reviewed the default tree in light of those comments. The Assessment Team has taken the decision to modify the default tree: 2.1.1, 2.2.1, 2.4.1 and 2.5.1.

All stakeholders were advised that a RBF workshop would form part of the site visit via email and newsletter. The RBF workshop was attended by a range of fisheries and environmental experts. These experts provided advice on the Components and Sub-Components of the marine environment that were most likely to be affected by the fishery, and also the aspects of the fishing activity that were most likely to have an adverse effect on these Components and Sub-Components. The scores that should be assigned to the SICA tables for the relevant Performance Indicatos were agreed during the workshop.

5. Traceability

5.1 Eligibility Date

At the beginning of the process, the target eligibility date (TED) was 15th January 2013, but the delay of the assessment process determined a new TED. The TED for this fishery shall be **15th January 2014**. This means that any fish caught by the certified fleet following that date will be eligible to enter the chain of custody as certified product when certification is granted. The rational for this date is that it meets with the client group's wishes, for commercial reasons, for the date to be set at the earliest point at which the Certification Requirements allow.

The measures taken by the client to account for risks within the traceability of the fishery – and therefore generating confidence in the use of this date for target eligibility – are detailed in the rest of this section.

(REQUIRED FOR PCR ONLY)

1.The report shall include: a.The actual eligibility date. b.The rationale for any difference in this date from the target eligibility date

5.2 Traceability within the Fishery

a. Description of the tracking, tracing and segregation systems

All vessels operate within the Argentinean Economic Exclusive Zone (AEEZ) and are managed under the same standards and policies. They are tracked at all times by satellite VMS systems: a GPS device reports the geographic positions of vessel with regularity to Federal Authorities in order to allow tracking of vessel across the sea (http://www.marinetraffic.com).

Each vessel produces their own "Goods in" records which show fishing location and quantity of fish caught daily on board for all trips. These records discriminates species and type of product. The Captain assembles the registers in cooperation with the Plant's Manager. At the end of the trip, all registers are synthesized into a Final Production Report / Final Catch Report, signed by the Captain and delivered to the Argentine Application Authorities who monitors the use of each vessel's quota (ITQ) and enforce not exceeding this limit. These reports are reconciled by landings records. Landings are also controlled by de Landing Control Subcommittee integrated by 2 public officers and a representative of each private quota owner.

The robustness of the management system related to traceability is evaluated. There is a high degree of confidence that all of the fishing activity carried out by the vessel under assessment is tracked and recorded by independently verifiable mechanisms. Separation system is based in two different strategies:

- Physical separation: The production flow of Patagonian toothfish whole, gutted or HGT is different to the line for producing fillets or surimi. There are special lines only for product headed and gutted or whole gut out.

- Temporal separation: Patagonian toothfish is manually processes by operators, and some time the factory is working with other species. There are not possibilities of mixing due the size and type of fish is entirely different, and in addition, due the very big depth (over 800m), practically the biggest percentage is Patagonian toothfish, due other fishes can not survive at that depth.

b. Evaluation of the possibility of vessels fishing outside the unit of certification

The vessels are only licensed to operate within the unit of certification distribution and do not catch any toothfish in other areas. The close monitoring means that the risk of fishing outside of Unit of Certification is negligible. Therefore, no possibility of boarding Patagonian toothfish not sourced from the unit of certification exists as target fishery.

Argentine as part of Convention on the Conservation of Antarctic Marine Living Resources has Patagonian Toothfish on the convention area, but only for longliners. When Argentinean vessels fish on CAMLR area must complete the fishing trip in the desired area and cannot fish in domestic waters.

c. Evaluation of the opportunity for substitution of certified fish with non-certified fish prior to and at the point of landing

The risk of substitution of certified fish with non-certified fish has been evaluated and is considered to low because of the strict controls of chain of custody system respectively. The close monitoring, at-sea catch reports and production controls guarantee the no-substitution.

All Argentinean stock of Patagonian toothfish within AEEZ is under assessment.

d. Description of the at-sea processing of catch

The following describes how the product is identified in the most critical steps of the process that occurs on board:

<Species classification sectors> the entire catch is placed in the receiving pits from where delivered to a classification sector where fish is separated manually by experienced staff members. The Patagonian toothfish is easily distinguishable species from the other processed on board; therefore it is very unlikely to commingle species.

<On board processing> the catch is whole fish gut out, HG and/or HGT at sea. An only species is processed by line. Therefore no possibility of mix with other species exits. Then, the fish is placed in cabinet freezers. Each cabinet freezer is used only for one species.

<Packaging sector> once filled with fish products in master carton/bags, labels are printed with vessel facility number, species name and product type, amongst other information. This information is checked by control staff member in order to verify if the right species and product is included in the respective boxes/bags, amongst other quality aspects. All packaging is identified with vessel origin and species.

<Labelling> The MSC ecolabel can only be applied to product from certified fisheries. The MSC program does allow, in certain circumstances and within strict traceability requirements, the MSC ecolabel to be applied following certification to product caught before the actual date of certification. The target eligibility date therefore represents the date from which products may

become eligible to carry the MSC ecolabel, however they cannot be sold until and if the fishery is certified. The actual eligibility date will be determined if the fishery is certified to the MSC standard.

All vessels have a traceability system of each production and an inventory of the all catch processed.

e. Details of the use of trans-shipping in the fishery

There is no trans-shipment of fish at sea.

f. Details on the number and/or location of points of landing.

All catch is landed in Ushuaia and Deseado ports (Argentina). Landings are made in average 4-7 times per-year-vessel, and are supervised by an inspector, a subcomission of Fisheries Department of CASPMeN and company staff member.

The landing procedure uses processing information from the vessel to verify the quantity of production on board and total of fishing catch. The fish are loaded into pallet and then refrigerated in container which are sealed before onward shipment to customers and/or transported to company's cold storage.

5.3 Eligibility to Enter Further Chains of Custody

a. A conclusion and determination of whether the product will be eligible to enter further certified chains of custody

The robustness of the management system related to tracking and traceability information are considered sufficient for product to be eligible to enter further chain of custody.

b. A list of parties, or category of parties, eligible to use the fishery certificates

Only companies owning ITQs in Patagonian Toothfish fishery are eligible to use the fishery certificates. They are Argenova S.A., Empresa Pesquera de la Patagonia y Antártida S.A. (PESANTAR S.A.), Estremar S.A. and San Arawa S.A.

c. A list of eligible points of landing

The eligible point of landing is Ushuaia and Puerto Deseado, Argentina.

d. The point of change of ownership, from which Chain of Custody (CoC) certification is required.

The point of CoC certification is required will be after the species classification sectors. The complexity of processing on board must be audited periodically.

The point of change ownership for product form the fishery will be acceptance of fish by customers into their own storage and processing facilities. All traders and processors wishing to sell MSC certified fish that has been purchased from this fishery will therefore require their own Chain of Custody certification.

5.4 Eligibility of Inseparable or Practically Inseparable (IPI) stock(s) to Enter Further Chains of Custody

No IPI stocks are involved in this assessment.

6. Evaluation Results

6.1 Principle Level Scores

Table 9. *Final principle level scores*

Unit of certification		Principle	Score	Pass?
1	AEEZ – Bottom trawl net	P1 – Target species	80,0	PASS
		P2 - Ecosystem	80,0	
		P3 – Management system	94,8	
2	AEEZ – Bottom longline	P1 – Target species	80,0	PASS
		P2 - Ecosystem	82,3	
		P3 – Management system	94,8	
3	AEEZ – Traps	P1 – Target species	80,0	PASS
		P2 - Ecosystem	82,3	
		P3 – Management system	94,8	

6.2 Summary of Scores

Table 10. *Summary of Performance Indicator scores for three Units of Certification.*

Principle	Component	PI No	AEEZ – Bottom trawl net	AEEZ – Bottom longline	AEEZ - Traps
1	Outcome	1.1.1	80	80	80
		1.1.2	75	75	75
		1.1.3	N/A	N/A	N/A
	Harvest strategy	1.2.1	95	95	95
		1.2.2	80	80	80
		1.2.3	65	65	65
		1.2.4	90	90	90
2	Retained species	2.1.1	80	80	80
		2.1.2	85	80	80
		2.1.3	80	80	80
	Bycatch species	2.2.1	80	80	80
		2.2.2	85	85	85
		2.2.3	85	85	85
	ETPs species	2.3.1	95	95	95
		2.3.2	85	85	85
		2.3.3	95	95	95
	Habitats	2.4.1	60	80	80
		2.4.2	75	75	75
		2.4.3	75	75	75
	Ecosystem	2.5.1	60	80	80
		2.5.2	80	80	80
		2.5.3	80	80	80
3	Governance & policy	3.1.1	100	100	100
		3.1.2	100	100	100
		3.1.3	100	100	100
		3.1.4	90	90	90
	Fishery	3.2.1	90	90	90

	specific management system	3.2.2	95	95	95
		3.2.3	95	95	95
		3.2.4	90	90	90
		3.2.5	90	90	90
Overall weighted scores			**Total**	**Total**	**Total**
Principle 1 – Target species			80,0	80,0	80,0
Principle 2 – Ecosystem			80,0	82,3	82,3
Principle 3 - Management			94,8	94,8	94,8

6.3 Summary of Conditions

Table 11. *Summary of conditions.*

Condition number	Condition	Performance Indicator
1	Reference point outcome	1.1.2
2	Harvest strategy information & monitoring	1.2.3
3	Habitats outcomes	2.4.1
4	Habitats management strategy	2.4.2
5	Habitats information & monitoring	2.4.3
6	Ecosystem outcome	2.5.1

The full narrative relating to conditions is presented in Appendix 1.3.

6.3.1 Recommendations

There are two recommendations for this fishery:

- *Recommendation 1*

About harvest strategy assessment of stock status, the assessment team suggested:

- As far as we are aware the current Excel assessment model has not been fully evaluated and tested using known or simulated data to ensure that it has been correctly specified.
- The model should be implemented using a more flexible stock assessment software model with wider capabilities in the short-medium term which would allow comparison with the existing model and allow better treatment of uncertainty and data weightings etc. For example, CCAMLR uses a Bayesian approach to estimate uncertainty in parameter estimates in toothfish stock assessments and uses samples from the MCMC to project that uncertainty into the future to estimate sustainable yields.
- Additional sensitivity model runs should be explored which examine the weightings between data sets, alternative recruitment assumptions (e.g., deterministic rather than estimated), alternative selectivity assumptions (i.e. estimate fewer selectivities), a lower value of natural mortality, and alternative future recruitment scenarios in projections etc. The estimate of natural mortality currently used in the stock assessment is 0.17 which is higher than values for Patagonian toothfish used by CCAMLR which range from 0.13 to 0.155. Age and growth studies should also be carried out on toothfish in this area.
- The model should be subject to external review on a regular basis.

• *Recommendation 2*

About relevant information is collected to support the harvest strategy, the assessment team suggested:

- There has been discussion of alternative methods of developing a fishery independent index of juvenile abundance. (Note this could involve a random stratified standardised research survey which could be carried out using a research or commercial trawler or a commercial longline vessel as is currently used in other toothfish fisheries (SC-CAMLR-XXX, Annex 7).
- A preliminary survey of juvenile abundance has been carried out to appropriate standards and specifications. (This should include planning to achieve an appropriate target cv).
- A second survey of juvenile abundance has been conducted.
- A third survey of juvenile abundance has been conducted.
- The results of the recruitment surveys have been tested in the stock assessment.

6.4 Determination, Formal Conclusion and Agreement

(REQUIRED FOR FR AND PCR)

1.The report shall include a formal statement as to the certification determination recommendation reached by the Assessment Team about whether or not the fishery should be certified. *(Reference: CR 27.16)*

(REQUIRED FOR PCR)

2.The report shall include a formal statement as to the certification action taken by the CAB's official decision-makers in response to the Determination recommendation.

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Appendices

Appendix 1. Scoring and Rationales

Appendix 1.1 Performance Indicator Scores and Rationale

Principle 1

Evaluation Table for PI 1.1.1

PI 1.1.1		**The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	It is likely that the stock is above the point where recruitment would be impaired.	It is highly likely that the stock is above the point where recruitment would be impaired.	There is a high degree of certainty that the stock is above the point where recruitment would be impaired.
	Met?	**YES**	**YES**	**NO**
	Justification	It is likely that recruitment would be impaired if the stock biomass falls below 20%B_0, so we have taken this level as a threshold for evaluating this first guidepost in performance indicator 1.1.1. The most recent stock assessment using an age structured population model (ASPM) was completed in 2012 and was fitted to standardised longline CPUE indices and catch-at-age data up to and including 2011 (Martinez & Wöhler 2012b). Details of the assessment are described in detail above (Section 3.3). The assessment estimated that the current biomass (B_{2011}) was at 31% B_0. Although the assessment did not explicitly provide the probability of the stock being above 20% B_0, it did provide the results of projections under three different management rules. With catches of less than 2500 t in 2013 there was a zero probability of the stock being less than 20% B_0. We therefore conclude that it was highly likely (>80% probability) that the stock is currently above 20% B_0.		
b	**Guidepost**		The stock is at or fluctuating around its target reference point.	There is a high degree of certainty that the stock has been fluctuating around its target reference point, or has been above its target reference point, over recent years.
	Met?		**YES**	**NO**
	Justification	The target reference point defined by the Federal Fishery Council to manage the fishery since 2004 is to maintain the spawning stock biomass at 30%B_0. This target was established at a time when the stock had been depleted to almost 20% B_0, and was designed to stop the stock from decreasing further and to rebuild it back towards a higher level. The most recent stock assessment was completed in 2012 and used data up to and		

		including 2011 (Martinez & Wöhler 2012b). Details of the assessment are described in detail above (Section 3.3.5) and are not repeated here. The assessment estimated that the current biomass (B_{2011}) was at 31% B_0. The stock trajectory estimated by the model shows that the spawning stock biomass has been at, or fluctuating around, its target reference point since 2004. Because the assessment does not fully consider all sources of uncertainty, and is based to a large extent on a fishery dependent data set, we do not consider that there is a high degree of certainty that the stock is at its target reference point.
References		Martinez P. & Wöhler O., 2012b -INIDEP Technical Report 32/2012 Martinez P. & Wöhler O., 2011 -INIDEP Technical Report 32/2011 Martinez P. & Wöhler O., 2010b -INIDEP Technical Report 19/2010

Stock Status relative to Reference Points			
	Type of reference point	**Value of reference point**	**Current stock status relative to reference point**
Target reference point	Current spawning stock biomass as a proportion of virgin spawning stock biomass.	30%	31%
Limit reference point	Probability that current spawning stock biomass is less than 20% of the virgin spawning stock biomass.	10%	Probability not given in stock assessment report. However, based on projections it appears to be less than 10%

OVERALL PERFORMANCE INDICATOR SCORE:	**80**
CONDITION NUMBER (if relevant):	---

Evaluation Table for PI 1.1.2

PI 1.1.2		**Limit and target reference points are appropriate for the stock**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	Generic limit and target reference points are based on justifiable and reasonable practice appropriate for the species category.	Reference points are appropriate for the stock and can be estimated.	
	Met?	**YES**	**YES**	
	Justification	Generic limit and target reference points are appropriate for Patagonian toothfish and are widely used to manage toothfish fisheries and other fisheries around the world (e.g., Constable et al. 2000, CAMLR 2013). The stock status in relation to the reference points has been estimated using the current stock assessment - the Age-Structured Production Model (ASPM) - since 2004 (e.g.,		

		Martinez & Wöhler 2010b, 2011, 2012b). Limit reference points (as a $\%B_0$) are widely used for toothfish and other groundfish fisheries and are appropriate for a long lived high trophic level species such as Patagonian toothfish. Target reference points (as a $\%B_0$) are also widely used for toothfish and other groundfish fisheries and are appropriate for a long lived high trophic level species such as Patagonian toothfish. Reference points are appropriate for the stock and can be estimated.		
b	**Guidepost**		The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity.	The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity following consideration of precautionary issues.
	Met?		**YES**	**YES**
	Justification	We were unable to find a limit reference point defined as a management objective for the Patagonian toothfish fishery. However, separate stock assessment projections are run each year to find the long term F (and hence annual catch) for the stock which ensures that there is a high (90%) probability that the spawning stock biomass remains above $30\%B_0$ and above $20\%B_0$ in the long term (e.g., Martinez & Wöhler 2011, 2012b). The annual catch limits set for the Argentine fishery have been based on the yield associated with the limit reference point of $30\%B_0$ each year since 2004 (see Section 3.3.6). The limit reference point ($20\%B_0$), together with the associated probability of being above that point, is widely used for toothfish and other groundfish fisheries (e.g., Constable *et al.* 2000, CAMLR 2013) and is appropriate for a long lived high trophic level species such as Patagonian toothfish. The limit reference point of $30\%B_0$ is more conservative, and is therefore more precautionary than the more commonly used value of $20\%B_0$. The choice of a 38 year reference period as the basis for projections is reasonable for a species with a maximum age of up to 50 years. The limit reference point, with the defined level of risk which includes uncertainty, is appropriate for this stock.		
c	**Guidepost**		The target reference point is such that the stock is maintained at a level consistent with B_{MSY} or some measure or surrogate with similar intent or outcome.	The target reference point is such that the stock is maintained at a level consistent with B_{MSY} or some measure or surrogate with similar intent or outcome, or a higher level, and takes into account relevant precautionary issues such as the ecological role of the stock with a high degree of certainty.
	Met?		**NO**	**NO**
	Justification	The target reference point was set at $30\%B_0$ after a period of high catches to stop the stock from further decline. As such, it was an appropriate interim measure to enable the stock to stabilise and rebuild.		

		The current choice of the target of 30% B_0 is not conservative, being below the 40% level generally recognized as the best default estimate of the biomass at maximum sustainable yield (B_{MSY}) (MSC Guidelines CB2.3.3.1; the analytical value of B_{MSY} for the stock is not given in the stock assessment reports). For comparison, the target reference point for toothfish stocks managed by CCAMLR is 50%B_0 (Constable *et al.* 2000, CCAMLR, 2013).		
d	**Guidepost**		For key low trophic level stocks, the target reference point takes into account the ecological role of the stock.	
	Met?		**NOT RELEVANT**	
	Justification	Toothfish are a high trophic level species, with few predators. Therefore, the target reference point does not need to take into account the ecological role of the stock. There is no obvious environmental or human induced variability which would affect this assessment.		
References		Constable, A. J., de la Mare, W. K., Agnew, D. J., Everson, I., and Miller, D. 2000. Managing fisheries to conserve the Antarctic marine ecosystem: practical implementation of the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR). – ICES Journal of Marine Science, 57: 778–791.http://www.inach.cl/oceanoaustral/documentos/Constable_delaMare%20etal%202000%20ICES%20JMS%20CCAMLR.pdf CCAMLR, 2013. Decision rules: http://www.ccamlr.org/en/fisheries/setting-catch-limits		
OVERALL PERFORMANCE INDICATOR SCORE:				**75**
CONDITION NUMBER (if relevant):				**1**

Evaluation Table for PI 1.1.3

PI 1.1.3		**Where the stock is depleted, there is evidence of stock rebuilding within a specified timeframe**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	Where stocks are depleted rebuilding strategies, which have a reasonable expectation of success, are in place.		Where stocks are depleted, strategies are demonstrated to be rebuilding stocks continuously and there is strong evidence that rebuilding will be complete within the specified timeframe.
	Met?	**NOT APPLICABLE**		**NOT APPLICABLE**
	Justification	The stock is currently above both reference points based on the most recent stock assessment, and is therefore not currently depleted as defined by PI 1.1.1. Note however that the stock assessment results indicate that recent levels of recruitment have been low and projections suggest that the stock may be at or go below the limit reference point in the short-medium term (see Sections 3.3.5–3.3.6).		

b	**Guidepost**	A rebuilding timeframe is specified for the depleted stock that is the shorter of 30 years or 3 times its generation time. For cases where 3 generations is less than 5 years, the rebuilding timeframe is up to 5 years.	A rebuilding timeframe is specified for the depleted stock that is the shorter of 20 years or 2 times its generation time. For cases where 2 generations is less than 5 years, the rebuilding timeframe is up to 5 years.	The shortest practicable rebuilding timeframe is specified which does not exceed one generation time for the depleted stock.
	Met?	**NOT APPLICABLE**	**NOT APPLICABLE**	**NOT APPLICABLE**
	f i c			
c	**Guidepost**	Monitoring is in place to determine whether the rebuilding strategies are effective in rebuilding the stock within a specified timeframe.	There is evidence that they are rebuilding stocks, or it is highly likely based on simulation modelling or previous performance that they will be able to rebuild the stock within a specified timeframe.	
	Met?	**NOT APPLICABLE**	**NOT APPLICABLE**	
	f i c			
References				
OVERALL PERFORMANCE INDICATOR SCORE:				**N/A**
CONDITION NUMBER (if relevant):				**---**

Evaluation Table for PI 1.2.1

PI 1.2.1		**There is a robust and precautionary harvest strategy in place**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	The harvest strategy is expected to achieve stock management objectives reflected in the target and limit reference points.	The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy work together towards achieving management objectives reflected in the target and limit reference points.	The harvest strategy is responsive to the state of the stock and is designed to achieve stock management objectives reflected in the target and limit reference points.
	Met?	**YES**	**YES**	**YES**
	Justification	Between 2003 and 2004 the Fisheries Federal Council developed an adaptive fisheries management consisting of the quarterly monitoring of the proportion of juveniles in the catches, the opening and closing of areas, the sanctioning of vessels not complying with the existing regulations, and the establishment of a TAC for the next fishing period (Wöhler		

		& Martínez, 2003, Wöhler et al, 2004a) In mid-2004, with information collected by the Observer Program, INIDEP completed the first evaluation of the estimated abundance and fishery potential of the Southwest Atlantic stock of toothfish (Wöhler et al., 2004a). Since 2005 the management strategy established by the fisheries authorities, involved the reduction of the total catch, limited allocation of fishing permits by ITQ, and further restrictions on the catch of juveniles. The harvest strategy is based on: 1. Monitoring a. On board observers. b. Port and on board inspectors, for control and surveillance. c. Satellite monitoring system. d. Technical reports of each commercial trip. 2. Stock assessment a. Annual stock assessment is carried out to estimate the biomass by INIDEP using the ASPM and an abundance index (CPUE) of longline vessels. Projections are made of future yields in order to estimate the Total Acceptable Biological Catch (TABC) for each year. (Martínez & Wöhler, 2012b). 3. Harvest control rules: a. Limitation of depth to target toothfish, for longliners and trawlers, to deeper than 1000 meters to the north of 54°S and 800 meters to the south. b. Establishment of a minimum size of 82 cm TL (size at first maturity). c. Limitation of the catches of toothfish as by-catch to 1.5% in the total catch of each fishing trip. d. Limitation of the catches of juveniles to 15% in number of the total catches. c. Obligation to the fishing vessels to move if 15% was reached to a minimum of 5 miles for almost 5 days. e. Creation of a Juvenile Protection Area in fishing sector 5463, 5462 and 5461 prohibiting trawl nets operation. f. Creation of a Commission of landings control (SCD) integrated by the Argentine Fishing Authority Fishing industry members. 4. Management actions: a. Establishment of a limited allocation of fishing permits by ITQ b. Creation of an Advisory Commission for the Fishery of Patagonian toothfish (CASPMN), comprising the Argentine fishing authorities, scientists, and members of the fishing industry. c. Penalties for infringements. d. Catch certification in accordance with EU Regulation 1005 against unregulated, unreported, and illegal fishing. In conclusion, the harvest strategy is designed to meet the management objectives and is responsive to changes in stock status as reflected by regular changes to catch limits in line with stock assessment results and the biological reference points (see section 3.3.6).	
b	**Guidepost**	The harvest strategy is likely to work based on	The harvest strategy may not have been fully	The performance of the harvest strategy has been fully evaluated

		prior experience or plausible argument.	tested but evidence exists that it is achieving its objectives.	and evidence exists to show that it is achieving its objectives including being clearly able to maintain stocks at target levels.
	Met?	**YES**	**YES**	**NO**
	Justification	The following evidence suggest that the management strategy is achieving its objectives: In 2004, the Federal Fisheries Council (FFC) set management objectives for the stock in relation to a target reference point of 30%B_0 and to reduce the total catch of juveniles to less than 15%. These objectives have been met through regular monitoring, stock assessment, and a wide range of harvest control rules (see section 3.3.6). Catch limits have been revised during the period since then to reflect updated stock assessments. All other harvest control rules have been adhered to. However, the harvest strategy has not been fully evaluated through a management strategy evaluation process. Thus, the robustness of the strategy to alternative states of nature, for example a different stock hypothesis, poor performance of the monitoring tools, and problems associated with the stock assessment have not been evaluated.		
c	**Guidepost**	Monitoring is in place that is expected to determine whether the harvest strategy is working.		
	Met?	**YES**		
	Justification	At-sea monitoring is carried out by observers and inspectors who ensure the levels of reported catch are correct. The size distribution of toothfish is monitored by at-sea observers and the results analysed each year to determine the proportion of juveniles in the catch (e.g., Martínez & Wöhler 2013). The relative abundance of the stock is monitored annually by carrying out a standardised CPUE analysis of the commercial longline data from the fishery. Stock status in relation to the reference point is carried out by an annual stock assessment using an age structured population model (ASPM). The model estimates the stock trajectory and stock status based on catch, length frequency data, standardised CPUE indices and biological parameters. The monitoring in place is expected to determine whether the harvest strategy is working.		
d	**Guide post**			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			**YES**
	Justification	The Advisory Commission for the Patagonian toothfish fishery (CASPMN), including the Argentine fishing authorities, scientists and members of the fishing industry meet twice a year to review the outcome of the harvest strategy and harvest control rules (e.g., stock status, juvenile bycatch etc) and to coordinate future work between researchers,		

		managers, and fishers. Stock assessments are carried out annually (e.g. Martínez & Wöhler 2013) to determine stock status against the reference points as discussed above (Section 3.3.5), and the harvest control rules adjusted accordingly. Other fishery indicators such as the proportion of juveniles in the catch, annual catches by vessel and fleet, location of catch by fleet, and the results of the mark-recapture programme are all monitored annually by INIDEP and documented in annual report (e.g. Martínez & Wöhler 2013). These documents are distributed to all members of the Advisory Committee on Fisheries Monitoring Activity of the species.		
e	**Guidepost**	It is likely that shark finning is not taking place.	It is highly likely that shark finning is not taking place.	There is a high degree of certainty that shark finning is not taking place.
	Met?	**NOT APPLICABLE**	**NOT APPLICABLE**	**NOT APPLICABLE**
	Justification			
References		Martínez P. & Wöhler, O.C., INIDEP, Technical Report, 19/2010, 13/2012, 07/2013 Wöhler, O.C., Martínez, P.A., INIDEP, Technical Report 28/2003, 73/2003, 99/2003, 04/2004 Wöhler, O.C., Martínez, P.A. & Hansen, J.E., INIDEP, Technical Report, 13/2004		
OVERALL PERFORMANCE INDICATOR SCORE:				**95**
CONDITION NUMBER (if relevant):				**---**

Evaluation Table for PI 1.2.2

PI 1.2.2		**There are well defined and effective harvest control rules in place**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	Generally understood harvest rules are in place that are consistent with the harvest strategy and which act to reduce the exploitation rate as limit reference points are approached.	Well defined harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached.	
	Met?	**YES**	**YES**	
	Justification	There are a wide range of Harvest Control Rules, which are generally understood and are consistent with the harvest strategy although they have not been formalised. With respect to the stock itself, the harvest strategy is focused on two key areas: (i) to ensure that the exploitation rate is reduced as the limit reference points are approached and (ii) to ensure that that the catch is juveniles is minimised. There are a number of tools used to achieve this purpose:		

		a. Annual catch limits set which ensure that there is a less than 10% risk of dropping below the limit reference point in the long term. b. Establishment of a minimum size of 82 cm TL (size at 50% maturity). c. Limitation of the catches of toothfish as by-catch to 1.5% in the total catch of each fishing trip d. Limitation of the catches of juveniles to 15% in number of the total catches. e. Obligation for the fishing vessels to move a minimum distance of 5 miles for 5 days if 15% juveniles were recorded in the catch. f. Creation of a Juvenile Protection Area in fishing sector 5463, 5462 and 5461 prohibiting operation of longlines shallower than 800 m and trawl nets shallower than 1000 m. g. Creation of a Commission of landings control (SCD) integrated by the Argentine Fishing Authority Fishing industry members. The current harvest control rules used for managing the fishery are generally understood and will ensure that the exploitation rates will be reduced as the limit reference point is approached.		
b	**Guidepost**		The selection of the harvest control rules takes into account the main uncertainties.	The design of the harvest control rules takes into account a wide range of uncertainties.
	Met?		**YES**	**NO**
	Justification	The harvest control rules take into account the main uncertainties which includes regulating catches, monitoring of catches from the target fisheries, monitoring the size distribution of the catch, reducing the numbers of juveniles in the catch by the use of area and depth catch restrictions and the use of move on rules. However, the harvest control rules have not been fully evaluated or tested against a range of other uncertainties (e.g., recruitment variability, uncertainty in the stock-recruit relationship and recruitment projections, Malvinas catches and unaccounted mortality from other sources, and environmental variability etc).		
c	**Guidepost**	There is some evidence that tools used to implement harvest control rules are appropriate and effective in controlling exploitation.	Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.	Evidence clearly shows that the tools in use are effective in achieving the exploitation levels required under the harvest control rules.
	Met?	**YES**	**YES**	**NO**
	Justification	TACs have been used to closely manage the Argentine fleet catches since 2004. The catch by the Argentine fleet has been less than the TAC in every year since these regulations were introduced. So there is clear evidence that the tools are succeeding in controlling the Argentine catch. However, the stock assessment applies to the entire Southwest Atlantic toothfish stock, which includes catches from the Argentine and Malvinas fleets. When the stock projections are carried out the fishing mortality, and hence associated yield, is calculated for the		

		coming year which satisfies each of three management rules for the entire stock. Therefore, a catch limit based on this yield should take into account the likely Malvinas catch so that the total removals from the stock is equal to that yield. However, at present the catch limit does not appear to be set with explicit reference to what the Malvinas might catch. At present the catch limit for the Argentine fleet is based on management rule I, which has a less than 10% probability of being below 30%B_0. So although the combined catch from the Argentine and Malvinas fleets has exceeded this catch limit every year since 2004, it has never exceeded the projected yield based on management rule II. (This can be seen by comparing the total catch from the catch table with the projected yields from the yield table in section 3.3.5–3.3.6). The most recent stock assessment suggests that the stock has fluctuated around 30%B_0 over the past ten years, and that the tools currently in use have been effective in achieving the exploitation levels required under the harvest control rules. However, it is unclear whether the existing harvest control rules would be effective in achieving the exploitation levels required under the harvest control rules in the future. Catches from other fisheries need to be formally considered when making projections for TAC setting purposes under the harvest control rules The second main harvest control rule has involved minimising the catch of juvenile toothfish. This has involved a wide range of management measures. There is clear evidence that these tools have been successful in reducing the bycatch of juvenile toothfish to acceptable levels (see Section 3.3.6).
References		Martinez P. & Wöhler O., 2012b - INIDEP Technical Report 13/2012
OVERALL PERFORMANCE INDICATOR SCORE:		**80**
CONDITION NUMBER (if relevant):		**---**

Evaluation Table for PI 1.2.3

PI 1.2.3		**Relevant information is collected to support the harvest strategy**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	Some relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy.	Sufficient relevant information related to stock structure, stock productivity, fleet composition and other data is available to support the harvest strategy.	A comprehensive range of information (on stock structure, stock productivity, fleet composition, stock abundance, fishery removals and other information such as environmental information), including some that may not be directly related to the current harvest strategy, is available.
	Met?	**YES**	**NO**	**NO**
	Justification	Some relevant information is available on stock structure, productivity, fleet composition, stock abundance, fishery removals and other data (see Section 3.3.4). However, the quality and quantity of the data available are variable and uncertainties remain in aspects of these data. The key uncertainties in order of importance are stock abundance (especially		

		recruitment), stock structure, productivity, and fishery removals. There is uncertainty in the stock abundance because the only index of abundance is based on longline CPUE data from Argentine vessels. This fleet has changed its composition and mode of operation over the past decade with the introduction of ITQs and also the use of cachaloteras on some of the vessels using the Spanish line system. Because of these management changes since 2004, the fleet has actively avoided juvenile fish and hence the estimates of abundance from this longline series are uncertain and estimates of recent recruitment from the assessment are highly uncertain. There is no index of abundance from the trawl fishery. There is also no fishery independent index of juvenile abundance. There is also uncertainty about the stock structure (see section 3.3.4). Patagonian toothfish are distributed along the coasts of Chile and Argentina and extend east around the Malvinas Islands and south to Burdwood Bank. All catches from the Southwest Atlantic are currently included in the stock assessment, which is appropriate given the likely stock structure. However, there is some evidence of movement of toothfish from the Southwest Atlantic round to the Chilean EEZ from tagging studies. A total of 5 (6%) toothfish originally released in Argentine waters have been recaptured from the Chilean EEZ (Martínez & Wöhler 2013). Further work needs to be done to determine the stock structure and evaluate its effect on the stock assessment. Values for the weight-length relationship, the von Bertalanffy growth parameters, and age at maturity were all estimated for the Southwest Atlantic stock (see section 3.3.4). However, natural mortality has not been estimated for this stock and is assumed to be 0.17. This value is slightly higher than that used for the assessment of other Patagonian toothfish stocks (e.g., a value of 0.13 is used for South Georgia, South Sandwich Islands, and Macquarie Island, and a value of 0.155 is used for Heard Island fishery. Lastly, there is some uncertainty over whether there are significant unaccounted removals from the assessed stock from other fisheries operating in the region, and this includes removals due to depredation. The size composition of these removals has also not been determined. There is some information available to support the harvest strategy and there is sufficient information available on stock productivity, fleet compositon and fishery removals, but insufficient information on stock structure and stock abundance.		
b	**Guidepost**	Stock abundance and fishery removals are monitored and at least one indicator is available and monitored with sufficient frequency to support the harvest control rule.	Stock abundance and fishery removals are regularly monitored at a level of accuracy and coverage consistent with the harvest control rule, and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule.	All information required by the harvest control rule is monitored with high frequency and a high degree of certainty, and there is a good understanding of inherent uncertainties in the information [data] and the robustness of assessment and management to this uncertainty.
	Met?	**YES**	**NO**	**NO**
	Justification	At-sea monitoring of the target toothfish fishery is carried out annually by observers and inspectors who ensure the levels of reported catch from the target fishery are correct. The size distribution of toothfish in the target toothfish fishery is monitored by at-sea		

		observers. The relative abundance of the stock is monitored annually by carrying out a standardised CPUE analysis of the commercial longline data from the fishery. Stock status in relation to the reference point is carried out by carrying out an annual stock assessment using an age structured population model (ASPM). The model estimates the stock trajectory and stock status based on catch, LF data, CPUE index and biological parameters. There are several potential problems with this approach: (1)The CPUE index is based only on the longline fishery and does not monitor the trawl fishery. (2)It is unknown whether the CPUE from just one or two vessels in the longline fishery is monitoring abundance. (3)There are no fishery independent estimates of abundance (4)The vessels are required to avoid juveniles and so length frequency data collected from the fishery provide little information on recent recruitment. (5)There are no reliable estimates of recent recruitment. Probably the biggest source of uncertainty in the stock assessment surrounds the estimates of recent recruitments. The most recent stock assessment suggest that there has been extremely low recruitment since 2002 (see Section 3.3.5). However, the main information on age structure comes from the length frequency data from the fishery, and because of the management changes since 2004, the fleet has actively avoided juvenile fish and hence the estimates of recent recruitment from the assessment are highly uncertain and possibly biased low. However, the future yields from the fishery are highly dependent on these estimates of recruitment, so it is crucial that an alternative method for monitoring recruitment is developed. Random stratified surveys of toothfish juveniles are routinely carried out using commercial trawl vessels at South Georgia and Heard Island and using a commercial longline vessel in the Ross Sea (SC-CAMLR-XXX, Annex 5). In summary, although there is an indicator of stock abundance (the CPUE), and there is annual monitoring of the catch, the CPUE, and the size composition of the catch, the level of accuracy and coverage of the index is not sufficient to be confident of its ability to monitor stock abundance with a high degree of certainty for the reasons outlined above.		
c	**Guide post**		There is good information on all other fishery removals from the stock.	
	Met?		**YES**	
	Justification	The assessment includes all removals from the target and non-target fisheries in Argentina. INIDEP technical recommendations on the resource exploitation take into account information from the Malvinas fishery and publications obtained from the Imperial College and other institutions, as well as outcomes of collaboration between scientists from both Argentina and UK, occurred under the former South Atlantic Scientific Committee. Therefore, INIDEP scientists are well aware of the toothfish fishery in Malvinas and the associated information is included in the resource modeling applied by INIDEP researchers. There are no other removals from the stock in the Southwest Atlantic.		

References	Martinez P. & Wöhler O., 2012a -INIDEP Technical Report 32/2012 Martínez & Wöhler 2013, 2013 - INIDEP Technical Report 07/2013 SC-CAMLR-XXX, Annex 7, 2011 - http://www.ccamlr.org/en/SC-CAMLR-XXX
OVERALL PERFORMANCE INDICATOR SCORE:	**65**
CONDITION NUMBER (if relevant):	**2**

Evaluation Table for PI 1.2.4

PI 1.2.4		**There is an adequate assessment of the stock status**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**		The assessment is appropriate for the stock and for the harvest control rule.	The assessment is appropriate for the stock and for the harvest control rule and takes into account the major features relevant to the biology of the species and the nature of the fishery.
	Met?		**YES**	**YES**
	Justification	The assessment is carried out using an ASPM model (see section 3.3.5) which is an appropriate tool for monitoring stock status and the effectiveness of the harvest control rules. The assessment takes into account the major features relevant to th biology of the species a nature of the fishery and the nature of th fishery.		
b	**Guidepost**	The assessment estimates stock status relative to reference points.		
	Met?	**YES**		
	Justification	There are two main aims for the stock assessment. The first aim is to estimate the current biomass and hence current stock status as a percentage of B_0. This is then compared to the target reference point. The second aim is to carry out projections to determine future yields under different management rules. This is used to set the catch limit for the following year. The assessment therefore estimates stock status relative to the reference points.		
c	**Guidepost**	The assessment identifies major sources of uncertainty.	The assessment takes uncertainty into account.	The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a probabilistic way.
	Met?	**YES**	**YES**	**YES**
	Justification	The assessment takes uncertainty into account. For example, uncertainty in the CPUE index is incorporated by bootstrapping the CPUE index based on its standard errors. The		

		projections take into account uncertainty by projecting forward uncertainty in the current biomass and including stochastic recruitment variability (see section 3.3.5). Uncertainty in some of the biological parameters was not considered in the most recent assessment but has been considered previously. Sensitivity analyses have been carried out on natural mortality, age at maturity, vulnerability patterns, etc. The assessment evaluates current stock status relative to the target reference point but not to the limit reference point. Projections are carried out in a probabilistic way by using simulations.		
d	**Guidepost**			The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.
	Met?			**NO**
	Justification	As far as we are aware the current Excel assessment model has not been fully evaluated and tested using known or simulated data to ensure that it has been correctly specified. Although sensitivities have been completed in the past, they were not presented in the most recent paper. It would be useful to explore additional model runs examining the weightings between data sets, alternative recruitment assumptions (e.g., deterministic), alternative selectivity assumptions (ie estimate fewer selectivities), natural mortality etc. It would be useful to implement the model using a more flexible stock assessment software model with wider capabilities which would allow comparison with the existing model and allow better treatment of uncertainty and data weightings etc.		
e	**Guide post**		The assessment of stock status is subject to peer review.	The assessment has been internally and externally peer reviewed.
	Met?		**YES**	**NO**
	Justification	The INIDEP reports are audited and approved internally by the National Director of Research. Some reports and stock assessments have been presented at CCAMLR Working Group meetings, but there is no formal system of external peer reviewers.		
References		Martinez P. & Wöhler O., 2012b -INIDEP Technical Report 32/2012 Martinez P. & Wöhler O., 2013 -INIDEP Technical Report 07/2013		
OVERALL PERFORMANCE INDICATOR SCORE:				**90**
CONDITION NUMBER (if relevant):				**---**

Principle 2

Evaluation Table for PI 2.1.1

PI 2.1.1		The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	Main retained species are likely to be within biologically based limits (if not, go to scoring issue c below).	Main retained species are highly likely to be within biologically based limits (if not, go to scoring issue c below).	There is a high degree of certainty that retained species are within biologically based limits and fluctuating around their target reference points.
	Met?	**RBF/SICA**	**RBF/SICA**	**RBF/SICA**
	Justification	The toothfish fishery in the South West Atlantic Ocean is carried out with three different gears: trawls, longlines, and traps. To avoid catching juvenile toothfish, a minimum depth of 800 m has been implemented for any vessels targeting toothfish. Therefore, taking into account the selective characteristic of longlines and traps, and the depth of the directed fishing operations with all gears, the species diversity and quantity of each species in the catch is expected to be low. Trawl Fishery: The area where this fleet operates is also important forsome Chondrychthyan species also have a commercial value and are retained. The biological information based on limits of this group is low, and it varies among species. The percentages of total catch are low, but it is not possible to interpret the effect on the population sizes, because there are no studies addressed to estimate them. Other species represent less than 5% of total catch as Patagonian cod (*Salilota australis*), southern blue whiting (*Micromesistius australis*) and Argentine hoki (*Macruronus magellanicus*). Longline and Trap fisheries: The main retained species caught are grenadiers (*Macrourus holotrachys*). Their catches are around 5% of total catch. The distribution area of grenadiers is between 39°S-57°S. It is a bathy-demersal species living between 300-1400 m depth. The degree of knowledge of biologically based limits and population size is low, and for this reason there are no performance indicators that allow an evaluation of quantitative changes in status stock. However, the geographic distribution of this species is larger than the area of fleet operations, so could be assumed that their population is not severely affected by fishing. The percentages of incidental catch of grenadiers are 50% of fishing trip by longline vessels and 30% by traps (existing a moderate overlapping). Some data are being collected by OBOs programme. The RBF was used to evaluate the status of the *Macrouridae spp.* which are the main retained species in the trap and longline fisheries and *Bathyraja spp.* which are the main retained species in the trawl fishery.		
b	**Guidepost**			Target reference points are defined for retained species.
	Met?			**RBF/SICA**

	tification			
c	Guidepost	If main retained species are outside the limits there are measures in place that are expected to ensure that the fishery does not hinder recovery and rebuilding of the depleted species.	If main retained species are outside the limits there is a partial strategy of demonstrably effective management measures in place such that the fishery does not hinder recovery and rebuilding.	
	Met?	RBF/SICA	RBF/SICA	
	Justification			
d	Guidepost	If the status is poorly known there are measures or practices in place that are expected to result in the fishery not causing the retained species to be outside biologically based limits or hindering recovery.		
	Met?	RBF/SICA		
	Justification			
References		Martinez & Wöhler, INIDEP, Technical Report 23-2005 Martinez & Wöhler, INIDEP, Advice and Transfer Report 34-2013 See RBF Appendix 1.2.		

OVERALL PERFORMANCE INDICATOR SCORE: The RBF was used in this assessment to evaluate the outcome status of the potentially retained species. SICA Results:	
Trawl fishery	**80**
Longline fishery	**80**
Trap fishery	**80**
CONDITION NUMBER (if relevant):	**---**

Evaluation Table for PI 2.1.2 – Longline and Trap fisheries

PI 2.1.2	There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species		
Scoring Issue	**SG 60**	**SG 80**	**SG 100**

a	**Guidepost**	There are measures in place, if necessary, that are expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a partial strategy in place, if necessary, that is expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a strategy in place for managing retained species.
	Met?	**YES**	**YES**	**NO**
	Justification	There is a partial strategy in place that is expected to maintain the main retained species, at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding, but there is not a strategy for managing retained species. As the estimation of the incidence of grenadier catches into Patagonian toothfish fishery on population size are minimal (percentages of catches are low in the two fishing gears evaluated), it is expected that the harvest activities ensure the grenadiers fishery and does not hinder their recovery and rebuilding. Therefore, there are not a quota system yet or a time harvest established and closing-rule system when reaching 40% of population as *Illex argentinus* into Grenadier fishery. The partial strategy implemented for all vessels fishing toothfish contain specific protocols developed by an observer on board. These data recollected are taken into account in the classification and quantification of retained species.		
b	**Guidepost**	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or species involved.	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or species involved.
	Met?	**YES**	**YES**	**NO**
	Justification	There is an objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or species involved, but there is not testing supports high confidence that the strategy will work, based on information directly about the fishery and/or species retained. The partial strategy in place is based on information collected by the INIDEP (and other provincial organization, e.g. Tierra del Fuego Province), On Board Observers Programs, the INIDEP (and other federal and provincial organizations) Dock Sampling, the INIDEP Research Survey, fishing electronic records (daily and final, per vessel) and in-port inspection. As well, environmental variability is also monitored by the Argentina National Commission of Spatial Activities (CONAE) and the National Naval Hydrography Service. Each vessel shall declare against management authorities all retained catch to be sold later. This information identifies species and quantities and it is controlled by an SSPyA´s		

		inspector in the stage of discharge in port.		
c	Guidepost		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		**YES**	**NO**
	Justification	Even there is some evidence about the implementation of the partial strategy, evidences are not clear enough that it has been successfully implemented.		
d	Guidepost			There is some evidence that the strategy is achieving its overall objective.
	Met?			**NO**
	tification	There is not some evidence that the strategy is achieving its overall objective.		
e	Guidepost	It is likely that shark finning is not taking place.	It is highly likely that shark finning is not taking place.	There is a high degree of certainty that shark finning is not taking place.
	Met?	**NOT APPLICABLE**	**NOT APPLICABLE**	**NOT APPLICABLE**
	tification	For the retained species described, this guidepost is not applicable.		
References		References are in the text.		

OVERALL PERFORMANCE INDICATOR SCORE:	
Longline fishery	**80**
Trap fishery	**80**
CONDITION NUMBER (if relevant):	**---**

Evaluation Table for PI 2.1.2 – Trawl fishery

PI 2.1.2		**There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	There are measures in place, if necessary, that are expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a partial strategy in place, if necessary, that is expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a strategy in place for managing retained species.

	Met?	**YES**	**YES**	**NO**
	Justification	The is a partial strategy in place that is expected to maintain the main retained species at levels which area highly likely to be within biologically based limits or to ensure the fishery does not hinder their recovery and rebuilding, but there is not a strategy for managing retained species. The main retained species for Patagonian toothfish trawl fishery is Chondrichthyan group, specially composed by several species of genus *Bathyraja*. *Bathyraja spp.* spread over the Continental Shelf and they have benthic habits. Spatial distribution overlaps with the fishing operations. This fishery have quota system imposes less than 100 fishing days per year. In general, a partial strategy can be considered in place. Accordingly with opinion of the Fishing Companies, each haul trawl over the bottom for few minutes, and the fishing season extend from July to October, which suggests a moderate intensity of fishing. However, there are overlapping between operative area of the fleet and habitat of several Chondrichthyans. *Bathyraja spp.* is a group of species with different life history and vulnerability. It required constant monitoring and accurate taxonomic identifying. Considering the spatial scale and the reduced time the fishing gear is in contact with the sea bottom, the consequences were judged as moderate.		
b	**Guidepost**	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or species involved.	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or species involved.
	Met?	**YES**	**YES**	**NO**
	Justification	There is an objective basis for confidence that the partial strategy will work, but there is not testing supports high confidence that the strategy will work based on information bsed directly about the fishery and/or species involved. The partial strategy in place is based on information collected by the INIDEP (and other provincial organization, e.g. Tierra del Fuego Province), On Board Observers Programs, the INIDEP (and other federal and provincial organizations), Dock Sampling, the INIDEP Research Survey, fishing electronic records (daily and final, per vessel) and in-port inspection. As well, environmental variability is also monitored by the Argentine National Commission of Spatial Activities (CONAE) and the National Naval Hydrography Service. Each vessel shall declare against management authorities all retained catch to be sold later. This information identifies species and quantities and it is controlled by an SSPyA´s inspector in the stage of discharge in port.		
c	**Guidepost**		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		**YES**	**NO**

	Justification	There is some evidence that the partial strategy is being implemented successfully because catches of *Batyraja spp* in this fishery is low. There are no a specific management plan for *Batyraja spp,* but these species are included in management plan for chondrychthyans. Since 2009, the National Action Plan for Conservation and Management of Chondrichthyans ("PAN – tiburones" management plan) is being functioning with the objectives of assure the precatory management of chondrichthyans under Argentinean jurisdiction with the framework established by the Fishing Federal Regime (Law Nº 24.922), Environment General Law (Law Nº25.675) .and International Agreements. This management plan involves several research institutions (INIDEP, IBMPAS, Centro Nacional Patagonico and several universities), Consejo Federal Pesquero (Federal Fishing Council) and Ministerio de Ciencia y Tecnica (Science and Technology Ministry). Eleven species has been identified by specialist as present in Argentinean Sea. The short term action included the modifications done in the national system of fishing records for this group of species, preparation of booklets with key characteristics to facilitate identification for non-specialist on board observers and fishermen. Long term goals are modify historic vision of chondrichthyans given them priority in any management plan, to clarify knowledge of their fisheries and other fisheries that could affect them, to impose an ecosystemic approach for establish a definitive strategy to manage their populations. The strategy formalized in the PAN is ongoing (short term actions has been applied), but is not fully implemented. The prohibition of trawl shallower than 500 m, areas closed for all trawling fisheries (Argentinean Federal Law Nº 23968) and closed areas for the protection of cold water corals at the Burdwood Bank (Federal Fisheries Council Act N° 18/2008, the area is delimited by 54° 30' S and 60° 30' W, 54° 30' S and 59° 30' W, 54° 15' S and 60° 30' W, 54° 15' S and 59° 30' W) support some evidence that the partial strategy well implemented.		
d	**Guide post**			There is some evidence that the strategy is achieving its overall objective.
	Met?			**NO**
	tifi cat io	There is not some evidence that the strategy is achieving its overall objective.		
e	**Guide post**	It is likely that shark finning is not taking place.	It is highly likely that shark finning is not taking place.	There is a high degree of certainty that shark finning is not taking place.
	Met?	**YES**	**YES**	**YES**
	Justification	There is a high degree of certainty that shark finning is not taking place. Argentina National Action Plan for Chondrichthyans forbids shark finning (Resolution 4/2013). Levels of shark bycatch are low. Observers and/or inspectors are present on all vessels targeting toothfish and have seen no evidence for shark finning. Therefore there is a high degree of certainty that shark finning is not taking place in the fishery.		
References		References are in the text.		

OVERALL PERFORMANCE INDICATOR SCORE: **Trawl fishery**	**85**
CONDITION NUMBER (if relevant):	**---**

Evaluation Table for PI 2.1.3

PI 2.1.3		**Information on the nature and extent of retained species is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage retained species**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	Qualitative information is available on the amount of main retained species taken by the fishery.	Qualitative information and some quantitative information are available on the amount of main retained species taken by the fishery.	Accurate and verifiable information is available on the catch of all retained species and the consequences for the status of affected populations.
	Met?	**YES**	**YES**	**NO**
	Justification	The OBOs programme collect information regularly in the Patagonian toothfish fishery and provides quality information and some quantitative information for main retained species taken by the fishery, but there is not information about the consequences for the status of affected populations. Observers are periodically trained by the INIDEP researchers, including species recognition. Information is responsible to the need of the Research Projects. Information is collected on a haul basis. Each observer produces and on board report, following specific protocols developed by the INIDEP OBO Program and recording electronically all information, which is immediately presented to the INIDEP at the arrival. In general, captains, crew and fishing companies are collaborative with onboard observers. The INIDEP OBO is externally and periodically audited by the Sindicatura General de la Nación.		
b	**Guidepost**	Information is adequate to qualitatively assess outcome status with respect to biologically based limits.	Information is sufficient to estimate outcome status with respect to biologically based limits.	Information is sufficient to quantitatively estimate outcome status with a high degree of certainty.
	Met?	**RBF / SICA**	**RBF/SICA**	**RBF/SICA**
	tifi cat io	Scoring issue not scored as RBF used to score PI 2.1.1.		
c	**Guidepost**	Information is adequate to support measures to manage main retained species.	Information is adequate to support a partial strategy to manage main retained species.	Information is adequate to support a strategy to manage retained species, and evaluate with a high degree of certainty whether the strategy is achieving its objective.
	Met?	**YES**	**YES**	**NO**
	ti fi c a	Information showing is adequate to support partial strategy to manage main retained		

		species, but is not evaluated with a high degree of certainty whether the strategy is achieving its objective.		
d	**Guidepost**		Sufficient data continue to be collected to detect any increase in risk level (e.g. due to changes in the outcome indicator score or the operation of the fishery or the effectiveness of the strategy)	Monitoring of retained species is conducted in sufficient detail to assess ongoing mortalities to all retained species.
	Met?		**YES**	**NO**
	Justification	Sufficient data continue to be collected to detect any increase in risk level. There is no detailed monitoring to assess ongoing mortalities to all retained species as grenadier, chondrichthyans, *Nothotenia spp.*, Savorin and other.		
References		Resolution Nº4/2013		

OVERALL PERFORMANCE INDICATOR SCORE:	
Longline fishery	**80**
Trap fishery	**80**
Trawl fishery	**80**
CONDITION NUMBER (if relevant):	**---**

Evaluation Table for PI 2.2.1

PI 2.2.1		**The fishery does not pose a risk of serious or irreversible harm to the bycatch species or species groups and does not hinder recovery of depleted bycatch species or species groups**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	Main bycatch species are likely to be within biologically based limits (if not, go to scoring issue b below).	Main bycatch species are highly likely to be within biologically based limits (if not, go to scoring issue b below).	There is a high degree of certainty that bycatch species are within biologically based limits.
	Met?	**RBF/SICA**	**RBF/SICA**	**RBF/SICA**
	Justification	*Lamna nasus* is distributed widely in the cold and temperate marine waters of the North Atlantic and Southern Hemisphere. The occurrence of *Lamna nasus* in the trawl and longline fisheries for Patagonian toothfish in Argentinean waters is around 1.4% (Wesle & Cortés, 2011). This low frequency does not presume any unacceptable impact to the porbeagle shark stock. The RBF was used in this assessment to evaluate the outcome status of the species considered most susceptible to fishery-related effects.		

b	**Guidepost**	If main bycatch species are outside biologically based limits there are mitigation measures in place that are expected to ensure that the fishery does not hinder recovery and rebuilding.	If main bycatch species are outside biologically based limits there is a partial strategy of demonstrably effective mitigation measures in place such that the fishery does not hinder recovery and rebuilding.	
	Met?	**RBF/SICA**	**RBF/SICA**	
	fication			
c	**Guidepost**	If the status is poorly known there are measures or practices in place that are expected to result in the fishery not causing the bycatch species to be outside biologically based limits or hindering recovery.		
	Met?	**RBF/SICA**		
	tification			
References		See RBF Appendix 1.2		

OVERALL PERFORMANCE INDICATOR SCORE: The RBF was used in this assessment to evaluate the outcome status of potential by-catch species. SICA Results:	
Trawl fishery	**80**
Longline fishery	**80**
Trap fishery	**80**
CONDITION NUMBER (if relevant):	**---**

Evaluation Table for PI 2.2.2

PI 2.2.2		**There is a strategy in place for managing bycatch that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to bycatch populations**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	There are measures in place, if necessary, that are expected to maintain the main bycatch species at levels which are highly likely to be within biologically based limits,	There is a partial strategy in place, if necessary, that is expected to maintain the main bycatch species at levels which are highly likely to be within biologically based limits,	There is a strategy in place for managing and minimizing bycatch.

		or to ensure the fishery does not hinder their recovery and rebuilding.	or to ensure the fishery does not hinder their recovery and rebuilding.	
	Met?	**YES**	**YES**	**YES**
	Justification	There is a strategy in place for managing and minimizing bycatch. Argentina has an international strategy for managing bycatch. The Ministry of Foreign Affairs fulfils two major roles in the fisheries sector. It is responsible for developing foreign policy in Argentine's EEZ and adjoining regions and for fostering the fisheries sector through international economic relationships. He also participates in many international discussions and negotiations. The Ministry has participated in the United Nations Conference of Straddling Fish Stocks and Highly Migratory Fish Stocks and the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas. The Ministry also acts in the Convertion for the Conservation of Antarctic Marine Living Resources (CCAMLR). Argentine is part of two international commissions related for the conservation and wise use of fisheries resources: the Joint Technical Commission for Maritime Front (CTMFM) and the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR). The CTMFM is a binational commission, with powers relating to the conservation of fishery resources in the waters of the Common Fishing Zone between Argentina and Uruguay (AUCFZ), established by the Treaty of Rio de la Plata and its Maritime Front including, *inter alia*, establish the volumes of catches by species, promote the conduct of joint studies and research, establish standards and measures for the rational exploitation of species in the area of common interest, etc. Argentina also as a party to the CCAMLR implements the decisions of the Commission through the mechanisms established by Federal Law N° 25.263, which sets the Collection System Marine Living Resources in the Area of Implementation of the Convention. The scheme provides for a system of penalties to law violations. In this context, Argentina has adopted since 2000 the Catch Documentation Scheme to monitor landings and trade of toothfish. In addition to participation in the committee mentioned above, Argentina is part of various intergovernmental treaties. The Resolution of Consejo Federal Pesquero (CFP, Federal Fishery Council) N°13/2003 established that all chondrichthyans size above 1,6m, caught by non-artesanal fleet, must to be released at the sea. Since 2010, CFP implemented PAN-Tiburones (CFP Resolutions 06/2009 and 13/2009) in which healthy fishing practices were detailed to reduce bycatch of sharks, rays and chimaeras. Recently the CFP (CFP Resolution 21/2013) established that the owners of ITQs must observe existing provisions on the protection of Chondrichthyans.		
b	**Guidepost**	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar fisheries/species).	There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or species involved.	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or species involved.

	Met?	**YES**	**YES**	**NO**
	Justification	There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or species involved. The strategy tending to minimize the impact on mortality of chondrichthyans (in this case particularly on Lamna nasus) was implemented National Plan of Action–Sharks and is similar to those in various Action Plans for the Management of Elasmobranches from several countries. This species is included in the Convention on Migratory Species, from which Argentina is a signatory. No testing has been conducted to support high confidence that the strategy is working, based on information directly about the fishery and/or species involved.		
c	**Guidepost**		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		**YES**	**NO**
	Justification	There is some evidence that the partial strategy is being implemented successfully. On board Observers monitor the sorting and return of bycatch. These data are present in the observer reports. There is not clear presented to Assessment Team that the strategy is being implemented successfully.		
d	**Guide post**			There is some evidence that the strategy is achieving its overall objective.
	Met?			**NO**
	tifi cat io	No documentation is available as evidence that the strategy is achieving its objective.		
References		References are in the text.		

OVERALL PERFORMANCE INDICATOR SCORE:	
Trawl fishery	**85**
Longline fishery	**85**
Trap fishery	**85**
CONDITION NUMBER (if relevant):	**---**

Evaluation Table for PI 2.2.3

PI 2.2.3		**Information on the nature and the amount of bycatch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage bycatch**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guide post**	Qualitative information is available on the amount of main bycatch	Qualitative information and some quantitative information are available	Accurate and verifiable information is available on the catch of all bycatch species and

		species taken by the fishery.	on the amount of main bycatch species taken by the fishery.	the consequences for the status of affected populations.
	Met?	**YES**	**YES**	**NO**
	Justification	Qualitative and quantitative information are available on the amount of the main bycatch species affected by the fishery. Observers have to report all the species in the catch. Bycatch is mainly composed by chondricthyans, teleost fish, echinoids, ascidians. Observers are periodically trained by the INIDEP researchers, including species recognition, with specific training for species like Chondrichthyans due the high complexity involved. Each observer produces an onboard report, following specific protocols developed by the INIDEP Onboard Observers Program. Recording electronically all information, which is immediately presented to the INIDEP at arrival in port. In general, captains, crew and fishing companies are collaborative with onboard observers. Information from chondrichthyes is available from INIDEP reports, e.g. INIDEP Technical Report 18/2007. Even if the information available is accurate and verifiable on the catch of all bycatch species, the consequences for the status of affected populations are not tested.		
b	**Guidepost**	Information is adequate to broadly understand outcome status with respect to biologically based limits	Information is sufficient to estimate outcome status with respect to biologically based limits.	Information is sufficient to quantitatively estimate outcome status with respect to biologically based limits with a high degree of certainty.
	Met?	**RBF / SICA**	**RBF / SICA**	**RBF/SICA**
	Justification	Scoring issue not scored as RBF used to score PI 2.2.1.		
c	**Guidepost**	Information is adequate to support measures to manage bycatch.	Information is adequate to support a partial strategy to manage main bycatch species.	Information is adequate to support a strategy to manage retained species, and evaluate with a high degree of certainty whether the strategy is achieving its objective.
	Met?	**YES**	**YES**	**YES**
	Justification	Information is adequate to support a strategy to manage retained species, and evaluate with a high degree of certainty whether the strategy is achieving its objective. Portbeagle sharks have biological characteristics that make particularly vulnerable to overfishing (low fecundity and late sexual maturity) but their catch in the toothfish fishery are low. In general, there is a strategy to minimise bycatch species by returning them to the sea. It is highly likely that the chondrichthyans will survive as the use of gaffing is prohibited. Since 2010, CFP implemented PAN-Sharks (CFP Resolutions 06/2009 and 13/2009) in which were detailed healthy fishing practices to reduce bycatch of sharks, rays and chimaeras. Recently the CFP (CFP Resolution 21/2013) established that the owners of ITQs must observe existing provisions on the protection of Chondrichthyans.		

		Information is adequate to support strategy to manage bycatch. INIDEP On Board Observers Program provides adequate information, accurate and verifiable for all bycatch species, to support a comprehensive strategy to manage bycatch species.		
d	**Guidepost**		Sufficient data continue to be collected to detect any increase in risk to main bycatch species (e.g., due to changes in the outcome indicator scores or the operation of the fishery or the effectively of the strategy).	Monitoring of bycatch data is conducted in sufficient detail to assess ongoing mortalities to all bycatch species.
	Met?		**YES**	**NO**
	Justification	Sufficient data continue to be collected to detect any increase in risk, but there is not a sufficient detail to assess ongoing mortalities to all bycatch species.		
References		Prenski & Almeida, 1997		

OVERALL PERFORMANCE INDICATOR SCORE:	
Trawl fishery	**85**
Longline fishery	**85**
Trap fishery	**85**
CONDITION NUMBER (if relevant):	**---**

Evaluation Table for PI 2.3.1

PI 2.3.1		**The fishery meets national and international requirements for the protection of ETP species** **The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	Known effects of the fishery are likely to be within limits of national and international requirements for protection of ETP species.	The effects of the fishery are known and are highly likely to be within limits of national and international requirements for protection of ETP species.	There is a high degree of certainty that the effects of the fishery are within limits of national and international requirements for protection of ETP species.
	Met?	**YES**	**YES**	**YES**

	Justification	There is a high degree of certainty that the effects of the fishery are within limits of national and international requirements for protection of ETP species. The sea birds, *albatrosses Diomedeidae and petrels Procellariidae*, are the unique ETP species identified in the Patagonian toothfish fishery. At least 12 bird species were incidentally taken, with Black-browed Albatrosses *Thalassarche melanophris* and White-chinned Petrels *Procellaria aequinoctialis* accounting for about 80% of total captures.. However, the low frequency does not presume any unacceptable impact to the sea birds populations. Argentina is part of various intergovernmental treaties. Argentina approved the Agreement on the Conservation of Albatrosses and Petrels in 2006 by Federal Law 26.107. Other international instruments that relate indirectly, to the conservation of seabirds, most notably: -Conservation on Migratory Species, also known as CMS or Bonn Convention. Approved by Argentina through Federal Law N° 23.918 (1991). -Convention on International Trade in Endangered Species of Fauna and Flora (CITES). Approved by Argentina through Federal Law N° 22.344 (1982). -Convention on Biological Diversity. Approved by Federal Law N° 24.375 (1994). -United Nations Convention on the Law of the Sea (UNCLOS). Approved by Federal Law N° 24.543 (1995). -International Convention for the Prevention of Pollution from Ships. Approved by Federal Law N° 24.089 (1992). -Convention on Wetlands of International Importance. Approved by Federal Law N° 23.919 (1991). -Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (Compliance Agreement). Approved by Federal Law N° 24.608 (1996).		
b	**Guidepost**	Known direct effects are unlikely to create unacceptable impacts to ETP species.	Direct effects are highly unlikely to create unacceptable impacts to ETP species.	There is a high degree of confidence that there are no significant detrimental direct effects of the fishery on ETP species.
	Met?	**YES**	**YES**	**YES**
	Justification	There is a high degree of confidence that there no significant detrimental direct effects of the fishery on ETP species. In the long-line fishery, the occurrence of the albatrosses and petrels is low. The estimated by-catch rate for this species during the period 1999–2001 was 0.04 birds/1,000 hooks, with a maximum of 0.20 birds/1,000 hooks observed in 1999 (Favero *et al.,* 2003). During the period 2001 – 2010, the fishing effort in long-line fishery decreased from some 30 million to 5 millon hooks set per year, and the overall bycatch rate for the whole period was 0.033 (0.019 SE) birds per 1000 hooks (Favero *et al.,* 2013).		

c	**Guidepost**		Indirect effects have been considered and are thought to be unlikely to create unacceptable impacts.	There is a high degree of confidence that there are no significant detrimental indirect effects of the fishery on ETP species.
	Met?		**YES**	**NO**
	Justification	Although, there have been considered the effects and are thought to be unlikely to create unacceptable impacts, there is not still a high degree of confidence that there are no significant detrimental indirect effects of the fishery on ETP species. A set of data recorded from 1999 to 2010 from the longline fishery, showed that catch rate maintained its mean value, but the number of hooks is strongly reduced (Favero et al., 2003; Favero et al., 2013).		
References		References are in the text.		

OVERALL PERFORMANCE INDICATOR SCORE:	
Trawl fishery	**95**
Longline fishery	**95**
Trap fishery	**95**
CONDITION NUMBER (if relevant):	**---**

Evaluation Table for PI 2.3.2

PI 2.3.2		**The fishery has in place precautionary management strategies designed to:** **•Meet national and international requirements;** **•Ensure the fishery does not pose a risk of serious harm to ETP species;** **•Ensure the fishery does not hinder recovery of ETP species; and** **•Minimise mortality of ETP species.**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	There are measures in place that minimise mortality of ETP species, and are expected to be highly likely to achieve national and international requirements for the protection of ETP species.	There is a strategy in place for managing the fishery's impact on ETP species, including measures to minimise mortality, which is designed to be highly likely to achieve national and international requirements for the protection of ETP species.	There is a comprehensive strategy in place for managing the fishery's impact on ETP species, including measures to minimise mortality, which is designed to achieve above national and international requirements for the protection of ETP species.
	Met?	**YES**	**YES**	**YES**
	Justification	There is a comprehensive strategy in place for managing the fishery's impact on ETP species, including measures to minimize mortality, which is designed to achieve above		

		national and international requirements for the protection of ETP species. *Thalassarche melanophrys* (black browed albatross), *Macronectes giganteus* and Macronectus hali (Giant petrel) and *Procellaria aequinoctialis* (White-chinned petrel) are the most vulnerable species (Favero & Gandini, 2007; Tamini, Chavez & Rabuffetti, 2010). The three species are protected by the Argentinean Action Plan on Birds (Consejo Federal Pesquero, 2010). *T. melanophrys* (black browed albatross) is the most vulnerable bird. Then, there is a consistent strategy in place for managing the fishery's impact on these species, including measures to minimise their mortality. The CFP Resolutions 3/2001 establishes that the INIDEP On Board Observers Program will also monitor birds, mammals and chondrichthyes. With regard to non-binding international instruments, Argentina endorsed the Code of Responsible Fisheries Conduct and adopted a National Action Plan to prevent, deter and eliminate the illegal, unreported and unregulated (IUU PAN), the National Action Plan for the Conservation and Management of Chondrichthyes (CFP Res 6/2009) and the National Action Plan for the Conservation and Management of the Bird in Argentina (CFP Res 3/2010). A Federal Fishing Act (Acta 12/2011) assigned AR$ 60,000 (from the National Fishing Fund – Fondo Nacional de Pesca) destined to the Fishing Planning National Direction (Dirección Nacioanl de Planificación Pesquero – DNPP) to conduct a workshop to develop the Mammals National Plan on May 17-19, 2011.The Federal Fishing Council approved a budget of AR$ 144,000 (CFP Act 2/2012) for a project to reduce the impact of Albatross and Petrels in commercial fleet ("Reducir la mortalidad de albatross y petrels en el Mar Argentino") from Fundación Vida Silvestre, with participation of Aves Argentinas (Lic. Leandro Tamini), CONICET-Universidad de Mar del Plata (Dr. Marco Favero and Dr. Juan Pablo Secopon group) and the INIDEP On Board Observers Program (Lic. Gabriel Blanco, Head), amongst others. For further information visit www.vidasilvestre.org.ar).		
b	**Guidepost**	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is an objective basis for confidence that the strategy will work, based on information directly about the fishery and/or the species involved.	The strategy is mainly based on information directly about the fishery and/or species involved, and a quantitative analysis supports high confidence that the strategy will work.
	Met?	**YES**	**YES**	**NO**
	Justification	There is an objective basis for confidence that the strategy will work, but not a quantitative analysis supports high level of confidence.		
c	**Guidepost**		There is evidence that the strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		**YES**	**NO**
	Justification	There is evidence that the strategy is being implemented successfully, due to the intensive work by researchers, NGOs, fishermen and OBOs Programme of INIDEP and projects to develop mitigation devices. However, the evidence needs to be clarified from the OBOs records.		
d	**d e p**			There is evidence that the strategy

				is achieving its objective.
	Met?			**NO**
	Justification	There is lack of evidence that the strategy is achieving its objective. The results of the strategy need to be checked.		
References		References are in the text.		
OVERALL PERFORMANCE INDICATOR SCORE:				
Trawl fishery				**85**
Longline fishery				**85**
Trap fishery				**85**
CONDITION NUMBER (if relevant):				---

Evaluation Table for PI 2.3.3

PI 2.3.3		**Relevant information is collected to support the management of fishery impacts on ETP species, including:** **•Information for the development of the management strategy;** **•Information to assess the effectiveness of the management strategy; and** **•Information to determine the outcome status of ETP species.**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	Information is sufficient to qualitatively estimate the fishery related mortality of ETP species.	Sufficient information is available to allow fishery related mortality and the impact of fishing to be quantitatively estimated for ETP species.	Information is sufficient to quantitatively estimate outcome status of ETP species with a high degree of certainty.
	Met?	**YES**	**YES**	**YES**
	Justification	Information is sufficient to quantitatively estimate outcome status of ETP species with a high degree of certainty. There is quantitative information related to mortality of sea birds, on the trawl and longline Patagonian toothfish fishery. Incidental mortality in trap fishery is considered negligible. The estimated total mortality for the 10 year period was 7470 ± 2449 seabirds, the majority being black-browed albatrosses and white-chinned petrels. Seabird mortalities decreased by 1 order of magnitude towards the end of the decade, not due to lower bycatch rates but to a drop in the number of hooks set per year (Favero *et al.,* 2013).		
b	**Guidepost**	Information is adequate to broadly understand the impact of the fishery on ETP species.	Information is sufficient to determine whether the fishery may be a threat to protection and recovery of the ETP species.	Accurate and verifiable information is available on the magnitude of all impacts, mortalities and injuries and the consequences for the status of ETP species.
	Met?	**YES**	**YES**	**YES**

	Justification	Accurate and verifiable information is available on the magnitude of all impacts, mortalities and injuries and the consequences for the status of ETP species. In the Argentine Sea, the available information on incidental catch of seabirds by long-line and trawl fleet comes from the reports made by INIDEP OBOs, Provincial OBOs, and specific research projects through RES resolution N° 3/2001 of the Federal Fisheries Council. Information is also collected from research programs. The information about the sea birds is sufficient to determine the degree of injury on this population.		
c	**Guidepost**	Information is adequate to support measures to manage the impacts on ETP species.	Information is sufficient to measure trends and support a full strategy to manage impacts on ETP species.	Information is adequate to support a comprehensive strategy to manage impacts, minimize mortality and injury of ETP species, and evaluate with a high degree of certainty whether a strategy is achieving its objectives.
	Met?	**YES**	**YES**	**NO**
	Justification	Information collected by the OBOs Programme is sufficient to support and improve the strategy tending to reduce the injury of ETP species. Observer coverage is 100% and it is mandatory within the fishery, which might provide sufficient information to quantitatively estimate outcome status, but the high degree of certainty could be achieved with a convenient analysis and presentation.		
References		Waessle & Cortés, 2011 Favero *et al.,* 2013		
OVERALL PERFORMANCE INDICATOR SCORE:				
Trawl fishery				**95**
Longline fishery				**95**
Trap fishery				**95**
CONDITION NUMBER (if relevant):				---

Evaluation Table for PI 2.4.1 – Longline and Trap fisheries

PI 2.4.1		**The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis, and function**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	The fishery is unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	The fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	There is evidence that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.
	Met?	**RBF/SICA**	**RBF/SICA**	**RBF/SICA**
	Justification	TThe interaction with the benthos is restricted to occasional physical contact of the fishing gears with the seafloor and its biotic components. The fishery is highly unlikely to reduce		

		habitat structure and function, because the activity occurs in a relatively reduced area with moderate frequency. However, there is a basic knowledge about the types of benthic habitats, but not the effect of trawling at deeper waters (more than 800m).
References		See RBF Appendix 1.2
OVERALL PERFORMANCE INDICATOR SCORE: The RBF was used in this assessment to evaluate the outcome status of habitat structure. **Longline fishery** **Trap fishery**		**80** **80**
CONDITION NUMBER (if relevant):		**---**

Evaluation Table for PI 2.4.1 – Trawl fishery

PI 2.4.1		**The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis, and function**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	The fishery is unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	The fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	There is evidence that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.
	Met?	**RBF/SICA**	**RBF/SICA**	**RBF/SICA**
	Justification	In general, there is a basic knowledge about the types of benthic habitats, but not the effect of trawling at deeper waters (more than 800 m). The seabed, which can have shelters for the benthic organisms, can be disturbed by the trawl net due to the mechanic effects of the "drivetrain with balls" trawling over the rocky seafloor. In relation with this feature, the fishery is managed under a framework of uncertainty. Conditions could be an opportunity to improve the research plan related to fishery ecology of this species. Some stakeholders commented in the RBFWorkshop that the relationship between fishery and benthic habitats affected occurs at small scale, related with area of the fishery because the area swept by haul is small and the fleet spread over a large area.		
References		See RBF Appendix 1.2		
OVERALL PERFORMANCE INDICATOR SCORE: The RBF was used in this assessment to evaluate the outcome status of habitat structure. SICA Results: **Trawl fishery**				**60**
CONDITION NUMBER (if relevant):				**3**

Evaluation Table for PI 2.4.2

PI 2.4.2		There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	There are measures in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance.	There is a partial strategy in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.	There is a strategy in place for managing the impact of the fishery on habitat types.
	Met?	**YES**	**YES**	**NO**
	Justification	There is a partial strategy in place that is expected to achieve the Habitat Outcome 80 level of performance or above, but there is not a strategy for managing the impact of the fishery on habitat types. There is a partial strategy, mainly addressed to protect juveniles but indirectly protects the habitat, which consist in prohibition of operation of longlines shallower than 800 m and trawl nets shallower than 1000 m. The partial strategy is based on a precautionary approach, based in prior experiences and pertinent literature. The closed areas system enforced using a Vessel Monitoring System is considered to be a partial strategy. Two factors limit the extent of trawling impact on Argentinean benthic habitats: a) the existence of wide areas of untrawlable bottom and b) mandatory closed areas. The untrawlable areas were also mentioned by stakeholders during interviews. There are several areas closed for trawl fishing which act as the factor protection of the benthic habitat and the whole ecosystem, as they are enforced using the vessel monitoring. These are: 1. Fishery by trawl permanent prohibition for any king of vessel. In July 1997, it was established this Patagonian closed area by SAGPyA Resolution N° 447/97. In December 1997, it became stronger by SAGPyA Resolution N° 930/97, 96/98 and 2/99 confirming the area. Associated with the previous area it was created an additional area for the protection of hake juveniles (Federal Fisheries Council Act N° 265/2000). This has permanent and no permanent places in the closed area, covering approximately 200,000km2 (Consejo Federal Pesquero Data); 2. Areas for the protection of Patagonian toothfish juveniles (Federal Fisheries Council Act N° 17/2002 of October 10, 2002; 3. Areas closed for all trawling fisheries (Argentinean Federal Law N° 23.968); 4. Closed areas for the protection of cold water corals at the Burdwood Bank (Federal Fisheries Council Act N° 18/2008, the area is delimited by 54°30´S and 60°30´W, 54°30´S and 59°30´W, 54°15´S and 60°30´W, 54°15´S and 59°30´W).		
b	**Guidepost**	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or	There is some objective basis for confidence that the partial strategy will work, based on information directly	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or habitats involved.

		comparison with similar fisheries/habitats).	about the fishery and/or habitats involved.	
	Met?	**YES**	**NO**	**NO**
	Justification	There is some objective evidences provided by INIDEP that the partial strategy will work, based on information indirectly about the fishery and/or habitats involved. The trawling time is very low (no more than 3 minutes on the seabed) in fishing area that the last one is insignificant comparing with the total toothfish distribution area, and in consequence theoretically the effect in the habitat is low. The prohibition of operation at shallow waters is considered likely to work, but it does not be tested formally. In the case of longline and trap fishing gears, the harvest activity risk in the vulnerability and sensitive habitats was very low.		
c	**Guidepost**		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		**YES**	**NO**
	Justification	There is some evidence that the partial strategy is being implemented successfully. Evidences were provided by INIDEP. There is still no clear evidence of successful implementation. The partial strategy, based in the protection of toothfish juveniles, reduces the effect of trawling and it was accepted and implemented.		
d	**Guidepost**			There is some evidence that the strategy is achieving its objective.
	Met?			**NO**
	Justification	The strategy need to be fully tested in order to provide evidence.		
References		Bremec & Schejter, 2010		

OVERALL PERFORMANCE INDICATOR SCORE:	
Trawl fishery	**75**
Longline fishery	**75**
Trap fishery	**75**
CONDITION NUMBER (if relevant):	**4**

Evaluation Table for PI 2.4.3

PI 2.4.3		**Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	There is basic understanding of the	The nature, distribution and vulnerability of all	The distribution of habitat types is known over their range, with

		types and distribution of main habitats in the area of the fishery.	main habitat types in the fishery are known at a level of detail relevant to the scale and intensity of the fishery.	particular attention to the occurrence of vulnerable habitat types.
	Met?	**YES**	**YES**	**NO**
	Justification	The nature, distribution and vulnerability of main habitat types in the fishery are known at a level of detail relevant to scale and intensity of the fishery, but there is not known over their range, with particular attention to the occurrence of vulnerable habitat types. Trawl fishery: The knowledge of types of benthic habitat is basic, but includes distribution and nature in a generic scale. The existence of analysis, relevant to the scale and intensity of the fishery to describe the effect of the trawling method on benthic habitats is not available. Some data are available to describe the broad distribution of these habitats relative to fishing grounds, but this might not be adequate to support an analysis of the impact of the fishery. Longline and trap fishery: The interaction with the benthos is restricted to physical contact with the seafloor and its biotic components. The activity occurs in a relatively reduced area with moderate frequency. As an Onboard Observers Program is in place, covering well enough the fishery, the information collected may both be useful as indicators of changes in the habitat or as cause of these changes.		
b	**Guidepost**	Information is adequate to broadly understand the nature of the main impacts of gear use on the main habitats, including spatial overlap of habitat with fishing gear.	Sufficient data are available to allow the nature of the impacts of the fishery on habitat types to be identified and there is reliable information on the spatial extent of interaction, and the timing and location of use of the fishing gear.	The physical impacts of the gear on the habitat types have been quantified fully.
	Met?	**YES**	**NO**	**NO**
	Justification	Information is adequate to broadly understand the nature of the main impacts of gear use on the main habitats, including spatial overlap of habitat with fishing gear, but there is not sufficient data to allow the nature of the impact of the fishery on habitat types. Even though trawling time is reduced (no more than 3 minutes on the seabed) the fishing operations are carried out over a period of several months. The intensity of disturbance is unknown; it could be locally important due to repetitive fishing actions over a small area. But the evaluation of the state of the seafloor before-after the impact by trawling, is a difficult task due to the depth. The injury produced by the trawl net on the rocky bottom could be important affecting some benthic species, but there are no studies on it. However, vessels are satellite monitored and records on timing and locations of spatial dynamic of the fleet. Enough information is recorded by the INIDEP On Board Observers Program, on species of both		

		benthonic and pelagic habitats, to determine impacts and risks on habitats though biological indicators.		
c	Guidepost		Sufficient data continue to be collected to detect any increase in risk to habitat (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).	Changes in habitat distributions over time are measured.
	Met?		YES	NO
	Justification	Fishing operation takes place in deep waters, where any study requires technology to assess or detect changes by remote sensing. The fishery is at the stage where habitat must be characterized and a measure to evaluate future changes must be elaborated.		
References		Bremec & Schejter, 2010		

OVERALL PERFORMANCE INDICATOR SCORE:	
Trawl fishery	**75**
Longline fishery	**75**
Trap fishery	**75**
CONDITION NUMBER (if relevant):	**5**

Evaluation Table for PI 2.5.1 – Longline and Trap Fisheries

PI 2.5.1		The fishery does not cause serious or irreversible harm to the key elements of ecosystem structure and function		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	The fishery is unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	The fishery is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	There is evidence that the fishery is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.
	Met?	RBF/SICA	RBF/SICA	RBF/SICA
	Justification	There are no studies about the ecosystem at such deep waters to allow analysis of its structure and function. Species composition, size of populations and trophic web could be modified by removal of the target species from the fishery, or if such modifications can be compensated by the population dynamics of the species present is unknown. Participants of RBF Workshop consider that the impact result of a set of compensatory effects. Even when the impact could be high, the spatial scale is reduced affecting a small part of the populations involved. On the other hand, the degradation time of lost traps is		

		long lasting. However, observed changes are not enough to be distinguishable from those that occur naturally.
References		See RBF Appendix 1.2
OVERALL PERFORMANCE INDICATOR SCORE: The RBF was used in this assessment to evaluate the outcome status of ecosystem structure. SICA Results: **Longline fishery** **Trap fishery**		**80** **80**
CONDITION NUMBER (if relevant):		---

Evaluation Table for PI 2.5.1 – Trawl Fishery

PI 2.5.1		**The fishery does not cause serious or irreversible harm to the key elements of ecosystem structure and function**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	The fishery is unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	The fishery is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	There is evidence that the fishery is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.
	Met?	**YES**	**NO**	**NO**
	Justification	The disturbance produced by the trawl net is due to the mechanic effects of the "drivetrain with balls" over the rocky seafloor, which can have shelters for the benthic and demersal species. There are no studies about the ecosystem at such deep waters to allow analysis of its structure and function. Species composition, size of populations and trophic web could be modified by removal of the target species from the fishery, or if such modifications can be compensated by the population dynamics of the species present is unknown. The RBF resulted in low consensus about how the intensity of trawl fleet affects the component.		
References		See RBF Appendix 1.2		
OVERALL PERFORMANCE INDICATOR SCORE: The RBF was used in this assessment to evaluate the outcome status of ecosystem structure. SICA Results: **Trawl fishery**				**60**
CONDITION NUMBER (if relevant):				**6**

Evaluation Table for PI 2.5.2

PI 2.5.2		There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	There are measures in place, if necessary.	There is a partial strategy in place, if necessary.	There is a strategy that consists of a plan, in place.
	Met?	**YES**	**YES**	**NO**
	Justification	There is a partial strategy in place but there is not consists of a plan. There is a partial strategy which include prohibition of operation of longlines shallower than 800 m and trawl nets shallower than 1000 m within Juvenile Protection Area in fishing sector 5463, 5462 and 5461. The strategy indirectly protects the ecosystem, because reduce fishing effort in such areas. The partial strategy is based on a precautionary approach, based in prior experiences and pertinent literature. The closed areas system enforced using a Vessel Monitoring System is considered to be a partial strategy. Two factors limit the extent of the impact of trawling on Argentinean benthic habitats: a) the existence of wide areas of untrawlable bottom and b) mandatory closed areas. The untrawlable areas were also mentioned by stakeholders during interviews. There are several areas closed for trawl fishing which act as the factor protection of the benthic habitat and the whole ecosystem, as they are enforced using the vessel monitoring. These are: 1. Fishery by trawl permanent prohibition for any king of vessel. In July 1997, it was established this Patagonian closed area by SAGPyA Resolution N° 447/97. In December 1997, it became stronger by SAGPyA Resolution N° 930/97, 96/98 and 2/99 confirming the area. Associated with the previous area it was created an additional area for the protection of hake juveniles (Federal Fisheries Council Act N° 265/2000). This has permanent and no permanent places in the closed area, covering approximately 200,000km2 (Consejo Federal Pesquero Data); 2. Areas for the protection of Patagonian toothfish juveniles (Federal Fisheries Council Act N° 17/2002 of October 10, 2002); 3. Areas closed for all trawling fisheries (Argentinean Federal Law N° 23.968); 4. Closed areas for the protection of cold water corals at the Burdwood Bank (Federal Fisheries Council Act N° 18/2008, the area is delimited by 54°30´S and 60°30´W, 54°30´S and 59°30´W, 54°15´S and 60°30´W, 54°15´S and 59°30´W).		
b	**Guidepost**	The measures take into account potential impacts of the fishery on key elements of the ecosystem.	The partial strategy takes into account available information and is expected to restrain impacts of the fishery on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance.	The strategy, which consists of a plan, contains measures to address all main impacts of the fishery on the ecosystem, and at least some of these measures are in place. The plan and measures are based on well-understood functional relationships between the fishery and the Components and elements of the ecosystem.

				This plan provides for development of a full strategy that restrains impacts on the ecosystem to ensure the fishery does not cause serious or irreversible harm.
	Met?	**YES**	**YES**	**NO**
	Justification	The partial strategy takes into account available information and is expected to restrain impacts of the fishery on the ecosystem or as to achieve the Ecosystem Outcome 80 level of performance. Potential impacts to the ecosystem are being analyzed. The partial strategy expected restrain impacts using different methods as: types of traps, loss of longlines, season and zones for trawling.		
c	**Guidepost**	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/ecosystems).	The partial strategy is considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/ecosystems).	The measures are considered likely to work based on prior experience, plausible argument or information directly from the fishery/ecosystems involved.
	Met?	**YES**	**YES**	**NO**
	Justification	Procedures designed to protect the Patagonian toothfish could be considered a partial strategy which is working, but not based on prior experience, plausible argument or information directly from the fishery/ecosystems involved. The key elements are amphipods and euphausiids. There is no need to apply measures as no relevant ecosystem changes have been detected. Environmental and jellyfishes changes are being taken into account by the INIDEP (Dr. Carlos Lasta and Dr. Hermes Mianzán, respectively). See also INIDEP Technical Report 12/2008. The INIDEP Observers Program records enough data on species to detect any relevant variation on the species composition. INIDEP Research surveys allow to determine Variations on species composition functional groups, trophic structure and distribution of the community.		
d	**Guidepost**		There is some evidence that the measures comprising the partial strategy are being implemented successfully.	There is evidence that the measures are being implemented successfully.
	Met?		**YES**	**NO**
	Justification	Deep range of operations of longline and trawl fleet, types of traps allowed to use, and protected areas are mandatory measures successfully implemented, but a clear strategy to protect the environment and ecosystem structure and function need to be implemented.		
References		See RBF Appendix 1.2		

OVERALL PERFORMANCE INDICATOR SCORE:	
Trawl fishery	**80**
Longline fishery	**80**
Trap fishery	**80**
CONDITION NUMBER (if relevant):	**---**

Evaluation Table for PI 2.5.3

PI 2.5.3		**There is adequate knowledge of the impacts of the fishery on the ecosystem**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	Information is adequate to identify the key elements of the ecosystem (e.g., trophic structure and function, community composition, productivity pattern and biodiversity).	Information is adequate to broadly understand the key elements of the ecosystem.	
	Met?	**YES**	**YES**	
	Justification	Information is adequate to broadly understand the key elements of the ecosystem. Benthic communities and sediment structure of the benthos have been studied (Bastida, Roux, & Martínez, Benthic communities of the Argentine continental shelf, 1992; Bastida, Urien, Lichtschein de Bastida, Roux, & Arias, 1981). Environmental changes (Dr. Carlos Lasta) and jellyfishes changes (Dr. Hermes Mianzán) are being taken into account by the INIDEP. Fish associations have also been studied (Gorini & Jaureguizar, 2008). The INIDEP On Board Observers Program records enough data on species to detect any relevant variation on the species composition. The INIDEP Research surveys allow determining variations on species composition, functional groups, trophic structure and distribution of the community. Others studies allow us to identify species composition and trophic relationship in a more general way. Oceanographic studies over the Continental Shelf have been carried out which provided information about seasonal pattern of productivity, currents, and bathymetric information.		
b	**Guidepost**	Main impacts of the fishery on these key ecosystem elements can be inferred from existing information, and have not been investigated in detail.	Main impacts of the fishery on these key ecosystem elements can be inferred from existing information and some have been investigated in detail.	Main interactions between the fishery and these ecosystem elements can be inferred from existing information, and have been investigated.
	Met?	**YES**	**YES**	**NO**
	Justification	Main impacts of the fishery on these key ecosystem elements can be inferred from existing information (Satellital monitoring of the fleet, ETP, by-catch and retained species are being monitored by On Board Observers) but no clear evidence has been provided to the		

		Assessment Team that all interactions between the fishery and the key ecosystem elements have been investigated.		
c	Guidepost		The main functions of the Components (i.e., target, Bycatch, Retained and ETP species and Habitats) in the ecosystem are known.	The impacts of the fishery on target, Bycatch, Retained and ETP species are identified and the main functions of these Components in the ecosystem are understood.
	Met?		YES	NO
	Justification	Some of the main functions of these components are documented. However, the ecosystem consequences of removal of target, by-catch, retained and ETP species are not fully understood.		
d	Guidepost		Sufficient information is available on the impacts of the fishery on these Components to allow some of the main consequences for the ecosystem to be inferred.	Sufficient information is available on the impacts of the fishery on the Components and elements to allow the main consequences for the ecosystem to be inferred.
	Met?		YES	NO
	Justification	Some of the main functions of these components are documented. However, the ecosystem consequences of removal of target, by-catch, retained and ETP species are not to be inferred. At present, the impact of the trap and longline fisheries is assumed to be low in relation with retained and by catch species, and with habitat. In relation with how the removal of these and target species from the ecosystem, there is uncertainty.		
e	Guidepost		Sufficient data continue to be collected to detect any increase in risk level (e.g., due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).	Information is sufficient to support the development of strategies to manage ecosystem impacts.
	Met?		YES	NO
	Justification	Sufficient data continue to be collected to detect any increase in risk level, but there are not sufficient information to support the development of strategies to manage ecosystem impacts. Data collected by OBOs programme could be able to detect changes in biomass indicators, trophic relationships and productivity of the system, but they need processed and analysed in order to detect such changes. The INIDEP OBO Progam records enough data on species to detect any relevant variation on the species composition. The INIDEP Research surveys allow determining variations on		

		species composition, functional groups, trophic structure and distribution of the community.
References		See RBF Appendix 1.2
OVERALL PERFORMANCE INDICATOR SCORE:		
Trawl fishery		**80**
Longline fishery		**80**
Trap fishery		**80**
CONDITION NUMBER (if relevant):		**---**

Principle 3

Evaluation Table for PI 3.1.1

PI 3.1.1		**The management system exists within an appropriate legal and/or customary framework which ensures that it:** **•Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2; and** **•Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and** **•Incorporates an appropriate dispute resolution framework.**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	There is an effective national legal system and a framework for cooperation with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2	There is an effective national legal system and organised and effective cooperation with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2.	There is an effective national legal system and binding procedures governing cooperation with other parties which delivers management outcomes consistent with MSC Principles 1 and 2.
	Met?	**YES**	**YES**	**YES**
	Justification	Fisheries Administration has in force a robust legislation regulating Patagonian Toothfish Fishery, as it can be addressed in section 3.5 incise j) of this report. It also has a comprehensive administration system composed of several institutions working together to regulate the exploitation of the resource in a healthy way. Details of the organizations, responsibilities and procedures can be consulted in section 3.5 incises f) and k). Following a brief summary: Argentine Republic is a full member of the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) and has ratified the treaty by law 22.584/82. As party to the CCAMLR implements the decisions of the commission through the mechanisms established by Law No. 25.263/00, which sets the Collection System Marine Living Resources in the Area of Implementation of the Convention. The scheme provides for a system of penalties for violation of the law. The Conservation Measures are binding on all Members and apply in CCAMLR's		

		Convention Area. Some measures apply to a specific time period (e.g. a fishing season) while other measures remain in force at all times. Argentine Republic has published CCAMLR Conservation Measures by mean of Resolutions SAGyP N° 702/11, 174/12 and 192/13, as it is stipulated in article 12° of Law 25.263. By mean of Resolutions SAGPyA N° 177/00 and Disposition SSPyA N° 9/12 it also has implemented the Catch Documentation Scheme adopted by CCAMLR in order to deal with the Illegal, Unreported and Unregulated (IUU) fishing for toothfish in the Convention Area. ARGENTINE EXCLUSIVE ECONOMIC ZONE (EEZ) The management system is consistent with the Federal Fishing Law 24.922/98 (Regulatory Federal Decree N° 748/99) which creates the Federal Fisheries Council (FFC) to be the Enforcement Authority, fixing the general fishing and research policies, including: o Total Allowable Catch for each species o Individual Transferable Quotas or Catch Autorizations o Fishing licenses and federal revenues o Specific regulations for each fishery. o Approval of research plans o Stakeholders consultation instances and procedures As established by Law 24.922, the Federal Fisheries Council (www.cfp.gob.ar) is composed by the Undersecretary of Fisheries and Aquaculture (ex SAGPyA function delegation by Resolution N° 27/03), who chairs the sessions; one representative from each of the five littoral provinces, a representative of the Secretary of Environment and Sustainable Development, a representative of the Federal Ministry of Foreign Affairs and International Trade and Cult, and two representatives of the Federal Administration. The Federal Fishing Law and 24922 and Federal Decree 214/99 also establishes the ex-Secretary of Agriculture, livestock, Fisheries and Food (Actually Ministry of Agriculture, livestock and Fishery) to be the Enforcement Authority and delegates same of its functions on the Undersecretary of Fisheries and Aquaculture (SSPyA - Federal Decree 748/99 and ex SAGPyA Resolution N° 27/03) who acts throw its dependant areas: the National Direction of Fisheries Coordination, National Direction of Fisheries Planning and Direction of Fisheries Regulations. Federal Law 21.673/77 creates the National Institute of Fisheries Research and Development (INIDEP) to be the Federal Scientific Authority. Federal Decree 1063/04 defines institutional objectives and responsibilities and actions essential to each of its directorates while INIDEP Resolution N° 118/10 establishes its new organizational chart.		
b	**Guidepost**	The management system incorporates or is subject by law to a mechanism for the resolution of legal disputes arising within the system.	The management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes which is considered to be effective in dealing with most issues and that is appropriate to the	The management system incorporates or subject by law to a transparent mechanism for the resolution of legal disputes that is appropriate to the context of the fishery and has been tested and proven to be effective.

			context of the fishery.	
	Met?	**YES**	**YES**	**YES**
	Justification	The Federal Fisheries Council acts when a legal dispute arises, under request from a stakeholder. Decisions are written in Minutes (published online at www.cfp.gob.ar) and efficacy has been tested during years of practice. Additionally, verbatim transcripts of the proceedings of the FFC do exist, which can be consulted if it is necessary to clarify issues related to the spirit of its decisions. In case of civilian disputes against administration decisions, it is applied the Administrative Procedure Law 19.549 and its Regulatory Federal Decree N° 1759/72, which establishes, inter alia, the mechanisms for disputes resolution. Fisheries regulations (Law 24.922 and 25.470) repeated the same recursive procedures than Administrative Procedure Law 19.549. Mentioned procedure can be summarized briefly as follows: o Every time a person feels aggrieved by a decision from any public body, he has the right to arise a reconsideration request and, in case of any unsatisfactory reply, can perform the request to a higher authority, and so on until the level of Presidency of the Nation. If it is considered that the grievance persists or has not been obtained satisfactory answer in administrative levels, there is the possibility to make a presentation to the ordinary justice system (Judiciary), on the condition to have exhausted the administrative remedies on appropriate authorities of the National Executive Power. o For cases in which the administration's decision involves an imminent harm of a constitutional right, any citizen can appeal directly to the ordinary justice system and submit an urgent application, which requires the presiding judge to resolve in an extremely executive manner (1 to 3 days) to restore the right allegedly injured, even though it will then continue with the judicial investigation to resolve definitively with more information and certainty.		
d	**Guidepost**	The management system has a mechanism to generally respect the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to observe the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to formally commit to the legal rights created explicitly or established by custom of people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.
	Met?	**YES**	**YES**	**YES**
	Justification	The Assessment team didn´t identified legal rights created explicitly or established by custom on people dependent on fishing for food and livelihood.		
References		References are in the text.		
OVERALL PERFORMANCE INDICATOR SCORE:				**100**
CONDITION NUMBER (if relevant):				**---**

Evaluation Table for PI 3.1.2

PI 3.1.2		The management system has effective consultation processes that are open to interested and affected parties. The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are generally understood.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are explicitly defined and well understood for key areas of responsibility and interaction.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are explicitly defined and well understood for all areas of responsibility and interaction.
	Met?	**YES**	**YES**	**YES**
	Justification	As established by Law N° 24.922, the Federal Fisheries Council is composed by the ex Secretary of Agriculture, Livestock, Fisheries and Food (Actually Ministry of Agriculture, Livestock and Fisheries), who chairs the sessions, one representative from each of the five littoral provinces, a representative of the Secretary of Environment and Sustainable Development, a representative of the Federal Ministry of Foreign Affairs and International Trade and Cult, and two representatives of the Federal Administration. The responsibilities of the Federal Fisheries Council are explicit in the Law 24.922 and its Regulatory Federal Decree N° 748/99, while its internal rules, approved by a Resolution FFC N° 16/2009, establish the procedures of operation, the administrative structures and the powers and responsibilities of its members. The Federal Fishing Law and Federal Decree N° 214/99 also establishes the ex Secretary of Agriculture, Livestock, Fisheries and Food (Actually Ministry of Agriculture, Livestock and Fisheries) to be the Enforcement Authority and delegates same of its functions on the Undersecretary of Fisheries and Aquaculture (ex SAGPyA Resolution N° 27/2003), who acts throw its dependant areas: the National Direction of Fisheries Coordination, National Direction of Fisheries Planning and Direction of Fisheries Regulations. Federal Decree N° 156/10 updates structures and functions of SAGyP and SSPyA and Administrative Decision 175/10 establishes specific functions for each of its dependences. Federal Law 21.673/77 creates the National Institute of Fisheries Research and Development (INIDEP) to be the Federal Scientific Authority. Federal Decree 1063/04 defines institutional objectives and responsibilities and actions essential to each of its directorates while INIDEP Resolution N° 118/10 establishes its new organizational chart. Regularly INIDEP Resolution approves/improve the Activities Planning for each of its dependant research, operative and administrative areas during next years. Resolution SAGPyA N° 19/02 a created an advisory follow-up Committee for Patagonian Toothfish Fishery, integrated by representatives from the authority and each companies licensed for the exploitation of Patagonian Toothfish. This Commission has legal force as an advisor body and has been meeting regularly, producing a minute summarizing the issues		

		discussed during its meetings and providing its conclusions to the FFC. A public-private Joint Committee for Patagonian Toothfish Landing Control also exist (Disposision SSPyA N° 14/04) and its procedures are established in the "Patagonian Toothfish Landing Control Procedures Manual" sanctioned by Disposition SSPyA N° 597/04. The National Coast Guard (Prefectura Naval Argentina), created and regulated by Laws 18398/69 and 20325/73, and the Navy collaborates in the control of closed areas, illegal foreign vessels fishing, navigation safety, amongst other functions. Sanitary control is in charge of the National Service of Food Safety (SENASA), who acts in accordance to Federal Decree 4.238/68, section XXIII, and ex SAGPyA Resolution N° 552/06. The Federal Ministry of Foreign Affairs and International Trade and Cult serve many roles in the fishery area. It is responsible for developing foreign policy in the Exclusive Economic Zone (EEZ) and the adjacent regions of Argentina, promotes the fishery sector in the international markets, represents the country on the International Commissions and signs International Agreements. All of these public agencies have missions and functions perfectly well defined and established by laws, while respecting manuals and specific instructions to procedure on each particular situation. Finally, fisheries more interest private groups are companies evolved in them, which constitutes the client on present certification, and the labor forces represented by the United Maritime Workers Syndicate (SOMU), for sailors, and the Argentinean Association of Captains and Fishing Pilots.		
b	**Guidepost**	The management system includes consultation processes that obtain relevant information from the main affected parties, including local knowledge, to inform the management system.	The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of the information obtained.	The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of the information and explains how it is used or not used.
	Met?	**YES**	**YES**	**YES**
	Justification	Regularly, the National Institute of Fisheries Research and Development (INIDEP) update the research program to obtain information and knowledge in order to advice the Management System (www.inidep.edu.ar). I.e, see Resolution INIDEP N° 133/2010. As well, Law N° 24.922 recognizes that scientific data can be provided by other research institutions. The Federal Fisheries Council makes public their minutes (Acts), Resolutions, technical reports and other documents received. It also convenes regularly to researchers or interest groups for technical advice prior to the decision-making and report it in their minutes (www.cfp.gob.ar). Something similar happens with the Undersecretary of Fisheries and Aquaculture, although there are not saved detailed records (minutes) of these meetings. The follow-up Committee for Patagonian Toothfish Fishery created by Resolution SAGPyA N° 19/02 role as an advisory body for both Management and Research System. This Commission meets at least fifth a year producing a minute summarizing the issues		

		discussed during its meetings and providing its conclusions to the FFC. Law 24922 specifically establishes that restrictive measures, such as close areas or seasons must be given widespread coverage and must be communicated adequately in advance to fishermen and to the proper authorities of control, surveillance and monitoring (Article 19 of Fisheries Law 24922). It can be observed from analyzed legislation that fisheries regulations of lower hierarchy, generaly, set out the requirements in a comprehensible manner, with quite adequate extension and basis of its aforementioned statements, about the reasonability of the measures adopted, which allow, among other things, understand adequately: a. Facts and antecedents that are causes for the measures. b. Regulated topic. c. Motivation of measures, in the sense of knowing the reasons that inducted their establishment. d. Objective of measures, in the sense that these are proportional and adequate. Decisions based on technical advice or consultation process are expressed throw FFC, MINAGRI or SSPyA regulations and applied on desired time on the fishery. So, the management of the fishery is adjusted as a result of the consultation process. Finally Law 25831/03 establishes the right of any citizen to free access to ambient public information.		
c	**Guidepost**		The consultation process provides opportunity for all interested and affected parties to be involved.	The consultation process provides opportunity and encouragement for all interested and affected parties to be involved, and facilitates their effective engagement.
	Met?		**YES**	**YES**
	Justification	As it was said a Patagonian Toothfish Follow up Commission created by Resolution SAGPyA N° 19/02, is consulted by both FFC and SSPyA prior to take any decision on the fishery. An Honorary Consultant Commission at the Federal Fisheries Council does exist (Article 10° of the federal Fisheries Law and Resolution FFC N° 7/2004), composed of all the fisheries associations business and workers that exist in the country, and is used to advise on all matters related to fishing activities. Also de Federal Fisheries Council and the Secretary of Environment and Sustainable Development promotes stakeholders meetings/workshops on specific issues. In both cases stakeholders are encouraged to participate in different events according to the issue involved, by mean of sending some concerns to the above mentioned advisory commission. The Federal Fisheries Council make public written in Minutes (published online at www.cfp.gob.ar). Additionally, verbatim transcripts of the proceedings of the FFC do exist (limited access), which can be consulted if it is necessary to clarify issues related to the spirit of its decisions.		
References		References are in the text.		
OVERALL PERFORMANCE INDICATOR SCORE:				**100**
CONDITION NUMBER (if relevant):				**---**

Evaluation Table for PI 3.1.3

PI 3.1.3		The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Principles and Criteria, and incorporates the precautionary approach		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	Long-term objectives to guide decision-making, consistent with the MSC Principles and Criteria and the precautionary approach, are implicit within management policy	Clear long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach are explicit within management policy.	Clear long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are explicit within and required by management policy.
	Met?	**YES**	**YES**	**YES**
	Justification	The Federal Fishing Law 24922 (Article 1°) establishes that Argentina will foment the practice of maritime fishing in function of a maximum development compatible with the rational exploitation of living marine resources, will promote the effective protection of national interests related with fishing and will promote the sustainability of the fishing activity, the long-term conservation of the resources, the development of industrial processes environmentally appropriate to reach the maximum *added* value and the maximum argentine employment. These minimal premises must be complied by all fisheries in Argentine waters, because Article 1 defines the Argentine Fishery Policy and it is mandatory for the whole fishery system, and particularly, for the administration system, which task is to design management policies in order to achieve the Law objectives. The concept of Maximum Sustainable Yield (MSY) included in Law 24.922 is expressed in its Article 8° of its Regulatory Federal Decree N° 748/99: " It must be understood as Maximum Sustainable Yield (MSY) of an species, the maximum biomass that can be captured annually without affecting its conservation". Additionally, other sections of the Federal Fisheries Law 24.922 are related with preventing excesses on exploitation and the sustainable utilization fishery resources: a. Article 17°, by prescribing that fishing in the whole Argentine maritime jurisdiction will be subjected to restrictions established with the objective of avoiding exploitation excesses. b. Article 21°, by banning every method, technique, equipment and fishing gear that may cause damage on the live aquatic resources. c. Article 22°, by referring to the organization and maintenance of a fishing regulation within the Economic Exclusive Zone, establishing measures for organization and conservation directed to the rationalization of the exploitation and insurance of the conservation of resources. d. Article 37°, related to the access to the fishing activity in the maritime areas Ander Argentine jurisdiction to fishing vessels with foreign flan. This articles indicates that determination of the capture fishing capacity by the Argentine fleet in order to estimating the available biomass for foreign fleets, could only be done considering biologic features of the exploited resource, and not considering normal cyclic		

		reductions on fleet common in fishing activity nor due to specific situations or extraordinary events that could have affected the operation of a particular fleet. The Argentine Government established a legal regulation in order to ensure that the fishery is developed in a way that follows scientific advice. This resgulations also established basic principles for the Management Plan which was signed on May 2002 (Resolution SAGPyA N° 19/02) and revised or complemented by Resolution FFC N° 17/02, Disposition SSPyA N° 14/02, Resolutions FFC N° 1/03 and 9/03, Disposition SSPyA N° 527/04, Act FFC N° 5/05, Resolutions FFC N° 9/07, 21/09 and 21/12. Incorporating an adaptive criterion, both operational and long-term measures were implemented. The first are in connection with annual survey results, like establishment of a Total Allowable Catch (TAC) and Individual Transferable Quota volume assignation. The long-term measures are: (i) Minimum legal size was set at 82 cm of total length. (ii) Permanent juvenile protection zone delimited by 54º y 55º LS y 61º y 64º LO. (iii) TAC: harvest rate fixed considering long term biomass and reproductive biomass objectives. (iv) Minimum Hook size 4 cm. (v) 15% juveniles catch allowed for the whole fishing trip. (vi) 5 miles displacement in the event of exceed allowed by catch or juveniles. (vii) Haul by haul, biweekly and whole fishing trip catch report. (viii) Creation of a government – private Technical Fisheries Advisor Commission. (ix) The formation of a Joint Committee of Landings Control composed of representatives from the Authority and the companies on the fishery, dedicated to verify the strict compliance with regulations in force. (x) Obligatory 96 hours prior to arrival to port announcement to fishing authority and Discharge Control Committee. (xi) Compulsory shipment of on board Inspector and Observer. (xii) Bottom net trawlers must operate to more than 800 mts. deep if done on the south of 54° LS parallel and more than 1.000 mts. Deep if done northern. (xiii) Bottom net trawlers must obtain a certification from Naval Engineering Collage or INIDEP they can operate to more than 1.000 mts. Deep. (xiv) Patagonian Toothfish is considered by catch up to 1,5 % of total catch in the whole fishing trip. (xv) Additional penalties for non-compliance. (xvi) Compulsory training of crew on National Actions Plans on birds and Chondrichthyes. (xvii) CCAMLR Catch Document required. (xviii) VMS required. (xix) Obligation to longliners to participate with INIDEP Mark and Recapture Program, marking two individuals per each tons captured. Long-term political objective on rational exploitation, stocks productivity protection, social and inter generation equinity and species conservation, are explicit referenced in all relevant legislation and same precautionary approach is included in technical recommendations. Additionally, management measures as minimum catch length, authorized gear, on board inspectors and/or observers, landings control, electronic daily logbook, VMS, on board video cameras, etc., are already taken and some of them in practice since several years ago.

		Incentives to rational exploitation have been introduced by means of the Individual Transferable Quota System. The precautionary approach is established by the Argentine fisheries legislation by means of the prescriptions present in Article 17° of the Federal Fisheries Law 24.922, which establishes that "Fishing activity throughout all maritime areas under Argentine jurisdiction, will be subjected to restrictions set by the Federal Fisheries Council for the conservation of resources, in order to avoid excesses of exploitation and prevent damages over the environment and the ecological system unit. Issues related with the conservation of fisheries resources can be also found in Articles 1°, 21° and 27° of the Federal Fisheries Law 24.922 and in Articles 1° and 12° of its Regulatory Decree 748/99. As well, the precautionary approach is explicitly contemplated in Article 5° of Resolution CFP N° 21/09, through establishment of an Administration Reserve when providing the Patagonian Toothfish ITQs specific regime (see also Act FFC N° 49/09). The precautionary approach is also present in the stock assessment models and in the technical recommendations of biologically acceptable capture, as a result of the uncertainty surrounding recruitment of new individuals. TAC are established considering a reach a 30 % of the original reproductive biomass in the medium term period. Provision on ecosystem related aspects are also considered by Management Plan establishing Compulsory shipment of on board Inspector and Observer, compulsory training of crew on National Actions Plans on birds and Chondrichthyes and obligatory preventive practices to avoid bird mortality.
References		References are in the text.
OVERALL PERFORMANCE INDICATOR SCORE:		**100**
CONDITION NUMBER (if relevant):		**---**

Evaluation Table for PI 3.1.4

PI 3.1.4		**The management system provides economic and social incentives for sustainable fishing and does not operate with subsidies that contribute to unsustainable fishing**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2.	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and seeks to ensure that perverse incentives do not arise.	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and explicitly considers incentives in a regular review of management policy or procedures to ensure they do not contribute to unsustainable fishing practices.
	Met?	**YES**	**YES**	**PARTIAL**
	Justification	The Individual Transferable Quote Management System and its associated policies provide stability and security for fisheries operations and introduces a powerful conservation incentive, as it is established as a percentage of the TAC. The general management system (Acts FFC N° 49/09 and Resolution CFP N° 21/09) establishes, within other measures, that:		

		o ITQs are established as a percentage of the specie's TAC. o ITQs are allocated for a period of 15 years, from January 1st, 2010. o Allocation of ITQs corresponds to only the 85 % of the TAC. The remaining 18,8% is an Administration's Reserve. o ITQs are allocated to fishing license holders registered in the appropriate Register of Fishing Activities with catches higher to 1 % of the total landings between 1989 and 1996. o ITQs are allocated taking into consideration the historical captures of each vessel and the lack of sanctions. o A maximum concentration percentage is set for each company or company group, at 40 % of the TAC. o The ITQs are total or partially transferable. o Each year the National Direction of Fisheries Coordination determine the volume of Quota allocated for each vessel, accordingly the year established TAC. o Regulations for ITQs extinguish in case of no use. Federal Fisheries Law 24922 also establishes incentives for those operators that respect fisheries regulations, in several chapters. As an example, in Article 27 bis it is expressed that ITQ or CAs will not be allocated to persons or entities which maintain any type of relationship, legal or economical, or receiving any advantage or profit with vessels operating without fishing licenses. Likewise, the Enforcement Authority will not register association of enterprises or companies groups when one or more of its presidents, directors, managers or solicitors may have been sanctioned with suspension or cancellation of its registration in the records established by Article 41°, due to infractions to the Law 24.922 or its regulatory decree. Also, through this article it is established that an association or group of companies that would not exclude the offender, will have its registration license withdrawal. Article 64° establishes that when individuals or legal entities were sanctioned with cancellation of the registration license based on final judgment, individuals or the members of the legal entities will not be allowed to be part of the representative, administration and/or direction bodies of other companies associations or groups to develop activities established by the Law 24.922. Compliance of other regulations is also considered as a key issue: for allocation of fishing licenses, enterprises owners of fishing vessels will be required to prove compliance with legal, social security spending and tax obligations in force (Law 24.922, Article 26|, subs. 3) Sanctioning regime consider the possibility for suspend or cancel fishing licenses, ITQs and Capture Authorizations (Article 51°, subs. c, d, g), when transgressions to the fishery regulations may occur. When the infraction is related to fishing operations without license, the penalty should be 500 times of the minimum. Customary and legal rights are taken into account in the management system. There is recognition of international treaty partnership for the protection of living resources. There are mechanisms in place and opportunities for all stakeholders. No direct subsidies contributing to unsustainable fishing exist. Finally it must be said that, even when there are enough incentives and regulations already

		established to promote sustainable fishing of the main species and some of the by catch ones, there is the need to promote actions to deal with uncertainties existing on a lot of subjects related to the effect of the fishing gear on habitat and by catch species.
References		References are in the text.
OVERALL PERFORMANCE INDICATOR SCORE:		**90**
CONDITION NUMBER (if relevant):		**---**

Evaluation Table for PI 3.2.1

PI 3.2.1		**The fishery has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	Objectives, which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are implicit within the fishery's management system	Short and long-term objectives, which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery's management system.	Well defined and measurable short and long-term objectives, which are demonstrably consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery's management system.
	Met?	**YES**	**YES**	**PARTIAL**
	Justification	The existence of an informal and adaptive Management Plan, the management system by fishing licenses as authorization to enter the fishing ground and ITQs to gain access for the exploitation of fisheries resources, defines the long-term objectives of the fishery. These objectives are explicitly and implicitly in the Management Measures implemented both by the SSPyA and FFC (Resolution SAGPyA N° 19/02, complemented by Resolution FFC N° 17/02, Disposition SSPyA N° 14/02, Resolutions FFC N° 1/03 and 9/03, Disposition SSPyA N° 527/04, Act FFC N° 5/05, Resolutions FFC N° 9/07, 21/09 and 21/12) and in the ITQs System (Resolution FFC N° 21/09 and 1/13 and Ac FFC N° 49/09), which involves, among other measures, the following: o Existence of a Management Plan, which main objective is "maintaining the sustainability of the Fishery": 1. Management measures are set based on scientific data. 2. TAC is set annually. 3. If scientific data is not available, a provisional TAC is set following a precautionary approach. 4. When TAC is reached, the fishery is closed to fishing. 5. Allowable Biological Capture estimations are done considering recovery of the reproductive biomass to 30 % of the original. 6. Licensed vessels must inform catches in a daily basis to the DNCP electronically. 7. Minimum catch size: 82 cm total length. 8. Prohibition of fishing in areas with more than 15 % of legal under-sized individuals. 9. Permanent juvenile protection zone delimited by 54º y 55º LS y 61º y 64º LO. 10. Minimum Hook size 4 cm. 11. 15% juveniles catch allowed for the whole fishing trip 12. Fishing effort is limited to fishing vessels with quota.		

		13. Bottom net trawlers must operate to more than 800 mts. deep if done on the south of 54° LS parallel and more than 1.000 mts. Deep if done northern. 14. Bottom net trawlers must obtain a certification from Naval Engineering Collage or INIDEP they can operate to more than 1.000 mts. Deep. 15. Patagonian Toothfish is considered by catch up to 1,5 % of total catch in the whole fishing trip. 16. Patagonian Toothfish Fishery Follow-up Commission is created, setting its members as representatives of SSPyA, representatives of INIDEP and 1 representative of each of the fishing companies authorized to capture the resource, for give advice to the CFP. 17. Longliners must participate in the INIDEP Mark and Recapture Program marking two individuals per each tons captured. 18. All fishing vessels must have an On Board Observer and Inspector in all fishing trips. 19. The formation of a Joint Committee of Landings Control composed of representatives from the Authority and the companies on the fishery, dedicated to verify the strict compliance with regulations in force. 20. Obligatory 96 hours prior to arrival to port announcement to fishing authority and Discharge Control Committee. 21. A sanction regime is established and additional penalties for non-compliance. 22. CCAMLR Catch Document required. 23. VMS required 24. Compulsory training of crew on National Actions Plans on birds and Chondrichthyes. 25. Birds protections practice measures. o Allocation of Individual Transferable Quota, with the following details: 1. ITQs are established as a percentage of the specie's TAC. 2. A maximum ITQs concentration by company or companies group of 40% of TAC is established. 3. ITQs are allocated for 15 years from January 2010. 4. For the companies to utilize their ITQs, these must respect all other general and specific regulations which regulate the fishery. 5. ITQs are total or partially transferable. 6. ITQs are assigned up to 85 % of the annual TAC. 7. With Precautionary Criterion a percentage of the TAC is saved as an Administrative Reserve (15%). 8. ITQs lost by the enterprises by different factors (sanctions, closure of the company, suspension of fishing licenses, etc) are incorporated to the Quota Re-assignation Fund, managed by the CFP. 9. 1 % of assignation of ITQs corresponds to lack of sanction from the fishing companies. The Federal Fisheries Council (FFC) establishes a TAC based on the INIDEP reports recommending biological acceptable catch, and other issues. When there is not a technical report for a given year, FFC has the chance to establish a provisional TAC based in previous year information until having the technical advice to adequate it. Data collection of environmental aspects of the fishery during fishing operations is in charge of on board observers program. The data analysis and conclusions are on charge of the INIDEP research program (see Resolution INIDEP N° 133/2010 - INIDEP: Demersal Austral and Sub-Antartic Finfish Fisheries Program (AUST), page 57), which estates the objectives of Patagonian Toothfish and associated species research objectives. Objectives for marine bird's protection are established in the National Action Plan for Birds

		(Federal Fisheries Council Resolution 15/2010). Objectives for Chondrichthyes protection are established in the National Action Plan for Chondrichthyes (Federal Fisheries Council Resolution 6/2009). The federal Law 25.577/02 protects Cetaceans from any kind of intentional catch. Federal Law 25.052/98 and its complementary Decree N° 598/03 prohibits catch and commercialization of Killer Whale (Orcinus orca). The Federal Fisheries Council also regulated by means of its Resolution N° 3/2001, the data collection and analysis of birds, reptiles and mammals bycatch during fishing activities. No more clear objectives for mammal's protection still exist but there is in the stakeholders consulting process the National Action Plan for Marine Mammals Protection. Even explicit Long Term Objectives do exist on management system, they are not in a single regulation obstructing its whole comprehension.
References		References are in the text.
OVERALL PERFORMANCE INDICATOR SCORE:		**90**
CONDITION NUMBER (if relevant):		**---**

Evaluation Table for PI 3.2.2

PI 3.2.2		**The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery under assessment.**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	There are some decision-making processes in place that result in measures and strategies to achieve the fishery-specific objectives.	There are established decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.	
	Met?	**YES**	**YES**	
	Justification	Management decision making processes are clearly outlined in the Federal Fisheries Law N° 24.922, the Federal Decrees N° 748/99, 156/10 and Administrative Decision 175/10, amongst other legal documents. The Federal Fisheries Council is the main authority who establishes the TAC based on scientific biological recommendations and other social and economic aspects. The FFC has the responsibility to ensure that he is provided with carefully analysed alternatives for consideration before making any decisions. The Resolution SAGPyA N° 19/02 creates the follow-up Committee for Patagonian Toothfish Fishery, in order to advice the FFC with fishery issues, including environmental changes associated with the fishery. The National Institute of Fisheries Research and Development (INIDEP) Resolution 133/10 establishes research programs to obtain information and knowledge in order to advice the Management System (www.inidep.edu.ar). An Honorary Commission at the Federal Fisheries Council exists and is used to work on		

		specific issues where involved stakeholders are invited to participate (article10° of Federal Fisheries Law 24922). All consultative commissions and stakeholders are called by the Federal Fisheries Council or by the Undersecretary of Fisheries an Aquaculture when required. Any stakeholder may request a hearing with the administration bodies and is heard prior to decision-making. Frequently workshops are conducted with all interest parties to analyze the issues prior to the decision-making, even when there are no records reporting the use of such methodology in Patagonian Toothfish fishery. However, the same is of current use of both the administrative and research systems, so it can be used if necessary.		
b	**Guidepost**	Decision-making processes respond to serious issues_identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take some account of the wider implications of decisions.	Decision-making processes respond to serious and other important issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.	Decision-making processes respond to all issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.
	Met?	**YES**	**YES**	**YES**
	Justification	See rational of SG 80 a).		
c	**Guidepost**		Decision-making processes use the precautionary approach and are based on best available information.	
	Met?		**YES**	
	tification	See rational of SG 80 a).		
d	**Guidepost**	Some information on fishery performance and management action is generally available on request to stakeholders.	Information on fishery performance and management action is available on request, and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.	Formal reporting to all interested stakeholders provides comprehensive information on fishery performance and management actions and describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.
	Met?	**YES**	**YES**	**NO**

	Justification	No clear evidence that formal reporting to all interested stakeholders describing how the management system responds to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity exists. INIDEP Technical Reports are referred to the FFC and its reception published in the records of its meetings, which in turn are published on its website (www.cfp.gob.ar) as abstracts. Once they have been published by the FFC, are available for anyone who wants to obtain a full copy on INIDEP library. Fishery statistics are also published in the web sites of the FFC and the Undersecretary of Fisheries and Aquaculture (SSPyA), like the positioning of fishing vessels, which is updated twice a day (www.minagri.gob.ar). The FFC makes public in their Minutes any considerations and technical and legal advice taken into account in decision-making as well as the concerns being submitted or exposed for any stakeholders to FFC.		
e	**Guidepost**	Although the management authority or fishery may be subject to continuing court challenges, it is not indicating a disrespect or defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability for the fishery.	The management system or fishery is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges.	The management system or fishery acts proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges.
	Met?	**YES**	**YES**	**YES**
	Justification	The National Direction of Fishery Regulations acts proactively to avoid legal disputes and its staff involves lawyers specialized in fishery activities and regulations. To minimize the legal wrangling, any decision of the administration affecting the rights of third parties requires a control and legal opinion prior to its sanction. Such control is carried out by a statutory body external to the agency that promotes the sanction of the rule. Judicial decisions are mandatory for any authority from the fisheries administrative system and they must be implemented immediately.		
References		References are in the text.		
OVERALL PERFORMANCE INDICATOR SCORE:				**95**
CONDITION NUMBER (if relevant):				**---**

Evaluation Table for PI 3.2.3

PI 3.2.3		**Monitoring, control and surveillance mechanisms ensure the fishery's management measures are enforced and complied with**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	Monitoring, control and	A monitoring, control and	A comprehensive monitoring,

		surveillance mechanisms exist, are implemented in the fishery under assessment and there is a reasonable expectation that they are effective.	surveillance system has been implemented in the fishery under assessment and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.	control and surveillance system has been implemented in the fishery under assessment and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.
	Met?	**YES**	**YES**	**YES**
	Justification	Argentina endeavors to deter fisheries related offending through successful prosecution and deterrent penalties. Penalties for fisheries related offences include fines and forfeiture of fish, vessels, other property and quota (Law 25.470, articles 46° to 65° of Federal Fisheries Law 24.922 and articles 42° to 57° of Federal Decree N° 748/1999). A number of monitoring, control and surveillance tools are used to control the activities of vessels fishing within Argentine fisheries waters including: o Fishing permit requirements (article 23°, 24° and 26° of Law 24.922), o Requirement to hold annual catch entitlement to cover target and bycatch species caught (article 27°, 27° bis and 28° of Law 24.922, article 21° of Federal Decree 748/1999 and FFC Resolution N° 21/09, 21/12 and 1/13), o Fishing permit and fishing vessel registers (article 41°, 42° and 71° of Law 24.922 and article 14° of Federal Decree 748/1999), o Vessel Monitoring System (VMS) requirements (article 33° of Law 24.922 and Disposition SSPyA N° 2/2003 and 206/2010), o Vessel and gear marking requirements, o Fishing gear and method restrictions (article 17° and 21° of Law 24.922, article 4° and 5° of Resolution SAGPyA N° 19/02 and article 6° Resolution FFC N° 21/12), o On board observer or inspectors in all fishing travels (article 2° of Disposition SAGPyA N° 177/00 and article 7° of Resolution FFC N° 21/12), o Reporting (including catch and effort reporting) requirements (article 19°, 25° and 32° of Law 24.922, article 30° of Federal Decree 748/1999, Resolution ex-SAGPyA 177/00 and 167/09 and Disposition SSPyA N° 8/2009), o Electronic log book by haul (SAGyP Resolution N° 167/2009), o Vessel inspections, o Control of landings (*e.g.* requirement to land only to licensed fish receivers) (SAGyP Resolution N° 167/2009), o Record keeping requirements (article 19° of Law 24.922), o Control of transshipment (article 15° and 16°° of Federal Decree 748/99), o Information management and intelligence analysis, o Analysis of catch and effort reporting and comparison with VMS, observer, landing and trade data to confirm accuracy (SAGyP Resolution N° 167/2009), o Boarding and inspection by fisheries officers at sea, o Aerial and surfease surveillance, o Fishing and gear surveillance by on board video camera recording and transmitting (SSPyA Disposition N° 206/2010 and 1/2011), And o Legal Catch Certification System (SSPyA Disposition N° 8/2009) All this control tools are well implemented and seems to be extremely efficient, to the point there are not systematic non-compliance with in force regulations, as consequence of a very strict control system, proving its ability to enforce relevant management measures, strategies and/or rules. With regard to the operative control of the fleet, SSPyA		

		has implemented the Integrated Control of Fishing Activities (SICAP), comprising: a) Satellite Positioning System of the National Fishing Fleet, b) all satellite data in the area where foreign fishing vessels operating outside the ZEEA provided by the National Commission on Space Activities, and c) the activity of control and surveillance conducted by the PNA, Navy and Air Force, which have units of area (Coast Guard and corvettes) and air units (aircraft and helicopters) to control illegal fishing. This information is supplemented with that from the control of discharges and documentary information on board.		
b	**Guidepost**	Sanctions to deal with non-compliance exist and there is some evidence that they are applied.	Sanctions to deal with non-compliance exist, are consistently applied and thought to provide effective deterrence.	Sanctions to deal with non-compliance exist, are consistently applied and demonstrably provide effective deterrence.
	Met?	**YES**	**YES**	**NO**
	Justification	Although sanctions with non-compliance exist and are thought to provide effective deterrence, no clear evidence on how consistently are applied and how demonstrably provide with the effective deterrence.		
c	**Guidepost**	Fishers are generally thought to comply with the management system for the fishery under assessment, including, when required, providing information of importance to the effective management of the fishery.	Some evidence exists to demonstrate fishers comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery.	There is a high degree of confidence that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery.
	Met?	**YES**	**YES**	**YES**
	Justification	As it was said the fishery clearly respect the main regulatory or customary rules established and there is a high degree of confidence on it, at least for the assessment team. During the assessment team interview to the National Director of Fisheries Coordination and National Director of Fisheries Planning, they comment there have not been non complacence sanctions during last years, and there are no so much during all life story of the fishery.		
d	**Guide post**		There is no evidence of systematic non-compliance.	
	Met?		**YES**	
	tifi cat io	There is no evidence of systematic non-compliance.		
References		References are in the text.		
OVERALL PERFORMANCE INDICATOR SCORE:				**95**
CONDITION NUMBER (if relevant):				**---**

Evaluation Table for PI 3.2.4

PI 3.2.4		The fishery has a research plan that addresses the information needs of management		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	Research is undertaken, as required, to achieve the objectives consistent with MSC's Principles 1 and 2.	A research plan provides the management system with a strategic approach to research and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.	A comprehensive research plan provides the management system with a coherent and strategic approach to research across P1, P2 and P3, and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.
	Met?	**YES**	**YES**	**NO**
	Justification	The National Institute of Fisheries Research and Development (INIDEP) Resolution 133/2010 (page 57) establishes a research Demersal Austral and Sub-Antartic Finfish Fisheries Program (AUST)), to obtain information and knowledge in order to advice the Management System (www.inidep.edu.ar). Some lack of information may exist since the last research cruise. INIDEP technical information is sent immediately to Federal Fisheries Council and Undersecretary of Fisheries and Aquaculture. Also both organism receipt information of research groups from academic institutions different than INIDEP. A clear example is the PANs elaboration procedure that included workshops with all country public and civilian organizations interested on participate or especially invited. Some enterprises participating in the fishery participates in the Mark and Recapture INIDEP Program. Even the Research Plan and the stock assessment was considered appropriate for the fishery, it is not comprehensive in the ecosystem aspects. It could be recommended to incorporate more comprehensive and explicitly environmental based studies on the fishery interaction with the ecosystem, as well as generating discussion and information exchange instances between formal local research groups dealing with issues related to Patagonian Toothfish fishery and with on board observers program.		
b	**Guidepost**	Research results are available to interested parties.	Research results are disseminated to all interested parties in a timely fashion.	Research plan and results are disseminated to all interested parties in a timely fashion and are widely and publicly available.
	Met?	**YES**	**YES**	**YES**
	Justification	Research results are widely and publicly available (article 13° of Federal Fisheries Law 24.922) on INIDEP web site (www.inidep.edu.ar) in timely fashion and are disseminated to all interested parties after FFC is informed. Technical reports are sent to FFC who publish the title and number in their next meeting's minute (www.cfp.gob.ar). After that any person can request INIDEP for a copy. Other institutions different than INIDEP are free to realize their scientific foundings as they want. Law 25.831 guaranties the free access to public environment information.		

References	References are in the text.
OVERALL PERFORMANCE INDICATOR SCORE:	**90**
CONDITION NUMBER (if relevant):	**---**

Evaluation Table for PI 3.2.5

PI 3.2.5		**There is a system of monitoring and evaluating the performance of the fishery-specific management system against its objectives** **There is effective and timely review of the fishery-specific management system**		
Scoring Issue		**SG 60**	**SG 80**	**SG 100**
a	**Guidepost**	The fishery has in place mechanisms to evaluate some parts of the management system.	The fishery has in place mechanisms to evaluate key parts of the management system	The fishery has in place mechanisms to evaluate all parts of the management system.
	Met?	**YES**	**YES**	**YES**
	Justification	Key parts of the management system are subject to regular internal review from the Ministry of Agriculture, Livestock and Fishing – Internal Audit Unit and occasional external reviews from the National General Syndication, which depends on National Congress (Law 24.156/90), and the National General Auditory. Also, any decision of the administration affecting the rights of third parties requires a control and legal opinion prior to its sanction. Such control is carried out by a statutory body external to the agency that promotes the sanction of the rule. All this procedures are established by Administrative Procedure law 19.549 and its Regulatory Federal Decree N° 1759/72. All INIDEP reports have an internal review carried out by superior gerarchical instance priousluly to realse them. INIDEP also has an permanent delegation from the National General Syndication were a Biologist audits on a biannual basis the performance of all INIDEP Projects and Programs. The control is based on indicator previously designed for each of them (previos Fisheries Assessments interview). The Patagonian Toothfish Fishery Follow up Commission could be considered as a revision instance of the whole system (management, research and fishery), with the participation of companies, which are part of the fishery but external to the research and management system. On board inspectors should elaborate a fishing trip report, which is submitted to the DNCP to be reviewed by the Enforcement Authority to evaluate Their performance. Frequently workshops are conducted with all interest parties to analyze the issues prior to the decision-making, even when there are no so much records reporting the use of such methodology in Patagonian Toothfish fishery. However, the same is of current use of both the administration and research systems, so it can be used if necessary. Fishery statistics are also published in the web sites of the FFC and the Undersecretary of Fisheries and Aquaculture (SSPyA), like the positioning of fishing vessels, which is updated twice a day (www.minagri.gob.ar). The way in which FFC publishes its sessions and decisions, like the Publishing of the INIDEP reports, imply the opportunity for all the stakeholders to assess the system (see www.cfp.gob.ar and www.inidep.edu.ar).		

b	**Guidepost**	The fishery-specific management system is subject to occasional internal review.	The fishery-specific management system is subject to regular internal and occasional external review.	The fishery-specific management system is subject to regular internal and external review.
	Met?	**YES**	**YES**	**NO**
	Justification	See rational of SG 80 a).		
References		References are in the text.		
OVERALL PERFORMANCE INDICATOR SCORE:				**90**
CONDITION NUMBER (if relevant):				**---**

Appendix 1.2 Risk Based Framework (RBF) Outputs

The MSC RBF was used for the Patagonian toothfish assessment of aspects of this fishery where there was either insufficient information to allow the conventional assessment process to be used, or where there no reference points against which the fishery could be evaluated under the conventional performance indicators.

OIA was announced the RBF workshop in MSC website and newsletter to ensure that all stakeholders have invited. The workshop was held in August 2013. The participants are listed in the section 4.4.2.

Appendix 1.2.1 Scale Intensity Consequence Analysis (SICA)

Table 1.2.1.a SICA Scoring Template for PI 2.1.1 Retained Species

Trawl fishery:

Performance Indicator	Risk-causing activities from fishery under assessment	Spatial scale of activity	Temporal scale of activity	Intensity of activities	Relevant subcomponents	Consequence score	MSC Score
PRINCIPLE TWO: Retained Species Outcome **Species:** ***Bathyraja spp.***	•Fishing •Gear loss •Bait collection •Other identified risk-causing activities (please specify)	***2***	***3***	***3***	**Population size**		
					Reproductive capacity	***2***	***80***
					Age/size/sex structure		
					Geographic range		
Rationale for selecting worst plausible case scenario	During the RBF workshop, all stakeholders considered fishing itself as the most hazardous fishing activity. Most species were considered as retained species: Chondrichthyans species as *Dipturus chilensis*, Bathyraja sp and *Squalus acanthias*, Grenadier (*Macrourus holotrachys*), Small Grenadier (*Coelorinchus fasciatus*), Hoki (*Macrouronus magellanicus*), Southern blue whiting (*Micromesistus australis*), Austral hake (*Merluccius australis*), Creole cod (*Salilota australis*) and squid (*Illex argentinus*). For trawl fishery, Bathyraja sp. was considered the most vulnerable group and this genus are composed by: *B. albomaculata, B. brachyurops, B. macloviana, B. magellanica, B. griseocauda, B. scaphiops* and *B. cousseauae.* This vulnerability in Bathyraja is due to the trawl net is a non-selective gear. These species are listed as vulnerable at the IUCN International						

	Union for Conservation of Nature, and as well is in the National Action Plan for Chondrichthyes. It indicates an important diminution in the reproductive capacity of these species. Although there is variability in the population size attributed to the high mobility. Some species have commercial value and they are not discarded. The biological information of this group is low, and it varies among species. The percentages of total catch are low and represent the 5% of total Patagonian toothfish catch, but it is not possible to interpret the effect on the population sizes because there are no studies addressed to estimate them.
Rationale for Spatial scale of activity	Bathyraja spp. spread over the Continental Shelf and they have benthic habits. Overlapping with target stock distribution is low around 1-15%.
Rationale for Temporal scale of activity	Quotification system imposes less than 100 fishing days per year.
Rationale for Intensity of activity	The intensity is described as moderate detection of activity at broader spatial scale, or obvious but local detection. Accordingly with opinion of the Fishing Companies each haul trawl over the bottom for few minutes, and the fishing season extend from July to October, which suggests a moderate intensity of fishing. However, there are overlapping between operative are of the fleet and habitat of several Chondrichthyans.
Rationale for ch oosing most vulnerable sub-component	Bathyraja spp. is a group of species with different life history and vulnerability. It requires constant monitoring and accurate taxonomic identifying.
Rationale for Consequence score	Considering the spatial scale and the reduced time the fishing gear is in contact with the sea bottom, the consequences was judged as possible detectable change in reproductive capacity but minimal impact on population dynamics. The fishery operates in a region that has an extensive reserve system that was described in the report. The fishery is excluded from these reserves, effort is concentrated in a relatively small portion of Argentine Continental Platform, and thus at present impacts are expected to be limited in spatial extend even within the fished area and Bathyraja reproductive capacity. The fishing activity does not pose a risk of serious or irreversible harm to the reproductive capacity of Bathyraja sp and does not hinder recovery of these species. Expert opinions (SICA workshop and interviews) have indicated a minor risk equivalent to an MSC SICA score of 80 for Bathyraja species in the trawl fishery. Therefore the Assessment Team has accepted this result and scored consequently, *i.e* 80 for this unit of certification.

Trap fishery:

Performance Indicator	Risk-causing activities from fishery under assessment	Spatial scale of activity	Temporal scale of activity	Intensity of activities	Relevant subcomponents	Consequence score	MSC Score
PRINCIPLE TWO: Retained Species Outcome **Species:** ***Macrouridae spp.***	•Fishing •Gear loss •Bait collection •Other identified risk-causing activities (please specify)	***2***	***3***	***2***	**Population size**	***2***	***80***
					Reproductive capacity		
					Age/size/sex structure		
					Geographic range		
Rationale for selecting worst plausible case scenario	All stakeholders considered fishing itself as the most hazardous fishing activity. Most species were considered as retained species: Chondrichthyans species as *Dipturus chilensis*, Bathyraja sp and *Squalus acanthias*, Grenadier (*Macrourus holotrachys*), Small Grenadier (*Coelorinchus fasciatus*), Hoki (*Macrouronus magellanicus*), Southern blue whiting (*Micromesistus australis*), Austral hake (*Merluccius australis*), Creole cod (*Salilota australis*) and squid (*Illex argentinus*). For Trap fishery, *Macrouridae sp.* (*M. holotrachys* and *C. fasciatus*) were considered the most vulnerable. Catch data provided by INIDEP to the assessment team during the SICA workshop, inform that the average percentage catch of *Macrouridae sp*, over the years 2003-2012, in relaton to the total of the Patagonian toothfish are around 5%.						
Rationale for Spatial scale of activity	The distribution area of grenadiers is between 39ºS a 57ºS. It is a bati-demersal species living between 300 - 1400 m depth. Exist a low overlapping with trap fishing operations (between 1-15%).						

Rationale for Temporal scale of activity	The grenadiers are caught during the half of fishing trips. Temporale scale 1-100 days per year.
Rationale for Intensity of activity	There is no targeting fishing for this species. Activity occurs rarely or in few restricted locations and evidence of activity even at these scales is rare.
Rationale for choosing most vulnerable sub-component	Grenadiers are preyed by the southern hake (*Merluccius australis*) and Patagonian toothfish (*Dissostichus eleginoides*), various mammals and the deep shark inhabitant (*Notorhynchus cepedianus*). It is considered important in the food web of these species and explotation rates can affect their population size and trophic level.
Rationale for Consequence score	Considering the intensity scale of activities and the low overlapping with trap operations in comparison with total distribution area of grenadier, the consequences was judged as possible detectable change in size/growth rate (r) but minimal impact on population size and none on dynamics. The fishery operates in a region that has an extensive reserve system that was described in the report. The fishery is excluded from these reserves, effort is concentrated in a relatively small portion of Argentine Continental Platform, and thus at present impacts are expected to be limited in spatial extend even within the fished area and Macrouridae population size. The fishing activity does not pose a risk of serious or irreversible harm to the population size of Macrouridae sp and does not hinder recovery of these species. Even when the knowledge is not enough, the stakeholder participants do not presume that the stock is not severely affected by fishing. Expert opinions (SICA workshop and interviews) have indicated a minor risk equivalent to an MSC SICA score of 80 for Macrouridae species in the trap fishery. Therefore the Assessment Team has accepted this result and scored consequently, *i.e* 80 for this unit of certification.

Longline fishery:

Performance Indicator	Risk-causing activities from fishery under assessment	Spatial scale of activity	Temporal scale of activity	Intensity of activities	Relevant subcomponents	Consequence score	MSC Score
PRINCIPLE TWO: Retained Species Outcome **Species:** ***Macrouridae spp.***	•Fishing •Gear loss •Bait collection •Other identified risk-causing activities (please specify)	***2***	***3***	***3***	**Population size**	***2***	***80***
					Reproductive capacity		
					Age/size/sex structure		
					Geographic range		
Rationale for selecting worst plausible case scenario	All stakeholders considered fishing itself as the most hazardous fishing activity. Most species were considered as retained species: Chondrichthyans species as *Dipturus chilensis*, Bathyraja sp and *Squalus acanthias*, Grenadier (*Macrourus holotrachys*), Small Grenadier (*Coelorinchus fasciatus*), Hoki (*Macrouronus magellanicus*), Southern blue whiting (*Micromesistus australis*), Austral hake (*Merluccius australis*), Creole cod (*Salilota australis*) and squid (*Illex argentinus*). For Longline fishery, Macrouridae sp. (*M. holotrachys* and *C. fasciatus*) were considered the most vulnerable. Catch data provided by INIDEP to the assessment team during the SICA workshop, inform that the average percentage catch of *Macrouridae sp*, over the years 2003-2012, in relaton to the total of the Patagonian toothfish are around 10%.						
Rationale for Spatial scale of activity	The distribution area of grenadiers is between 39ºS a 57ºS. It is a bati-demersal species living between 300 - 1400 m depth. Exist a low overlapping with trap fishing operations (between 1-15%).						
Rationale for Temporal scale of activity	The species are caught in 30% of fishing trips. Temporale scale 1-100 days per year.						

Rationale for Intensity of activity	There is no longlining fishing targeting to these species. Moderate detection of activity at broader spatial scale, or obvious but local detection.
Rationale for choosing most vulnerable sub-component	Grenadiers are preyed by the southern hake (*Merluccius australis*) and Patagonian toothfish (*Dissostichus eleginoides*), various mammals and the deep shark inhabitant (*Notorhynchus cepedianus*). It is considered important in the food web of these species and explotation rates can affect their population size and trophic level.
Rationale for Consequence score	Considering the intensity scale of activities and the low overlapping with trap operations in comparison with total distribution area of grenadier, the consequences was judged as possible detectable change in size/growth rate (r) but minimal impact on population size and none on dynamics. The fishery operates in a region that has an extensive reserve system that was described in the report. The fishery is excluded from these reserves, effort is concentrated in a relatively small portion of Argentine Continental Platform, and thus at present impacts are expected to be limited in spatial extend even within the fished area and Macrouridae population size. The fishing activity does not pose a risk of serious or irreversible harm to the population size of Macrouridae sp and does not hinder recovery of these species. Even when the knowledge is not enough, the stakeholder participants do not presume that the stock is not severely affected by fishing. Expert opinions (SICA workshop and interviews) have indicated a minor risk equivalent to an MSC SICA score of 80 for Macrouridae species in the longline fishery. Therefore the Assessment Team has accepted this result and scored consequently, *i.e* 80 for this unit of certification.

Table 1.2.1.b Scoring Template for PI 2.2.1 Bycatch Species

Trawl fishery:

Performance Indicator	Risk-causing activities from fishery under assessment	Spatial scale of activity	Temporal scale of activity	Intensity of activities	Relevant subcomponents	Consequence score	MSC Score
PRINCIPLE TWO: Bycatch Species Outcome **Species:** ***Lamna nasus***	•Fishing •Gear loss •Bait collection • Other identified risk-causing activities (please specify)	***2***	***3***	***3***	**Population size**		
					Reproductive capacity	***2***	***80***
					Age/size/sex structure		
					Geographic range		
Rationale for selecting worst plausible case scenario	All stakeholders considered fishing itself as the most hazardous fishing activity. The bycatch species in the Patagonian toothfish fishery are: *Lamna nasus*, juveniles of *D. eleginoides* and others species specified in Table 7. Porbeagle is longevous, great size and late fisrt spawner species. This shark is a placental viviparous with oophagy, developing embryos being retained within the mother's uterus and subsisting on non-viable eggs. The reproductive complexity and life history features define Porbealge o mackerel shark as the most sensitive species affected by trawl fishery.						
Rationale for Spatial scale of activity	The activity of trawler with the stock of *Lamna nasus* is low (1-15%).						

Rationale for Temporal scale of activity	Quotification system imposes less than 100 fishing days per year.
Rationale for Intensity of activity	Moderate detection of activity at broader spatial scalem or obvious but local detection. The overlapping between spatial distribution of the fleet and the stock, and the time windows act together to define the probability of encountered. It was assumed that it is proportional to intensity.
Rationale for choosing most vulnerable sub-component	*Lamna nasus* is great size shark which has the first sexual maturity at length of 1.6–1.8 m and an age of 6–11 years, and females at a length of 2.0–2.2 m and an age of 12–18 years. It supposes that trawl net could catch individual below the size-at-maturity, and it affect the reproductive capacity.
Rationale for Consequence score	Consequence was defined with an empirical basis in the records of OBOs of the porbeagle in the fishery, and reported by Wesle & Cortés (2011). Possible detectable change in reproductive capacity but minimal impact on population dynamics. The fishery operates in a region that has an extensive reserve system that was described in the report. The fishery is excluded from these reserves, effort is concentrated in a relatively small portion of Argentine Continental Platform, and thus at present impacts are expected to be limited in spatial extend even within the fished area. The fishing activity does not pose a risk of serious or irreversible harm to the reproductive capacity of *Lamna nasus* and does not hinder recovery of these species.

Trap fishery:

Performance Indicator	Risk-causing activities from fishery under assessment	Spatial scale of activity	Temporal scale of activity	Intensity of activities	Relevant subcomponents	Consequence score	MSC Score
PRINCIPLE TWO: Bycatch Species Outcome	•Fishing •Gear loss •Bait collection • Other identified risk-causing activities (please specify)	***1***	***2***	***2***	**Population size**		
					Reproductive capacity	***2***	***80***
Species:							
Lamna nasus					**Age/size/sex structure**		
					Geographic range		
Rationale for selecting worst plausible case scenario	For trap fishery, all stakeholders considered gear loss as the most hazardous fishing activity, because lost or abandoned of gears on the seabed cause ghost fishing. The bycatch species in the Patagonian toothfish fishery are: *Lamna nasus*, juveniles of *D. eleginoides* and others species specified in Table 7. Porbeagle is longevous, great size and late fisrt spawner species. This shark is a placental viviparous with oophagy, developing embryos being retained within the mother's uterus and subsisting on non-viable eggs. The reproductive complexity and life history features define Porbealge o mackerel shark as the most sensitive species affected by the fishery.						
Rationale for Spatial scale of activity	The activity of trap fleet over the stock of *Lamna nasus* is high likely low (less than 1%)						
Rationale for Temporal scale of activity	The activity of the trap fishery is low, including absence of fishing during one year.						

Rationale for Intensity of activity	Porbeagle catch with trap occurs rarely or in few restricted locations. There are only anecdotical records of catches of porbeagle.
Rationale for choosing most vulnerable sub-component	*Lamna nasus* is a great size sherk which have the first sexual maturity at length of 1.6–1.8 m and an age of 6–11 years, and females at a length of 2.0–2.2 m and an age of 12–18 years. It supposes that any catch can affect the reproductive capacity.
Rationale for Consequence score	Consequence was defined with an empirical basis. The records of activity over this population are rare. Possible detectable change in reproductive capacity but minimal impact on population dynamics. The fishery operates in a region that has an extensive reserve system that was described in the report. The fishery is excluded from these reserves, effort is concentrated in a relatively small portion of Argentine Continental Platform, and thus at present impacts are expected to be limited in spatial extend even within the fished area. The gear loss does not pose a risk of serious or irreversible harm to the reproductive capacity of *Lamna nasus* and does not hinder recovery of these species.

Longline fishery:

Performance Indicator	Risk-causing activities from fishery under assessment	Spatial scale of activity	Temporal scale of activity	Intensity of activities	Relevant subcomponents	Consequence score	MSC Score
PRINCIPLE TWO: Bycatch Species Outcome **Species:** ***Lamna nasus***	• Fishing • Gear loss • Bait collection • Other identified risk-causing activities (please specify)	***2***	***3***	***2***	**Population size**		
					Reproductive capacity	***2***	***80***
					Age/size/sex structure		
					Geographic range		
Rationale for selecting worst plausible case scenario	For longline fishery, all stakeholders considered fishing itself as the most hazardous fishing activity. The bycatch species in the Patagonian toothfish fishery are: *Lamna nasus*, juveniles of *D. eleginoides* and others species specified in Table 7. Chondrichthyans have biological characteristics that make particularly vulnerable to overfishing but are captured in modest quantities in the toothfish fishery. Porbeagle is longevous, great size and late first spawner shark species. This shark is aplacental viviparous with oophagy, developing embryos being retained within the mother's uterus and subsisting on non-viable eggs. The reproductive complexity and life history features define Porbealge o mackerel shark as the most sensitive species affected by the fishery.						
Rationale for Spatial scale of activity	Spatial scale is around 1-15%. Some management measures include prohibition of operation of longlines shallower than 800 m.						
Rationale for Temporal scale of activity	The fishing activity is extended from August to November implying more around 100 days per year.						

Rationale for Intensity of activity	Available document describe the impact of this and other longline fisheries on porbeagle is minor. Activity occurs rarely or in few restricted locations and evidence of activity eve at these scales is rare.
Rationale for choosing most vulnerable sub-component	*Lamna nasus* is a great size sherk which have the first sexual maturity at length of 1.6–1.8 m and an age of 6–11 years, and females at a length of 2.0–2.2 m and an age of 12–18 years. It supposes that any catch can affect the reproductive capacity.
Rationale for Consequence score	Changes in the reproductive capacity can occur but with low intensity and their consequences could be minimal impact on population dynamics. The fishery operates in a region that has an extensive reserve system that was described in the report. The fishery is excluded from these reserves, effort is concentrated in a relatively small portion of Argentine Continental Platform, and thus at present impacts are expected to be limited in spatial extend even within the fished area. The fishing activity does not pose a risk of serious or irreversible harm to the reproductive capacity of *Lamna nasus* and does not hinder recovery of these species.

Table 1.2.1.c Scoring Template for PI 2.4.1 Habitats

Trawl fishery:

Performance Indicator	Risk-causing activities from fishery under assessment	Spatial scale of activity	Temporal scale of activity	Intensity of activities	Relevant subcomponents	Consequence score	MSC Score
PRINCIPLE TWO: Habitats Outcome	• Fishing • Gear loss • Bait collection • Anchoring/mooring • Other identified risk-causing activities (please specify) Habitats disturbance	***3***	***3***	***4***	**Habitat types**		
Habitat:							
Benthic with associated fauna					**Habitat structure and function**	***3***	***60***
Rationale for selecting worst plausible case scenario	Different types of benthic area are explained elsewhere in the report (Background of Principle 2). There is a special fragile type of habitat rich in cold water corals. Benthic impacts are caused mainly by bottom trawl operations. The disturbance produced by the trawl net is due to the mechanic effects of the "drivetrain with balls" over the rocky seafloor, which can have shelters for the benthic organisms.						
Rationale for Spatial scale of activity	Generic information to describe the effect of the fishing method on benthic habitats is not available. Some data are available to describe the broad distribution of these habitats relative to fishing grounds, but this might not be adequate to support an analysis of the impact of the fishery on ecosystems. The RBF determined that the relationship between fishery and benthic habitats affected occurs at small scale, related with area of the fishery because the area swept by haul is small and the fleet spread over a large area. However, the absence of knowledge						

	about the benthic habitat and ecosystem enable the diagnostic analysis.
Rationale for Temporal scale of activity	Even when trawling time is reduced (no more than 3 minutes since the net is affective over the seafloor) the fishing operations are done during the several months.
Rationale for Intensity of activity	Detectable evidence of activity occurs reasonably often at broad spatial scale; it could be locally important due to repetitive fishing actions over a small area.
Rationale for choosing most vulnerable sub-component	The injury produced by the trawl net on the rocky bottom could be important affecting some benthic species, but there are no studies on it.
Rationale for Consequence score	Impact reduces habitat structure and function. For impacts on non-fragile habitat structure, this may be for up to 50% of habitat affected, but for more fragile habitats, to stay in this category the percentage area affected needs to be smaller-up to 20%. The magnitude of impact is not been yet determined. As precautionary approach, stakeholders score consequence 3 even if the impact is in a very small area. A condition of certification of this PI was placed.

Trap fishery:

Performance Indicator	Risk-causing activities from fishery under assessment	Spatial scale of activity	Temporal scale of activity	Intensity of activities	Relevant subcomponents	Consequence score	MSC Score
PRINCIPLE TWO: Habitats Outcome **Habitat:** ***Benthic and demersal***	• Fishing • Gear loss • Bait collection • Anchoring/mooring • Other identified risk-causing activities (please specify)	***1***	***3***	***2***	**Habitat types**		
					Habitat structure and function	***2***	***80***
Rationale for selecting worst plausible case scenario	Different types of benthic area are explained elsewhere in the report (Background of Principle 2). There is a special fragile type of habitat rich in cold water corals. All stakeholders considered gear loss as the most hazardous fishing activity, because lost or abandoned of gears on the seabed cause ghost fishing.						
Rationale for Spatial scale of activity	The activity can occur in all the fishing area, but the participants consider than it can affect less than 1% because it is occasional						
Rationale for Temporal scale of activity	The activity can occur during the fishing activity, i.e. between 1 – 100 days per year						
Rationale for Intensity of activity	Currently, the activity does not occur. Anyhow, fishing operations were observed only in a small part of the total area, but with high frequency (around 5 % of the total traps used during a fishing season).						
Rationale for choosing most vulnerable sub-	The more vulnerable sub-components are benthos and fishes caught by ghost fishing. Incidental catches and physical impacts are considered as						

component	the main deleterious actions.
Rationale for Consequence score	Detectable impact on habitat structure and function. Time to recover from impact on the scale up to one year regardless of spatial scale. Participants consider that the impact result of a set of compensatory effects. Even when the impact could be high, the spatial scale is reduced affecting a small part of the populations involved. On the other hand, the degradation time of lost traps is long lasting. If some degradable device could be introduced the effect of ghost fishing could be negligible. The gear loss does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis, and function.

Longline fishery:

Performance Indicator	Risk-causing activities from fishery under assessment	Spatial scale of activity	Temporal scale of activity	Intensity of activities	Relevant subcomponents	Consequence score	MSC Score
PRINCIPLE TWO: Habitats Outcome **Habitat:** ***Seabed***	• Fishing • Gear loss • Bait collection • Anchoring/mooring • Other identified risk-causing activities (please specify)	***2***	***3***	***2***	**Habitat types**		
					Habitat structure and function	***2***	***80***
Rationale for selecting worst plausible case scenario	Different types of benthic area are explained elsewhere in the report (Background of Principle 2). There is a special fragile type of habitat rich in cold water corals. Deleterious effects on benthic fauna.						

Rationale for Spatial scale of activity	Fishing operations overlap about 10 % with the area of the stock.
Rationale for Temporal scale of activity	Participants considered 1-100 days of fishing over the two zones (between 43º - 47ºS, and south of 47ºS).
Rationale for Intensity of activity	Considering that longlining do not produce ghost fishing, the interaction with the benthos is restricted to physical contact with the seafloor and its biotic components. The activity occurs in a relatively reduced area with moderate frequency.
Rationale for choosing most vulnerable sub-component	Benthic communities were considered as the most affected by the activity.
Rationale for Consequence score	Detectable impact on habitat structure and function. Time to recover from impact on the scale up to one year regardless of spatial scale. Even when the impact would be minor, if the longline is lost, its degradation is longlasting. The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis, and function.

Table 1.2.1.d Scoring Template for PI 2.5.1 Ecosystem

Trawl fishery:

Performance Indicator	Risk-causing activities from fishery under assessment	Spatial scale of activity	Temporal scale of activity	Intensity of activities	Relevant subcomponents	Consequence score	MSC Score
PRINCIPLE TWO: Ecosystem Outcome	•Fishing •Gear loss •Bait collection •Other identified risk-causing activities (please specify)	***3***	***3***	***4***	**Species composition**		
					Functional group composition	***3***	**60**
					Distribution of the community		
					Trophic size/structure		
Rationale for selecting worst plausible case scenario	The disturbance produced by the trawl net is due to the mechanic effects of the "drivetrain with balls" over the rocky seafloor, which can have shelters for the benthic and demersal species.						
Rationale for Spatial scale of activity	Generic information to describe the effect of the fishing method on benthic habitats is not available. Some data are available to describe the broad distribution of these habitats relative to fishing grounds, but this might not be adequate to support an analysis of the impact of the fishery on ecosystems. The RBF determined that the relationship between fishery and benthic habitats affected occurs at small scale, related with area of the fishery because the area swept by haul is small and the fleet spread over a large area. However, the absence of knowledge about the benthic habitat and ecosystem enable the diagnostic analysis.						

Rationale for Temporal scale of activity	Even when trawling time is reduced (no more than 3 minutes since the net is affective over the seafloor) the fishing operations are done during the several months.
Rationale for Intensity of activity	Detectable evidence of activity occurs reasonably often at broad spatial scale; it could be locally important due to repetitive fishing actions over a small area.
Rationale for choosing most vulnerable sub-component	The injury produced by the trawl net on the rocky bottom could be important affecting some benthic species, but there are no studies on it. Some participants consider that the absence of information impede the use of RBF in this issue.
Rationale for Consequence score	Changes in relative abundance of community, up to 10% chance of flipping to an alternate state/trophic cascade. A condition of certification of this PI was placed.

Trap fishery:

Performance Indicator	Risk-causing activities from fishery under assessment	Spatial scale of activity	Temporal scale of activity	Intensity of activities	Relevant subcomponents	Consequence score	MSC Score
PRINCIPLE TWO: Ecosystem Outcome	•Fishing •Gear loss •Bait collection •Other identified risk-causing activities (please specify) Ghost fishing	***2***	***3***	***1***	**Species composition**	**2**	**80**
					Functional group composition		
					Distribution of the community		
					Trophic size/structure		
Rationale for selecting worst plausible case scenario	Ghost fishing was chosen because during the previous years there are evidence of lost traps continued working due to their escape windows were annulled.						
Rationale for Spatial scale of activity	The activity can occur in all the fishing area, but the participants consider than it can affect less than 1% because it is occasional.						
Rationale for Temporal scale of activity	The activity can occur during the fishing activity, i.e. between 1 – 100 days per year						
Rationale for Intensity of activity	Participants consider that the impact result of a set of compensatory effects. Even when the impact could be high and the degradation time of lost traps is long lasting, the spatial scale is reduced affecting a small part of the populations involved. The ecosystem components could not be affected but it needs to be studied.						

Rationale for choosing most vulnerable sub-component	The more vulnerable sub-components are benthos and fish composition caught by ghost fishing. Incidental catches and physical impacts are considered as the main deleterious actions.
Rationale for Consequence score	Impacted species do not play a keystone role (including trophic cascade impact) – only minor changes in relative abundance of other constituents. Changes of species composition up to 5%. Time to recover from impact up to five years. Participants consider that the impact result of a set of compensatory effects. Even when the impact could be high, the spatial scale is reduced affecting a small part of the populations involved. Moreover, the degradation time of lost traps is long lasting. However, observed changes are not enough to be distinguishable from those that occur naturally. The gear loss does not cause serious or irreversible harm to the key elements of ecosystem structure and function.

Longline fishery:

Performance Indicator	Risk-causing activities from fishery under assessment	Spatial scale of activity	Temporal scale of activity	Intensity of activities	Relevant subcomponents	Consequence score	MSC Score
PRINCIPLE TWO: Ecosystem Outcome	•Fishing •Gear loss •Bait collection •Other identified risk-causing activities (please specify)	***2***	***3***	***2***	**Species composition**	***2***	***80***
					Functional group composition		
					Distribution of the community		
					Trophic size/structure		

Rationale for selecting worst plausible case scenario	Removal of fish components of the ecosystem could be the main effect, but there are no studies to support this hypothesis
Rationale for Spatial scale of activity	Fishing operations overlap about 10 % with the area of the stock
Rationale for Temporal scale of activity	Participants considered 1-100 days of fishing over the two zones (between 43º - 47ºS, and south of 47ºS).
Rationale for Intensity of activity	Activity occurs rarely or in few restricted locatons and evidence of activity even at these scales is rare.
Rationale for choosing most vulnerable sub-component	Composition of ichtycs species important in the food web.
Rationale for Consequence score	Impacted species do not play a keystone role (including trophic cascade impact) – only minor changes in relative abundance of other constituents. Changes of species composition up to 5%. Time to recover from impact up to five years. Trophic relationship could be affected by the removal of fishes from the ecosystem. The temporal and spatial scales of the activity are moderate, but the local depletion of some of the affected populations have unknown consequences. The fishery does not cause serious or irreversible harm to the key elements of ecosystem structure and function.

Appendix 1.2.2 Productivity Susceptibility Analysis (PSA)

All of the Scale Intensity Consequence Analysis (SICA) scores exceed 80 in PIs 2.1.1 and 2.2.1. There is therefore no need to carry out any Productivity Suceptibility Analysis (PSA) for any of the Performance Indicators assessed using the RBF.

Appendix 1.3 Conditions

The assessment team has set 6 conditions of certification that the client group is required to address for Performances Indicators (PIs) that were scoring below 80. The conditions are applied to improve performance to at least the 80 level within a timescale set by Organización International Agropecuaria (OIA) and within the valid life of the certificate (5 years).

The client must develop an "Action Plan" for meeting the conditions for continued certification; the action plan will be approved by OIA. The client group provides a preface to their action plan which is included here:

Table 12. *Condition 1*

Performance Indicator	PI 1.1.2 Limit and target reference point are appropriate for the stock
Score	75
Rationale	See rationale in Appendix 1.1
Condition	By the fourth surveillance audit, evidence must be presented that shows that the target reference point is such that the stock is maintained at a level consistent with B_{MSY} or some measure or surrogate with similar intent or outcome.
Milestones	**By the first annual audit, provide documented evidence that:** o Target and limit reference points have been reviewed and outlined. o The stock status is assessed against the target and limit reference points. PI scores 75. **By the second annual audit, provide documented evidence that:** o Target and limit reference points have been agreed upon and are explicit in the management plan for the fishery. o Harvest control rules have been formally defined. PI scores 75. **Before the fourth annual audit, provide documented evidence that:** o Target reference point is such that the stock is maintained at a level consistent with B_{MSY} or measure or surrogate with similar intent or outcome. PI scores 80+.
Client action plan	See below.
Consultation on condition	The relevant researchers and government officials have been consulted and agree that these actions (see agreement below). They have committed to assist the fishery in undertaking the actions specified in the action plan.

Table 13. *Condition 2*

Performance Indicator	**PI 1.2.3 Relevant information is collected to support the harvest strategy**
Score	65
Rationale	See rationale in Appendix 1.1
Condition	By the fourth surveillance audit, sufficient relevant information related to stock structure, stock productivity, fleet composition and other data are required to support the harvest strategy. The stock abundance and fishery removals shall be regularly monitored at a level of accuracy and coverage consistent with the harvest control rules, and one or more indicators is required and monitored with sufficient frequency to support the harvest control rules.
Milestones	**By the first annual audit, provide documented evidence that:** o Methods of developing an alternative index of adult stock abundance have been proposed. o The feasibility of developing a standardised CPUE index from the target trawl fishery has been investigated. o Methods to investigate stock structure and to estimate the degree of mixing of toothfish populations between the Southwest Atlantic and Southeast Pacific are defined. PI scores 65. **By the second annual audit, provide documented evidence that:** o The results of tagging program including feasibility of use in monitoring adult abundance are available. o Unaccounted mortality from the stock, including marine mammal depredation of toothfish from longline, lost gear, catch and discards from non-target trawl fishery (and their size distribution) has been reviewed. PI scores 65. **By the third annual audit, provide documented evidence that:** o Alternative methods of monitoring adult toothfish abundance have been evaluated and agreed. o Further work has been completed on determining stock structure and the degree of mixing between the South Atlantic and South Pacific populations. PI scores 65. **By the fourth annual audit, provide documented evidence that:** o The results of new adult abundance index have been tested in the stock assessment. o Final conclusions have been reached on stock structure and the degree of mixing between the South Atlantic and South Pacific populations has been

	estimated. o Estimates of other unaccounted mortality from the stock, including marine mammal depredation of toothfish from longline, lost gear, catch and discards from non-target trawl fishery (and their size distribution) are used in the stock assessment. o Provide sufficient relevant information related to stock structure, stock productivity, fleet composition and other data to support the harvest strategy. o The stock abundance and fishery removals shall be regularly monitored at a level of accuracy and coverage consistent with the harvest control rules, and one or more indicators is required and monitored with sufficient frequency to support the harvest control rules. PI scores 80.
Client action plan	See below.
Consultation on condition	The relevant researchers and government officials have been consulted and agree that these actions (see agreement below). They have committed to assist the fishery in undertaking the actions specified in the action plan.

Table 14. *Condition 3*

Performance Indicator	**PI 2.4.1 The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis, and function.**
Score	Trawl Fishery: 60 by SICA
Rationale	See rationale in Appendix 1.1 and Appendix 1.2
Condition	By the fourth surveillance audit, for trawl fishery, present evidence demonstrating that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.
Milestones	**By the first annual audit, provide documented evidence that:** o A protocol to collect fishery information on benthic organisms has been designed and it is ongoing. PI 2.4.1 scores 60. **By the second annual audit, provide documented evidence that:** o Description of types of habitat in the area where the fishery occurs has been done. PI 2.4.1 scores 60. **By the third annual audit, provide documented evidence that:** o The nature, distribution and vulnerability of habitat have been studied and it can be documented in technical reports or scientific papers. PI 2.4.1 scores 60.

	By the fourth annual audit, provide documented evidence that: o The strategy to reduce the impact is being implemented successfully and is highly unlikely that the fishery reduce the habitat structure and function. o Evidence is available demonstrating that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm. PI 2.4.1 scores 80.
Client action plan	See below.
Consultation on condition	The relevant researchers and government officials have been consulted and agree that these actions (see agreement below). They have committed to assist the fishery in undertaking the actions specified in the action plan.

Table 15. *Condition 4*

Performance Indicator	**PI 2.4.2 There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types.**
Score	75
Rationale	See rationale in Appendix 1.1
Condition	By the fourth surveillance audit, develop some objective basis for confidence that the partial strategy will work, based on information directly about the fishery and/or habitats involved.
Milestones	**By the first annual audit, provide documented evidence that:** o Identify harvest activities which pose a risk of serious or irreversible harm to habitat types. o Provide documented description of localization and magnitude of the impact of the fishing effort on toothfish, against the scale of impact through operational data from commercial vessels. PI 2.4.2 scores 75. **By the second annual audit, provide documented evidence that:** o A preliminary survey with description of risk of serious or irreversible harm to habitat where the fishery occurs has been done. PI 2.4.2 scores 75. **By the third annual audit, provide documented evidence that:** o A strategy for managing risk of impact of each fishery on habitat has been designed and documented in technical reports. PI 2.4.2 scores 75.

	By the fourth annual audit, provide documented evidence that: o Initial assessment of data; identification and estimation of possible risk of serious or irreversible harm to habitat types. o Some objective basis for confidence that the partial strategy will work, based on information directly about the fishery and/or habitats involved. PI 2.4.2 scores 80.
Client action plan	See below.
Consultation on condition	The relevant researchers and government officials have been consulted and agree that these actions (see agreement below). They have committed to assist the fishery in undertaking the actions specified in the action plan.

Table 16. *Condition 5*

Performance Indicator	**PI 2.4.3 Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types.**
Score	75
Rationale	See rationale in Appendix 1.1
Condition	By the fourth surveillance audit, sufficient data are available to allow nature of the impacts of the fishery on habitat types to be identified and there is reliable information on the spatial extend of interaction and the timing and location of use of fishing gear.
Milestones	**By the first annual audit, provide documented evidence that:** o Identify nature of the impacts of the fishery on habitat types and the spatial extent of interaction and the timing and location of use of fishing gear. PI 2.4.3 scores 75. **By the second annual audit, provide documented evidence that:** o Continue with data collection. PI 2.4.3 scores 75. **By the third annual audit, provide documented evidence that:** o Description of the nature of the impacts of the fishery on habitat types and the spatial extent of interaction and the timing and location of use of fishing gear have been documented in technical reports or scientific papers. PI 2.4.3 scores 75. **By the fourth annual audit, provide documented evidence that:** o Conclusive information have been available to allow nature of the impacts of the fishery on habitat types to be identified Reliable information on the spatial extents of interaction and the timing and location of use of fishing gear have been described and documented.

	PI 2.4.3 scores 80.
Client action plan	See below.
Consultation on condition	The relevant researchers and government officials have been consulted and agree that these actions (see agreement below). They have committed to assist the fishery in undertaking the actions specified in the action plan.

Table 17. *Condition 6*

Performance Indicator	**PI 2.5.1. The fishery does not cause serious or irreversible harm to the key elements of ecosystem structure and function.**
Score	Trawl Fishery: 60 by SICA
Rationale	See rationale page Appendix 1.1 and Appendix 1.2
Condition	By the fourth surveillance audit, for trawl fishery, present evidences demonstrating that the fishery is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.
Milestones	**By the first and second annual audits, provide documented evidence that:** o Provide a preliminary analysis of the information on trophic structure and function, community composition, productivity pattern and biodiversity. PI 2.5.1 scores 60. **By the third annual audit, provide documented evidence that:** o Trophic structure in the fishing area can be documented in technical reports and scientific papers. o A complete list of faunistic components of the communities that are present in the fishing area (specially in benthic environment) is available o A strategy to evaluate the effect of fishing on these ecosystem components is on going. PI 2.5.1 scores 60. **By the fourth annual audit, provide documented evidence that:** o The fishery is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm. PI 2.5.1 scores 80.
Client action plan	See below.
Consultation on condition	The relevant researchers and government officials have been consulted and agree that these actions (see agreement below). They have committed to assist the fishery in undertaking the actions specified in the action plan.

EstreMar S.A. ARGENOVA S.A. PESANTAR San Arawa

CLIENT ACTION PLAN

Reported submitted by :-
- Marcelo González, ESTREMAR S.A.
- Jaime Pérez Pena, ARGENOVA S.A.
- Daniel Rivera, EMPRESA PESQUERA DE LA PATAGONIA Y ANTÁRTIDA S.A.
- Eduardo S. González Lemmi, SAN ARAWA S.A.

Action Plan prepared by : Client Group and INIDEP.

Date : June 25th, 2014.

The assessment team has set 6 conditions of certification that the client group is required to address for Performances Indicators (PIs) that were scoring below 80. The conditions are applied to improve performance to at least the 80 level within a timescale set by Organización International Agropecuaria (OIA) and within the valid life of the certificate (5 years).

The client must develop an "Action Plan" for meeting the conditions for continued certification; the action plan will be approved by OIA. The client group provides a preface to their action plan which is included here:

Condition 1

Performance Indicator	PI 1.1.2 Limit and target reference point are appropriate for the stock
Score	75
Rationale	See rationale in Appendix 1.1
Condition	By the fourth surveillance audit, evidence must be presented that shows that the target reference point is such that the stock is maintained at a level consistent with B_{MSY} or some measure or surrogate with similar intent or outcome.
Milestones	**By the first annual audit, provide documented evidence that:** o Target and limit reference points have been reviewed and outlined. o The stock status is assessed against the target and limit reference points. PI scores 75. **By the second annual audit, provide documented evidence that:** o Target and limit reference points have been agreed upon and are explicit in the management plan for the fishery. o Harvest control rules have been formally defined. PI scores 75. **Before the fourth annual audit, provide documented evidence that:** o Target reference point is such that the stock is maintained at a level consistent with B_{MSY} or measure or surrogate with similar intent or outcome. PI scores 80+.

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Client action plan	Year 1: We will provide documented evidence that: - There are options for target and limit reference points. - The stock status is assessed against the limit reference point. Annual stock assessment will be carried out to estimate the biomass using a Biomass Age-Structured Production Model (ASPM). The stock status wil be assessed against the limit reference point and the probability that the current SSB is below the limit reference point is computing. Reference biological point (RBP) for the Patagonian toothfish being exploited will be considered as the level of the reproductive biomass (RB) which permits a long-term sustainable exploitation. The target reference point used is the one that relates reproductive biomass at the beginning (VRB) with current biomass. Using three different management objectives: 20%, 30% of current BR regarding the BRV, and maintain current BR similar at last year. During the first year we will work in migrating the model from an Excel platform to an ADM Builder platform. We have already trained our scientist with IFOP (Chile) experts. This new platform will allow better biomass estimations, and also to explore new RP comparable to RMS. Year 2: We will provide documented evidence that: - Target and limit reference points have been agreed upon and are explicit in the fisheries management plan. A workshop will be perfomed to review the limit reference points and make recommendations on this issue. Year 3 and 4: We will provide documented evidence that: - The target reference points is such that the stock is maintained at a level consistent with BMSY or surrogates with similar intent or outcome.
Material requested and methodology (if applicable)	Not applicable.
Who will address the condition	INIDEP, leaded by the scientist Lic. Patricia Martinez.

Condition 2

Performance Indicator	PI 1.2.3 Relevant information is collected to support the harvest strategy
Score	65
Rationale	See rationale in Appendix 1.1
Condition	By the fourth surveillance audit, sufficient relevant information related to stock structure, stock productivity, fleet composition and other data are required to support the harvest strategy. The stock abundance and fishery removals shall be regularly monitored at a level of accuracy and coverage consistent with the harvest control rules.

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	and one or more indicators is required and monitored with sufficient frequency to support the harvest control rules.
Milestones	**By the first annual audit, provide documented evidence that:** o Methods of developing an alternative index of adult stock abundance have been proposed. o The feasibility of developing a standardized CPUE index from the target trawl fishery has been investigated. o Methods to investigate stock structure and to estimate the degree of mixing of toothfish populations between the Southwest Atlantic and Southeast Pacific are defined. PI scores 65. **By the second annual audit, provide documented evidence that:** o The results of tagging program including feasibility of use in monitoring adult abundance are available. o Unaccounted mortality from the stock, including marine mammal depredation of toothfish from longline, lost gear, catches and discards from non-target trawl fishery (and their size distribution) has been reviewed. PI scores 65. **By the third annual audit, provide documented evidence that:** o Alternative methods of monitoring adult toothfish abundance have been evaluated and agreed. o Further work has been completed on determining stock structure and the degree of mixing between the South Atlantic and South Pacific populations. PI scores 65. **By the fourth annual audit, provide documented evidence that:** o The results of new adult abundance index have been tested in the stock assessment. o Final conclusions have been reached on stock structure and the degree of mixing between the South Atlantic and South Pacific populations has been estimated. o Estimates of other unaccounted mortality from the stock, including marine mammal depredation of toothfish from longline, lost gear, catch and discards from non-target trawl fishery (and their size distribution) are used in the stock assessment. o Provide sufficient relevant information related to stock structure, stock productivity, fleet composition and other data to support the harvest strategy. o The stock abundance and fishery removals shall be regularly monitored at a level of accuracy and coverage consistent with the harvest control rules, and one or more indicators is required and monitored with sufficient frequency to support the harvest control rules. PI scores 80.

EstreMar S.A. ARGENOVA S.A. PESANTAR San Arawa

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Client action plan	Year 1: We will provide documented evidence that: - There is a proposal of methods to develop an alternative index of adult stock abundance. - There are investigations on the feasibility of developing a standardized CPUE index from this fishery. - There has been discussion of methods to estimate the degree of mixing of toothfish populations between the Southwest Atlantic and Southeast Pacific. A method will be defined. The diagnosis of the toothfish catch is held annually and CPUE from the longline fleet is used as a representative index of abundance. However, to improve the estimate of the index we will perform a workshop to analyze existing information to develop an indicator that reflects the state of the adult fraction, and to consider the feasibility of constructing an index considering the trawler fleet operating on the resource. In addition, a workshop with Chilean colleges will be done to analyze the operating fleet of both countries and the feasibility of developing a common index of abundance. Year 2: We will provide documented evidence that: - There has been a review and analyses of results of tagging program and explore feasibility of using a tagging program to monitor adult abundance. - There is a review of other unaccounted mortality from the stock, including marine mammal depredation of toothfish from longline, lost gear, catch and discards from non-target trawl fishery (and their size distribution). The possibility of using information from the tagging program as an index of abundance will be analyzed in a workshop with researchers from the National University of Mar del Plata, IFO (Chile). The purpose of the workshop will be specially to analyze all the factors that affect the correct estimations of the abundance index and natural mortality. Year 3: We will provide documented evidence that: - Alternative methods of monitoring adult toothfish abundance have been evaluated and agreed. - There are advances in determining the degree of mixing between the South Atlantic and South Pacific populations. After analyzing the results obtained from the different workshops in relation to considering adult abundance indices and particularly to know the degree of mixing between the stocks present in Argentina and Chile we will advance on doing joint Chilean-Argentinean abundance estimations. Year 4: We will provide documented evidence that: - The results of the new adult abundance index have been tested in the stock assessment. - A reasonable conclusion has been reached on the degree of mixing between the South Atlantic and South Pacific populations.

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	- Estimates of other unaccounted mortality from the stock, including marine mammal depredation of toothfish from longline, lost gear, catch and discards from non-target trawl fishery (and their size distribution) are available and tested in the stock assessment. - We will also provide sufficient relevant information related to stock structure, stock productivity, fleet composition and other data to support the harvest strategy. - That the stock abundance and fishery removals is being regularly monitored at a level of accuracy and coverage consistent with the harvest control rules, and one or several indicators are monitored with sufficient frequency to support the harvest control rules. Based on the new knowledge being acquired in previous years on the estimates of abundance, we will monitor the trajectories of reproductive and total biomass.
Material requested and methodology (if applicable)	Not applicable.
Who will address the condition	INIDEP, leaded by the scientist Lic. Patricia Martinez.

Condition 3

Performance Indicator	**PI 2.4.1 The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis, and function.**
Score	Trawl Fishery: 60 by SICA
Rationale	See rationale in Appendix 1.1 and Appendix 1.2
Condition	By the fourth surveillance audit, for trawl fishery, present evidence demonstrating that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.
Milestones	**By the first annual audit, provide documented evidence that:** o A protocol to collect fishery information on benthic organisms has been designed and it is ongoing. PI 2.4.1 scores 60. **By the second annual audit, provide documented evidence that:** o Description of types of habitat in the area where the fishery occurs has been in done. PI 2.4.1 scores 60.

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	By the third annual audit, provide documented evidence that: o The nature, distribution and vulnerability of habitat have been studied and it can be documented in technical reports or scientific papers. PI 2.4.1 scores 60. **By the fourth annual audit, provide documented evidence that:** o The strategy to reduce the impact is being implemented successfully and is highly unlikely that the fishery reduce the habitat structure and function. o Evidence is available demonstrating that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm. PI 2.4.1 scores 80.
Client action plan	Year 1: We will provide documented evidence that: - A protocol (fishing log) to collect fishery information has been designed and it is being implemented. The protocol will be accurate in relation with position and fishing effort (hours, time of trawling, number of hauls and any other relevant information). - There has been a discussion of methods to collect continuous seabed data from deeper waters. We will arrange a workshop to develop a data gathering protocol that considers all the relevant information related to the fishing operation. Courses to On Board Observers (OBO) will be given to train them in different activities and technical tasks that must be carried on board. A workshop with benthic specialist will be arranged to identify and determine the best sampling methodology for benthic species. Year 2: We will provide documented evidence that: - A preliminary survey with the objective of describing the types of habitat in the area where the fishery actions occurs has been done. - A mapping of spatial distribution of fishing effort is being done using data collected from the fleet. For these purposes we will arrange a workshop to analyze the existing information to design a scientific research trip to identify the different habitat types and their most relevant organisms which may be used in subsequent analyzes as indicators of each type of habitat The spatial distribution of the fleet will be identified using data from the fleet but also satellite data that are automatically sent to the fishing authority by each ship. Year 3: We will provide documented evidence that: - The nature, distribution and vulnerability of habitat have been studied and it can be documented in technical reports or scientific papers. All information will be analyzed and published in technical reports or scientific papers.

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	Year 4: We will provide documented evidence that: - The strategy to reduce the impact is being implemented successfully and is highly unlikely that the fishery reduce the habitat structure and function. To design a strategy to reduce the fishing impact on the habitat, we will convene a workshop with fisheries biologists, benthic ecologists and the industry.
Material requested and methodology (if applicable)	Not applicable.
Who will address the condition	INIDEP leaded by Lic. Martínez (fishery information, distribution of fishing effort) and IIMyC (CONICET-UNMDP) leaded by Dr. Tomas Luppi (seabed habitat).

Condition 4

Performance Indicator	**PI 2.4.2 There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types.**
Score	75
Rationale	See rationale in Appendix 1.1
Condition	By the fourth surveillance audit, develop some objective basis for confidence that the partial strategy will work, based on information directly about the fishery and/or habitats involved.
Milestones	**By the first annual audit, provide documented evidence that:** o Identify harvest activities which pose a risk of serious or irreversible harm to habitat types. o Provide documented description of localization and magnitude of the impact of the fishing effort on toothfish, against the scale of the impact through operational data from commercial vessels. PI 2.4.2 scores 75. **By the second annual audit, provide documented evidence that:** o A preliminary survey with description of risk of serious or irreversible harm to habitat where the fishery occurs has been done. PI 2.4.2 scores 75. **By the third annual audit, provide documented evidence that:** o A strategy for managing risk of impact of each fishery on habitat has been

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	designed and documented in technical reports. PI 2.4.2 scores 75. **By the fourth annual audit, provide documented evidence that:** o Initial assessment of data; identification and estimation of possible risk of serious or irreversible harm to habitat types. o Some objective basis for confidence that the partial strategy will work, based on information directly about the fishery and/or habitats involved. PI 2.4.2 scores 80.
Client action plan	Year 1: - We will develop a protocol to collect fishery information, where harvest activities pose a risk of serious or irreversible harm to habitat types. - We will provide a description of localization and magnitude of the impact of the fishing effort on toothfish. This information will put i the context of the scale of the impact in relation to the habitat and community distribution and the commercial vessels operation area. Year 2: - We will provide documented evidence of a preliminary survey with the objective of describing the types of habitat in the area where the fishery actions occurs has been done. Given the logistic constrains this survey is only being able to be done with the fishing vessels operating on this resource. The survey will be designed on the bases of recommendations provided by benthic specialists and fisheries scientists. Year 3 - We will provide evidences that -if there are potential serious or irreversible harm to habitat- a management strategy is being designed and documented in technical reports in relation to the impact on the habitat. This conclusion will come from the analysis and discussions of previously gathered information, and involving scientific experts of several areas. Year 4 - We will provide documentation of that an initial assessment of data and estimation of possible risk of serious or irreversible harm to each habitat type. - Based on the analysis of the available information plus the expert opinions, we will provide some objective analysis that –if necessary- the partial strategy to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types will work.
Material requested and methodology (if applicable)	Not applicable.

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Who will address the condition	INIDEP leaded by Lic. Martínez (management strategies) and IIMyC (CONICET-UNMDP) leaded by Dr. Tomas Luppi (seabed habitat).

Condition 5

Performance Indicator	**PI 2.4.3 Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types.**
Score	75
Rationale	See rationale in Appendix 1.1
Condition	By the fourth surveillance audit, sufficient data are available to allow nature of the impacts of the fishery on habitat types to be identified and there is reliable information on the spatial extend of interaction and the timing and location of use of fishing gear.
Milestones	**By the first annual audit, provide documented evidence that:** o Identify nature of the impacts of the fishery on habitat types and the spatial extent of interaction and the timing and location of use of fishing gear. PI 2.4.3 scores 75. **By the second annual audit, provide documented evidence that:** o Continue with data collection. PI 2.4.3 scores 75. **By the third annual audit, provide documented evidence that:** o Description of the nature of the impacts of the fishery on habitat types and the spatial extent of interaction and the timing and location of use of fishing gear have been documented in technical reports or scientific papers. PI 2.4.3 scores 75. **By the fourth annual audit, provide documented evidence that:** o Conclusive information have been available to allow nature of the impacts of the fishery on habitat types to be identified Reliable information on the spatial extents of interaction and the timing and location of use of fishing gear have been described and documented. PI 2.4.3 scores 80.
Client action plan	Year 1: We will provide documented evidence that: - A protocol (fishing log) to collect fishery information has been designed and it is being implemented. The protocol will be accurate in relation with position and fishing effort (hours, time of trawling, number of hauls and any other relevant information).

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	Year 2 - We will continue with the data gathering as describe before. Year 3: - We will provide documented evidence of the nature; distribution and vulnerability of habitat have been studied and are reported in technical reports or scientific papers. As described before, due to logistic constraints this sampling will be done using the fishing fleet, but on a previously agreed sampling design, and suing the right sampling gears (i.e. dredges). Year 4 - We will provide evidences that there is conclusive information about the nature, distribution and vulnerability of habitat has been obtained and is documented in technical reports or scientific papers. This will include the description of the extents of interaction and the timing and location of use of fishing gear.
Material requested and methodology (if applicable)	Not applicable.
Who will address the condition	IMyC (CONICET-UNMDP) leaded by Dr. Tomas Luppi.

Condition 6

Performance Indicator	**PI 2.5.1. The fishery does not cause serious or irreversible harm to the key elements of ecosystem structure and function.**
Score	Trawl Fishery: 60 by SICA.
Rationale	See rationale page Appendix 1.1 and Appendix 1.2
Condition	By the fourth surveillance audit, for trawl fishery, present evidences demonstrating that the fishery is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.
Milestones	**By the first and second annual audits, provide documented evidence that:** o Provide a preliminary analysis of the information on trophic structure and function, community composition, productivity pattern and biodiversity. PI 2.5.1 scores 60.

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	By the third annual audit, provide documented evidence that: o Trophic structure in the fishing area can be documented in technical reports and scientific papers. o A complete list of faunistic components of the communities that are present in the fishing area (specially in benthic environment) is available. o A strategy to evaluate the effect of fishing on these ecosystem components is ongoing. PI 2.5.1 scores 60. **By the fourth annual audit, provide documented evidence that:** o The fishery is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm. PI 2.5.1 scores 80.
Client action plan	Year 1 and 2: We will provide documented evidence that: - A workshop has been convened with oceanographers, ecologist and fishery biologist who have worked in the area (or have the scientific expertise to have opinions on this area) with the objective of reviewing the information available on community composition, trophic structure and function, productivity pattern, biodiversity communities composition, oceanographic and biological studies at deeper waters. By the first and second year we will start sampling the community to begin studying the food web using stable isotopes techniques. This will be done by directed sampling susing the fishing fleet (i.e. using smaller mesh sizes and covering the whole deepth range, including the benthos). The same information will be used to obtain biodiversity data. The workshop will be usefull to define the sampling startegy and area of interest. Year 3: based on the information gathered on the first two years, we will provide documented evidence that: - The trophic structure of the fishing area is being documented in technical reports and scientific papers. - A complete list of faunistic components of the communities that are present in the fishing area (especially in the benthic environment) is available. - A strategy to evaluate the effect of fishing on these ecosystem components is being implemented. Year 4: We will provide documented evidence that: - There is a management plan containing objectives, set of short term measures and a long term strategy to avoid irreversible harm to the ecosystem structure, and a description of how this strategy will be implemented. The management plan will be developed in a workshop with specialists and the industry.
Material requested and methodology (if	Not applicable.

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applicable)	
Who will address the condition	IMyC (CONICET-UNMDP) leaded by Dr. Tomas Luppi (benthic habitats, food web) and Florencia Botto (food webs) and, INIDEP leaded by Lic. Patricia Martinez (management plans).

Marcelo González
EstreMar S.A.

Jaime Pérez Pena
Argenova S.A.

Daniel Rivera
Empresa Pesquera de la Patagonia
y Antártida S.A.

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San Arawa S.A.

"2014 - Año de Homenaje al Almirante Guillermo Brown,
en el Bicentenario del Combate Naval de Montevideo"

Ministerio de Agricultura, Ganadería y Pesca
Instituto Nacional de Investigación
y Desarrollo Pesquero

Nota DNI Nº98/2014

Mar del Plata, 25 de junio de 2014

DEAR ING. MEDINA FOUCHER

The National Fisheries Research and Development Institute (INIDEP) is under the Ministry of Agriculture, Livestock and Fisheries of Argentina. Its main objective is to advise on research and fishery development to National Authorities.

INIDEP research program generates and adapts knowledge, information, methods and technology for the development, utilization and conservation of Argentinean fisheries. INIDEP is the only organization in the country that fully covers the scientific, technologic and economic aspects essential for the development and implementation of national policy in the field of fisheries.

The Institute has been responsible for carrying the biological fishery research since the beginning of the fishery. Particularly, INIDEP researchers regularly participate in the meetings of the Advisory Committee on Fishery Toothfish since 2003, which also includes national fisheries authorities and industry.

INIDEP will be very pleased to provide scientific and technical support through the participation of its researchers and authorities in the detailed activities of the Action Plan related to the proposed Certification of Toothfish Fishery in the Southwest Atlantic.

Dr. OTTO C. WÖHLER
DIRECTOR
Dirección Nacional de Investigación
INIDEP

ING. ACUI. CAROLINA MEDINA FOUCHER
DEPARTMENT OF SUSTAINABLE SYSTEM-FISHERIES
INTERNATIONAL AGRICULTURE ORGANIZATION
S / D

I I M Y C
CONICET
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Consejo Nacional de Investigaciones Cientificas y Técnicas
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Mar del Plata June 20, 2014

Ing. Acui. Carolina Medina Foucher
Department of Sustainable System – Fisheries
OIA

Dear Ing Medina Foucher,

The purpose of this letter is to communicate that the "Institute of Marine and Coastal Research (IIMyC)" is willing to provide the scientific research required by the Action Plan proposed for the Marine Stewardship Council sustainability certification of the "Argentine Patagonian toothfish fishery".

Please, do not hesitate to contact me if you need further information.

Best regards,

Oscar Iribarne PhD, Director

Appendix 2. Peer Review Reports

Peer Reviewer A: Report

Overall Opinion

Has the assessment team arrived at an appropriate conclusion based on the evidence presented in the assessment report?	**No**	**Conformity Assessment Body Response**
Justification: • It must be undertaken a comprehensive review of the stock assessment model. Some uncertainties should be most clearly exposed by the assessment team, e.g. the target reference points. The limit reference point is clear. In the INIDEP Technical Report N°31/13 is included a new explicit reference for 2013 to take into account. • The method of projections and simulations for risk assessment should be explained with most detail. Apparently, it is not clear if it follows the classical maximum likelihood methodology. If variations were arbitrarily defined, this may cause a distorted view of risk. • I agree with the AT in relation that there is uncertainty in the definition of stock unit and there is not data to estimate the recruitment with some certainty. • There is a stock assessment uncertain and management which is strongly dependent on the stock assessment model results. This theme requires a robust review. • Since there is a reasonable uncertainty about the existence of a single stock it's recommended to establish as a milestone to investigate the potential existence of two stocks or strengthen the hypothesis of a single unit. • Some scores, e.g. PI1.2.3 of Principle 1 must be revised and justified adequately. • The proposal related to juveniles and adult density index, even if it was applied with success in other area is more related to the distribution of the species and bottoms, in this case is more a cluster distribution (i.e. not all fishery distribution areas are available to trawling in them). The condition must be addressed to gathering information and solutions in fishery distribution areas available. In this line, conditions must be more feasible considering this situation. • Finally, in Principle 2, it should include in the condition the generalization of processing based on observer data, which can give an important step to determine the fishing impact, included in widespread basis. Also, these data could be provide where occurs the direct impact on *Dissostichus eleginoides* with trawling, determining the habitat area that has been affected and concentrations of adults and juveniles, etc.		•A target reference point of 30%RB0 was defined by the Federal Fishing Council and this value has been used by the assessment team. It is not clear and it has been made a condition of the certification to include reference points in management plan. •Uncertainty in projections could be improved – possibly using MCMC approach – should be included as recommendation. •There is uncertainty over the stock structure and recruitment and these have been made condition in certification. •A new index of adult abundance would reduce uncertainty in assessment. The assessment team recommended that a better stock assessment model be developed. •Investigation of stock structure is already a condition of the certification •The assessment team has revised the scoring of PI1.2.3 as recommended by the peer reviewer. However, there is still considerable uncertainty over stock structure and stock abundance and so our scoring of PI1.2.3 is adequately justified. •The conditions for PI1.2.3 and the recommendations on PI1.2.4 have been made general. Thus, we recommend other methods for monitoring adult abundance be explored including tag and trawl CPUE. •Condition 5 states that *"sufficient data are available to allow nature of the impacts of the fishery on habitat types to be identified and there is reliable information on the spatial extending of interaction and the timing and location of use of fishing gear".* To include how the research group can collect and process the information would be prescriptive. The assessment team

	should draft conditions to follow the narrative or metric form of the PISGs used in the final tree.

Do you think the condition(s) raised are appropriately written to achieve the SG80 outcome within the specified timeframe?	**No**	**Conformity Assessment Body Response**
Justification: The Draft Report needs some clarification for a better comprehension and to ratify the scoring. The conditions should be reviewed.		Agreed – have clarified rationale and reviewed conditions.

If included:

Do you think the client action plan is sufficient to close the conditions raised?	**No**	**Conformity Assessment Body Response**
Justification: Condition 3 Since there is a reasonable uncertainty about the existence of a single stock it's recommended to establish as a milestone to investigate the potential existence of two stocks or strengthen the hypothesis of a single unit. Condition 4 By the first annual audit, provide documented evidence that: - Localization and magnitude of the impact of the fishing effort on toothfish, against the scale of impact through operational data from commercial vessels. - Available data from OBOs that allow an important knowledge of area and dimension impact on communities. This will need to be proposed to INIDEP by the client group. The last observations must be linked with conditions 5, 6 and 7, as a background of discussion in connected workshops and develop new research protocols.		Agreed – have clarified conditions. The assessment team should draft conditions to follow the narrative or metric form of the PISGs used in the final tree. However, the condition 4 was modified, the condition raised will improve the fishery's performance to the SG80 level.

For reports using the Risk-Based Framework please follow the link.

For reports assessing enhanced fisheries please follow the link.

General Comments on the Assessment Report (optional)

The assessment report must be reviewed by correcting errors and improving the analysis.

More arguments are required to substantiate the scores obtained.

Conformity Assessment Body response: Agreed – have reviewed and clarified.

Performance Indicator Review

Please complete the table below for each Performance Indicator which are listed in the Conformity Assessment Body's Public Certification Draft Report.

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
1.1.1	Yes	Yes	NA	The assessment team gave a score of 80 for this PI. I have had difficulty fully understanding the rationales. The risk analysis methodology is not clear for me: what is the procedure to calculate the standard deviation of biomass of 2011 (pp. 11 and 14 of INIDEP Technical Report Nº32/12)? Why variation coefficient of biomass in 2009 (INIDEP Technical Report Nº19/10), 2010 (INIDEP Technical Report Nº 32/11) and 2011 (there is an error for 2010?) (INIDEP Technical Report Nº32/12) is a similar value at 0.13? The target reference point needs to be clearly defined (INIDEP Technical Report Nº32/12, Nº32/11 and Nº19/10). Exist a reference for Federal Fishery Council to establish a target reference point of 30%RBV?There is a confusion about RB0, it is not clear RB_{2013} aprox. 31% of RB0 for 2013 (see pag. 14, INIDEP Technical	Uncertainty in projections could be improved and it is also unclear where the standard deviation of biomass came from. Estimation of uncertainty would be improved using an MCMC approach – should be included as recommendation in PI1.2.4. A target reference point of 30%RB0 was defined by the Federal Fishing Council and this value has been used by the assessment team. Even when there is not a formal rule related to a target reference point of 30%RBV, the Federal Fishing Council's decisions (at least in the past 5 years) adopted this criterion on TAC establishing. The

				Report N°32/12).	assessment team agrees that it is not clear and it has been made a condition of the certification to include reference points in management plan.
1.1.2	Yes	Yes	Yes. The key condition is to apply the results of an updated stock assessment to define and determine appropiate target and limit reference point.	The assessment team gave a score of 75 for this PI. Even if the "references points" have been accepted by the fishery managers evidence of such an acceptance should be available. It is important take into account that the target reference point for toothfish stocks managed by CCAMLR is 50% of median of RB before fishing started (http://www.ccamlr.org/en/fisheries/setting-catch-limits).	The assessment team agrees – the reference points need to be explicitly defined in the management plan. Furthermore, the target reference point should be at around B_{msy} or 40%B0, noting that CCAMLR uses a value of 50%B0.
1.1.3	NA	NA	NA	I agree with the assessment team to not score this PI, because the stock population is not depleted at this moment.	No response required.
1.2.1	Yes	Yes	NA	The assessment team gave a score of 95 for this PI. The risk analysis methodology needs to be informed. The risk analysis is used to define the TAC and then, any arbitrary election must condition the results. Is recommended that maximum likelihood methodology (ML) (with the asymptotic properties) is applied in Monte Carlo simulation. There is no clear process for reviewing and	The assessment team agrees. Uncertainty in projections could be improved and it is also unclear where the standard deviation of biomass came from. Estimation of uncertainty would be improved using an MCMC approach – should be included as recommendation in PI1.2.4. The assessment team agrees that there is considerable uncertainty over the juvenile part of

				updating the available information. Although the highest catch proportion of juveniles was taken by trawling, it is important to consider how it will perform in the future to obtain this information by longline vessels to support the strategy, i.e. data must be sufficient to estimate juveniles abundance.The stock assessment model reconstructs the juvenile portion of the stock. This requires validation. In the future, the level of 15% of juveniles in catch structure should be reviewed. Establish a minimum catch size of 82 cm total length (size at 50% maturity) (no juveniles should be catch), need a percentage of elasticity for not being penalised in the catch process, and this requires a particular study that should take into account the population structure and the fishing activity.	the stock and hence projections are uncertain. However, the harvest strategy overall seems to be reasonably robust and precautionary including some protection of juveniles. There are already a number of HCRs designed to minimise the catch of juveniles identified in PI1.2.2 which includes a minimum size of 82 cm TL. However, catches of juveniles should continue to be closely monitored.
1.2.2	Yes	No	No condition should be imposed.	The assessment team gave a score of 75 for this PI. I consider that should rescoring to 80. It is recommended change the guidepost (c) SG60 to SG80. BY MSC definition Tools are: Mechanisms for implementing strategies under Principles 1 or 2. For example, total allowable catches, mesh regulations, closed areas, etc. could be used to implement harvest control rules (See rationales of PI 1.2.1). 1. Monitoring (RULE) a. On board observers. b. Port and on board inspectors, for control and surveillance.	The assessment team agrees there are already a number of well defined and effective HCRs in place. The assessment team has therefore rescored this PI as SG80 and removed the conditions.

				c. Satellite monitoring system. d. Technical reports of each commercial trip. 2. Stock assessment (RULE) a. Annual stock assessment is carried out to estimate the biomass by INIDEP using the ASPM and an abundance index (CPUE) of longline vessels. Projections are made of future yields in order to estimate the Total Acceptable Biological Catch (TABC) for each year. (Martínez & Wöhler, 2012b). 3. Harvest control rules: (RULE) a. Limitation of depth to target toothfish, for longliners and trawlers, to deeper than 1000 meters to the north of 54°S and 800 meters to the south. b. Establishment of a minimum size of 82 cm TL (size at first maturity). c. Limitation of the catches of toothfish as by-catch to 1.5% in the total catch of each fishing trip. d. Limitation of the catches of juveniles to 15% in number of the total catches. c. Obligation to the fishing vessels to move if 15% was reached to a minimum of 5 miles for almost 5 days. e. Creation of a Juvenile Protection Area in fishing sector 5463, 5462 and 5461 prohibiting trawl nets operation. f. Creation of a Commission of landings control (SCD) integrated by the Argentine Fishing Authority Fishing industry members. 4. Management actions: a. Establishment of a limited allocation of fishing permits by ITQ	

				b. Creation of an Advisory Commission for the Fishery of Patagonian toothfish (CASPMN), comprising the Argentine fishing authorities, scientists, and members of the fishing industry. c. Penalties for infringements. d. Catch certification in accordance with EU Regulation 1005 against unregulated, unreported, and illegal fishing. In conclusion, the harvest strategy is designed to meet the management objectives and is responsive to changes in stock status as reflected by regular changes to catch limits in line with stock assessment results and the biological reference points (see section 3.3.6). Besides the AT clearly state in the report on guidepost (c) for SG80: "TACs have been used to closely manage the Argentine fleet catches since 2004. The catch by the Argentine fleet has been less than the TAC in every year since these regulations were introduced. So there is clear evidence that the tools are succeeding in controlling the Argentine catch". Meaning that this level is already met.	
1.2.3	Yes	No	Yes	The assessment team gave a score of 65 for this PI. In this case, it is recommended change the guidepost a) SG60 to SG80. It is mandatory for all vessels catching toothfish have observer on board, whose task is to collect all the necessary information on stock structure, stock productivity and fleet composition to support harvest strategies. Moreover, this observation is	Although there are observers on board the vessels there is still considerable uncertainty over stock structure as identified by the reviewer. There is also considerable uncertainty over stock abundance and recruitment: • The CPUE index is based only on the longline

				complemented by sampling at landing. Since there is a reasonable uncertainty about the existence of a single stock it's recommended to establish as a milestone to investigate the potential existence of two stocks or strengthen the hypothesis of a single unit.	fishery and does not monitor the trawl fishery. • It is unknown whether the CPUE from just one or two vessels in the longline fishery is monitoring abundance. • There are no fishery independent estimates of abundance • The vessels are required to avoid juveniles and so length frequency data collected from the fishery provide little information on recent recruitment. • There are no reliable estimates of recent recruitment. Probably the biggest source of uncertainty in the stock assessment surrounds the estimates of recent recruitments. The most recent stock assessment suggest that there has been extremely low recruitment since 2002 (see Section 3.3.5). However, the main information on age structure comes from the length frequency data from the fishery, and because of the management changes since 2004, the fleet has actively avoided juvenile fish and hence the estimates of recent recruitment from the assessment are highly uncertain and possibly biased low. However, the future yields from the fishery are highly dependent on these estimates of recruitment, so it is crucial that an alternative method for monitoring recruitment is developed. Random stratified surveys of toothfish juveniles are routinely carried out using commercial trawl vessels at South Georgia and Heard Island and using a commercial longline vessel in the Ross Sea (SC-CAMLR-XXX,

					Annex 5). The assessment team therefore stands by its score of 65 and the conditions imposed.
1.2.4	Yes	Yes	NA	The assessment team gave a score of 90 for this PI. It would be interesting to include in the proposal to change the assessment methodology that considers in the future: 1) a more accurate assessment of natural mortality than that given by CCAMLR, and 2) data are available on lenghts distribution of the foreign fleet. 3) Growth and age research studies would be required. 4) The stock unit is not clearly defined. 5) If the separability was assumed on the catch probability (C/N), the definition that be done has a more comprensible frame. There is a clear need to demonstrate that M=0.17 is a greater value than other M used for toothfish in CCAMLR area. This value generates a greater biomass estimation than be obtained if M=0.13. Is important that be done a discussion of this theme. The stock assessment is carried out by an ASPM. This model uses length distributions as population structure information. Size structures were considered in the catches of trawlers during 1997, 2000, 2003-2011, and corresponding to the longline vessels during 2000, 2003 to 2011. For foreign fleet, there is not a data structure	The assessement team agrees that not all uncertainty has been taken into account in the stock assessment and that improvements can be made in the stock assessment methodology. Recommendations to that effect have been made in the draft report The assessment team also agrees that more accurate estimates of natural mortality and age and growth are required. The assessment currently uses M=0.17. However, other toothfish assessents in CCAMLR waters use 0.13 or 0.155.

				available.	
2.1.1	---	---	---	SICA-RBF. Comments are available below.	
2.1.2	No	Yes	NA	The assessment team gave a score of 80 for this PI for longline and traps, and 85 to trawl. The rationale and evidence are appropriate to the score this PI. However, there is relevant information available that can be used (see comments for PI2.1.1). It is important to consider that the activity of the longliners was decreased greatly due the cost of operation. As stated in 2.1.1 referring to longliners, this reduction is due to transfer of the quota to a trawler vessel, decreasing the catch of grenadiers. This is quite complex as the catch of the main retained species is largely dominated by other fisheries and therefore the relative impact of the toothfish fishery is likely to be low (although in some cases this needs to be more clearly stated). It seems reasonable to conclude that as a result of the strategy it would be unlikely that this fishery could seriously deplete the population or hinder recovery (SG80). It is not clear how much of the over catch is attributable to the toothfish fishery. There are TACs and quota systems for some retained species (Bathyraja spp, *Macruronus magellanicus* and *Salilota australis*) and a closing rule system.	Some information was provided by stakeholders, after the scoring process, and it was analyzed. The assessment team considers that information do not support to change the score. The rational was modify accordingly.

				However, for Grenadiers this is not applied. I think there needs to be more evidence presented to demonstrate that the strategy will work, particularly to achieve the objective of maintaining the biomass of these species above the biological limits (and satisfy SG80).	
2.1.3	Yes	Yes	NA	The assessment team gave a score of 80 for this PI. The rationale and evidence are appropiate to the scoring, covering all necessary elements. The OBOs program collects information regularly in the Patagonian toothfish fishery in all units of certification. Among the main activity of obsersers on board is biological sampling. The information obtained is taken into account in the quantification of retained species and it can be used to estimate the consequences for the stocks.	No response required.
2.2.1	---	---	---	SICA-RBF. Comments are available below.	
2.2.2	No	Yes	NA	The assessment team gave a score of 85 for this PI. It needs more information for rationale of scoring issue b) "Management Strategy Evaluation" at SG80 require "there is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or the species involved". In the rationale presented did not assessed the likelihood of the partial strategy works based on information from the assessed	The assessment team introduced modifications in the rationale tending to be explicit in the strategy to protect chondrichthyans. The Consejo Federal Pesquero elaborated an strategy to reduce the catch of chondrichthyans in all fisheries.

				fishery. The rationale was stated: “The strategy tending to minimize the impact on mortality of chondrichthyans (in this case particularly on *Lamna nasus*) was implemented National Plan of Action-Sharks and is similar to those in various Action Plans for the Management of Elasmobranches from several countries”.	
2.2.3	Yes	Yes	NA	The assessment team gave a score of 85 for this PI. The rationale and evidence are appropriate to the scoring, covering all necessary elements. The OBOs program collects information regularly in the Patagonian toothfish fishery in all units of certification. The observers provide the opportunity to monitor the catch of important bycatch species. Among the main activity of observers on board is biological sampling. The information obtained is taken into account in the quantification of by catch species and it can be used to estimate the consequences for the stocks. By catch is mainly composed by chondrichthyes, teleost fish, echinoids, ascidians. The observers are also trained to recognize if there are impacts in birds and mammals.	No response required.
2.3.1	Yes	Yes	NA	The assessment team gave a score of 95 for this PI. I agree that based on observer data the fishery appears to have no effect on ETP and the score asigned to three gear types is appropriate. Supporting information consists on mortality estimates for several species of birds in the fleet	No response required.

				form one yearly survey, supported by Universidad de Mar del Plata and NGOs as Fundación Vida Silvestre Argentina and Aves Argentinas, as well qualitative statements on impacts for species of mammals and chondrichthyes. Also, agreements and conventions form which Argentina is signatory are mentioned. The effects of the fishery are known and are to a high degree within limits of national and international requirements for protection of ETP species. Direct effects could create unacceptable impacts to ETP species. I think the rationale for meeting these SGs needs strengthening. It seems like the total mortality on some of these species (principally bird species) is considerable (in number terms) but these numbers need to be placed in the context of the size of the total population of the species and other sources of mortality.	
2.3.2	Yes	Yes	NA	The assessment gave a score of 85 for this PI. The rationale and evidence are appropriate to the scoring, covering all necessary elements. Supporting information consists on description of Ministry of Foreign affairs roles, international agreements and conventions, monitoring and the announcement of a National Action Plan for the conservation of birds. The certifiers note that the observer program provides information to support the strategies implemented. It is important to mention: -SG80b: There is an objective basis for	Agreed – the complementary information was incorporated in the rationale

				confidence that the strategy will work, based on information directly about the fishery and/or the species involved. -SG80c: There is evidence that the strategy is being implemented successfully. But in some species raises SG100 as birds due the intensive work by researchers, NGOs, Fishing companies and INIDEP regarding training/workshops of OBOs and projects to develop mitigation devices.	
2.3.3	Yes	Yes	NA	The assessment team gave a score of 95 for this PI. The rationale and evidence are appropriate, covering all necessary elements. As complementary information, observer coverage is 100% and it is mandatory within the fishery, which will provide sufficient information to quantitatively estimate outcome status (guidepost a of SG100) and the consequence of any impacts for the status of ETP species is being examined. Currently, there is an intensive work by researchers, NGOs, Fishing companies and INIDEP regarding training/workshops of OBOs and projects to develop mitigation devices.	Agreed – the complementary information was incorporated in the rationale.
2.4.1	---	---	---	SICA-RBF. Comments are available below.	

2.4.2	No	Yes	Yes	The assessment team gave a score of 75 for this PI. The size of the closed area is unknown - a map is required in the background information - and this represents only one of a range of other vulnerable habitats. Similarly, the untrawlable areas should also be identified more clearly. It is not really clear how sensitive/unique the other habitats and/or the spatial extent and fishery overlap on these other habitats. The conditions of PI2.4.1 will make considerable progress towards those objectives, at which stage a more effective strategy can be developed. I believe the condition associated with this PI covers any of my concerns with the scoring of this indicator. I further believe that finer scale habitat impacts of the fisheries need to be determined particularly before any expansion of grounds open for trawling is considered.	The assessment team agrees with the statements of the peer reviewer. Specially, in relation with the needs of maps of sensitive areas, untrawlable areas, and those areas where the fishery really operates and the kind of habitat affected by such operations. For this reason the condition 4 try to cover these issues.
2.4.3	No	Yes	Yes	The assessment team gave a score of 75 for this PI. Sufficient information may exist but no evidence has been provided by the assessment team of the existence of analysis relevant to the scale and intensity of the fishery, useful to determine the nature, distribution and vulnerability of all main habitats used by the fishery. As an observers onboard program is in place, covering well enough the fishery. The information	The assessment team considers that this PI is scoring according available information. Condition proposed will achieve SG80, where by the fourth surveillance audit, sufficient data must be available to allow nature of the impacts of the fishery on habitat types to be identified and there is reliable information on the spatial extend of interaction and the timing and location of use of fishing gear.

				collected may both be useful as indicators of changes in the habitat or as cause of these changes. I consider that assessment team has take into account the INIDEP Technical Report N° 34/2001 ("Los organismos bentonicos registrados en la region de la plataforma continental argentina y adyacencias, comprendida entre 35°S y 55°S y profundidades mayores de 50 metros") for its analysis and as complement of evaluation. I believe that condition 2.4.3 will provide the information necessary to increase the scoring on this performance indicator to at least the SG80 level.	
2.5.1	---	---	---	SICA-RBF. Comments are available below.	
2.5.2	No	Yes	NA	The assessment team gave a score of 80 for this PI. The rationale and evidence are appropriate to score this PI. While I agree with the scoring given, the explanation of the scoring of 80a could be expanded to detail how the current Sustainability Measures help to constrain impacts on key elements of the ecosystem (as well as habitats). However, there is relevant information available that can be used. Two factors limit the extent of the impact of trawling on Argentine ecosystem: (a) the existence of wide areas of untrawlable bottom and (b) mandatory closed areas as mentioned by the assessment team. When comparing the haul-by-haul fishing	The assessment team considers very useful information submitted by the peer reviewer, and agrees with the factors limiting the movement of the fleet. However, the untrawable area (even when it is relevant in extension) are not a measure or a management strategy, but a result of the nature of the fishery, that complements the mandatory closed areas. The assessment team must analyze if there are a partial management strategy with the objective to reduce the impact of the fishing action to the ecosystem. If untrawable area reduce the spatial distribution of the fleet, and concentrate the fishing effort in some areas where trawling is possible, the effect over such areas must be

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<td>distribution maps (Fig. 31 of Argentine hoki fishery certification report) and the bathymetric map (Fig. 121 of Argentine hoki fishery certification report), it is possible to conclude that the untrawlable areas are in the same depth range than the areas where the fisheries concentrates.

Preliminary data is found in the following table.

Table: Relation between the effective trawled area (b) and the area where occurred 90% of the trawls (a) per year, between 2008 and 2010.

<table>
<tr><th></th><th colspan="3">AÑO</th></tr>
<tr><th></th><th>2008</th><th>2009</th><th>2010</th></tr>
<tr><td>área 90% (a)</td><td>50 124</td><td>54 266</td><td>45 210</td></tr>
<tr><td>área arrastrada (b)</td><td>3 403</td><td>3 518</td><td>4 428</td></tr>
<tr><td>% (b) respecto de (a)</td><td>7</td><td>6</td><td>10</td></tr>
</table>

Due that in the present quite the 70% of the quota belongs to trawler it should be consistent about the real area where the Patagonian toothfish is taken as objective.</td>
<td>evaluated.</td>
</tr>
<tr>
<td>2.5.3</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>The assessment team gave a score of 80 for this PI.

Sufficient information may exist but no evidence has been provided by the assessment team of the main function of the components in the ecosystem and the main consequences of the fishery to determine the impacts of the fishery on the</td>
<td>The assessment team considers that this PI is scoring according available information. This PI met with SG80.</td>
</tr>
</table>

				ecosystem. As an observers onboard program is in place, covering well enough the fishery. The information collected may both be useful as indicators of changes in the habitat or as cause of these changes. I consider that assessment team has take into account the INIDEP Technical Report N° 34/2001 ("Los organismos bentonicos registrados en la region de la plataforma continental argentina y adyacencias, comprendida entre 35°S y 55°S y profundidades mayores de 50 metros") for its analysis and as complement of evaluation.	
3.1.1	Yes	No	NA	The assessment team gave a score of 100 for this PI. Information provided include a description of the management system, including measures, laws, institutions, conventions and agreements and procedures. The management system is consistent with international laws and standards, but it is unclear if the aim delivers management outcomes with MSC Principles 1 and 2. The management system incorporates mechanims to resolve disputes that is proven to be effective. Management complies with biding judicial decisions and proactively avoids legal disputes. The management system has been committed to legal rights established by custom on people dependent on fishing and consistent with MSC Principles.	The PI refers to the formal existence of an appropriate legal and/or customary framework, rather than how it is aplied. The peer reviewer doesn't give information about which SG100 seems not to be meet. So that, the assessment team not agrees with the peer reviewer.

				A score of 90 would be more consistent.	
3.1.2	Yes	No	NA	The assessment team gave a score of 100 for this PI. Information provided include relevant laws, resolutions, organizations, agencies, mechanisms and responsibilities. There is a comprehensive consultation process. However, I have the following questions: what is the process for the stock assessment advice to be applied to set the TAC and the definition of the biological reference point adopted by the administration? Is there a formal external review of the scientific results? Due to this uncertainty, I think that a score of 90 would be more appropriate.	If the formal review of stock assessment process is considered as a necessary part of the consultative process, the assessment team can agrees with peer reviewer. Even that, the assessment team believe PI3.1.2 is related to a consultation process with interested parties and not as a mechanism to external review of stock assessment methodology. So that, the assessment team insist that original score is good addressed.
3.1.3	Yes	Yes	NA	The assessment team indicates that long-term objectives that guide decision making are consistent with MSC Principles and Criteria and the precautionary approach is clear and explicit. Under those circumstances a score of 100 is appropriate.	No response required.
3.1.4	Yes	No	NA	The assessment team gave a score of 90 for this PI. Evidence for the scoring issue includes indications: for establishing TACs social, cultural and economic issues need to be considered, ITQ provide stability for fishers, customary rights are	The assessment team doesn't agrees with the peer reviewer, because this PI has to do whith subsidies and nothing to do with sanctions or fishery's ecosystem uncertainties.

				accounted into the system, there is recognition of international treaty partnership for all stakeholders, and no direct subsidies. Is there a verification system of sanctions? (who carries it out, how often checks are performed, etc.) There is the need to promote actions to deal with uncertainties existing on a lot of subjects related to the effect of the fishing gear on habitat and bycatch species under these circunstances the score should be 80.	Even that, the assessment team is sure that controls and sanctions has proven to be effective to deter illegal fishing.
3.2.1	No	No	NA	Evidence provided includes a lists of well defined and measurable long term objectives for Patagonian toothfish fishery, seabirds and chondrichthyes. The information does not indicate how these objectives are demonstrably consistent with outcomes expressed by MSC's Principles 1 and 2 nor if the objectives are explicit. Based on the information provided there are no basis to evaluate the score.	The assessment team not agrees with the peer reviewer. The rational is clear enough to indicate how the fisheries objectives are consistent with outcomes expressed by MSC's Principles 1 and 2. Peer reviewer doesn´t give any presition about which relevant available information have been not used to score this Indicator.
3.2.2	Yes	Yes	NA	The assessment team notes that decision making process are clearly outlined in the fishing law and that the Federal Fishing Council is the maximum authority establishing TAC's based on INIDEP recommendations. The process responds to all issues and uses precautionary approaches. Although INIDEP reports formal reporting and statistics are available, there is no evidence of formal reporting to all interested stakeholders describing how the system responded to relevant	No response required.

				recommendations. Under these circumstances a score of 95 is appropriate.	
3.2.3	Yes	No	NA	A number of monitoring, control and surveillance tools are used to control fishing activities and are successful in enforcing management measures, strategies and rules. Prosecution and penalties to deal with non-compliance are applied. Nevertheless, there is no evidence on how consistently they are applied and if they provide with the effective deterrence. There is evidence that companies comply with the management system, but the assessment team must provide evidence that there is a high degree of confidence. Under these circunstances a score of 85 is appropriate.	The assessment team agrees. There is no clear evidence on how consistently the sanctions are applied and if they provide with the effective deterrence. That justify the score given to scoring issue b) of PI3.2.3. The assessment team considers that rational and score given to scoring issue c) is good addressed. On that basis, apling MSC-CR-1.3-27.10, directive 27.10.5.3, the score must be 95.
3.2.4	Yes	Yes	NA	A comprehensive research program to obtain information and knowledge in order to advice the management system is in place but the program did not provide timely information due to union problems that caused interruption of surveys during several years.	Even peer reviewer is right and the subject mentioned could be a serious problem for others Argentinian fisheries, the assessment team not agrees in the case of Patagonian Toothfish, because surveys are not an important part of the stock assessment methodology.
3.2.5	Yes	Yes	NA	Key parts of the management system are subject to regular internal review by the Ministry of Agriculture, Liverstock and Fishing and ocassionally to external review by the *Sindicatura General de la Nacion* and the National General Auditory.	No response required.

Any Other Comments

Comments	Conformity Assessment Body Response

For reports using the Risk-Based Framework:

Performance Indicator	Does the report clearly explain how the process used to determine risk using the RBF led to the stated outcome? Yes/No	Are the RBF risk scores well-referenced? Yes/No	Justification: Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response:
2.1.1	No	No	A more comprehensive summary of the catch composition of Patagonian toothfish fishery would have been useful to identify the main retained species as defined by MSC requirements when fishing sets are addressed exclusive to Patagonian toothfish. This information could be used to determine the proportion of total catch of these species. In the report, the main retained species are described biologically, but statistical information was not mentioned. Long line and traps. Lack of information to identify the main retained species in toothfish longline and traps gears, which justifies their percentage as greater than or equal to 5% (e.g. Grenadiers). If the presence of observers on board is mandatory for this fishery, available data could demonstrate the catch composition. It would probably be warranted to undertake a more formal assessment of the interaction of these species with the Patagonian toothfish although	The assessment team is unable to analyse and process data of by-catch species or how the fishery affect biologically based limits, just considers the available information. Expert participants in the RBF Workshop choosed the species of Macrorunidae as the main retained species in both trap and longline fishery, and Bathyraja in trawl fishery. In this sense, the available information was considered and the score was a consensus.

			this was probably undertaken during the RBF workshop (again, more detail from the workshop would be useful). Moreover, it is important to mention that the Federal Fisheries Council Act No. 01/2014 sets the transference of catch quota (40%) from a long line vessel (Antartic III) to a trawler (Centurion del Atlántico). This situation itself determines a change in the importance of the possible risk impacts on the grenadier by longliners. This should be compared with target fishery at certain times of the year of this species that it has not measures for controlling it (i.e. there are not quota system to control exploitation rates neither monitoring on board). Data are available in the Public Certification Report of Argentine hoki fishery (Table 86 p. 235 and Table 87 p. 236). On that basis, there is a clear need to demonstrate that the toothfish fishery is not contributing substantially to the depletion of Grenadiers stocks. According to the characteristic of *Dissostichus eleginoides* fishery, bycatch of grenadiers should be considered as minor retained due that its capture is obtained in small areas where incidentally can be obtained not as target species but as representative out side of the area where the target capture occurs. Trawl. The main species group retained identified with trawl gear in Patagonian toothfish fishery is Bathyraja. I have had difficult fully understanding the interaction between the toothfish fishery and chondrichthyes. I have concern about this issue, because it is known that the range of depth distribution of Bathyraja is 40 to 150 m (p. 30) and toothfish catch occurs below 800 m. So it is not clearly explained how Bathyraja spp are caught by bottom trawl and consequently, the non-selectivity affects reproductive capacity of this species. Furthermore, lack of information to identify the main retained species in toothfish fishery, which justifies their percentage is greater than or equal to 5% (e.g. Bathyraja spp.). If the presence of observers on board is mandatory for this fishery, available data could demonstrate the catch composition. There appears to be also considerable uncertainty associated with the stock assessment and the reliability of the yield estimates is unclear. Is this species likely to be monitored by the current annual trawl survey? Moreover, it is mentioned in the report that Southern blue whiting (*Salilota australis*) and Hoki (*Macruronus magellanicus*) are others retained species of Patagonian toothfish fishery. *S. autralis* is a pelagic species that can basically reach to 700 m of depth. There is an overlapping with Patagonian toothfish fishery, but not in commercial concentrations near the bottom. About *M. magellanicus*, this species does not go that far, because its catch	Moreover, data of species of genus Bathyraja are being collected in a regular way. During the RBF Workshop was evident that there is uncertainty about the stock assessment. Information from trawl surveys related with this species was not provided.

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<td>concentration reaches until 450 m. The catch of toothfish is performed at 800 m, and the trawls sets are directed strictly to it mostly in a very small area. This information is available in the Wöhler's licenciatura seminar (1987). The trawl is located in a small area and done separately from the Southern blue whiting and Hoki areas. Centurión del Atlántico, the biggest surimi vessel, did not fished during 2011, 2012 and 2013 due technical failures, resting in port in these years.

However, official data provide justification to these species if they are within biological limit ranges. A low risk to affect seriously or irreversibly harm the retained species and does not hinder recovery is due to not achieving the TAC established in the last years. Data from Federal Fishery Council and INIDEP scientific reports No 30/2013 and No 32/2013, show that both demersal fisheries are not totally exploited.
<table>
<tr><th>Year</th><th>Hoki Catch (t)</th><th>Hoki TAC (t)</th><th>SBW Catch (t)</th><th>SBW TAC (t)</th></tr>
<tr><td>2011</td><td>70,902</td><td>140,000</td><td>3,518</td><td>40,000</td></tr>
<tr><td>2012</td><td>59,544</td><td>140,000</td><td>8,378</td><td>40,000</td></tr>
<tr><td>2013</td><td>55,907</td><td>94,000</td><td>7,889</td><td>33,000</td></tr>
</table>
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</tr>
<tr>
<td>2.2.1</td>
<td>No</td>
<td>No</td>
<td>All bycatch species appear to be minor in all units of certification. However, there is limited information provided in the rationale. There is no analysis of bycatch data and how the fishery interaction affect biologically based limits of Lamna nasus. It is necessary to include in the report a description of its representation in the toothfish catch composition. There needs to be a more thorough summary of the results from the SICA workshop that documents the main discussion and conclusions of the workshop.

The rational of the assessment team given: "the occurrence of Lamna nasus in the trawl and longline fisheries for Patagonian toothfish in Argentine waters is around 1.4% (Wesle & Cortés, 2011). This low frequency does not presume any unacceptable impact to the porbeagle shark stock".

The rationale is basically adopted as generality for trawlers which eventually catch Southern blue whiting which is a pelagic fish, but it should be taken two different situation that decrease in an important manner the catch in toothfish fishery:

-Regarding the depth of Porbeagles, its distribution given 715 m as maximum (http://www.fishbase.org/summary/88) and the depth of the Patagonian toothfish catch is 800 m, which in the case of trawling, the overlapping would be difficult.</td>
<td>The assessment team is unable to analyse and process data of by-catch species or how the fishery affect biologically based limits, just considers the available information. Expert participants in the RBF Workshop choice the Porbeagle as the main by-catch species. In this sense, the available information was considered and the score was a consensus.

Non-overlapping distribution of Porbeagle and trawling area for toothfish could be the main reason of low frequency in the catches and support the idea of that does not</td>
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			-The *Dissostichus*' catch with trawlers is conducted mostly in a small area from the seabottom.	presume any unacceptable impact.
2.4.1	No	No	A more comprehensive summary of the catch area of Patagonian toothfish fishery, protection area and closed areas would have been useful to identify the magnitude of all impacts in habitat types. This information could be used to determine the proportion of fishing effects about total distribution toothfish stock. The score of 80 for longline and trap fishery is probably low. Studies of the impact of longlines are available from CCAMLR 2012 and elsewhere showing very limited impact of the gear. The ranking of demersal longline impacts given by Chuenpadgee *et al.* (2003) was "moderate", not low. They merely stated that this gear has less impact than other high-impact demersal gear, such as trawls. Moreover, there are likely to be impacts of bottom trawling on the benthos. However, the extent of the impact is unknown. Some habitats are protected by area closures and areas of untrawlable ground. There seems to be a need to better define the spatial domain of these habitats and continued sampling of the benthos caught by trawl gear by the observers and spatial analysis of these data would contribute to the understanding. I believe the condition associated covers the concerns with the scoring of this performance indicator for trawl gear.	That information was not provided during the RBF Workshop or as document, then, it was required in the condition 3. The score of 80 was consensus between participants. Benthos specialist remark that the effects over the benthic communities are absolutely unknown. Stakeholders and assessment team agree that a better definition of the spatial domain of the habitats is needed, and a continuous sampling of the benthos caught by trawl gear by the observers and spatial analysis of these data would contribute to the understanding.
2.5.1	No	No	I think that the small magnitude of the fishery effort, target species and bycatch harvest and effects on habitat make it highly unlikely that the ecosystem structure and function would be seriously impacted. Given the levels of exploitation of toothfish and other species, it is probably reasonable to speculate that the fishery is (highly) unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm. But this is highly speculative and difficult to assess without much supporting information. It would be useful to more clearly define the trophic interactions for toothfish and the other main species caught. I believe that condition 2.5.1 for trawl fishery will provide the information necessary to increase	The assessment team agrees with this observations are highly speculatives, and without information provided as document or during the RBF Workshop, any prediction related with the effect of the fishery over trophic web are merely imaginative.

			the scoring on this performance indicator to at least the SG80 level.	

For reports assessing enhanced fisheries:

Does the report clearly evaluate any additional impacts that might arise from enhancement activities?	**NA**	**Conformity Assessment Body Response:**
Justification: Not applicable for this fishery.		

Peer Reviewer B: Report

Overall Opinion

Has the assessment team arrived at an appropriate conclusion based on the evidence presented in the assessment report?	**Yes**	**Conformity Assessment Body Response:**
Justification: I believe that the team of OIA has been an excellent recollection and organization of the information available.		No response required.

Do you think the condition(s) raised are appropriately written to achieve the SG80 outcome within the specified timeframe?	**Yes**	**Conformity Assessment Body Response**
Justification: Yes and my opinion is related with the standard of the stock evaluation and the levels of indicators that have been reviewed by the Team that all include all the auxiliary information that is important as a base line for the ecosystem approach to manage a fishery. In relation with this point there are task for the future,(This type of information on by-catch is proposed as future work for the Team in page 212 of the report.) mainly in to have quantitative information of the different groups of by catch species in relation with the different types of catch of Toothfish (i.e. juveniles and adults or types of fishing arts like trawler or long liners).		No response required.

If included:

Do you think the client action plan is sufficient to close the conditions raised?	**Yes**	**Conformity Assessment Body Response**
Justification: Yes, I believe that there are used all the information available in the area of the fishery. And this information is a base line for future monitoring of the different variables of the fishery. For example the effective role of the protected areas of recruitment of juveniles from the impact of others fisheries, in order to maintain the levels of recruitment to the fishery. This kind of solutions are originals and could by a good example for other fisheries of this resource in the southern hemisphere. This type of information on by-catch is proposed as future work for the Team in page 212.		No response required.

For reports using the Risk-Based Framework please follow the link.

For reports assessing enhanced fisheries please follow the link.

General Comments on the Assessment Report (optional)

The Assessment Report, in my view, has been recovery most of the necessary information from the fishery and very well organized. Some points have little quantitative information available, like the case of the by-catch species. But the fleet is not large, and then many processes can be implemented as routinely observations on the ecological impact of this fishery on the fish assemblages of the depth ecosystem (i.e. proportion of each

species in the by-catch every year, observation of sea birds around the vessels and interaction with the longline, observation on the interaction with marine mammals, etc.) All this topics can be including in the actual system of scientific observation that they have.

But in general, I found that the recompilation of the information has been extensive, have been presented well organized in the document and could be a good example to follow for the rest of countries in the region with an emphasis in the stock assessment of the target fish.Only some parts related with the by-catch matters need to improve in the close future.

Conformity Assessment Body response:

No response required.

Performance Indicator Review

Please complete the table below for each Performance Indicator which are listed in the Conformity Assessment Body's Public Certification Draft Report.

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
1.1.1	Yes	Yes. Good approach.	NA	Argentina follow the stock evaluation, strategies and indicators values used by CCAMLR in order to ensure that the levels of exploitation are consistent and sustainably. The current biomass (B2011) was 41 000 t (31% of B0). (90 points).	Agreed.
1.1.2	Yes	Yes	Yes	The assessment estimated that the current biomass (B2011) was at 31% B0. As was mention before. Although the assessment did not explicitly provide the probability of the stock being above 20% B0, it did provide the results of projections under three different management rules. With catches of less than 2500 t in 2013 there was a zero probability of the stock being less than 20% B0. Consequently the conclusion of the preliminary report is that the probability that the stock today are above the 20% Bo, it's extremely high.	Agreed.

1.1.3	Yes	Yes	NA	The work done in the management of this fishery from 2004 until today is to maintain the spawning stock biomass at 30%B0. This target was established at the same time of a rule of not reach ever the level of 20%Bo. Then when the stock had been depleted to almost 20% B0, and was designed to stop the fishery and to rebuild the stock again at the level of 30% of Bo. Seems to me a sound rule of procedure.	Agreed.
1.2.1	Yes	Yes. Another good approach	Yes	The creation of the juveniles protection area by Argentina of a great extention of sea floor, was a very good measure for improve the recruitment to the adult population, and also avoid the impact of bottom trawlers in an extended area of the sea bottom (protection that also include the by-catch species).	Agreed.
1.2.2	Yes	Yes	Yes	Harvest Control Rules: The current harvest control rules used for managing the fishery are generally understood and will ensure that the exploitation rates will be reduced as the limit reference point is approached. That include between others: Annual catch limits, minimum size of 82 cm TL, Limitation of the catches of toothfish as by-catch to 1.5% in the total catch in others fisheries, Limitation of the catches of juveniles to 15% in the target toothfish fishery, Obligation for the fishing vessels to move a minimum distance of 5 miles for 5 days if 15% juveniles were recorded in the catch, Create a Commission of landings control (SCD), and also we can add the area protection for juveniles.	Agreed.

1.2.3	Yes	Yes	Yes	In my review I believe that there are Sufficient relevant information related to stock structure, stock productivity, fleet composition and other data is available to support the harvest strategy. It would be interesting in future research to know the current connectivity of the population of D. eleginoides from Cape Horn reproduction area, were has been verified that their spawning eggs are transported to the Argentine platform for recruits. What are the proportion of recruits 4 to 6 year later that back to the Pacific Ocean? And what proportion remain in The Scottia Arc in Atlantic areas? From the point of view of a chilean reviewer this is an precautionary measure if a connection is found in the future.	Agreed.
1.2.4	Yes	Yes	NA	There are two main aims for the stock assessment. The first aim is to estimate the current biomass and hence current stock status as a percentage of Bo. This is then compared to the target reference point. The second aim is to carry out projections to determine future yields under different management rules. This is used to set the catch limit for the following year. The assessment therefore estimates stock status relative to the reference points. Also the selection of the assesment model I found that is consistent with the objetives of management.	Agreed.
2.1.1	NA	NA	NA	NA	
2.1.2	Yes	No	NA	The evaluation team, have an the estimation of the incidence of grenadier catches into	Agreed.

				Patagonian toothfish fishery on population size and found that is minimal (percentages of catches are low in the two fishing gearsevaluated), it is expected that the harvest activities ensure the grenadiers fishery and does not hinder their recovery and rebuilding stocks. Therefore, there are not a quota system yet or a time harvest established and closing-rule system when reaching 40% of population as Illex argentinus into Grenadier fishery.Also the topic of the sharks in the fishery is in the hands of The National Plan for protection of the Sharks that is already in operation.	
2.1.3	No	Yes	NA	Qualitative information and some quantitative information are available on the amount of main retained species taken by the fishery, but this data base is just began to increase, then actually there are not enougth information for apply an stock assesment method. In spite that the proportion of granadiers are very low an was estimated in 1.4% of the total number of fish catch.	The assessment team agreed. A stock assessment method is unable to apply for the retained species, because key parameters remanin unknown. However, the AT consider that the on board obserrver data-base (main support of available information) is well oriented.
2.2.1	No	No	NA	Given that the measure by the Scientific Observation program just began this task of quantify the main bycatch species, is likely that in some time in the close future, the assessment of the by-catch species can be done until the evaluation group obtain enough information for quantitative analysis.	The assessment team believe that the assessment of the by-catch species can be done until the evaluation group obtain enough information. Due to this information is not fully available, the RBF was used. During the workshop, the specialist in the most sensible groups of by-catch apport their expertise, and non-documented information to qualify the fishery.

2.2.2	No	No	NA	There is a partial strategy in place, if necessary, that is expected to maintain the main bycatch species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding. Argentina has obligation in relation of internationals conventions signed to improve this matter.But they need improve their data base for do it and the group of assesment is working on that.	The assessment team agrees. At moment, a formal stock assessment is not possible for the by-catch species, the the basis for to do that are established. The data collection to improve the data-base of the fisheries is a continuous task. However, the assessment team consider that the rationale used to support the score represent the concern of the Authorities about by-catch problem.
2.2.3	No	No	NA	Qualitative information and some quantitative information are available on the amount of main bycatch species taken by the fishery. So as a review I espect that ths topic soon began to be evaluate, given the trainnig of the Observed and the electronic equipment for do the necessary job.	The assessment agrees with the first statement: the information is available by the OBOs, it is continuously and regularly collected and it can support a partial strategy for the main by-catch species. From 2010, the management plan for sharks in the entire Argentinean Sea requieres that the biological information of the most sensitive species must be collected to establish biological reference points for these species.
2.3.1	Yes	Yes	NA	The effects of the fishery are known and are highly likely to be within limits of national and International requirements for protection of ETP species. Some part of the Argentine longliner fleet use “cachaloteras” that are well known that don’t kill birds, but there are other fishing methods that have incidental captures. But for other side there are an active group of researched people that are working on that. Most of the research and	Agreed.

				implementetion have been presented in ACAP, and described in this report.	
2.3.2	Yes	Yes	NA	Its clear to me the effort that many Argentinian Reserched have been doing a great effort for avoid Incidental mortality of sea bird in this fishery. Some of this people have been colaborate with me in some experiment of innovative methods. Also its clear to me that Wandering albatross (the most endangered population) is more frecuent in the Pacific that in the south atlantic were this fishery occur.	Agreed.
2.3.3	Yes	Yes	NA	Accurate and verifiable information is available on the magnitude of all impacts, mortalities and injuries and the consequences for the status of ETP species. Mainly ocean birds, like albatross and petrels. Maybe in this report could be presented a table for years in order to see the reduction of Incidental mortality.	Agreed.
2.4.1	No	Yes	Yes	The toothfish fishery are made mostly over the continertal slope, that mostly are rocky habitats. Then because the fishery work under 800 m depth, the impact on benthic fauna is anecdotical in this fisheries.	The AT considers that the impact on benthic fauna could be anecdotical, because there are no scientific evidence that support the peer reviewer statement.
2.4.2	No	Yes	Yes	Some stakeholders commented in the RBF Workshop that the relationship between fishery and benthic habitats affected occurs at small scale, related with area of the fishery because the area swept by haul is small and the fleet spread	The area swept by haul is a harvest practice but it is not mandatory by a management strategy.

				over a large area. There is a partial strategy, mainly addressed to protect juveniles but indirectly protects the habitat, which consist in prohibition of operation of longlines shallower than 800 m and trawl nets shallower than 1000 m. The partial strategy is based on a precautionary approach, based in prior experiences and pertinent literature. This aspect need more research in the Trawler fleet..	Even when there is a partial strategy, there is no an objective basis for confidence that the partial strategy will work, based on information directly about the fishery and/or habitats involved.
2.4.3	No	Yes	Yes	The nature, distribution and vulnerability of main habitat types in the fishery are known at a level of detail relevant to scale and intensity of the fishery, but there is not known over their range, with particular attention to the occurrence of vulnerable habitat types. In the view of the reviewer this matter need a reserach plan in the future years, because in the fishing literarture remain like a dark topic because the metologies are not clears yet.	Agreed.
2.5.1	No	No	Yes	Participants of RBF Workshop consider that the impact result of a set of compensatory effects. Even when the impact could be high, the spatial scale is reduced affecting a small part of the populations involved. On the other hand, the degradation time of lost traps is long lasting. However, observed changes are not enough to be distinguishable from those that occur naturally. I agree with the previous statement, because in the area of mine experience the effect of quakes , that are very frecuent, seems to produced huge changes in the continental slope ecosystem. But in the near future with new instruments it is probable to give some advances in order to	Agreed.

				understand what happen in this environment.	
2.5.2	No	No	NA	There is a partial strategy in place but there is not consists of a plan. That partial strategy which include prohibition of operation of longlines shallower than 800 m and trawl nets shallower than 1000 m within Juvenile Protection Area in fishing sector 5463, 5462 and 5461. The strategy indirectly protects the ecosystem, because reduce fishing effort in such areas. The partial strategy is based on a precautionary approach, based in prior experiences and pertinent literature.	Agreed. If the partial strategy, which indirectly protect the environment, is based in pertinent literature, the assessment team do not understand the position of peer revierwer saying that not all relevant available information has been used to score the indicator.
2.5.3	No	No	NA	There are many researches at level of benthic communities on the bottom overlap with the distribution of D. eleginoides. But no clear evidence has been provided to the Assessment Team that all interactions between the fishery and the key ecosystem are elements that have been investigated. In others words there are information on the benthic fauna, but until know is impossible to study the effects of the longliner activity over such communities. In my view given the extensive area such impacts must be small if not negligible.	The assessment team does not agrees with the peer reviewer in relation with many research works at level of benthic communities on the bottom overlap with the distribution of *D. eleginoides*, at least in the Continental slope. The benthic Research Group of INIDEP commented us the lack of information in relation with these components of the ecosystem. Probably, the effect over the benthic communities is low, but we do not see objective evidence to state that.
3.1.1	Yes	Yes	NA	The statement “There is an effective national legal system and organised and effective cooperation with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2.” Its in the view of the reviewer fully applicable in this fishery.	Agreed.

3.1.2	Yes	Yes	NA	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are explicitly defined and well understood for all areas of responsibility and interaction. The information set is complete in this regard, and all the elements seems to do his tasks.	Agreed.
3.1.3	Yes	Yes	NA	The management system has effective consultation processes that are open to interested and affected parties. The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties. Without any dout of the in my review of the document, the previous stament are reach 100% in the Argentineas fishery for Toothfish.	Agreed.
3.1.4	Yes	Yes	NA	The management system provides economic and social incentives for sustainable fishing and does not operate with subsidies that contribute to unsustainable fishing. In relation of these questions, in Argentina all the elements that provide the ITQ system has been apply and still in application. Then I don't see differences with the MSC principles in this regard.	Agreed.
3.2.1	Yes	Yes	NA	The fishery has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2. In relation to this topic in my view all the activities that are sustain by the management system in Argentine and satisfied 100% the application of principle 1 and 2 of MSC.	Agreed.
3.2.2	Yes	Yes	NA	Without any dout, in the management of this fishery there are established decision-making	Agreed.

				processes that result in measures and strategies to achieve the fisheryspecific objectives.	
3.2.3	Yes	Yes	NA	A monitoring, control and surveillance system has been implemented in the fishery under assessment and has demonstrated an ability to enforce relevant management measures, strategies and/or rules. Most of his results in the long term must depend of the approach that be develop for obtain the information suitable to anwser the questions that the Observed programa have. In the case of the by catch, there are "community changes" (in diversity or frecuency of each species) or to asses the stocks of each by catch species. Any aproach need to have a carefully report of each species in the by catch. And seems to me that the team that evaluate the target population have clear ideas in this point and are in development and improvement specially with the Observers program that are in practice.	Agreed.
3.2.4	Yes	Yes	NA	The fishery has a research plan that addresses the information needs of management?. In my view there are a plan in action, but maybe need to clarify their question, like the aspect mentioned above	Agreed. The assessment team scores this PI a) saying "….it is not comprehensive in the ecosystem aspects. It could be recommended to incorporate more comprehensive and explicitly environmental based studies on the fishery interaction with the ecosystem, as well as generating discussion and information exchange instances between formal local research groups dealing with issues related to Patagonian Toothfish fishery and with on board observers program".

3.2.5	Yes	Yes	NA	Actually the fishery has in place mechanisms to evaluate key parts of the management system and introduce the changes that they needs.	Agreed.

Any Other Comments

Comments	Conformity Assessment Body Response
No	No response required.

For reports using the Risk-Based Framework:

Performance Indicator	Does the report clearly explain how the process used to determine risk using the RBF led to the stated outcome? Yes/No	Are the RBF risk scores well-referenced? Yes/No	Justification: Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response:
2.1.1	No	Yes (But only from the populational point of view)	I don´t believe that all the relevant information available been used to score this indicator (By-Catch). In spite that is presented a full list of the species of the by-catch, the most important information is to know how the species composition changes along time of the fishery at community level and also follow the changes of each species across stock evaluation of the most common species (i.e. Macruridae)	This PI was evaluated during the RBF Workshop. During the meeting, the most sensitive case is choose and evaluated, and there was consensus between stakeholders that the most risk is the reduction of reproductive capcity of Bathyraja by trawl fishery and the reduction of population size fo Macrorunidae for trap and long-line fisheries.

2.2.1	No	Yes	I believe that according the information provide by the Argentinean Report the main bycatch species are highly likely to be within biologically based limits as local populations. And also indicate that many species are in the limits of his distribution and its spected that the populations in this ecological conditions be small.But limitation for totally solving this aspects it is not in the observation of the fishery vessels, because they look for D. eleginoides. And may be is not probably to solve all this aspect with the catch information in the fishing vessels. But could help to have quantitative data for the differents species from the by catch and its abundance. But without the data from the very beginning of the fishery could be very hard understand the impacts on the by catch species. In conclusion The MSC must to have clear instruction of what is posible do in this regard.	The most sensitive case choosen during the WS debate was the porbeagle *Lamna nasus*, due to their low fecundity, natural mortality, etc. Probably, this species is not substantially affected by fishing but the lack of information addressed to explore for the expertise of captains and researchers to obtain a screening of the situation of this species in the zone where the fishing activities take place.
2.4.1	No	No	In relation of the Trawl fishery I share the statament presented in the Argentinean Report of "Some stakeholders commented in the RBFWorkshop that the relationship between fishery and benthic habitats affected occurs at small scale, related with area of the fishery because the area swept by haul is small and the fleet spread over a large area. I share that explanation but in spite that my experience in this fishery is limited to longline, I believe that some effort could be made in the future to solve this question.	The assessment team agrees in relation with the research effort to solve the question.
2.5.1	No	Yes	In all this matter, related with the trawler activity, traps or longline its very dificult to evaluate their impact over the bottom communities. There are some information from the new Zealand in wich have been used a sistem of videos of the nets over the bottom,but that have made for fishing vessels prepared (with Government money) to do the cruises for obtain the information and may some regulation. Here in this fishery we see sporadic observations for the Scientific Observed, but no a sistematic plan. In other fisheries of the region, the fishing Industry have provide money for do specific research related with the interaction with the	The research over the ecosystem components that could be affected by fisheries is required in the conditions.

			ecosistem element. In the Argentinean (in adition of the point 2.5.1) they want to do this tipe of research and could be done in the near future.	

For reports assessing enhanced fisheries:

Does the report clearly evaluate any additional impacts that might arise from enhancement activities?	**NA**	**Conformity Assessment Body Response:**
Justification: Do not apply to this fishery.		No response required.

Appendix 3. Stakeholder submissions

Registration as stakeholder

1. Request by Cedepesca

OIA - Pesca

De: Alejandra Cornejo <alejandra.cornejo@cedepesca.net>
Enviado el: lunes, 18 de marzo de 2013 03:15 p.m.
Para: OIA - Pesca
Asunto: merluza negra

Marca de seguimiento: Seguimiento
Estado de marca: Completado

Estimada Carolina,

De acuerdo a lo conversado, le envío este correo para ratificar nuestro interés en participar como stakeholders en el proceso de la pesquería de Patagonian toothfish (*Dissostichus eleginoides*).

Muchas gracias, saludos

--
Alejandra CORNEJO
CENTRO DESARROLLO Y
PESCA SUSTENTABLE
- CEDEPESCA
Rondeau 361 (B7603GXL)
Mar del Plata, Argentina
Tel/Fax: +54 223 489-6397
Sitio Web: www.cedepesca.net
Skype: mardelplata_386

1.1 OIA response

Stakeholder accepted and register for Patagonian toothfish certification process.

OIA - Pesca

De: OIA - Pesca
Enviado el: lunes, 18 de marzo de 2013 03:28 p.m.
Para: Alejandra Cornejo
CC: OIA - Comunicaciones
Asunto: RE: merluza negra

Estimada Alejandra,

Muchas gracias por tu interés en participar como Stakeholder en el proceso de Certificación de Merluza Negra.

Notificaré al departamento de Comunicación tu interés para que te incluyan en nuestra base de datos y puedas recibir todas las notas vinculadas al desarrollo del mismo.

Quedo a tu disposición para cualquier consulta,

Saludos,

Ing. Acui. Carolina Medina Foucher
Department of Sustainable Systems - Fisheries
pesca@oia.com.ar | www.oia.com.ar
Tel: (54 11) 4793-4340 / 4798-9084
Av. Santa Fe 830 | Acassuso | Bs. As.| Argentina

2. Request by Sidney Holt

OIA - Pesca

De: Holt Sidney <sidneyholt@mac.com>
Enviado el: miércoles, 20 de marzo de 2013 09:29 a.m.
Para: OIA - Pesca
CC: Lankester Kees; james.barnes@asoc.org Barnes
Asunto: Argentine toothfidh

Marca de seguimiento: Seguimiento
Estado de marca: Completado

Tes, I would like to be involved in the assessment of this stock for MSC. Sidney Holt

2.1 OIA response

OIA - Pesca

De: OIA - Pesca
Enviado el: miércoles, 20 de marzo de 2013 01:00 p.m.
Para: Holt Sidney
CC: Lankester Kees; james.barnes@asoc.org Barnes
Asunto: RE: Argentine toothfidh

Dear Holt Sidney,

Thank you very much for your interesting.

We uploaded your data in our stakeholders' database.

Coming soon will be getting all information about the following stages of the process at: http://www.msc.org/track-a-fishery/fisheries-in-the-program/in-assessment/south-atlantic/argentine_patagonian_toothfish

If you would like any assistance please feel free to get in touch with me.

Best regards,

Ing. Acui. Carolina Medina Foucher
Department of Sustainable Systems - Fisheries pesca@oia.com.ar | www.oia.com.ar
Tel: (54 11) 4793-4340 / 4798-9084
Av. Santa Fe 830 | Acassuso | Bs. As.| Argentina Orgánicos • GLOBALG.A.P. • Atributos de Calidad • Trazabilidad • Pesca Sustentable • HACCP • Textiles • GOTS • Cosmética • BPM • No OGM • Alimentos Argentinos • Bonsucro

3. **Request by Consolidated Fisheries Ltd.**

OIA - Pesca

De: Janet Robertson <janet.marketing@cfl.co.fk>
Enviado el: viernes, 23 de mayo de 2014 12:17 p.m.
Para: OIA - Pesca
CC: 'Paul Brewin'; 'Paul Brickle'
Asunto: Registration as stakeholders
Datos adjuntos: Stakeholder registration for Argentine toothfish fishery.doc

Marca de seguimiento: Seguimiento
Estado de marca: Completado

Dear Carolina,

We have not been in direct contact but I know that you have been in contact with Intertek Moody Marine (now IFC) over our own certification of the Falklands toothfish fishery.

I would like to take this opportunity to register our interest as stakeholders in the Argentine toothfish fishery. As we also fish this species off the Patagonian Shelf, we are interested in the outcome of the certification and would be happy to contribute to the process where possible.

I have filled in the form as required but I am unsure if it has been correctly done so. Perhaps you could advise me if there is anything further we need to do in order to register our interest.

I look forward to hearing from you.

Kind Regards,
Janet Robertson

Marketing & Sales Manager
Consolidated Fisheries Ltd
e-mail: janet.marketing@cfl.co.fk
www.consolidatedfisheries.com

3.1 OIA Brazil response

May 30th, 2014

Mrs. Janet Robertson
Sales and Marketing Manager
Consolidated Fisheries Ltd.

Ref. Stakeholder identification request

Dear Mrs. Robertson,

We appreciate your interest in participate in the Argentine Patagonian toothfish certification process. It is important for us your point of view. So, we will keep you informed about each stage of the assessment process.

In this moment, the preliminary draft report is reviewed by peer reviewers. Coming soon, the Public Comment Draft Report will be available to stakeholder for comments.

We will attach your company in the section "3.5.c) Particulars of recognized group with interest in the fishery" of toothfish report and link your certification process as complement information.

If you have any questions, please don't hesitate to contact me.

Best regards,

Eng. Jose Amaral Wagner Neto,
Technical Director of OIA Brasil

Agricontrol Ltda. – OIA Brasil
Av. Dr. Vieira de Carvalho, 51 – 7º andar, República, São Paulo / SP, Brasil, CEP 01210-010
Tel/Fax: (+55 11) 3062-1145 / www.oiabrasil.com.br

4. Request by Dr. Paul Brewin

Dr. Paul Brewin is a Fisheries Scientist working on the already MSC-certified toothfish fishery (www.msc.org) and wrote to Eng. Carolina Medina Foucher from OIA Pesca in June 4th 2014 to request the registration as stakeholders in the Argentine Patagonian toothfish MSC application. He is the contact person and specified the following: "We would be pleased to make any contributions to the process where we are able. Can you please add my email address to any updates to stakeholders."

4.1 OIA Brazil response

June 11th, 2014

Dr. Paul E Brewin
Fisheries scientist

Ref. Stakeholder identification request

Dear Dr. Brewin,

We appreciate your interest in participate in the Argentine Patagonian toothfish certification process. It is important for us your point of view. So, we will keep you informed about each stage of the assessment process.

In this moment, the preliminary draft report is reviewed by peer reviewers. Coming soon, the Public Comment Draft Report will be available to stakeholder for comments.

We will attach your participation as stakeholder in the section "3.5.c) Particulars of recognized group with interest in the fishery" of toothfish report.

A summary that remarks yours intentions and inputs we bill included in the report, and our will to maintain you on an active interchange as stakeholder. This will achieve your intention of participation in the process of certification as a contact person and fisheries scientist.

If you have any questions, please don't hesitate to contact me.

Best regards,

Eng. José Amaral Wagner Neto,
Technical Director of OIA Brazil

Agricontrol Ltda. – OIA Brasil
Av. Dr. Vieira de Carvalho, 51 – 7° andar, República, São Paulo / SP, Brasil. CEP 01210-010
Tel/Fax: (+55 11) 3062-1145 / www.oiabrasil.com.br

1. Note from Cedepesca

Centro Desarrollo y Pesca Sustentable
Asociación Civil sin Fines de Lucro
Registro DPPJ Nº 17.600 | Registro CENOC Nº 15.763
CeDePesca Registro UICN como ONG Latinoamericana Nº 24.878
Tel: +54 223 489-6397 | www.cedepesca.net | info@cedepesca.net
.:::: José Rondeau 361 – (B7603BDG) Mar del Plata, Argentina ::::.

Mar del Plata, 23 de abril de 2013

Licenciada
Carolina Medina Foucher
Organización Internacional Agropecuaria
Av. Santa Fe 830
(B1641ABN) Acassuso
E. S. D.

Ref.: Uso del RBF en el proceso de evaluación de la pesquería argentina de merluza negra

Estimada Lic. Medina Foucher:

Sirva la presente para extenderle al equipo de expertos de Organización Internacional Agropecuaria un cordial saludo a través de su persona, y para informar nuestro desacuerdo con la propuesta de utilizar el Marco Basado en Riesgo (RBF por sus siglas en inglés) para calificar el Indicador de Desempeño 1.1.1 (Estado del stock) en el caso de la pesquería argentina de merluza negra (*Dissostichus eleginoides*).

Si bien reconocemos que la evaluación pesquera desarrollada por el Instituto Nacional de Investigación y Desarrollo Pesquero podría ser mejorada, consideramos que la misma es suficiente para establecer el estado de salud del stock de merluza negra y puntuar el Indicador en cuestión. A partir del año 2004, el INIDEP integra datos de entrada que incluyen parámetros vitales de la especie, índices provenientes de la pesquería y otros datos estadísticos mediante un modelo de producción estructurado por edades para realizar estimaciones anuales de los niveles de biomasa reproductiva, los cuales son contrastados contra puntos de referencia biológicos para establecer la salud del stock. La información así producida por el INIDEP ha sido utilizada por las autoridades pesqueras argentinas de manera regular para establecer niveles de Captura Máxima Permisible para esta pesquería. Si bien el INIDEP no realiza en la actualidad cruceros de investigación bio-oceanográficos dirigidos específicamente a la merluza negra debido a lo que parecen ser restricciones técnicas y si bien se acepta en sus informes que los datos de reclutamientos podrían estar subestimados (por lo que la evaluación está sujeta a cierto nivel de incertidumbre), en nuestra opinión esto no es motivo suficiente para desestimar o descartar la información producida por el Instituto y considerar la pesquería como "deficiente en datos".

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CeDePesca

En particular, desde el año 2000 el INIDEP ha producido al menos treinta y seis (36) informes técnicos relacionados directa o indirectamente con el stock de merluza negra, y once (11) informes de investigación sobre esta especie, los cuales se enumeran en el documento adjunto.

Consideramos que, en vista de esta información, no es posible contestar negativamente al criterio de decisión utilizado para invocar el uso del RBF para el Indicador de Desempeño 1.1.1 que dice en su idioma original: *"Can the biologically-based limits for sustainability (e.g. reference points) be estimated such that serious or irreversible harm could be identified?"* [¿Se pueden estimar límites biológicos para la sustentabilidad (p.ej. puntos de referencia) de modo que pueda identificarse un daño serio o irreversible?]. La respuesta a esta pregunta debe ser "Sí" y por lo tanto el Indicador 1.1.1 debe ser calificado utilizando la metodología tradicional.

Adicionalmente, en nuestra opinión sería contraproducente utilizar el RBF para el Indicador de Desempeño 1.1.1 porque esto significaría otorgar automáticamente 80 puntos a los Indicadores de Desempeño 1.1.2 (Puntos de Referencia) y 1.2.4 (Evaluación del estado del stock) y no analizar el Indicador de Desempeño 1.1.3 (Reconstrucción del stock), lo cual tiene el potencial de enmascarar las falencias que existen actualmente en estas áreas y que saldrían claramente a relucir al utilizarse la metodología tradicional de evaluación para el ID 1.1.1.

Esperando que nuestras observaciones sean tenidas en cuenta por el equipo evaluador y sean recibidas en el espíritu de colaboración con el que han sido emitidas, me suscribo en nombre del equipo técnico de CeDePesca.

Muy cordialmente,

Gabriela Mc Lean
Directora Ejecutiva
gabriela.mclean@cedepesca.net

adj. Listado de Informes Técnicos del INIDEP sobre la pesquería de merluza negra

1.1 OIA response

OIA - Pesca

De: OIA - Pesca
Enviado el: martes, 23 de abril de 2013 03:32 p.m.
Para: Gabriela Mc Lean
CC: Ernesto Godelman; Daniel Valdovinos
Asunto: RE: merluza negra: comentarios sobre árbol de evaluación

Estimada Gabriela,

Acusamos recibo de la nota y su anexo.

Estamos analizando la misma y prontamente le contestaremos.

Saludos cordiales,

Ing. Acui. Carolina Medina Foucher
Department of Sustainable Systems - Fisheries
pesca@oia.com.ar | www.oia.com.ar
Tel: (54 11) 4793-4340 / 4798-9084
Av. Santa Fe 830 | Acassuso | Bs. As.| Argentina

And,

OIA - Pesca

De: OIA - Pesca
Enviado el: viernes, 31 de mayo de 2013 04:19 p.m.
Para: OIA - Pesca
Asunto: ::ACTUALIZACIÓN EN LOS PROCESOS DE CERTIFICACIÓN DE PESQUERIA OIA-MSC::
Datos adjuntos: PATAGONIAN TOOTHFISH_Revision to Timeline Form - 280513.pdf; PATAGONIAN TOOTHFISH_Revision of Default Assess Tree and RBF - 240513.pdf; SRKC Revision to Timeline Form_280513.pdf

Estimados stakeholders,

Les enviamos las actualizaciones sobre el progreso de las siguientes pesquerías en el programa del MSC y se invita a participar del proceso:

Pesquería de Merluza Negra argentina – Anuncio de la revisión del uso del Árbol de evaluación predeterminado con la metodología de Análisis de Riesgo (RBF) y actualización del cronograma de actividades
OIA ha anunciado su intención de utilizar RBF en lugar del Árbol de evaluación predeterminado para evaluar los siguientes Indicadores de Desempeño: 2.1.1, 2.2.1, 2.4.1 y 2.5.1 para la puntuación de la Pesquería en función a los Principios y Criterios del MSC.
El Árbol de evaluación predeterminado se encuentra disponible para su descarga en la página web del MSC y la confirmación de utilización de RBF se adjunta en este mail.
Además, se ha actualizado el cronograma de actividades del proceso de certificación para que los stakeholders estén informados sobre los avances de las etapas (se adjunta).

Pesquería de Centolla argentina – Actualización del cronograma de actividades
OIA ha actualizado el cronograma de actividad del proceso de certificación de Centolla para que los stakeholders estén informados sobre los avances de las etapas (se adjunta).

Para participar y enviar cualquier comentario, MSC ha provisto a las partes interesadas de una guía y plantilla para completar: http://www.msc.org/documents/get-certified/stakeholders/template_for_stakeholder_input

Para mayor información, puede visitar la página web del MSC o contactarse con la Ing. Carolina Medina Foucher o Ing. Andrea Cantisani vía correo electrónico (pesca@oia.com.ar) o a los teléfonos (011) 4793-4330 ó 4798-9084 .

Ing. Alimentos Cantisani Rovasio Andrea
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SUBJECT: MSC Review and Report on Compliance with the scheme requirements

Dear Stuart Hanchet

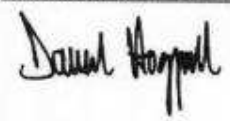
Please find below the results of our partial review of compliance with scheme requirements.

CAB	Organizacion Internacional Agropecuaria (OIA)
Lead Auditor	Stuart Hanchet
Fishery Name	Argentine Patagonian toothfish
Document Reviewed	Assessment Tree Consultation

Ref	Type	Page	Requirement	Reference	Details
3628	Major	1	CR-27.8.8	The CAB shall use the criteria in Table AC2 to make a decision on whether a fishery may or may not be data-deficient with respect to one Performance Indicator or more.	The Guidance to the CR Annex GCC describes the background and intent of the use of the RBF, that is to ensure that the assessment process is accessible to data-deficient fisheries that are readily demonstrated as operating in a precautionary manner. Implicit in the approach is a recognition that fisheries which are operating at relatively high levels of utilisation pose a greater risk to the ecological components with which they interact and that the assessment and management of such risks must be underpinned by comprehensive scientific information. For this reason, if detailed data exist for a fishery these must be used; the RBF is offered as an alternative for when such data are not available, and it will deliver a more precautionary (risk averse) assessment. Table AC2 requirements for the RBF to be used for PI 1.1.1 asks 'can the biologically-based limits for sustainability (e.g. reference points) be estimated such that serious or irreversible harm could be

3628	Major		CR-27.8.8	identified'. The justification provided in the announcement of assessment tree for using the RBF for PI1.1.1 is 'there is information available to describe the stock status, but its identity is still subject of research under constant genetic and tagging studies. The assessment team proposes use the RBF to evaluate more appropriately this point'. A brief search on INIDEP website indicates that there is a stock assessments that uses an age-structured biomass model (ASPM), that current Biomass is estimated at 31%Bo and that the model is used to estimate biologically acceptable catch (CBA) under different management objectives (Martinez & Wohler, 2012a). In addition, analyses of toothfish data from 2003-2011 has shown that the toothfish fishery is considered stable (Martinez & Wohler, 2012b) The information from these publications indicates that there is enough information to estimate the biological based reference points such that serious irreversible harm could be identified. If this is the case, the CR would require that the default assessment tree is used for PI 1.1.1 and not the RBF. With regard to the fact that the stock identity is still subject to genetic and tagging studies, these considerations could be taken into account more appropriately in PI 1.2.3 on Information and Monitoring. Martinez, P. & O.C. Wohler (2012a). Estimación de la abundancia y recomendación de la captura biológicamente aceptable de merluza negra (Dissostichus eleginoides) para el año 2013. INIDEP Informe Tecnico Oficial No. 32, 15/11/2012. Martinez, P. & O.C. Wohler (2012b). La pesquería de merluza (Dissostichus eleginoides) en el Atlántico Sudoccidental durante 2011. Aspectos de su evolución desde 2003. INIDEP Informe Técnico Oficial Nº 10. 15/05/2012. 10 p.

This report is provided for action by the CAB and ASI in order to improve consistency with the MSC scheme requirements; MSC does not review all work products submitted by Conformity Assessment Bodies and this review should not be considered a checking service. If any clarification is required, please contact Stephanie Good on +44 (0)20 7246 8926 for more information.



Best regards,
Dan Hoggarth
Fisheries Oversight Director
Marine Stewardship Council

cc: Accreditation Services International

2.1 OIA response

OIA - Pesca

De: OIA - Pesca
Enviado el: martes, 23 de abril de 2013 02:16 p.m.
Para: Dan.Hoggarth@msc.org
CC: Stephanie Good; ASI@msc.org; cassie.leisk@msc.org; Rodrigo Polanco; Sönke Fischer
Asunto: RV: MSC Technical Oversight - Argentine Patagonian toothfish
Datos adjuntos: 20130419_TO_AssessmentTreeRBF_ArgentineToothfish.pdf

Dear Dan,

Hello, how are you? I hope all is fine.

We are working with the report of MSC Technical Oversight – Argentine Patagonian Toothfish that Stephanie Good sent us.

First, and before to answer, we would like to know what it is a "Ref. 3628, Type Major"? It is a non-conformity? Or an observation?

Moreover, we would like to know according to what procedure this is approached in order to answer accordingly.

Best regards,

Ing. Agr. Pedro A. Landa
Department of Sustainable Systems - Fisheries
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Tel: (54 11) 4793-4340 / 4798-9084
Av. Santa Fe 830 | Acassuso | Bs. As.| Argentina

And,

OIA - Pesca

De: OIA - Pesca
Enviado el: martes, 28 de mayo de 2013 11:32 a.m.
Para: Stephanie Good
CC: ASI@msc.org; Rodrigo Polanco; cassie.leisk@msc.org
Asunto: RE: MSC Technical Oversight - Argentine Patagonian toothfish

Dear Stephanie,

We welcome your feedback through the MSC Technical Oversight of Argentine Patagonian toothfish certification process.

Respects your comments submitted, the Assessment Team has reviewed and has agreed to use the information available to assess the PIs 1.1.1 "Stock status" using the default assessment tree and not through RBF methodology.

We welcome any future comment about this process.

Best regards,

Ing. Acui. Carolina Medina Foucher
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3. Revision of default assessment tree with Risk Based Framework (RBF)

STAKEHOLDER NOTIFICATION : REVISION OF DEFAULT ASSESSMENT TREE WITH THE RISK BASED FRAMEWORK (RBF)

PATAGONIAN TOOTHFISH CERTIFICATION
(*Dissostichus eleginoides*)
INDUSTRIAL BOTTOM TRAWL NET, BOTTOM LONG-LINE AND TRAP FISHERY IN ARGENTINE FEDERAL CONTINENTAL SHELF WATERS

MSC Certification
Organización Internacional Agropecuaria (OIA)

Organización Internacional Agropecuaria S.A. (OIA) has complied with 30 days from the date of posting on the MSC website for comment on the draft tree to assessment process for the Patagonian Toothfish (*Dissostichus eleginoides*) Industrial Bottom Trawl, Bottom Long-Line and Trap Fishery in Federal waters of the Argentine Continental Shelf, against MSC Principles and Criteria.

It was considered all stakeholder comments and it was reviewed the default tree in light of those comments. The Team has taken the decision to modify the default tree.

The performance indicators which may be assessed using the RBF are listed below, along with a justification in each instance:

2.1.1	**Retained species**	There is information available to describe impact of fishery in retained species, but some of them lack sufficient information on stock status and target reference points. The assessment team proposes use RBF to evaluate more appropriately this issue.
2.2.1	**Bycatch species**	There is information available to describe impact of fishery in by-catch species, but some of them lack sufficient information on stock status. The assessment team proposes use RBF to evaluate more appropriately this issue.
2.4.1	**Habitats**	There is information available to describe the effect of the fishing methods on habitats, but it is insufficient to assess impacts of fishery. The assessment team proposes use RBF to evaluate more appropriately this issue.
2.5.1	**Ecosystems**	There is information available to describe the effect of the fishing methods on ecosystems, but it is insufficient to assess impacts of fishery. The assessment team proposes use RBF to evaluate more appropriately this issue.

Initially, the Team had considered a precautionary approach to assess the PI 1.1.1 "Stock Status", using RBF. It is known that in 2005, fish tagged from South-Western Atlantic in context by Marking and Recapture of Toothfish Program – INIDEP, were recovered in Chilean waters. It would be possible to consider a stock Atlantic-Pacific as a stock interconnected biologically. Different data sources neither are reliable nor solids, because the stock structure of the Patagonian Toothfish (*Dissostichus eleginoides*) in South Atlantic is still subject of research under constant genetic and tagging studies.

The tagging studies are still evolving with appearances of more Argentinean individuals tagged in Chilean waters. This issue became more solid the hypothesis of one metapopulation highly interconnection.

Fisheries administrations from Chile and Argentina do support the hypothesis of the metapopulation, however the abundance estimation and the stock status are managed separately at the moment. For

Submitted: 24/05/2013

Organización Internacional Agropecuaria

this reason the precautionary approach drives to the use of the RBF in PI 1.1.1.; the hypothesis is more solid every day with stakeholder comments.

It were considered both comments submitted by stakeholders; the Team included them in the present approach stock of Pacific and the Atlantic; so now there is sufficient and available information to evaluate PI 1.1.1, according the default PISGs.

You can find the default assessment tree within the MSC Certification Requirements on the MSC website: http://www.msc.org/documents/scheme-documents/msc-scheme-requirements

For more information contact to:

Eng. Carolina Medina Foucher
Department of Sustainable Systems – Fisheries
Organización Internacional Agropecuaria (OIA)
Phone/Fax: (54 11) 4793-4340
E-mail: pesca@oia.com.ar
Adress: Av. Santa Fe 830 - (B1641ABN) – Acassuso - Buenos Aires – Argentina

(REQUIRED FOR FR AND PCR)

1.The report shall include all written submissions made by stakeholders about the public comment draft report in full, together with the explicit responses of the team to points raised in comments on the public comment draft report that identify:

a.Specifically what (if any) changes to scoring, rationales, or conditions have been made.
b.A substantiated justification for not making changes where stakeholders suggest changes but the team makes no change.

(Reference: CR 27.15.4)

Appendix 4. Surveillance Frequency

(REQUIRED FOR THE PCR ONLY)

1.The report shall include a rationale for determining the surveillance score.

2.The report shall include a completed fishery surveillance plan table using the results from assessments described in CR 27.22.1

Table A4: Fishery Surveillance Plan

Score from CR Table C3	Surveillance Category	Year 1	Year 2	Year 3	Year 4
[e.g. 2 or more]	[e.g. Normal Surveillance]	[e.g. On-site surveillance audit]	[e.g. On-site surveillance audit]	[e.g. On-site surveillance audit]	[e.g. On-site surveillance audit & re-certification site visit]

Appendix 5. Client Agreement

(REQUIRED FOR PCR)

The report shall include confirmation from the CAB that the Client has accepted the PCR. This may be a statement from the CAB, or a signature or statement from the client.

(Reference: CR: 27.19.2)

Appendix 5.1 Objections Process

(REQUIRED FOR THE PCR IN ASSESSMENTS WHERE AN OBJECTION WAS RAISED AND ACCEPTED BY AN INDEPENDENT ADJUDICATOR)

The report shall include all written decisions arising from an objection. *(Reference*

ORGANIZACIÓN INTERNACIONAL AGROPECUARIA (OIA)

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