PRE-ASSESSMENT REPORT FOR THE
PERUVIAN HAKE TRAWL FISHERY

PAÏTA CORPORATION
MSC STANDARD FOR SUSTAINABLE FISHING

Date: The 30th of July 2010
Time spent on site: 3 days
Location: Nantes

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Nantes, July 2010
PRE-ASSESSMENT REPORT
MSC environmental standard for sustainable fishing

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1 - Introduction - Aim

The “Païta Corporation Association” has initiated a pre-assessment of the Peruvian Hake fishery against the MSC environmental standard for sustainable fishing. The association is hoping to obtain MSC certification of the fishery by the third quarter of 2011. To this effect, the Association has tasked Bureau Veritas to carry out an MSC pre-assessment.

Within a project assessment framework, the aim of the Pre-assessment is to define the unit of certification concerned, and the remit and feasibility of a full assessment of the fishery according to the Principles and Criteria of the MSC environmental standard for sustainable fishing. These criteria defined by the MSC concern the following aspects:

1. Status of the target fish stock considered for certification.
2. Impact of the fishery on the ecosystem.
3. Performance and effectiveness of the fishery management.

The Pre-assessment has been performed by Séverine ROLLAND MSC Auditor of Bureau Veritas, Fisheries Science Engineer and of Team Leader in charge, in collaboration with Ernesto Godelman (CEDEPESCA).

The pre-assessment report, a tool to assist in the decision to proceed with a full assessment, contains the following:

- Decisions regarding potential field site visits.
- An assessment of the extent to which the fishery is consistent with the MSC Principles and Criteria for Sustainable Fishing.
- Assessment of the fishery’s state of preparedness in view of a full assessment
- A review of the availability of data and required information.
- Identification of interested parties and needs for consultation for the full assessment.
- A determination of the overall scope of the full certification assessment.
- Description and definition of the certification unit.
- A description of potential obstacles or problems that may be a barrier to certification.
2 – Païta Corporation

Païta Corporation is a group of shipowners and was created in order to stop being passive observers, to take a real commitment to responsible fishing, illegal fishing predation, and the role of making highly competitive process. In more concrete actions undertaken by the Association, it can be summarized:

Hake resource recovery, making the greatest efforts of both scientific and economic, for the miracle of this fishery that had undergone a generational change, through an interim arrangement of fishing, introducing for the first time in the history of the Peruvian fishery FISHING QUOTA SYSTEM, performing the actions:

- Fifteen Hake Operations. Employer-funded and conducted by IMARPE within a cooperation agreement.
- Support A Global Expert Panels made IMARPE Lima.
- Fight against ILLEGAL FISHING front by trawl boats fishing without permission.
- Support for APEC, held in Piura in the presence of leaders from around the world.
- Creation of the hake recovery Commission, the same one that meets all government officials (IMARPE; PRODUCE) associations of fishermen and our Association.
- Pre Assessment for MSC by Bureau Veritas.
- Shares of Industrial Safety in the Area of Paita Ind. II.
- ITP Support, Enabling Industrial Fishing Vessels in order to accommodate the request of the European Commission.

Chair: Alkis Palinginis (Ind. Pesq. Santa Monica)
Vice Pres: Phillipe Botta (ARCOPA)
Treasurer: Antonio Bologna O. (Seafrost SAC)
Secretary Carlos Milanovith N. (Dexim SRL)
Vocal: Tassara Monica Ortiz.

The associated companies to date are:

ARCOPA
IND SANTA MONICA PESQ.
Dexim
SEAFROST

Agropesca
PESQ, TERRANOVA
PESQ, PEPA
HORACIO O. TASSARA

(Source: Païta Corporation)
3 - Persons contacted

The pre-assessment team leader is grateful to CEDEPESCA, and in particular to all persons contacted, for their help, availability and participation during the pre-assessment.

The pre-assessment team leader also thanks the followings persons for the meetings by conference call and contributed informations: René Adrien and Hélène COMBEL (ARCOPA) representing Païta Corporation.

4 - Documentation examined and data collected

The pre-assessment is based in part on a review of available documentation and data. The following information was collected through conversations and from references and documents consulted (list as follows):

**Fisheries resources, Peruvian Hake** (*Merluccius gayi peruanus*)
CEDEPESCA – Fishing Source Analysis, avril 2010.
IMARPE, “Crucero de evaluacion de merluza y otros demersales en otono 2009”
IMARPE, “Crucero de evaluacion de merluza y otros demersales en junio 2010”.
Guevara “Dynamics and fishery of the Peruvian hake”, 2006.

**Fisheries Management (regulations and Fisheries Committee documents)**
PRODUCE Site web: [http://www.produce.gob.pe/portal/](http://www.produce.gob.pe/portal/)
IMARPE’s Site web: [http://www.imarpe.pe/imarpe/](http://www.imarpe.pe/imarpe/)

5 – Fishery description: definition of the certification unit

   A- Definition of the Certification Unit

During the preparation towards a full assessment according to the MSC Principles and Criteria for sustainable fishing, the client and certification body must, at first, establish a clear and concerted definition of the certification unit.

The MSC describes the Unit of Certification as the “fishery or fish stock (=biologically distinct population unit) combined with the fishing method/gear and practice (=vessel(s) pursuing the fish of that stock)”.

Thus, the Unit of Certification characteristics that define the fishery under study identified during the pre-assessment are as follow:
**Target species:** Peruvian hake (*Merluccius gayi peruanus*)

**Stock:** South East Pacific, from 1°00’S to 13°56’S

**Fishing method:** bottom trawler

**Fishing area:** From Païta to Huarmey.

**Fisheries management:** The Peruvian hake fishery activities are managed by PRODUCE (Ministry of Production) advised by IMARPE (Instituto del Mar del Peru).

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**B- Detailed definition of the fishery**

1. **Biology of target species:**

The Peruvian hake (*Merluccius gayi peruanus*) considered in this pre-assessment of the Peruvian hake trawl fishery is one of the groups of hake present in the South Pacific, it ranges from 1°S to 14°S (*Source: Guevara*).

1.1 Geographical distribution

The Peruvian hake is a benthos demersal species with a semi pelagic behaviour and a characteristic species of the Peruvian upwelling ecosystem. Its distribution has been evaluated as almost continual, and found preferentially dispersed on the bottom of the continental shelf between Salaverry and Puerto Pizarro (from ~1°S to 14°S):

![Figure 1: Distribution of Peruvian hake](Source: IMARPE Crucero 2009)
There are 2 areas of greatest concentration located in front of Chicama (sub area E) and between Puerto Pizzaro and Punta Sal (sub area A).

This distribution would vary depending on the displacement of oxygen minima, which respond to intra-annual variations of the extension of Cromwell Current (Extension Sur de la Corriente de Cromwell or ESCC). Indeed, during winter and spring, Peruvian hake’s area of distribution shrinks (up to parallels 06° and 08° S), while in summer and fall it is enlarged (up to parallels 12° and 14° S). Furthermore, during El Niño events, Peruvian hake goes further to the south, and can even be found at latitudes greater than 15° S. Meanwhile, during La Niña Events, the Peruvian hake population withdraws strongly to the north.
Peruvian hake distribution also varies according to the species’ life cycle. Eggs and larvae are usually found more to the south (reaching parallels 12° or 14° S) and more to the west. As these grow, a northward displacement occurs, until juveniles finally recruit into different fishing areas. This behavior translates into a size /area stratification.

1.2 Vertical distribution

The vertical distribution of Peruvian hake is evaluated between 50 m and 500m depth depending on the subarea and with main concentrations between 100 and 200m depth (Guevara). It also shows differences with their distance with the seabed: adults will be found in a layer of 52 m depth whereas juveniles will be located very close to the bottom.

![Vertical distribution of Peruvian hake](source: IMARPE Crucero 2009)

The density and vertical distribution varies along the age for the adults, that are not aggregated, may be due to the high cannibalism detected for the biggest individuals (~ 30 cm).

1.3 Density of population

Population density as been evaluated at an average of 19,7 tons/m² with a minimum in sub areas B and F and a maximum in sub area A. A comparison with data from the evaluation of 2008 showed lower densities which would indicate a dispersion of the resource due to the environmental conditions.
1.4 Population structure

The total catches are balanced between male and female. The average length of Peruvian hake is about 27.5 cm with a range from 6 cm to 71 cm. Those data varies along the sub areas and form different groups that have been identified with one in A and B with an average of 20 to 30 cm and with smaller individuals in the south. This would correspond to a distribution of adults northwards compared to the juveniles.

![Figure 5: Mean Size of Peruvian hake](Source: IMARPE Campagne 2010)

Considering the structure of the population by age, it appears that 78% of the evaluated population is about 2 years old, the next group being composed of 1 year old individuals. The maximum age reported being of 14 years old (Source: Guevara).

![Figure 6: Age structure of Peruvian hake population as projected by IMARPE researchers](Source: IMARPE [Values presented are approximate - Data reconstructed from images in separate reports].)
1.5 Reproduction activity

Major reproduction activity is located in the south of sub area D. The spawning period is situated between June and August.

![Figure 7: Distribution of reproductively active cohort of hake](image)

1.6 Feeding

The Peruvian hake alimentation is relatively various. In deed, the study of stomachs showed that the principle species eated by the Peruvian hake are:

- **Loligo gahi**
- **Merluccius gayi peruanus**
- **Engraulis ringens**
- **Euphausiacea**
- **Pleuroncodes monodon**

Once again, the proportion varies depending on the subarea.

1.7 Oceanographic parameters.

The Peruvian hake is located in waters with:

- Oxygen: from 0.4 to 1.6 mL
- Salinity: from 34.89 to 35.05 ups
- Temperature: from 14°C to 17°C

Those parameters change according to the evolution of the ESCC and the Humbolt current whose mouvements are influenced by El Nino.
2. History of the fleet, fishing zone and landings:

The Peruvian hake is the main target species of the bottom trawl fishery of Peru that began in mid 60’s, with an industrial fleet and a coastal one nearby Païta. The landings increased along the 1970’s with 300 000 tonnes in 1978.

In 1982-1983, appeared El Nino and a strong decrease of landings that reached a bottom at 5 800 tones (1982).

During the 1990, the fishery recovered with 234 000 tonnes landed in 1996. This recovery was slowed due to a change in the atmosphere in 1999 (31 192 tones landed). Then a landings’ peak of over 120,000 t occurred in 2001, corresponding to an overexploitation of the stock. Then, in 2002, a notorious decay was observed due to the depletion of the stock. By consequence, in September 2002 and during 2003, the Peruvian hake fishery was closed; however, a quota of 5,000 t was established for 2003 but the fishermen surpassed it by 50%. In 2004, landings were also above the TAC established. As of 2005, landings seem to have stabilized around 30,000 t.

![Figure 8: Landings of Peruvian hake for the period 2000-2009.](source: Ministry of Production)
Different types of fleet fished the Peruvian hake along the years:

- EAC: Embarcaciones Arrastreras Costeras: Coastal fleet
- EAME: Embarcaciones Arrastreras de Mediana Escala: Middle size fleet
- EAF: Embarcaciones Arrastreras de Factoría: Factory vessels

In the 70’s and 80’s, the EAF and EAC were predominant, but for the last decade, the EAC and the EAME fleets have been major. The EAF fleet was sent further west but as the fishery was no more profitable, the EAF slowly stopped. Indeed, today the EAC fleet represents 90% of the total fleet, but regarding the landing both fleet are balanced (Source: IMARPE: 2010 Campaign):

- Landings by EAC fleet: 53.6%
- Landings by EAME fleet: 46.4%

On the other hand, as is shown in Figure 5, landings for the artisanal fleet (only with lines and for human consumption) have been strongly decreasing since 2000, presenting occasional peaks, progressively smaller, in 2005 and 2007. It has to be noted that this fishery is not submitted to the same regulation than the Peruvian hake trawl fishery and is active northward of Tumbez.

![Figure 9: Artisanal fleet's landings of Peruvian hake for the period 1997-2008. Source: Benites, 2008.](image-url)

Concerning the fishing zone, it is divided into 2 groups: one in front of Païta and the other one in front of Punta Sal.

![Distribución espacial de los lances flota arrastrera industrial - 2010](image-url)

(Source: 2010 Campaign)
### 3. Other species caught:

Fishery Management Rules for Hake as stated in Supreme Decree D.S. No. 016-2003-PRODUCE contain the following list of other target and bycatch species related to Peruvian hake and which are only allowed to be used for direct human consumption:

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name in English</th>
<th>Common Name in Spanish</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Prionotus stephanophrys</em></td>
<td>Lumptail searobin</td>
<td>&quot;volador o falso volador&quot;</td>
</tr>
<tr>
<td><em>Mustelus whitneyi</em></td>
<td>Humpback Smoothhound</td>
<td>&quot;tollo&quot;</td>
</tr>
<tr>
<td><em>Paralabrax humeralis</em></td>
<td>Peruvian Rock Seabass</td>
<td>&quot;cabrilla&quot;</td>
</tr>
<tr>
<td><em>Paralabrax calaensis</em></td>
<td>Southern rock bass</td>
<td>&quot;perela&quot;</td>
</tr>
<tr>
<td><em>Paralichthys peruanus</em></td>
<td>Peruvian Banded Croaker</td>
<td>&quot;suco o coco&quot;</td>
</tr>
<tr>
<td><em>Epinephelus spp.</em></td>
<td>Grouper</td>
<td>&quot;meros&quot;</td>
</tr>
<tr>
<td><em>Cynoscion analis</em></td>
<td>Peruvian Weakfish</td>
<td>&quot;cachema&quot;</td>
</tr>
<tr>
<td><em>Sciaena delicosa</em></td>
<td>Drum</td>
<td>&quot;loma&quot;</td>
</tr>
<tr>
<td><em>Paralichthys adspersus</em></td>
<td>Chilean Flounder</td>
<td>&quot;lenguado&quot;</td>
</tr>
<tr>
<td><em>Hippoglossina macrops</em></td>
<td>Big eye flounder</td>
<td>&quot;lenguado ojón&quot;</td>
</tr>
<tr>
<td><em>Hippoglossina tetrophthalmus</em></td>
<td>Fourspot flounder</td>
<td>&quot;lenguado de cuatro ojos&quot;</td>
</tr>
<tr>
<td><em>Brotula clarkae</em></td>
<td>Cusk-eel</td>
<td>&quot;congrio colorado brótula&quot;</td>
</tr>
<tr>
<td><em>Genypterus maculatus</em></td>
<td>Black cusk-eel</td>
<td>&quot;congrio negro&quot;</td>
</tr>
<tr>
<td><em>Myliobatis spp.</em></td>
<td>Eagle rays</td>
<td>&quot;rayas&quot;</td>
</tr>
<tr>
<td><em>Psammobatis spp.</em></td>
<td>Skates and Rays</td>
<td>&quot;rayas&quot;</td>
</tr>
<tr>
<td><em>Pontinus sierra</em></td>
<td>Speckled scorpionfish</td>
<td>&quot;diablico&quot;</td>
</tr>
<tr>
<td><em>Galeichthys spp.</em></td>
<td>Peruvian sea catfish</td>
<td>&quot;bagre&quot;</td>
</tr>
<tr>
<td><em>Larimus spp.</em></td>
<td>Drum</td>
<td>&quot;bereche&quot;</td>
</tr>
<tr>
<td><em>Ctenoscliaena peruviana</em></td>
<td>Peruvian barbel drum</td>
<td>&quot;bereche con barbo&quot;</td>
</tr>
<tr>
<td><em>Trichiurus lepturus</em></td>
<td>Cutlassfish</td>
<td>&quot;pez cinta&quot;</td>
</tr>
<tr>
<td><em>Peprilus medius</em></td>
<td>Pacific harvestfish</td>
<td>&quot;chiri&quot;</td>
</tr>
<tr>
<td><em>Stromateus stellatus</em></td>
<td>Butterfish</td>
<td>&quot;pampanito pintado&quot;</td>
</tr>
<tr>
<td><em>Trachinotus paitensis</em></td>
<td>Palometa</td>
<td>&quot;pampanito&quot;</td>
</tr>
</tbody>
</table>
In regards to the percentage present in catches, the following distribution was observed during the research campaigns.

**Autumn 2008**

- Merluza 94.1%
- Bereche con barbo 2.2%
- Otros 1.8%
- Caballito moro 0.2%
- Raya bruja 0.3%
- Doncella 0.6%
- Pez iguana 0.7%

![Pie chart](image)

**Spring 2010**

- Merluza 95.3%
- Bereche con barbo 0.3%
- Jaiva Paco 6.4%
- Pez iguana 6.7%
- Otros 3.0%

![Pie chart](image)

**Figure 10. Percentage of other species in the catches of the research campaign conducted by IMARPE in autumn 2008. Taken from: Benites, 2008.**

The species that are majorly retained by the Peruvian hake fishery are:

- Bereche con barbo: *(Ctenosciaena peruviana)*
- Pez iguana: *(Sinodus scituliceps)*
- Doncella: *(Hemantias peruanus)*
- Rayas bruja
- Caballito moro: *(Peristediom crustosum)*

Are also reported:

- Congrio moreno: *(Genypterus maculatus)*; Bulldog: *(Kathetostoma averruncus)*; Lenguado de ojos grandes: *(Hippoglossina macrops)*; Diablico: *(Pontinus sierra)* and Falso volador: *(Prionotus stephanophrys)* that have occurred in 2004 and in 2009 with environmental changes.

From those species, only the Lenguado de ojos grandes, the doncella, the congrio moreno and the falso volador have a commercial value.

On the other hand, here are the invertebrates retained: Pota: *(Dosidicus gigas)*, Jaiva colorada: *(Cancer portiei)* and Jaiva paco: *(Mursia gaudichaudi)*.

As it is shown in the two figures extracted from IMARPE’s data, the proportion of retained species hardly exceed 6% and each one stays under 1%.
4. Other fisheries:
Païta Corporation is a part of the EAC fleet with vessels of 20 to 25 m length. The other fisheries that have an impact on the Peruvian hake are:
- EAME fleet fishing with bottom trawlers
- Artisanal fleet fishing with lines

5. Fisheries management system:
The Peruvian hake fishery is managed by the Ministry of Production (PRODUCE) which is composed of two Vice Ministry:
- Vice Ministry of Fisheries
- Vice Ministry of Food industry
The fishery management is hence made by the first one which is informed and advised by the Peruvian marine Research Institute (IMARPE, Instituto del Mar del Peru) and by an International Panel of Experts (See Stock assessment).
The fishing activity is regulated by general laws:
- The “Ley General de Pesca” n°25977
- The “Ley Organica para el aprovechamiento sostenible de los recursos naturales” n°26821.
- The “Reglamento de la Ley General de Pesca”

In addition many regulations and decrees apply specifically to the Peruvian hake fishery establishing, for example, fishing periods, fishing areas, Total Allowable Catches and Individual Fishing Quotas. All management decisions published as Ministerial Resolutions (R.M., for its name in Spanish) are approved and signed by the Minister of Production.

In 2003, while the fishery was closed in accordance to a recommendation from IMARPE and the 2003’s International Panel of Experts, the Ministry of Production revamped its hake fishing regulations, now contained in the “Fishery Management Rules for Hake” and issued through Supreme Decree, D.S. N° 016-2003-PRODUCE. According to the decree, these rules aim to reduce fishing effort so that recovery to sustainable levels is achieved in the medium term.
Following the re-opening of the fishery in 2004, the Ministry of Production started to assign individual fishing quotas. In accordance with the Fishery Rules, the quotas were non-transferable since the re-opening of the fishery; then, through D.S. 016-2006-PRODUCE given in September 2006 they became transferable; and, once again, non-transferable since August 2008 (D.S. 016-2008-PRODUCE
abolishes D.S. 018-2006-PRODUCE). Individual fishing quotas are valid for a year and their remainders do not accumulate from one year to another.

Every year, IMARPE recommends a Total Allowable Catch and the Ministry of Production determines the coefficient of participation for each ship-owner or company in accordance with their Fishing Sworn Statements and net storage capacity. Fleet increments are not authorized for the Peruvian hake fishery and no new fishing permits are issued. Also, in accordance with IMARPE’s monitoring of the location of spawning and juvenile specimens, different no-fishing areas and fishing-ban periods are established every year. Also, provisional regulations may be issued.

An example of provisional regulations is the legal mesh size. In 2003, the International Panel of Experts strongly recommended the use of a minimum mesh size of 110 mm to allow the recovery of the population, and this measure was included in the Fishery Management Rules for Hake (D.S. N° 016-2003-PRODUCE); however, every year Provisional Regimes are proclaimed in which a 90 mm mesh is allowed.

Other management guidelines contained in the Fishery Management Rules for Hake include:

- All ship-owners with valid fishing permits must sign agreements with the Ministry of Production in which they commit to the legal dispositions related to the fishery. Similarly, all plants wishing to process Peruvian hake must sign an agreement.
- Ship-owners and processing plant owners who have signed these agreements are required to work solely with one another.
- IMARPE’s technical scientists must be on-board in every fishing trip and should report any abnormal incidents and catch volumes.
- Ship-owners and processing plants owners are required to provide sworn statements regarding catch volumes and raw material received.
- Severe sanctions are issued in case of violations of the agreements; these include, but are not limited to, suspension of processing activities, suspension of fishing permits and annulment of fishing quotas.

It should be noted that the artisanal fleet does not receive a quota and are not subjected to prohibitions related to no-fishing zones, but according to 2010’s Provisional Regime (R.M. N° 47-2010-PRODUCE) they must respect fishing bans related to Peruvian hake’s reproductive season. Artisanal fishermen should always carry valid permits, shall only use longlines as fishing gear, shall not provide their hake catches to industrial processing plants and their products must be commercialized in a fresh/refrigerated state. Since 2000, landing levels for this sector have not surpassed 3,000 t per year. For 2010, a TAC of 40,000 t was set through R.M. N° 536-2009-PRODUCE.
Stock assessment:

IMARPE, the marine research institute of Peru, is in charge of assessing the population of Peruvian hake (Merluccius gayi peruanus) in Peruvian waters. To fulfill its mission, IMARPE conducts several research campaigns each year: two cruiser campaigns which it executes on its own and at least two complementary campaigns carried out with the collaboration of the commercial fleet. These complementary campaigns aim to follow up the fishery and to verify the conclusions reached after observations at landing points.

Research topics include Peruvian hake’s abundance, concentration, distribution areas and population structure. Studies also involve biological indicators related to its behavior, reproduction and growth, as well as its relationship with environmental variables, both physicochemical and biological.

To assess the stock, IMARPE uses direct methods (swept area and acoustics) and indirect methods (Virtual Population Analysis – VPA) along with information from commercial fishing. Also, dynamic projections are run using a Thompson and Bell cohort model in order to calculate yield and spawning biomass variations for the following couple of years, considering different exploitation rates.

Unfortunately, further details concerning assessment methodology are not given in reports as presented to the Ministry of Production, results are not thoroughly explained and trends for the relevant variable (spawning biomass) are not presented.

International Panels of Experts are regularly summoned to make external assessments of the stock and issue further recommendations.

Scientific advises

The results from fisheries’ assessments provided by the Peruvian marine research institute, IMARPE, are the basis of the Peruvian hake’s management system. Complementarily, there have been International Panels of Experts that make further recommendations on request of the fisheries’ administration authorities. The Peruvian hake fishery has been assessed by panels of national and international experts on 2003, 2004 and 2008.

In March 2003, the International Panel of Experts met in El Callao and analyzed the declining situation of the Peruvian hake stock. This panel concluded that there was an imminent risk of collapse for this population and recommended to keep the fishery closed at least until the end of 2003 –the closure had begun in 2002 as a fishing ban to protect the spawning season. This Panel of Experts also recommended a minimum mesh size of 110 mm and reducing fishing mortality to at least the half of 2002 observed level, that is, it recommended to maintain an Fmax = 0.34.

However, it seems that not always IMARPE and the International Panel of Experts agree on results. In 2008, the International Panel of Experts carried out dynamic projections for four different fishing
scenarios, and it was noted that with TACs of 25,000 to 30,000 tonnes, a 0% increase rate for spawning biomass could be expected and that a TAC of 13,000 t could generate an increase rate of 20%. In addition, authors stated:

“According to these projections, not modifying the current exploitation pattern for this resource does not offer any expectancy of recovery for this population, no increase in spawning biomass levels is expected and, therefore, no improvement on recruitment levels nor improvement on the availability of the resource. As more radical is the measure and as sooner it is taken, better is the expectancy of population recovery”.

It seems that the aforementioned recommendation was not taken into account when in December 2008, IMARPE recommended a TAC of 45,000 t for 2009. The TAC for 2008, that was established in 45,000 t in accordance with IMARPE’s advice was not changed either. Informal comments in the industry circle at the time suggested possible “geographical movements of the reproductive stock” and “sudden appearance of hake after the Panel of Experts finished its work”, but to the best of our knowledge these allegations were never confirmed or denied by IMARPE’s technical staff.

C- Current context of the fishery

The major market of the Peruvian hake fishery is for industrial seafood products.

Indeed, the Peruvian hake is commercialized frozen in fillets or in pulp with price going from ~1 800$ / ton for the pulp to 2 900$ / ton for the fillets.

Concurrential products and countries are:
- Alaskan Pollack : Pacifique nord
- Merlu Productus : Pacifique nord
- Autres Merlus : Chili, Argentine, Afrique du Sud
- Hoki : Nouvelle Zélande, Argentine
6 – Preliminary assessment against the Principles and Criteria of the MSC standard for sustainable fishing

The MSC Principles and Criteria provide an assessment framework for the fishery. The assessment Tree used here corresponds to the new MSC assessment methodology published in May 2010 (Version 2.1).

During the Full assessment, each Principle and Criteria will be scored, which will reflect the fishery’s performance for each specific aspect.

In this scoring system, a score between 60 and 100 is attributed to each of the Criteria. A score under 60 is failing and a score of 100 “perfect”.

A fishery must obtain a score of 80 or more for each of the three Principles in order to be certified. For each of the criteria, a score of 60 is failing, and any score between 60 and 80 will give rise to conditions for the fishery to be certified that will require further improvements.

If the fishery studied is considered as data deficient (DD), it is possible to proceed with a risk analysis for Principles 1 and 2, when a traditional assessment cannot be performed because of lack of quantitative data. This risk-based assessment of DD fisheries has been developed with the study of seven pilot case study fisheries such as for the Indian Oilsardine, or the Banc d’Arguin Mullet.

In these cases, the fishery’s impact is measured in terms of risk to the resource, the habitat or to the ecosystem (scoring guidepost SG60 = medium risk, SG80 = low risk and SG100 = negligible risk).

The pre-assessment’s main objective is an identification of the fishery’s strong and weak points together with aspects that may be improved or efforts that need to be made towards the full MSC assessment.

For each sub-criterion, the most likely scoring guideposts expected are indicated, without or with condition (those requiring a risk analysis are indicated in yellow).

In the light of information collected during the pre-assessment, it appears that several Criteria may obtain SG80 or higher, representing a low risk for the aspect in question, sometimes accompanied by recommendations for the strengthening of existing systems.

In the Tree below, conditions to be met to achieve the expected Scoring Guidepost are described and compared with the fishery under study.

Weak points that may constitute obstacles or points to be improved are indicated in red.
### Component: Stock status (C1) 1.1.1

<table>
<thead>
<tr>
<th>PI</th>
<th>SG60</th>
<th>SG80</th>
<th>SG100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome</td>
<td>The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing</td>
<td>It is likely that the stock is above the point where recruitment would be impaired.</td>
<td>There is a high degree of certainty that the stock is above the point where recruitment would be impaired. The stock is at or fluctuating around its target reference point.</td>
</tr>
</tbody>
</table>

Following the information given by the campaign reports of IMARPE, there is a lack of information concerning the spawning biomass and the recruitment. Indeed, during the scientific campaigns, the stock is assessed by direct methods (swept area and acoustics) and indirect methods (Virtual Population Analysis – VPA) with commercial fishing data. Then, dynamics projections are made in order to calculate yield and spawning biomass variations. There is no further detail on IMARPE’s reports about the status and trends of the spawning biomass.

Reconstructing the summary of the Workgroup “Conventional Assessment” from the III International Panel of Experts, we can see that there is a slight recovery in reproductive biomass and total biomass in 2004 (see Total biomass and reproductive biomass trends for the period 2000-2007, according to estimations made by 2008’s International Panel of Experts.). This trend did not last in 2005 but since an oscillation is observed in total biomass and a slight recovery for the reproductive biomass.

Several differences have been identified in the estimations of the reproductive biomass between IMARPE’s results and the Panel of experts’ ones.

By consequence, the notation for this IP cannot be evaluated for the moment; it is likely that the RBF with a risk analysis will have to be used during the MSC fishery assessment.

Note: When the RBF is used to score PI 1.1.1, PI 1.1.2 (reference points) shall receive a score of 80 and PI 1.1.3 shall not be scored (see guidance sections).
The total biomass has been evaluated during the scientific campaign in 2009 at 89,351 T and a spawning biomass of 100,000 T was expected in the beginning of the year 2010. Currently, managerial decisions seem to aim a limit of 100,000 T for the reproductive biomass.

Concerning the fishing mortality, the International Panel of experts recommended in 2008 a $F_{\text{max}} = 0.45$.

More information concerning the establishment of the reference points will have to be investigated during the assessment in order to evaluate if the ones defined are appropriate for the stock.
### Stock rebuilding (C2) 1.1.3

Where the stock is depleted, there is evidence of stock rebuilding.

Where stocks are depleted rebuilding strategies which have a reasonable expectation of success are in place.

Monitoring is in place to determine whether they are effective in rebuilding the stock within a specified timeframe.

Where stocks are depleted rebuilding strategies are in place.

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.

Where stocks are depleted, strategies are demonstrated to be rebuilding stocks continuously and there is strong evidence that rebuilding will be complete within the shortest practicable timeframe.

After the closure of the fishing in 2003, a reopening was made with a recovering plan establishing different measures:

- TACs and quota in accordance to scientific advises
- No fleet increments
- Maximum of storage capacity and length
- Minimum mesh size and minimum
- Closing seasons…

Since 2005 a slight increasing in the mean size of catches has been observed and would illustrate the benefits of the different management measures.

By consequence, this IP could obtain a score of 80 or more if the trends are confirmed.

![Estructura por tallas de merluza en las capturas 2000 - Junio 2010](image)
Harvest strategy (management)

<table>
<thead>
<tr>
<th>Component</th>
<th>PI Category</th>
<th>PI</th>
<th>SG60</th>
<th>SG80</th>
<th>SG100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harvest strategy 1.2.1</td>
<td>Harvest strategy in place</td>
<td>There is a robust and precautionary harvest strategy in place</td>
<td>The harvest strategy is expected to achieve stock management objectives reflected in the target and limit reference points. The harvest strategy is likely to work based on prior experience or plausible argument. Monitoring is in place that is expected to determine whether the harvest strategy is working.</td>
<td>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 may not have been fully tested but monitoring is in place and evidence exists that it is achieving its objectives.</td>
<td>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. The performance of the harvest strategy has been fully evaluated and evidence exists to show that it is achieving its objectives including being clearly able to maintain stocks at target levels. The harvest strategy is periodically reviewed and improved as necessary.</td>
</tr>
</tbody>
</table>

The fishing management rules are contained in Supreme Decree N°016-2003-PRODUCE and are in place since 2004 in order to recover the Peruvian Hake stock. For that issue, measures that limit the fishing effort are defined, for example:

- Annual individual fishing quotas with remainders that cannot be transferred from year to another
- No fleet increment authorized, nor new fishing permits
- Fishing closure when juveniles exceed 20% of the daily landings in a port for 3 consecutive days or for 5 alternate days => fishing will be closed in this port.
- Maximum storage capacity : 600m3 and maximum length : 70m
- Minimum mesh size : 110 mm
- Close seasons during spawning periods
- Fishing the Peruvian hake is prohibited southward parallel 7°S

Some indicators show that those measures are following the objectives: landings and catch per unit effort have been stabilizing since 2007 in addition to the fishing mortality.

=> A notation of 80 or more can be obtain for this IP in particular if the trends are confirmed (mean size, CPUE, fishing mortality…) and if the link between the measures and the consequences are strengthened.
### Harvest strategy

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<tbody>
<tr>
<td>Harvest strategy and tools 1.2.2</td>
<td>There are well defined and effective harvest control rules in place</td>
<td>Generally understood harvest control 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.</td>
<td>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.</td>
<td>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.</td>
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<td></td>
<td></td>
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<td></td>
<td>The selection of the harvest control rules takes into account the main uncertainties.</td>
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<tr>
<td></td>
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<td></td>
<td>Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.</td>
<td>Evidence clearly shows that the tools in use are effective in achieving the exploitation levels required under the harvest control rules.</td>
</tr>
</tbody>
</table>

Harvest control rules are in place with observers on board of each boat and for each fishing period. The observers monitor different information on the catches. This rule guarantees the respect of the measures that have been established in the recovery plan.

In addition, the stock is regularly monitored by the IMARPE: 2 scientific campaigns are undergone each year. Moreover, international panels of experts are regularly summoned to make external assessments of the stock and issue further recommendations. Finally, the commercial fishing is cooperating with the IMARPE in order to make other monitoring.

Each year, the advices of the IMARPE are taken into account in order to adapt the quota attributed to each fishing company.

The figure illustrates the fact that since 2005, the TAC and quota that are put in place follow the one advised by the IMARPE.

Moreover, the IMARPE is monitoring also oceanic parameters to understand El Nino’s effects on the Peruvian hake which is a phenomenon that brings a large part of uncertainty.

⇒ By consequences, it can be considered that the harvest control rules that are put in place are well defined, and ensure a reduction of the fishing effort to the reference points.

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![Set TAC vs Advised TAC](image-url)

**Set TAC vs Advised TAC**

- IMARPE’s advice
- Set TAC

**Year**

- 2003
- 2004
- 2005
- 2006
- 2007
- 2008
- 2009
- 2010

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<tbody>
<tr>
<td>2003</td>
<td>IMARPE’s advice</td>
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<tr>
<td>2004</td>
<td>IMARPE’s advice</td>
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<tr>
<td>2005</td>
<td>IMARPE’s advice</td>
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<td>2007</td>
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<td>2008</td>
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<td>2009</td>
<td>IMARPE’s advice</td>
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<td>2010</td>
<td>IMARPE’s advice</td>
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</table>
### Harvest strategy

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<tbody>
<tr>
<td><strong>Information / monitoring 1.2.3</strong></td>
<td>Relevant information is collected to support the harvest strategy</td>
<td>Some relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy. 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.</td>
<td>Sufficient relevant information related to stock structure, stock productivity, fleet composition and other data is available to support the harvest strategy. 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. There is good information on all other fishery removals from the stock.</td>
<td>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 relevant to the current harvest strategy, is available. 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 the inherent uncertainties in the information [data] and the robustness of assessment and management to this uncertainty.</td>
</tr>
</tbody>
</table>

As explained on IP 1.2.2, the whole industrial fleet has always an IMARPE’s observer on board since 2004. Several information are collected which represents an exhaustive data base on the Peruvian Hake.

**=> By consequence, the notation could be of 90 considering that the information collected is exhaustive, relevant and with a high frequency.**
<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>Harvest strategy</td>
<td>Assessment of stock status</td>
<td>1.2.4</td>
<td>There is an adequate assessment of the stock status. The assessment estimates stock status relative to reference points. The assessment identifies major sources of uncertainty. The assessment takes uncertainty into account. The assessment of stock status is subject to peer review.</td>
<td>The assessment is appropriate for the stock and for the harvest control rule, and is evaluating stock status relative to reference points. The assessment takes uncertainty into account. The assessment of stock status is subject to peer review.</td>
<td>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. The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a probabilistic way. The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored. The assessment has been internally and externally peer reviewed.</td>
</tr>
</tbody>
</table>

The assessment made by the IMARPE can be considered as appropriate for the stock and the harvest control rule. Indeed, scientific campaigns are undergone with an hydroacoustic methodology in addition to researches with the commercial fishing and evaluations by international panels of experts. However, some elements are not always evaluated or well identified as the spawning biomass. But the stock assessment always takes into account uncertainties as oceanic changes due to ESCC.

=> Hence, this IP could have a notation of 80 or more if it can be confirmed that the assessment methodology is internationally validated.
### Component: PI Category  

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</thead>
<tbody>
<tr>
<td><strong>Retained species</strong></td>
<td><strong>Outcome Status</strong> 2.1.1</td>
<td>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.</td>
<td>Main retained species are likely to be within biologically based limits or if 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 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.</td>
<td>Main retained species are highly likely to be within biologically based limits, or if 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.</td>
</tr>
</tbody>
</table>

Since 2004, observers of IMARPE are on board industrial fleet and identify and monitor the retained species. As the retained species hardly represent more that 1% each and 6% for the whole species, it can be considered that the impact of the Peruvian hake fishery on retained species is not significant. However, periodic changes have occurred in oceanographic parameters which modify the composition of the retained species.

=> Hence, we could consider a notation of 80 for this IP and a higher score could be obtained with more investigation on the impact of the fishery on each species.
### Component: Retained species

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</thead>
<tbody>
<tr>
<td>Management strategy 2.1.2</td>
<td>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.</td>
<td>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. The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).</td>
<td>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 some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or species involved. There is some evidence that the partial strategy is being implemented successfully.</td>
<td>There is a strategy in place for managing retained species. The strategy is mainly based on information directly about the fishery and/or species involved, and testing supports high confidence that the strategy will work. There is clear evidence that the strategy is being implemented successfully, and intended changes are occurring. There is some evidence that the strategy is achieving its overall objective.</td>
</tr>
</tbody>
</table>

There would be a regulation that prohibits any return at sea of the bycatches. But it is not certain that this regulation is applied as there is no way to commercialize most of them.

⇒ This PI would obtain a score of 60.
<table>
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<tr>
<th>Component</th>
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<th>SG80</th>
<th>SG100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retained species</td>
<td>Information / monitoring</td>
<td>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.</td>
<td>Qualitative information is available on the amount of main retained species taken by the fishery. Information is adequate to qualitatively assess outcome status with respect to biologically based limits. Information is adequate to support measures to manage main retained species.</td>
<td>Qualitative information and some quantitative information are available on the amount of main retained species taken by the fishery. Information is sufficient to estimate outcome status with respect to biologically based limits. Information is adequate to support a partial strategy to manage main retained species. 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 strategy).</td>
<td>Accurate and verifiable information is available on the catch of all retained species and the consequences for the status of affected populations. Information is sufficient to quantitatively estimate outcome status with a high degree of certainty. Information is adequate to support a comprehensive strategy to manage retained species, and evaluate with a high degree of certainty whether the strategy is achieving its objective. Monitoring of retained species is conducted in sufficient detail to assess ongoing mortalities to all retained species.</td>
</tr>
</tbody>
</table>

Observers, onboard the industrial fleet, monitor information about the retained species. By consequence there is a high quantity of data that needs to be compiled in studies that could establish if there is or not an impact of the Peruvian hake fishery on the retained species.

⇒ By now, we can consider that the information collected about the retained species is sufficient and quantitatively abundant to establish a comprehensive strategy. This PI could have a notation around 90.
<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Bycatch species</td>
<td>Outcome Status 2.2.1</td>
<td>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.</td>
<td>Main bycatch species are likely to be within biologically based limits, or if outside such limits there are mitigation measures in place that are expected to ensure that the fishery does not hinder recovery and rebuilding. 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.</td>
<td>Main bycatch species are highly likely to be within biologically based limits or if outside such limits there is a partial strategy of demonstrably effective mitigation measures in place such that the fishery does not hinder recovery and rebuilding.</td>
<td>There is a high degree of certainty that bycatch species are within biologically based limits.</td>
</tr>
</tbody>
</table>

Only few species that are caught does not have any commercial value.

The information gathered by the observers onboard does not show any change in the composition of the bycatches. Indeed, the frequency depends on the location and thus the species incidentally caught seems to be inside the biological limits. However, the quantity for each bycaught species does not exceed 1% which indicates that there should not be any significant impact.

- The notation of this PI could be of 90 or more if a study was available to confirm that the bycatch species are not impacted by the Peruvian hake fishery.
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.

The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar fisheries/species).

The consequences of the impacts of the fishery on the main bycatch species are estimated to be negligible (insignificant impact on the populations, and impossible to separate from natural variability)

The throwing back at sea is prohibited by the fishing regulation but as the species does not have any commercial value the bycatches would be thrown back at sea.

By consequence, there is a strategy in place but that seems to be only partial. Taking the percentage of bycatches, there is still a high confidence in the fact that the strategy will work.

=> This PI could get a score of 80.
### Bycatch species

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Bycatch species</td>
<td>Information / monitoring 2.2.3</td>
<td>Information on the nature and amount of bycatch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage bycatch.</td>
<td>Qualitative information is available on the amount of main bycatch species affected by the fishery. Information is adequate to broadly understand outcome status with respect to biologically based limits. Information is adequate to support measures to manage bycatch.</td>
<td>Qualitative information and some quantitative information are available on the amount of main bycatch species affected by the fishery. Information is sufficient to estimate outcome status with respect to biologically based limits. Information is adequate to support a partial strategy to manage main bycatch species. 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 effectiveness of the strategy).</td>
<td>Accurate and verifiable information is available on the amount of all bycatch and the consequences for the status of affected populations. Information is sufficient to quantitatively estimate outcome status with respect to biologically based limits with a high degree of certainty. Information is adequate to support a comprehensive strategy to manage bycatch, and evaluate with a high degree of certainty whether a strategy is achieving its objective. Monitoring of bycatch data is conducted in sufficient detail to assess ongoing mortalities to all bycatch species.</td>
</tr>
</tbody>
</table>

The information is still collected by observers onboard. By consequence, the information is quantitative, qualitative and adequate to support a comprehensive strategy to manage bycatch.

**=> This IP could obtain a notation of 90**
<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>ETP species</td>
<td>Outcome Status 2.3.1</td>
<td>The fishery meets national and international requirements for 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.</td>
<td>Known effects of the fishery are likely to be within limits of national and international requirements for protection of ETP species. Known direct effects are unlikely to create unacceptable impacts to ETP species.</td>
<td>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. Direct effects are highly unlikely to create unacceptable impacts to ETP species.</td>
<td>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. There is a high degree of confidence that there are no significant detrimental effects (direct and indirect) of the fishery on ETP species.</td>
</tr>
</tbody>
</table>

With the information collected by the observers onboard, there is a high degree of certainty that the impact on the ETP is within the national and international limits.

=> This IP should be evaluated with a notation of 90.
The Peruvian government has signed several international treaties like the International Convention for the Regulation of Whaling, the Convention on International Trade in Endangered Species of Wild Fauna and Flora and the convention on Biodiversity. Moreover, since 1996, Peru has established the law 26585 that prohibits the extraction, processing and commercialisation of cetacean and declares them as protected species. In order to protect the turtles, the whole national fishing fleets have been adapted in order to free turtles that could have been incidentally caught. Concerning seals and reptiles, there is no specific regulation in order to protect them.

This PI should have a score of 80 points or more, since there is a current management strategy of the impact of fishing in the ETP species, including measures to minimize mortality, made with high probability of meeting the national standards and international ETP species protection, while there is a factual basis for confidence that the strategy will work, based on any direct information on fishing and/or the species involved.
### Compone nt

**ETP species**

#### PI Category

**Information / monitoring**

2.3.3

#### PI

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.

#### SG80

Information is adequate to broaden understanding of the impact of the fishery on ETP species. Information is sufficient to support measures to manage the impacts on ETP species. Information is sufficient to quantitatively estimate the fishery related mortality of ETP species.

#### SG80

Information is sufficient to determine whether the fishery may be a threat to protection and recovery of the ETP species, and if so, to measure trends and support a full strategy to manage impacts.

#### SG100

Information is sufficient to estimate the outcome status with a high degree of certainty. 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. Accurate and verifiable information is available on the magnitude of all impacts, mortalities and injuries and the implications for the status of ETP species.

This IP should have a score of 90 points as the information is sufficient to determine if the fishery can be a threat to the protection and recovery of species ETP, while this is sufficient to calculate quantitatively the status of results with a high degree of certainty. That is, it has accurate and verifiable information on the magnitude of all impacts, mortalities and injuries and the implications for the status of species ETP. To achieve higher scores, they must have specific strategies for wolves, sharks and rays, as well as sea turtles, as already has in the case of cetaceans for the information also evaluate whether these strategies are being implemented successfully.

=> This PI could reach a score of 80.
### Habitats

<table>
<thead>
<tr>
<th>Outcome Status 2.4.1</th>
<th>PI</th>
<th>SG60</th>
<th>SG80</th>
<th>SG100</th>
</tr>
</thead>
<tbody>
<tr>
<td>The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis, and function.</td>
<td>The fishery is unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.</td>
<td>The fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.</td>
<td>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.</td>
<td></td>
</tr>
</tbody>
</table>

Information from IMARPE’s investigations shows that the habitats in which is practiced the fishing for the Peruvian hake, are constituted mainly of sandy and muddy bottoms, which usually do not develop life forms attached.

There has been, so far, any study of how they affect habitats with the practice of trawling.

This PI would become a pattern of score 60 points because they would be unlikely to reduce fisheries habitat structure and function to a point where there are serious or irreversible damage to achieve higher scores, scientific institution (IMARPE) should undertake studies the direct effect of fishing on the funds that may be susceptible to negative impacts.
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<tr>
<td>Habitats</td>
<td>Management strategy 2.4.2</td>
<td>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.</td>
<td>There are measures in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance. The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar fisheries/habitats).</td>
<td>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 some objective basis for confidence that the partial strategy will work, based on information directly about the fishery and/or habitats involved. There is some evidence that the partial strategy is being implemented successfully.</td>
<td>There is a strategy in place for managing the impact of the fishery on habitat types. The strategy is mainly based on information directly about the fishery and/or habitats involved, and testing supports high confidence that the strategy will work. There is clear evidence that the strategy is being implemented successfully, and intended changes are occurring. There is some evidence that the strategy is achieving its objective.</td>
</tr>
</tbody>
</table>

This PI determines whether or not there is an ongoing strategy developed to ensure that fisheries are not exposed to risk of serious or irreversible habitat types.

Within the Peruvian legislation the law can find PNA (Protected Natural Areas) Act 1997 which gives the character to Paracas Natural Reserve, it is the dimension of this Nature Reserve is located far from the area that normally operate E/P trawl, in regard to these areas so far there is no legislation that specifically protects them because there is no conflict because those funds are usually muddy or sandy habitats and there are considered to be susceptible to the action of fishery. It is important to note that there are temporal and spatial closures of the resource, which in turn can be used to compare the effect of such closures on habitats.

=> This PI can aspire to a pattern of score 60 points, since there would be ongoing measures.
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<tbody>
<tr>
<td>Habitats</td>
<td>Information / monitoring 2.4.3</td>
<td>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.</td>
<td>There is a basic understanding of the types and distribution of main habitats in the area of the fishery. 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.</td>
<td>The nature, distribution and vulnerability of all main habitat types in the fishery area are known at a level of detail relevant to the scale and intensity of the fishery. 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. 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).</td>
<td>The distribution of habitat types is known over their range, with particular attention to the occurrence of vulnerable habitat types. Changes in habitat distributions over time are measured. The physical impacts of the gear on the habitat types have been quantified fully.</td>
</tr>
</tbody>
</table>

This PI assesses whether the information is adequate to determine the risk created by fisheries habitat types and effectiveness of the management strategy impacts on habitat types.

After conducting studies on the negative impacts caused by trawling on the seabed that this is done, it will be possible to have daily information from observers on board, this record will implement laws that specifically protect such habitats even to define areas that can not be dragged, only in this case may claim that PI is qualified with a score of 80 points or more, and no information currently available.
This component analyzes the entire ecosystem and to identify relationships between the target species and others that make up the biotic community, the impacts that fishing activity can have both on the structure and functions of the community, also be observed if there are impacts that have not been observed in other components such as ecosystem pollution by voluntary and involuntary culling, the effect of mortality in birds over the hauling of the net, among others.

This PI assesses whether fishing or not cause serious or irreversible damage to the key elements of the structure and function of the ecosystem.

In the short term, from 2004 to date not reported significant changes in the composition of the bycatch of hake, except the fake flyer that can be attributed to oceanographic reasons. On the other hand Michael Ballon in his Master’s thesis compared the conditions (species composition, size frequencies and stomach contents) which were used from 1985 to 2006 and found major changes in 1985 as size or age groups hake were older and the composition also differs greatly since that year were valued large species such as Tollos. It is the dimension, which in 1985 the generation of information not as meticulous as it is currently not available as an observer in all fishing sets and measures regulating fisheries management were not so demanding, we must also take account of the 1991-1993 El Niño event that changed the whole structure of demersal subsystem. Moreover, the scientific body (IMARPE) has a trophic ecology department, that department are analyzed stomach contents and sets all the relationships of target species with all the others that make up the biotic community either as predator or prey, an important result is that both in the 80’s and early 90’s the predominant species in the diet of hake was the sardine, a condition that was seriously modified to leave this kind of territorial seas.

In other words, under current conditions, which are those held since 2004, this PI can aspire to a score of 80 points, and it is highly unlikely that the fishery disturbs the key elements underlying the structure and functions ecosystem structure to a point where there may be serious and irreversible damage.
### Component: Ecosystem Management strategy 2.5.2

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<tr>
<td>PI</td>
<td>There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function.</td>
<td>There are measures in place, if necessary, that take into account potential impacts of the fishery on key elements of the ecosystem. The measures are considered likely to work, based on plausible argument (eg. general experience, theory or comparison with similar fisheries/ecosystems).</td>
<td>There is a strategy that consists of a plan containing 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. The measures are considered likely to work based on prior experience, plausible argument or information directly from the fishery/ecosystems involved. There is evidence that the measures are being implemented successfully.</td>
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This PI determines whether or not there are steps being taken to ensure that fisheries are not exposed to risks of serious or irreversible damage to the structure and ecosystem function.

We can say that the control strategies in the catch in the hake fishery would have effects throughout the ecosystem, as this species is the main sub-system and disturbances demersal population experience are reflected almost immediately in both other members that make up the biotic community as habitats.

There is an ongoing part strategy that takes into account the information available and is expected to contain the impacts of fishing on the ecosystem under guidelines score 80 or more assigned to the previous PI. Then it is likely that the partial strategy work, based on plausible arguments. There is some evidence that the measures include partial strategy are successful. As can be assigned a pattern of score over 80 points for this PI.
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<tbody>
<tr>
<td>Ecosystem</td>
<td>Information / monitoring 2.5.3</td>
<td>There is adequate knowledge of the impacts of the fishery on the ecosystem.</td>
<td>Information is adequate to identify the key elements of the ecosystem (e.g. trophic structure and function, community composition, productivity pattern and biodiversity). Main impacts of the fishery on these key ecosystem elements can be inferred from existing information, but have not been investigated in detail.</td>
<td>Information is adequate to broadly understand the key elements of the ecosystem. Main impacts of the fishery on these key ecosystem elements can be inferred from existing information, but may not have been investigated in detail. The main functions of the Components (i.e. target, Bycatch, Retained and ETP species and Habitats) in the ecosystem are known. 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 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).</td>
<td>Information is adequate to broadly understand the key elements of the ecosystem. Main interactions between the fishery and these ecosystem elements can be inferred from existing information, and have been investigated. The impacts of the fishery on target, Bycatch, Retained and ETP species and Habitats are identified and the main functions of these Components in the ecosystem are understood. Sufficient information is available on the impacts of the fishery on these Components and elements to allow the main consequences for the ecosystem to be inferred. Information is sufficient to support the development of strategies to manage ecosystem impacts.</td>
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This PI determines whether or not the information available provides an adequate knowledge of the impacts of fishing on the ecosystem. The scientific body (IMARPE) has a wealth of information on the species composition of bycatch, conducts studies of stomach contents and determine the trophic relationships between individuals of the ecosystem and has identified the different types of substrates that can be found on the coast. Perhaps there is some deficiency in obtaining information from the direct effect of trawling on habitats.

The information is appropriate for a general understanding of all knowledge of the ecosystem. The main impacts of fishing on these items of fishing can be inferred from existing information, but have not been investigated in detail.

=> For this PI, a score of 80 could be attended.
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<tbody>
<tr>
<td>Governance and policy</td>
<td>Legal and/or customary framework</td>
<td>3.1.1</td>
<td>The management system exists within an appropriate and effective legal and/or customary framework which ensures that it: - Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2; - 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. The management system is generally consistent with local, national or international laws or standards that are aimed at achieving sustainable fisheries in accordance with MSC Principles 1 and 2. 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 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.</td>
<td>The management system is generally consistent with local, national or international laws or standards that are aimed at achieving sustainable fisheries in accordance with MSC Principles 1 and 2. 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 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.</td>
<td>The management system is generally consistent with local, national or international laws or standards that are aimed at achieving sustainable fisheries in accordance with MSC Principles 1 and 2. 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 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.</td>
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<tr>
<td>The Peruvian hake fishery is managed with a regulation framework declined in several laws. Indeed references are intergrated to the Constitution, the Organic law for a Sustainable use of the natural resources, the General Fisheries law and the Code of the Environment and the Natural Resources. The Ministry of the Production (PRODUCE) is in charge of maintaining the balance the use of the marine resources and the conservation of the Environment and social economic development. Settlement of disputes. - The prevailing legal system of the Peruvian fishery uses an appropriate mechanism for resolving administrative disputes of a legal nature which is consistent with national laws. This mechanism is based on General Administrative Procedure Act, Law 27 944 and in the Single Text of Administrative Procedures. The decisions in favor or against the users does not imply disregard on them. In any case, the administered have the right to invoke the Administrative resources framed within the General Administrative Procedure Act (Reconsideration, appeal, revision, etc.) or recourse to courts after exhausition administrative bodies. This system is considered as efficient and transparent. The management system incorporates in its rules of procedures and instruments that control or impact on fisheries (DSN 016-2003 #-PRODUCE).</td>
<td>this PI could obtain a notation of 80</td>
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<tr>
<td>Governance and policy</td>
<td>Consultation, roles and responsibilities 3.1.2</td>
<td>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.</td>
<td>Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are generally understood. The management system includes consultation processes that obtain relevant information from the main affected parties, including local knowledge, to inform the management system.</td>
<td>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. 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 consultation process provides opportunity for all interested and affected parties to be involved.</td>
<td>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 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. The consultation process provides opportunity and encouragement for all interested and affected parties to be involved, and facilitates their effective engagement.</td>
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</table>

Organizations and individuals involved have been identified in the management process.

For a transparent and effective management of the hake fishery resource, the Administration considered appropriate to call on all actors involved in the management process in order to establish agreed measures and plans, for which were formed by Ministerial Resolutions, so-called Technical Working Committees. In that sense, 1998, NMR 529-98-EP approved the formation of a Technical Working Committee comprising representatives of the Ministry of Fisheries (now production) and the private sector, to discuss the updating of concepts relation to biomass and yearly quota of allowable catch of hake resource and the rules governing access to the fishery. The formation of technical committees for the recovery of the hake resource in the years 2002 and 2004, allowed the administration of fisheries management measures in a consensual manner, with the participation of key actors in the fisheries, and also allowed to involve private actors and public, which is consistent with the recommendations of Article 7.1.2 of the Code of Conduct for Responsible Fisheries of FAO, which stipulates that States should involve all relevant parties with legitimate interest use and management of fishery resources, to establish measures for their collaboration.

**=> This PI would obtain a 90**
### Governance and policy

#### Long term objectives 3.1.3

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</thead>
<tbody>
<tr>
<td>Governance and policy</td>
<td>Long term objectives 3.1.3</td>
<td>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.</td>
<td>Long-term objectives to guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are implicit within management policy.</td>
<td>Clear long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are explicit within management policy.</td>
<td>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.</td>
</tr>
</tbody>
</table>

The long-term objectives within the overall policy of managing the fishery in Peru are consistent and they operate within a precautionary approach supported by the current regulations under the principle of sustainability of fishery resources and conservation, to obtain the greater economic and social benefits.

=> This PI would obtain a score of 80 or more.
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<tbody>
<tr>
<td>Governance and policy</td>
<td>Incentives for sustainable fishing 3.1.4</td>
<td>The management system provides economic and social incentives for sustainable fishing and does not operate with subsidies that contribute to unsustainable fishing.</td>
<td>The management system provides incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2.</td>
<td>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 that they do not contribute to unsustainable fishing practices.</td>
</tr>
</tbody>
</table>

The individual transferable fishing quotas of the Peruvian hake is a mechanism whose primary purpose to provide incentives for proper management of capital and effort in the hake fishery and improve the overall efficiency of the fishing industry, thus ensuring a holding viable, effective, rational and sustainable over time. The management system does not contribute to promoting or subsidizing unsustainable fishing of hake.

=> A score of 80 would be assigned for this PI
The fishery has clear, specific objectives designed to achieve the outcomes expressed by MSC’s Principles 1 and 2. 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.

### Table: MSC Component PI Category

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<tbody>
<tr>
<td>Fishery- specific management system</td>
<td>Fishery- specific objectives 3.2.1</td>
<td>The fishery has clear, specific objectives designed to achieve the outcomes expressed by MSC’s Principles 1 and 2.</td>
<td>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.</td>
<td>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.</td>
<td>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.</td>
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</table>

The objectives are implicit or defined broadly within the general rules and special resolutions. In the current regulations, long term objectives are explicit:
- The conservation and sustainable utilization of the resource and bycatch, which are compatible with those expressed in Principle 1 of the MSC.
- Harmonize the participation of the actors involved
- Promote modernization of the fleet for the extraction.

Now, our short, medium and long terms are implicit in the fisheries management system and is consistent with the results expressed in Principles 1 and 2 as follows:
In relation to Principle 1 is to be achieved in the short term and long-term reproductive biomass estimated according to the latest scientific institution IMARPE.
With regard to Principle 2 objectives will be established for each component relating to maintaining and improving the performance of each.

=> This PI would obtain a score of 60 but could obtain more if the short and long term objectives were more explicated.
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<tbody>
<tr>
<td>Fishery-specific management system</td>
<td>Decision-making processes 3.2.2</td>
<td></td>
<td>The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives. There are informal decision-making processes that result in measures and strategies to achieve the fishery-specific objectives. 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.</td>
<td>There are established decision-making processes that result in measures and strategies to achieve the fishery-specific objectives. 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 use the precautionary approach and are based on best available information. Explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.</td>
<td>There are established decision-making processes that result in measures and strategies to achieve the fishery-specific objectives. 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. Decision-making processes use the precautionary approach and are based on best available information. Formal reporting to all interested stakeholders describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.</td>
</tr>
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</table>

The management system of the Peruvian hake fishery includes effective processes of decision making adopted by the Working Technical Commission on the recovery of the hake, which produce measures and strategies to achieve the objectives.

Therefore, this PI could achieve a score of 80 points.
### Fishery-specific management system

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<td></td>
<td>Compliance and enforcement 3.2.3</td>
<td>Monitoring, control and surveillance mechanisms exist, are implemented in the fishery under assessment and there is a reasonable expectation that they are effective. Sanctions to deal with non-compliance exist and there is some evidence that they are applied. 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.</td>
<td>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. Sanctions to deal with non-compliance exist, are consistently applied and thought to provide effective deterrence. 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 no evidence of systematic non-compliance.</td>
<td>A comprehensive monitoring, 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. Sanctions to deal with non-compliance exist, are consistently applied and demonstrably provide effective deterrence. 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. There is no evidence of systematic non-compliance.</td>
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The mechanisms for monitoring, control and surveillance implemented by the Administration (DIGSECOVI), ensures that fisheries management measures for hake are consistent and comply with the law.

=> this PI could reach 80
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<tbody>
<tr>
<td>Fishery-specific management system</td>
<td>Research plan 3.2.4</td>
<td>The fishery has a research plan that addresses the information needs of management.</td>
<td>Research is undertaken, as required, to achieve the objectives consistent with MSC’s Principles 1 and 2. Research results are available to interested parties.</td>
<td>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. Research results are disseminated to all interested parties in a timely fashion.</td>
<td>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. Research plan and results are disseminated to all interested parties in a timely fashion and are widely and publicly available.</td>
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This indicator is assured of at least 60 points, but to achieve higher performance, there must be a coherent long-term, coordinated by IMARPE, including all the above in Principle 2. It should furthermore ensure the dissemination of the plan and its results within a reasonable timeframe.

Administration (PRODUCE) has long ago with a research plan related to the hake fishery, by the IMARPE, through its Operations Hake (called Eureka) whose systematic execution system offers a strategic approach that allows reliable and timely information. Reliable since IMARPE is an entity recognized nationally and internationally because of the quality of their research. However, the Research Plan suffers from higher recall especially when evaluating the impact of trawling on the ecosystem and habitat of the seabed (Principle 2). Also, still prevails among the firms interviewed the firm idea that the Research Plan is focusing errors in their methodology for calculating the biomass, and presents operational observations because fishermen do not accept or understand the method of selecting positions (coordinates selected random) where fishing hauls for research purposes.

As to the availability and dissemination of research results, it was clear to everyone that this information is published on the website of IMARPE and newsletters, press releases or through Paita Corporation that obtained directly from the Technical Commission Assessment of Hake. However, all say it is recommended that the Scientific Technical Research of IMARPE, share information taken on board, users who cover their outputs. It is recommended that IMARPE be more flexible in sharing information obtained in fishing operations.

⇒ This PI would reach a score of 60.
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<tbody>
<tr>
<td>Fishery-specific management system</td>
<td>Monitoring and management performance evaluation</td>
<td>There is a system for monitoring and evaluating the performance of</td>
<td>The fishery has in place mechanisms to evaluate some parts of the</td>
<td>The fishery has in place mechanisms to evaluate key parts of the</td>
<td>The fishery has in place mechanisms to evaluate all parts of the</td>
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<td>3.2.5</td>
<td>the fishery-specific management system against its objectives.</td>
<td>management system and is subject to occasional internal review.</td>
<td>management system and is subject to regular internal and occasional</td>
<td>management system and is subject to regular internal and external</td>
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<td>There is effective and timely review of the fishery-specific</td>
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There is a system of monitoring and evaluating the performance of the management system of hake (Technical Commission). There is also an effective and timely review of the management system through internal evaluators (Commission) and external (panels).

=> Therefore, this indicator could get 80 points or more
7- Recommendations for a full assessment

Following the pre-assessment, a full assessment will be the second and last step of the fishery’s certification process according to the MSC environmental standard for sustainable fishing. It entails a detailed analysis and scoring of the fishery on the basis of the MSC standard.

A- Key stakeholders in the fishery and MSC certification

The full assessment is an open and public process, and to reach its decision, the certifying body shall consult all affected and interested parties by the “Peruvian hake trawl fishery”.

In order to include and inform the largest number of stakeholders, the intention to seek certification shall be announced publicly, and communicated through media channels identified as appropriate by the client.

The following stakeholders, identified during the pre-assessment, will have to be met. This list is not exhaustive and will be supplemented in consultation with the “Païta Corporation” or after meeting with one of the stakeholders below.

Fisheries management groups and producers organisations
PRODUCE and the Vice Ministry of Fisheries
Technical Working Commission

Auctions/ landing points
Païta industrial harbour
Païta artisanal harbour

Scientific and research organisations
IMARPE

Sea anglers in fishing zone
Artisanal fishermen

Environmental public and non-governmental organisations
To be defined
B. Potential obstacles or problems that may be a barrier to certification

As described in the per-assessment of the fishery based on the MSC Principles and Criteria, it does not seem that the fishery will obtain score less than 80 for the Principles 1 and 3 and.

However, it is important to consider the following points, identified during the pre-assessment, which will need to be analysed in detail and some aspects strengthened, in order to avoid scores less than 80 on Principles and less than 60 on Performance Indicators.

Principle 1: Status of the stock targeted by the fishery
   - The lack of clear evaluation of the spawning biomass and recruitment trends may imply an evaluation with the use of RBF. But it has to be noted that MSC methodology has previewed in some case where a lot of other information are available to work with other reference points (see Police Advisory 12).
   - The impact of El Nino on the Peruvian hake: it seems that it provokes a moving of the population but not a decrease in biomass nor in the recruitment. This will have to be confirmed by scientific data.

Principle 2: Impact of the fishery on the ecosystem
   - The management of the fishery implies observations and monitoring onboard which provides a high quantity of information. However, there is no study of how the Peruvian hake trawl fishery impact the bycatches species. Even if it never higher than 1% some of the species caught may be more sensitive or vulnerable. By consequence, more information will have to be gathered on the stock state of each species caught.
   - It appeared that there is a regulation that prohibits any return of bycatches at sea. But this regulation seems not to be always applied due to the fact that there isn’t any possibility of commercialization for most of the bycatches. Investigations should be made to have a better understanding of the content of the Fisheries regulation and its compliance.
   - IMARPE undergoes several research programs on the Peruvian benthos. But there is no study evaluating the impact of the trawls on the seabed.
Principle 3: Performance and efficiency of the fishery management system
- Short term and long term objectives of the fishery should be more explicit.
- The sharing of IMARPE’s results taken on board seems not to be as efficient as it is supposed to be.

Possibility of harmonization with the Chilean hake fishery:

Another fishery in South America is currently on assessment for the Chilean hake. This may imply some harmonization between the two fisheries. By consequence it has to be noted that:
- It is not the same species: Chilean hake is *Merluccius gayi gayi* (ranging from 23°38’S to 47°08’S) whereas the Peruvian hake is *Merluccius gayi peruanus*. Therefore it is not the same stock that is concerned.
- The Peruvian hake fishery catch several other species that the hake. By consequence, it has to be investigated whether the Chilean hake fishery impact the same species and populations that the Peruvian hake fishery or not. If the two fisheries impact the same bycatch populations, a harmonization may be necessary over the two management systems.
8- Implementation of a full assessment

A- Proposed planning for a full assessment

The time necessary to undertake a full assessment up to the certification stage is a function, on the one hand of the fishery’s complexity but also of the questions that may be brought up by stakeholders during the consultations or arising from an objection during the process. On the other hand, the time necessary is prescribed by minimum time delays defined by the MSC certification process, such as to put the assessment team together, to announce the assessment, to conduct assessment visits, to review reports or allow for the objection procedure.

It must consider that once the client is engaged in the process, the full assessment will take between 9 to 12 months to be undertaken correctly.

The calendar below provides a predicted chain of events for the different steps and minimum delays to be respected between steps fixed by the MSC process:

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<tbody>
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<td>1. Inform the MSC, public announcement and targeted communication to key stakeholders and selection of assessment Team</td>
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<td>2. Publication of fishery’s assessment Tree and weighting</td>
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<td>4. Assessment visits and information collection</td>
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<td>5. Scoring and score interpretation for the fishery (Performance Indicators and SG)</td>
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<td>6. Identification of certification conditions and expected improvements with schedule</td>
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<td>7. Determination of the point at which fish and fish product enter further MSC CoC</td>
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<td>8. Preliminary draft report – client review</td>
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<td>9. Submission of action programme (as necessary) to the certifying body for approval, complying with the certification conditions and schedule.</td>
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<td>10. External peer review and Peer Review Draft Report</td>
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<td>11. Public Comment Draft Report – review by stakeholders</td>
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<td>12. Final Report and publication (MSC website)</td>
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<td>13. Compilation of objections and objection procedure (as necessary)</td>
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<td>14. Certification awarded (as appropriate) and Public certification report published on MSC website.</td>
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*Figure 6: Calendar and minimum predicted time requirements of a full MSC certification assessment process*
B- Scope of the Certification

In order to benefit from the MSC certification, once landed and until the first sale, fish from the certified “Peruvian hake trawl” fishery will have to have their traceability monitored through the entire processing and marketing chain until the final consumer.

Each firm wanting to use the MSC logo on their “Peruvian hake” product will have to engage in an MSC Chain of Custody certification.

According to the certification process established by the MSC, and for certified MSC Chain of Custody companies, it may be possible, under specific conditions described by the MSC, and after the fishery has been certified, to sell hake produced before the certification date.
9 - Conclusion and recommendations:

Considering the informations collected during the pre-assessment and given the pre-assessment of the fishery, Bureau Veritas recommends that the MSC certification be continued, through the implementation of a full assessment of the Peruvian hake trawl fishery. Bureau Veritas recommends the analysis and improvement of the issues detailed in this report and that could be potential obstacles to the certification.

The Unit of Certification to be considered for the full assessment of the fishery would be:

**Target species:** Peruvian hake (*Merluccius gayi peruanus*)

**Stock:** South East Pacific, from 1°00’S to 13°56’S

**Fishing method:** bottom trawler

**Fishing area:** From Païta to Huarmey.

**Fisheries management:** The Peruvian hake fishery activities are managed by PRODUCE (Ministry of Production) advised by IMARPE (Instituto del Mar del Peru).

Bureau Veritas recommends that before deciding to proceed to a full assessment, the client should be informed of the requirements and implications. These include (but are not limited to) the need to:

- Liaise with management agencies, environment groups, post-harvest sectors, relevant commercial and non-commercial fishing groups to ensure their understanding of the MSC process and the implications (including costs and benefits) of certification.

- Address issues that may be a barrier to certification.

- Identify the type and extent of data and information that should be made available by the client to the certification body’s assessment team in the event of a full assessment.

- Identify the location, timing and form of any public or limited announcements to be made about the client’s intention to proceed to certification.