MSC Pre-assessment of the Trap and Handline Finfish Fishery in El Rosario, Baja California, Mexico

Prepared for:

Sociedad Cooperativa de Producción Pesquera Ensenada S.C.L.

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2 Glossary

BC: Baja California, Mexico.

BCS: Baja California Sur, Mexico.

Biomass: Individual or group of individuals of a species of a stock, expressed in weight.

Bycatch: Species caught in a fishery whose objective is a different species or a different size interval of the same species.

CAB: Conformity assessment body

CNP: National Fishery Chart

CONAPESCA: National Commission of Aquaculture and Fishing, responsible for managing and organizing the fishing activity.

CPUE: Catch per Unit of Effort.

CRIAP: Regional Centre for Aquaculture and Fisheries Research.

DOF: Official Federation Gazette.

Ecosystem health: a measure of the adaptability of the ecosystem (it's capacity to maintain its structure and pattern of behavior in the face of tensions), the organization (number and diversity of the interactions between the components of the ecosystem) and the vigor (a measure of the activity, the metabolism or the primary productivity). A healthy ecosystem is capable of maintaining its structure (organization) and function (vigor) in the long-term during situations of tension (adaptability).

Exclusive Economic Zone (EEZ): An area subject to national jurisdiction (up to 200 miles wide) declared in accordance with the provisions of the United Nations Convention regarding the Law of the Sea of 1982, in which the coastal state has the right to explore and exploit living and non-living resources and the obligation to conserve and organize them.

FIP: Fishery Improvement Project

Fishery Management Plan (FMP): Supporting instruments for the national fishing activity and are constituted of a group of actions, oriented to the development of the fishing activity in a balanced way, integral and sustainable, according to the General Law of Sustainable Fishing and Aquaculture. Their development is fundamental in the knowledge of the biological, fishing, environmental, economic, cultural and social aspects that the National Fisheries Institute collects and analyses, with the participation of the producers themselves, federal, state and municipal authorities, and academic institutes of higher education and research centres.

Fishery: The term refers to the sum of all fishing activities of a given resource. For instance, hake or shrimp, or the activities of a unique type or method of fishing for a resource, e.g. fishing with nets near the beach or trawling.

Fishing effort: Represents the number of fishing gears of a specific type used in the fishing grounds per set unit of time, p. E.g. number dragging hours, number hooks cast or number of times a purse seine is charged per day.

Fishing gear: represents the grouping of materials and equipment employed to conduct activities directed toward the extraction of fishing resources.

Fleet: total number of units of any type of fishing activity that use a specific resource.

Health of the ecosystem: a measure of the ecosystem's adaptability (its capacity to maintain its structure and behaviour pattern under stress), the organization (number and diversity of the

interactions between components of the ecosystem) and the vigour (a measure of the activity, the metabolism or primary productivity). A healthy ecosystem is capable of maintaining its structure (organization) and function (vigour) over time during situations of stress (adaptability).

INAPESCA: Public Body that provides the scientific and aquaculture authority with solid scientific bases, with reliable data to preserve order and develop the fishery, and contribute to the care of biodiversity, ecosystems and the aquatic habitat.

La Niña: the atypical cooling of tropical water of the Pacific Ocean.

El Niño: the atypical warming of tropical water of the Pacific Ocean.

LGEEPA: General Law for Ecological Equilibrium and Environmental Protection

LGPAS: General Law of Sustainable Fishing and Aquaculture.

LGVS: General Law of Wildlife.

Handline: Fishing with hook and line.

Maximum Sustainable Yield (MSY): the maximum average that can be extracted from a long-term stock, ensuring that the stock is maintained at levels that allow continued renewal of the fishery.

MBA: Monterey Bay Aquarium

MSC: Marine Stewardship Council

OSC: Civil Society Organizations

Recruitment: are the individuals of a stock, which enter the fishery for the first time every year and are susceptible to being caught.

SADER: Ministry of Agriculture and Rural Development.

SCPBS: Cooperative Society for the Production of Goods and Services

SCPP: Cooperative Society for Fishery Production

SCT: Communications and Transport Secretaryship.

SEMAR: Marine Secretaryship.

SEMARNAT: Ministry of Environment and Natural Resources.

SENASICA: National Service of Food Safety and Agro-Food Quality.

SIN: Sinaloa, Mexico.

Small vessel: also known as “panga”; a fishing unit with an inboard or outboard motor and a maximum length of 10.5 meters, with or without an ice-based catch conservation system with a maximum autotomy of three days.

SON: Sonora, Mexico.

Stock: group of surviving individuals available from the cohorts of a fishery resource in a given time period, which can be referred to as biomass or number of individuals.

Trophic Level: Position of the organisms in the food chain, determined by energy transfer from one level to another.

UoA: unit of assessment is defined as what is under assess.

3 Executive summary

This report sets out the results of a pre-assessment of the small-scale finfish fishery that uses handlines and traps in El Rosario, Baja California, Mexico based on the Marine Stewardship Council´s (MSC) Principles and Criteria for Sustainable Fishing. The Ensenada Cooperative has 20 commercial vessels that are directly engaged in the fishery. The Client Group consists of SCPP Ensenada SCL of El Rosario.

As part of a FIP that the fishery has undertaken, COBI conducted site visits in November 2018 to February 2019, prior to initiating this pre-assessment. The team members participated in meetings or conducted interviews with stakeholders. All information was received by COBI, including a preliminary pre-assessment report (Fernández et al. 2018) that provided part of the introductory material for this (comprehensive) report.

The pre-assessment was conducted by MSc. Francisco Fernández Rivera Melo, M. Sc. Alesa Flores Guzmán and Dr. Jose Francisco Chávez (COBI) and reviewed by Dr. Mónica Valle-Esquivel (MRAG Americas). Qualifications of the team are as follows:

M Sc. Francisco Fernandez Rivera Melo carried out the pre-assessment. He graduated from the Univerisidad Autonoma de Baja California Sur as a Marine Biologist and has a master's degree in Marine and Coastal Management. He has 15 years of experience developing and implementing projects for sustainable fisheries management in collaboration with rural communities, authorities and NGOs. He possesses solid skills in building capacity in fishermen, college students and managers. Mr. Fernandez has knowledge and experience with Mexican fisheries management tools (no-take zones, quotas, fishing gear, etc.). He is also experienced in underwater monitoring. He currently works as a sustainable fisheries coordinator at Comunidad y Biodiversidad, A. C. (www.cobi.org.mx), a civil society organization with the mission of promoting the conservation of marine biodiversity and the establishment of sustainable fisheries through effective participation. He is responsible to supervise the implementation and fundraising for the Sustainable Fisheries Program in COBI. Other activities are designed, assess and implement fishery improvement projects in eight fisheries in Mexico (clams, penshell, squid, octopus, spiny lobster, ocean tilefish, yellowtail and red snapper). He is an Associate technical consultants for Marine Stewardship Council.

M. Sc. Alesa Flores Guzmán carried out the pre-assessment. She graduated from the Autonomous University of Baja California as a Biologist, focusing on ecology and resource management. Subsequently, she completed her postgraduate degree studies at the Ensenada Center for Scientific Research and Higher Education in the Department of Marine Ecology where she worked in the assessment of data-poor fisheries in Mexico. She has experience developing marine and terrestrial conservation projects with NGOs. She has more than five years of experience working with fishing communities in the northwestern region of Mexico, especially with elasmobranch fisheries and currently bony fishes. At present, she works as head of sustainable fisheries in Comunidad y Biodiversidad, A. C. (COBI) (www.cobi.org.mx), a civil society organization with the mission of promoting the conservation of marine biodiversity and the establishment of sustainable fisheries through effective participation. At COBI, Alesa is responsible for developing multi-species fisheries improvement projects in northwestern Mexico.

Dr. José Francisco Chávez Villegas (drafted preliminary PA report) he joined COBI, A.C. in 2018 as Sustainable Fisheries Project Manager. Dr. Chávez graduated as Biologist from the Universidad de Occidente, Los Mochis, Sinaloa. He obtained his MSc and PhD degrees in Marine Sciences from the Center for Research and Advanced Studies of the National Polytechnic Institute (Cinvestav-IPN), Merida, Yucatan. He taught courses in molluskecology and biology at the National University of Colombia for academics and fishermen groups (2010), was an associate professor at Cinvestav-IPN theaching a Mollusk Aquaculture course, and participated in scientific diffusion programs led by the Mexican Academy of Sciences of the Southeast (2009-2017). Dr. Chávez was also a professor

at the Institute of Sciences and Superior Studies of Tamaulipas A.C (2015-2018), was a member of the advisory board for the International Journal of Tropical Biology and Conservation from 2013 to 2018, and collaborated in the organization of scientific meetings of the Gulf and Caribbean Fisheries Institute (GCFI) and the Association of Marine Laboratories of Caribbean (AMLC) in Mexico (2011-2017).

Dr. Mónica Valle-Esquivel (Oversight and Review) joined MRAG Americas in 2010 as Senior Fisheries Biologist. She has over 15 years of experience in sustainable management of marine fisheries. She specialized in fish and shellfish population dynamics, stock assessment, design and evaluation of management strategies, statistical analysis, risk analysis, and fishery simulation modeling. Dr. Valle worked with the University of Miami and NOAA Fisheries as a post-doctoral stock assessment scientist, and has provided scientific advice to FAO, CITES, CARICOM, ACP Fish II, and other international organizations for the management of tropical marine species the US, Latin America, and the Caribbean. In Mexico she coordinated a United Nations (UNIDO) coastal management project within the Gulf of Mexico Large Marine Ecosystem program. At MRAG Americas, Dr. Valle has worked with institutions, scientists, fishers, managers, NGOs, and other stakeholders to promote and achieve sustainability of fishery resources around the world. She is a certified Marine Stewardship Council lead assessor, and for nine years has served as a team leader and member for several fisheries, ranging from invertebrate fisheries to highly migratory fish. Among other professional achievements, Dr. Valle has acquired wide experience in the development and implementation of fishery improvement projects and fishery management plans, in the design and analysis of various monitoring programs, and in essential fish habitat and ecosystem assessments. Dr. Valle received a B.S. degree in Biology from the National Autonomous University of Mexico (UNAM), and a Ph.D. in Marine Biology and Fisheries from the Rosenstiel School of Marine and Atmospheric Science, University of Miami.

The present pre-assessment was carried out during the period from November 2018 to February 2019, using the most adequate information available and meetings with SCPP Ensenada, Baja California, which has traditionally caught different marine finfish species with handlines and traps.

The main strengths and weaknesses identified in the pre-assessment were:

Principle 1:

Strengths: There is sufficient information on the biology and ecology of the five target finfish species, and landing statistics and fishing information have been collected since 2005. These species are ocean whitefish (*Caulolatilus princeps*), California sheephead (*Semicossyphus pulcher*), barred sand bass (*Palabrax nebulifer*), starry rockfish (*Sebastes constellatus*) and vermilion rockfish (*S. miniatus*).

Weaknesses: There are no stock assessments, the current status of the stocks is not known, there is no structured harvest strategy, there are no harvest control rules, and there is no evidence that the tools available are effective in controlling exploitation. Given that none of these key elements reach SG60, most of the P1 indicators are likely to fail, which would also fail the fishery as a whole. This principle requires the foremost attention.

Principle 2:

Strengths: Due to the the type of gears used and the selective nature of the fisheries, the UoAs in El Rosario (Baja Claifornia) would likely meet some of the criteria related to P2 that considers the impact on other elements of the ecosystem – specifically bycatch, ETP species, habitat and ecosystem. It is likely that the UoAs have limited interaction with ETP species, and are in line with the Mexican policy that is well regulated for ETPs.

Weaknesses: The habitat and ecosystem impacts are not known. The information used in this document was from nearby areas with similar characteristics. However, it is necessary to conduct studies in the locality to know the impact of the UoA on the habitat and the ecosystem.

Principle 3:

Strengths: The legal system in Mexico includes a structured and generally effective fisheries management system that meets most of the MSC criteria for P3. Fisheries policy is based on a Fishery Law (LGPAS) that delegates management and research responsibilities to CONAPESCA and INAPESCA. These agencies collaborate with other federal, state and municipal authorities in the development, implementation, and enforcement of fisheries laws and regulations. There is a consultation process that is open to stakeholders, and roles and responsibilities are generally clear.

Weaknesses: Most P3 issues occur within the fishery-specific management system, so conditional scores would be likely for a number of indicators. There is no evidence that consultation occurs regularly or that local knowledge is included in management decisions. The handline fisheries for five species do not have a NOM or a FMP, and fishery-specific objectives have not been defined. Evidence of compliance by the fishery is required, as well as an assessment of the magnitude and characteristics of illegal fishing in the region. MCS activities may need to be reinforced and better documented.

Conclusion:
Overall, the team concludes that at this time the fishery is NOT consistent with the MSC Fisheries Standard, and several improvements are necessary to meet the minimum requirements to become a candidate for certification. This pre-assessment should help to identify the main issues that the ongoing FIP should address.

4 Report details

4.1 Aims and constraints of the pre-assessment

The MSC is an independent, global, non-profit organization. It works to enhance responsible management of seafood resources and to ensure the sustainability of global fish stocks and the health of the marine ecosystem. The MSC harnesses consumer power by identifying sustainable seafood products through an eco-label. The MSC has identified the following mission statement: “To safeguard the world’s seafood supply by promoting the best environmental choice.”

The objective of pre-assessments is to provide a focus for an eventual Fishery Improvement Project or MSC full assessment. This part of the process provides a basis for understanding the fishery in the context of the MSC Fishery Certification Requirements v2.0 and informs the client of the likelihood of achieving certification of their fishery. The pre-assessment also clarifies with the client the philosophy and expectations of the MSC and identifies the strengths and weaknesses of the fishery with respect to the MSC Standard.

It is important to note that a pre-assessment of a fishery does not attempt to duplicate a full assessment against the MSC Standard, and it can only provide guidance. A full assessment involves expert team members and public consultation stages that are not included in a pre-assessment. A pre-assessment provides a provisional assessment of a fishery based on a limited set of information provided by the client.

This report presents the results of the pre-assessment of the handline and trap finfish fishery (ocean whitefish, California sheephead, barred sand bass, starry rockfish and vermilion rockfish) in El Rosario (Baja California coast) following the sustainability criteria of the MSC. The status of the fishery is analyzed in this report in order to obtain a comprehensive overview that allows responsible decision making when implementing any fishery improvement scheme. In this particular

case, the fishery was evaluated using the most rigorous and demanding standards that currently exist.

It should be noted that the original report was carried out by trained staff from the Civil Society Organization Comunidad y Biodiversidad, A.C. (COBI). It was originally written in Spanish (2017) and later translated into English. The English version was reviewed by MRAG Americas, and further revisions were carried out by COBI and MRAG Americas. The original report used pre-assessment version 2.0 and was updated herein to version 3.0.

There were no limitations to carrying out the pre-assessment. COBI used a wide range of background information and references. During the elaboration process, many meetings were held, and questions related to the applicability of the MSC´s performance indicators for the fishery were reviewed. However, it is important to mention that access to updated information may be limited by the organizations or agencies that are in charge of research and management of the handline finshish fishery of El Rosario. There is a generous collection of information about the species, but most remains unpublished or is not updated regularly to reflect the current situation of the fishery.

4.2 Version details

The pre-assessment was conducted in accordance with the certification requirements of the MSC v2.3. The MSC pre-assessment report template v3.0 was used for the report.

Fisheries program documents versions

Document	Version number
MSC Fisheries Certification Process	**Version 2.1**
MSC Fisheries Standard	**Version 2.01**
MSC General Certification Requirements	**Version 2.3**
MSC Pre-Assessment Reporting Template	**Version 3.0**

5 Unit(s) of Assessment

5.1 Unit(s) of Assessment

Based on the information reviewed, we concluded that the fishery evaluated in this pre-assessment is within the scope of the sustainability standards defined by the MSC program since: (i) it does not use introduced species, (ii) the fishery does not make use of destructive practices such as poison or explosives, (iii) the fishery is conducted within the Mexican Exclusive Economic Zone (EEZ), (iv) the fishery is not subject to any international management agreement and (v) the fishery has not been considered within any certification process. Based on these premises, it can be confirmed that the finfish fishery of El Rosario is within the scope of the MSC fishery sustainability criteria and can be evaluated under this standard.

The finfish fishery of El Rosario is a multispecies and multigear fishery. The target species of the handline and trap fishery are: Ocean whitefish (*Caulolatilus princeps*), California sheephead (*Semicossyphus pulcher*), Barred sand bass (*Paralabrax* nebulifer), Starry rockfish (*Sebastes constellatus*) and Vermilion rockfish (*Sebastes miniatus*).

The unit of assessment (UoA) is the finfish fishery that uses handlines and traps in El Rosario, Baja California (BC), Mexico. The fleet consists of small vessels operated by the Ensenada cooperative.

Justification for the Units of Assessment:

The Baja California peninsula is a natural barrier that separates the Gulf of California from the Pacific Ocean region. Over millions of years, this barrier has influenced the separation of different populations of some species. In the last 15,000 years, significant divergence has occurred in geographically isolated populations (Tranah and Allen, 1999). For example, Walker (1960) observed differences in the colorations of some fish species between the two sites. Bernadi et al. (2003) observed a phylogeographic break in Punta Eugenia region that is characterized by having a high or very low gene flow.

Some examples of species with genetic differentiation, that is, with little genetic flux between both sites, are *Leuresthse tenuis, L. sardina, Girella nigricans, Hypsoblennius jenkinsi, Chaenopsis alepidota, Paralabrax maculatofasciatus, Gillichthys mirabilis, Anisotremus davidsonnii* and *Lythr Halichoeres semicinctus*. Likewise, a high gene flow has been found between the populations of both regions for *Semicossyphus pulcher* and *Halichoeres semicinctus*.

On the other hand, Tranah and Allen (1999) and Stepien et al. (2011), examined morphometric characteristics, meristic and genetic variation among six Pacific and Gulf of California population of *Paralabrax maculotofasciatus*. It was found that for this species, the morphological and genetic evidence shows the significant difference that exists between the populations of both regions. However, no morphological differences were found between the three populations of the Pacific coast studied, although genetically they form three different groups. One corresponding to the population of San Diego, one in the southern-Pacific and one in the Gulf of California.

These results indicate that low gene flow is not restricted only to sites isolated by a geographic barrier, but that there are also different populations at sites without these barriers, such as the *M. maculotofasciatus* populations of San Diego and that of southern Baja California Peninsula. Tranah and Allen (1999) suggest that geographically separated populations, fast-maturing like most fish, do not require long periods for divergence.

Also, Bellquist et al. (2008) describe the home range, side fidelity and movement patterns of ocean whitefish (*Caulolatilus princeps*) using acoustic telemetry in a southern California marine reserve. They tracked 16 individuals, fitted with acoustic transmitters and found a site fidelity with periodic shifts, that did not appear to be seasonal, in the area used. Home range distribution average 20,439 ± 28,492 m2. The above suggests the possible existence of subpopulations for this species within the Gulf of California, however, it is necessary to carry out studies like the previous one to confirm it.

There is a good possibility that other artisanal fleets from the Baja California coast will join the ongoing FIP led by COBI in the short term. The cooperatives that will likely be incorporated in the UoA are those of San Quintin (30.284568º N, -115.804042º W) and Punta San Antonio (29.896361º N, -115.699136º W). Their fleets also operate in the Baja California coast using similar fishing methods and gears.

The Units of Assessment are configured as follows:

Table 1 – Unit(s) of Assessment (UoA)

UoA1	**Description**
Species	Trap *1)* *Caulolatilus princeps* (Jenyns, 1840) *2)* *Semicossyphus pulcher* (Ayres, 1854) *3)* *Paralabrax nebulifer* (Girard, 1854)
Common names	1) Ocean whitefish (in Spanish: blanco, blanquillo fino, pierna) 2) California sheephead (in Spanish: vieja de fondo, vieja Californiana) 3) Barred sand bass (in Spanish: verdillo, curricata)
Stocks	Baja California Stocks (DOF, 2010).
Geographical area	Marine waters of Federal Jurisdiction in Baja California, between San Quintin (30.284568º N, -115.804042º W) and Punta San Antonio (29.896361º N, -115.699136º W).The fishing area is explicit in finfish fishing permits.
Harvest method/gear	Trap (TP)
Client group	SCPP Ensenada SCL
Other eligible fishers	Yes, some fishermen from other cooperatives in the UoA areas use the same methods and fishing gears. These fishermen could potentially join the Committee and the MSC certification process (or FIP).
Justification for choosing the Unit of Assessment	The Baja California peninsula is a natural barrier that separates the Gulf of California from the Pacific Ocean region. Over millions of years, this barrier has influenced the separation of different populations of some species. The studies described above provide evidence of significant divergence in the fish populations from either side of the Baja California peninsula and of the possible existence of subpopulations for the target species within the Gulf of California. Management area: CONAPESCA has defined areas of exploitation as part of the spatial management of fisheries in Mexico. Finfish permits include a specific area: Marine waters of Federal Jurisdiction in Baja California, between San Quintin (30.284568º N, -115.804042º W) and Punta San Antonio (29.896361º N, -115.699136º W).The fishing area is explicit in the finfish fishing permits. Gear: Considering that the finfish species harvested with traps differ from those harvested with handlines, that the fishing operations, fishing areas, and the the impacts of each gear upon the ecosystem components may also different, the UoAs were separated by gear type. Based on this information, the finfish stocks harvested with traps in the coast of Baja California can be justified as the first UoA for this PA.
UoA2	**Description**
Species	Handline 1) *Caulolatilus princeps* (Jenyns, 1840) *2)* *Semicossyphus pulcher* (Ayres, 1854) *3)* *Paralabrax nebulifer* (Girard, 1854) *4)* *Sebastes constellatus* (Jordan & Gilbert, 1880) 5) *Sebastes miniatus* (Jordan & Gilbert, 1880)

Common names	1) Ocean whitefish (in Spanish: blanco, blanquillo fino, pierna) 2) California sheephead (in Spanish: vieja de fondo, vieja Californiana) 3) Barred sand bass (in Spanish: verdillo, curricata) 4) Starry rockfish (in Spanish: rocote estrella, rocote estrellado) 5) Vermilion rockfish (in Spanish: rocote vermejo)
Stocks	Baja California Stock (DOF, 2010).
Geographical area	Marine waters of Federal Jurisdiction in Baja California, between San Quintin (30.284568º N, -115.804042º W) and Punta San Antonio (29.896361º N, -115.699136º W).The fishing area is explicit in finfish fishing permits.
Harvest method/gear	Handline (HL)
Client group	SCPP Ensenada SCL
Other eligible fishers	Yes, some fishermen from other cooperatives in the UoA areas use the same methods and fishing gears. These fishermen could potentially join the Committee and the MSC certification process (or FIP).
Justification for choosing the Unit of Assessment	The Baja California peninsula is a natural barrier that separates the Gulf of California from the Pacific Ocean region. Over millions of years, this barrier has influenced the separation of different populations of some species. The studies described above provide evidence of significant divergence in the fish populations from either side of the Baja California peninsula and of the possible existence of subpopulations for the target species within the Gulf of California. Management area: CONAPESCA has defined areas of exploitation as part of the spatial management of fisheries in Mexico. Finfish permits include a specific area: Marine waters of Federal Jurisdiction in Baja California, between San Quintin (30.284568º N, -115.804042º W) and Punta San Antonio (29.896361º N, -115.699136º W).The fishing area is explicit in the finfish fishing permits. Gear: Considering that the finfish species harvested with handlines differ from those harvested with traps, that the fishing operations, fishing areas, and the impacts of each gear upon the ecosystem components may also different, the UoAs were separated by gear type. Based on this information, the finfish stocks harvested with handlines in the coast of Baja California can be justified as a second UoA for this PA.

6 Traceability

6.1 Traceability within the fishery

The chain of custody for the finfish fishery that uses traps and handlines in El Rosario, BC, begins at the time of landing. It is the same cooperative, SCPP Ensenada which prepares the product for delivery directly to the buyer or final consumer. However, it is necessary to check if the species that are analyzed in this document are not captured with other fishing gears. In that case, it would be necessary to segregate the product by fishing gear. The cooperative is already working on a traceability system for its products by vessel, in collaboration with Smartfish.

Table 2 – Traceability within the fishery

Factor	Description
Will the fishery use gears that are not part of the Unit of Certification (UoC)? If Yes, please describe: - If this may occur on the same trip, on the same vessels, or during the same season; - How any risks are mitigated.	Yes Fishers use other gears to catch different species from those targets in this PA. For example, some cooperatives catch yellowtail amberjack, so they use encircling nets in specific trips. However, when they fish using handline or traps for the species mentioned in this PA, it is the only fishing gear employed.
Will vessels in the UoC also fish outside the UoC geographic area? If Yes, please describe: - If this may occur on the same trip; - How any risks are mitigated.	No (All species) Capture areas are specified by the license. In this case, the area is specified as the marine waters of Federal Jurisdiction in the the state of Baja California, between San Quintin (30.284568º N, -115.804042º W) and Punta San Antonio (29.896361º N, -115.699136º W).The fishing area is explicit in the finfish fishing permits.
Do the fishery client members ever handle certified and non-certified products during any of the activities covered by the fishery certificate? This refers to both at-sea activities and on-land activities. - Transport - Storage - Processing - Landing - Auction If Yes, please describe how any risks are mitigated.	Yes Among the activies covered by the client are storage, processing, landing and transportation as well as sale to large retail companies. The cooperative Ensenada is testing a pilot traceability program, which allows them to monitor the finfisn fishery. They have a plant, where they process. There is interaction with other species in the fishery, but there is no mixing or replacement of organisms through the processing.
Does transhipment occur within the fishery? If Yes, please describe: - If transhipment takes place at-sea, in port, or both; - If the transhipment vessel may handle product from outside the UoC; - How any risks are mitigated.	No All boats land their catches and the product is delivered to the cooperative.
Are there any other risks of mixing or substitution between certified and non-certified fish? If Yes, please describe how any risks are mitigated.	No

7 Pre-assessment results

7.1 Pre-assessment results overview

7.1.1 Overview

In accordance with the information reviewed, it was determined that the finfish fishery of El Rosario, Baja California is within the scope of the MSC (see Section 5. UoA). The analysis of the information available also showed that the fishery has several areas where it does not meet the MSC Standard and could prevent it from being certified at this time. These areas would need improvements before moving to a full assessment. A number of performance indicators (PIs) in P1, P2, and P3 scored below 60. As noted in Table 3, the indicators marked in red imply that the 60 level is not likely to be met. Indicators marked in yellow imply that the 80 level is not likely to be met; these indicators are liable to raise conditions in a full assessment. Indicators marked in green are at or above the 80 level and are likely to pass without conditions. Summaries are provided below for areas of non-conformance; more details are given in the complete scoring tables for Principles 1, 2 and 3 (Sections 7.4, 7.5, and 7.6).

Table 3 – Key to likely scoring level in Table 4 and P1, P2, and P3 performance indicators.

Definition of scoring ranges for PI outcome estimates	Shading to be used
Information suggests fishery is not likely to meet the SG60 scoring issues.	Fail (<60)
Information suggests fishery will reach SG60 but may not meet all of the scoring issues at SG80. A condition may therefore be needed.	Pass with Condition (60-79)
Information suggests fishery is likely to exceed SG80 resulting in an unconditional pass for this PI. Fishery may meet one or more scoring issues at SG100 level.	Pass (≥80)

Principle 1

Most of the Principle 1 indicators are unlikely to meet the MSC standard, but there are a few positive features in P1. There is sufficient information on the biology and ecology of the five species, and landing statistics have been collected since 1980. This principle requires foremost attention, the information gaps are related to the stock assessment and current stock status. Furthermore, there are no harvest control rules, and there is no evidence that the tools available are effective in controlling exploitation.

Description of PIs< 60 in P1:

PI 1.2.3 – Information

Description of PIs< 60 in P1:

PI 1.2.1 Harvest strategy – A robust and precautionary harvest strategy for finfish is not in place(harvest strategy and harvest control rules are not by gear, they are for the stock that are being managed), but monitoring occurs and there are some management measures (fishing

licenses/gear restrictions). It is necessary to update status and management information for finfish stocks in the CNP (National Fishing Chart), to develop an FMP (Fishery Management Plan) and to provide evidence/document that the regulations have worked by monitoring the status of the stocks.

PI 1.2.2 Harvest control rules and tools – There are no (formal or implicit) harvest control rules for the finfish fishery, and there is no evidence that the fishery responds to changes in indicators of stock status.

PI 1.2.3 – Information and monitoring – - There is limited information to support the harvest strategy.

Principle 2

This principle requires foremost attention even though areas of non-conformance were not identified. Key points arising from the analysis are the lack of data to i) define management tools for primary and secondary species; ii) identify specific fishery interactions with ETP species, to define management tools and generate information about positive or negative interactions; iii) to develop management tools and information about ecosystems affected by the finfish fishery.

Principle 3

The management system has an appropriate legal and customary framework, based on a Fishery Law (LGPAS) that delegates management and research responsibilities to CONAPESCA and INAPESCA, which collaborate with other federal, state and municipal authorities in the development, implementation, and enforcement of fisheries policies. There is a consultation process that is open to stakeholders, and roles and responsibilities are generally clear. However, there is no evidence that consultation occurs regularly or that local knowledge is included in management decisions.

Key P3 issues where potential conditions would be raised occur within the fishery-specific management system. The handline fishery (five species) does not have a NOM or FMP, and fishery-specific objectives have not been defined. An FMP must be developed that includes clear objectives, harvest control rules and tools to halt stock decline and begin recovery. Evidence of compliance by the fishery is required, as well as an assessment of the magnitude and characteristics of illegal fishing in the region. MCS activities need to be reinforced and better documented.

Description of PIs< 60 in P3:

PI 3.2.1 Fishery specific objectives – There are no clear and measurable specific objectives in the short or long term. The only official management planning for the fishery is provided in a very general way in the CNP, but should be included in other official management documents (CNP, FMP, and the Law).

PI 3.2. Decision-making processes – The fishery-specific management system does not have a clear decision-making processes that result in measures and strategies.

PI 3.2.3 Compliance and enforcement – It is not known if or how the management authority monitor compliance and implements enforcement actions on the fishery under evaluation. No hard evidence was available to know the nature of common violations in this fishery, the frequency of occurrence, what sanctions are applied or whether they provide effective deterrence.

PI 3.2.4 Management performance evaluation – Currently there are no mechanisms to assess of the performance of the fishery-specific management system. There is no legal instrument that defines the specific objectives for the finfish fishery.

7.1.2 Recommendations

Based on the results of this pre-assessment, several areas were identified where the fishery does not meet the MSC standard. The Client is encouraged to continue working on improvements, particularly in the areas identified as critical to the sustainability of the fishery. This analysis should help the FIP focus on key indicators and provide a general basis for actions that need to be undertaken in order to meet the MSC standard.

7.2 Summary of potential conditions by Principle

In a full assessment, indicators that are not likely to meet the 80 level (scoring 60-79) are liable to raise conditions. However, rasing conditions is beyond the scope of a pre-assessment, particularly when there are many indicators <60 that would fail the fishery altogether. Otherwise, each of the PIs with a score of 60-79 would require a condition. The next table (4) shows the number of PIs scoring <60 for each principle.

Table 4 – Summary of Performance Indicator level scores

Principle of the Fisheries Standard	Number of PIs with draft scoring ranges <60
Principle 1 – Stock status	**3**
Principle 2 – Minimising environmental impacts	**0**
Principle 3 – Effective management	**4**

7.3 Summary of Performance Indicator level scores

Table 5 – Summary of Performance Indicator level scores

Performance Indicator	Draft scoring range		Data deficient?
1.1.1 – Stock status	*Caulolatius princeps*	**≥80**	**Yes**
	Semicossyphus pulcher	**≥80**	**Yes**
	Paralabrax nebulifer	**≥80**	**Yes**
	Sebastes constellatus	**≥80**	**Yes**
	Sebastes miniatus	**≥80**	**Yes**
Rationale or key points			
At present there is no stock assessment for the species ocean whitefish (*C. princeps*), Californian sheephead (*S. pulcher*), barred sand bass (*P. nebulifer*), starry rockfish (*S. constellatus*), or vermilion rockfish (*S. miniatus*), or any other species in the marine finfish complex. However, the RBF approach was used to determine the risk level (RBF) for stock status.			
1.1.2 – Stock rebuilding	**N/A**		**Yes**
Rationale or key points			
This PI only shall only be scored when stock status does not meet the SG80 level in PI 1.1.1			
1.2.1 – Harvest Strategy	*Caulolatius princeps*	**<60**	**Yes**
	Semicossyphus pulcher	**<60**	**Yes**
	Paralabrax nebulifer	**<60**	**Yes**
	Sebastes constellatus	**<60**	**Yes**
	Sebastes miniatus	**<60**	**Yes**
Rationale or key points			
There are no reference points, stock assessment or harvest strategy defined for any of the stocks in this finfish fishery. All catches of the target stocks are classified in the category of “marine finfish”, where subgroups are composed of different species (DOF, 2010). Catch is monitored through landing tickets and there are a few ad hoc management measures, consisting of fishing licences/gear restrictions, which may not be sufficient to maintain the stocks at sustainable levels.			

1.2.2 – Harvest control rules and tools	*Caulolatius princeps*	**<60**	**Yes**
	Semicossyphus pulcher	**<60**	**Yes**
	Paralabrax nebulifer	**<60**	**Yes**
	Sebastes constellatus	**<60**	**Yes**
	Sebastes miniatus	**<60**	**Yes**
Rationale or key points			
Data of the species must be updated to provide evidence/document that the regulations work by monitoring stock status regularly. The harvest control rules need to be defined in the CNP (National Fishing Chart) and FMP (Fishery Management Plan).			
1.2.3 – Information and monitoring	*Caulolatius princeps*	**<60**	**Yes**
	Semicossyphus pulcher	**<60**	**Yes**
	Paralabrax nebulifer	**<60**	**Yes**
	Sebastes constellatus	**<60**	**Yes**
	Sebastes miniatus	**<60**	**Yes**
Rationale or key points			
There is basic information available related to fishing zones, catch volumes and biological aspects of the species targeted. However, the catch records are not considered reliable because the collection of data and monitoring of the fishery is not systematic, only relies on the volume of catches and in some cases is not reported at the species level.			
1.2.4 – Assessment of stock status	*Caulolatius princeps*	**≥80**	**Yes**
	Semicossyphus pulcher	**≥80**	**Yes**
	Paralabrax nebulifer	**≥80**	**Yes**
	Sebastes constellatus	**≥80**	**Yes**
	Sebastes miniatus	**≥80**	**Yes**
Rationale or key points			
Because an RBF approach was applied to PI 1.1.1, according to the MSC methodology, a score ≥80 is assigned to this PI by default.			

2.1.1 – Primary Outcome	UoA 1 (T) Market squid	**60-79**	**Yes**
	UoA 2 (HL) Sardine	**≥80**	**Yes**
Rationale or key points			
T: The main primary species correspond to resources used as bait, primarily sardines (*Sardinops sagax*) The Kobe diagram shows the trajectory of the level of exploitation of both temperate stocks of S. sagax, which has remained at sustainable levels throughout the period evaluated. HL: California Market Squid can be considered to be below the PRI. Management reference points are based on an "egg escapement model," which allows for the estimation of reproductive output and fishing mortality rates. However, this approach is not designed to assess species abundance and is not intended for that purpose in this fishery.			
2.1.2 – Primary Management	UoA 1 (T) Market squid	**60-79**	**No**
	UoA 2 (HL) Sardine	**60-79**	**No**
Rationale or key points			
T: Several of the management measures for the small pelagic fishery are already in place. Systematic monitoring of landings has been conducted since the 1980s, and several stock assessments for Pacific sardine, Pacific thread herring, and chub mackerel have been conducted. Information collected from the small pelagics observer program provides some objective basis for confidence in the likelihood that the current operations of the fleet will work to manage impacts of the fishery on primary species. HL: For the California market squid, the Management Measures (MSFMP) (2005) establishes a management program for California's market squid resource and procedures by which the Commission Deparment of Fish and Wildlife will manage the market squid fishery (CDFW, 2005). There are stablished control rules, seasonal catch limitation, weekend closures, gear regulations, and a monitoring program to evaluate the impact of the fishery. To control the fishing effort, a restricted access program is implemented.			
2.1.3 – Primary Information	UoA 1 (T) Market squid	**≥80**	**Yes**
	UoA 2 (HL) Sardine	**≥80**	**Yes**
Rationale or key points			
T: Commercial fisheries landings and effort are monitored for all small pelagic species (industrial fleet), providing some quantitative information on the amount of Pacific sardine taken. HL: Market squid landings are monitored in California, United States, providing quantitative information about the stock (CDFW 2005).			
2.2.1 – Secondary Outcome	(UoA1 T) Secondary species (Metacarcinus magister, Paralabrax clathratus and	**≥80-RBF**	**Yes**

	Atractoscion nobilis)		
	(UoA2 HL) Secondary species (Seriola lalandi, Paralichthys californius and Atractosion nobilis)	**≥80**	**Yes**
Rationale or key points			
T: There is no stock assessment for *Metacarcinus magister* and *Paralabrax clathratus* in the fishery that supports the Rosario fleet therefore, its status is not known with respect to the BMSY, PRI or some proxy HL: There are no main secondary species for the handline finfish fishery in El Rosario, BC. Therefore this SI is not applicable. An RBF was used to score the *Metacarcinus magister* and *Paralabrax clathratus* (See Section 7.10: RBF Scoring Table). Using the MSC RBF worksheet the score provided was that of an unconditional pass.			
2.2.2 – Secondary Management	UoA 1 (T)	**60-79**	**Yes**
	UoA 2 (HL)	**≥80**	**Yes**
Rationale or key points			
TP: There are few measures in place that could limit the impact of the UoA on main secondary species (trap size, licensing, fishing area, and community closed areas). However, there is no monitoring of the CPUE that allows us to identify a trend regarding the state of the population. HL: There are no main secondary species for the handline finfish fishery in El Rosario, BC.			
2.2.3 – Secondary Information	UoA 1 (T)	**60-79**	**Yes**
	UoA 2 (HL)	**≥80**	**Yes**
Rationale or key points			
T: When the MSC Risk Based Framework is used to score PI 2.2.1 and the auqtitative information is adequate score of 80 is given to this PI. HL: The catch data show that there are no main secondary species and that the catch of minor secondary species is very low. Therefore, there is quantitative information available (fishing logbooks) to adequately assess with a high degree of certainty the UoA's impact on main secondary species. SG100 is met.			
2.3.1 – ETP Outcome	UoA 1 (T)	**≥80**	**Yes**
	UoA 2 (HL)	**≥80**	**Yes**
Rationale or key points			

According to MSC Fisheries Standard v2.01; SA3.2.1, if an assessment team determines that a UoA has no impact on a particular component, it shall receive a score of 100 under the Outcome PI. Therefore, as it has been determined the UoAs 1 and 2 (ocean whitefish, California sheephead, barred sand bass, starry rockfish and vermilion rockfish) have no impact on the ETP species component, (mammals, birds, fishes and invertebrates included in NOM-059, CITES and UICN red list), they automatically receive a score of 100 for this particular Outcome PI.			
2.3.2 – ETP Management	UoA 1 (T)	**≥80**	**Yes**
	UoA 2 (HL)	**≥80**	**Yes**
Rationale or key points			
There is no evidence of capture of ETP species within the UoAs (1 and 2) finfish fishery. However, in Mexico there are established measures in accordance with international requirements for the protection of these species. The NOM-059-SEMARNAT-2010 is a strategy established by SEMARNAT for the management of all ETP species native to Mexico and guarantees that the UoA does not hinder the recovery of ETP species.			
2.3.3 – ETP Information	UoA 1 (T)	**≥80**	**Yes**
	UoA 2 (HL)	**≥80**	**Yes**
Rationale or key points			
According to the justification presented in PI 2.3.1 and the information provided by the fishing logbook program, there is no interaction with ETP species in the UoAs (1 and 2); therefore, this information allows us to determine the impact of the UoAs (1 and 2) on ETP species. Information is adequate to measure trends and support a partial strategy to manage impacts on ETP species if any were to exist in the future.			
2.4.1 – Habitats Outcome	UoA 1 (T)	**≥80**	**Yes**
	UoA 2 (HL)	**≥80**	**Yes**
Rationale or key points			
T**:** The trap is a fishing gear with low impact on habitat. The traps are set on the sea bottom. Compared with other fisheries, lobster traps don't represent impacts, causing little or no damage to substrate, geomorphology or biota. HL: The handline is a fishing gear with low impact on habitat. The species are caught in midwater and close to the sea bottom. Handlines are considered to have minimal impacts, causing little or no damage to substrate, geomorphology or biota.			
2.4.2 – Habitats Management	UoA 1 (T)	**≥80**	**Yes**
	UoA 2 (HL)	**≥80**	**Yes**
Rationale or key points			
The UoAs (1 and 2) operating in the El Rosario are not considered to pose a risk of serious or irreversible harm to habitat types. There are fishery refuges in the area which contribute to minimize impacts from the			

fishery. The low impact of UoAs (1 and 2) described in nearby areas (Natividad and Pacific coast) show that refuge areas are a partial strategy that helps ensure the UoAs do not represent a risk to habitats.			
2.4.3 – Habitats Information	UoA 1 (T)	**60-79**	**Yes**
	UoA 2 (HL)	**60-79**	**Yes**
Rationale or key points			
The Mexican Pacific has been extensively studied, the information focuses on general distribution of habitats, areas of productivity and areas of biological importance for invertebrates, fishes, marine mammals, and seabirds. For the UoAs (1 and 2), data recorded on logbooks include the fishing areas and the depth where the small-scale handline and trap fleet operates. There is reliable information on the spatial distribution of fishing effort and its distance relative to shore/depth to broadly understand the impacts of gear as a function of contact with the substrate.			
2.5.1 – Ecosystems Outcome	UoA 1 (T)	**≥80**	**Yes**
	UoA 2 (HL)	**≥80**	**Yes**
Rationale or key points			
T: It is unlikely that the finfish fishery with handlines will modify the structure and function of the ecosystem, causing serious or irreversible damage. The traps are selective gears and have low impact on the ecosystem, however, this has not been proven locally. Since the target species are not likely overfished, the unwanted catch is likely minimal, there are no interactions with ETP species and little to no contact of the gear with the seafloor, impacts of the fishery on key ecossystem elements are null. HL: It is unlikely that the finfish fishery with handlines will modify the structure and function of the ecosystem, causing serious or irreversible damage. The handlines are one of the most selective gears and have low impact on the ecosystem, however, this has not been proven locally. Since the target species are not likely overfished, the unwanted catch is likely minimal, there are no interactions with ETP species and little to no contact of the gear with the seafloor, impacts of the fishery on key ecossystem elements are null.			
2.5.2 – Ecosystems Management	UoA 1 (T)	**60-79**	**No**
	UoA 2 (HL)	**60-79**	
Rationale or key points			
For the UoAs (1 and 2), data obtained from the fishing logbooks show the selectivity of the fishing gear, the low catch of primary, secondary and ETP species. Also, there is a low impact on habitats, reinforced by the of no take zones These elements suggest that there are also potential low impacts of the UoAs (1 and 2) on the ecosystem. However, the UoAs (1 and 2) do have an explicit strategy.			
2.5.3 – Ecosystems Information	UoA 1 (T)	**60-79**	**Yes**
	UoA 2 (HL)	**60-79**	**Yes**
Rationale or key points			

Trophic structures have not been studied in this area, but studies in nearby areas of the Gulf of California provide an overview of trophic relationships in the UoAs (1 and 2) area. With respect to the general problems of ecosystems, the extraction of the UoAs (1 and 2) target finfish and over-exploitation of these could have negative effects on the ecosystem		
3.1.1 – Legal and customary framework	**≥80**	**Yes**
Rationale or key points		
For the UoAs there is a federal and state-based legal framework for cooperation among management agencies and with stakeholders, capable of delivering sustainable fisheries. This represents an effective, binding national legal system. The rights for indigenous people to use fish as food and for cultural rituals are recognized in environmental and fisheries laws.		
3.1.2 – Consultation, roles and responsibilities	**≥80**	**Yes**
Rationale or key points		
For the UoAs (the fisheries law (LGPAS) explicitly describes the roles and responsibilities of most of the agencies (CONAPESCA, INAPESCA, local authorities) and stakeholders involved the in the fisheries management system and establishes the form of coordination with other Federal, State, and municipal entities. The development of laws and regulations requires an open consultation process that encourages and facilitates active engagement of stakeholder groups.		
3.1.3 – Long term objectives	**≥80**	**Yes**
Rationale or key points		
For the UoAs, the LGPAS describes clear long-term objectives to guide decision-making, that incorporate precautionary concepts and are consistent with the MSC standard. One of the prime objectives is to establish the basis for the conservation, protection, rebuilding, and sustainable utilization of fisheries and aquaculture resources and the supporting ecosystems.		
3.2.1 – Fishery specific objectives	**<60**	**Yes**
Rationale or key points		
In Mexico, the UoAs do not have an official standard (NOM) or a fisheries management plan (FMP) with explicit objectives. The only management information available is provided in the National Fishing Chart or the statistical fishing yearbook. These are not updated regularly and do not disaggregate the finfish group into clear management units (e.g., species, stocks, etc).		
3.2.2 – Decision making processes	**<60**	**Yes**
Rationale or key points		
The process to review and evaluate management regulations in Mexico is often based on demand by producers and fishermen. The process starts by scoping issues and potential solutions. The public has an opportunity to provide information and opinions. Subsequently, the authorities propose measures, either in the form of regulations or legislation. Despite the high economic value and ecological importance of the finfish fishery in the Gulf of California, the decision-making process has a number of obstacles, possibly stemming from conflicting interests among stakeholder groups, and because the existing management measures and strategies are very weak or non-existent.		

3.2.3 – Compliance and enforcement	**<60**	**Yes**
Rationale or key points		
SADER, via CONAPESCA, and through inter-ministerial agreements with SEMAR, SCT, and SEMARNAT, regulates and carries out monitoring, control, and surveillance of the finfish fishery in the Pacific Mexican coast. Fishery violations are sanctioned according to the LGPAS and other applicable laws and regulations. However, there monitoring mechanisms for the fishery under evaluation have not been implemented.		
3.2.4 – Management performance evaluation	**<60**	**Yes**
Rationale or key points		
The UoAs do not have mechanisms (internal or external) to evaluate parts of the management system. Updates to the National Fishing Chart are the only evidence that some parts of the management system for finfish in Mexico is reviewed. However, the most recent update was in 2010.		

7.4 Principle 1

7.4.1 Principle 1 background

a. Biological characteristics of handline and trap target species

Ocean whitefish
Taxonomy
Phylum: Chordata
Subphylum: Vertebrata
Superclass: Gnathostomata
Superclass: Pisces
Class: Actinopterygii
Order: Perciformes
Suborder: Labroidei
Family: Malacanthidae
Genus: Caulolatilus
Species: *Caulolatilus princeps* (Jenyns, 1840)

Common names. English: Ocean Whitefish
Spanish: Blanco, Blanquillo fino, Pierna

Description
C. princeps has an elongated quadrangular slender body; exhibiting a fleshy crest along the midline of the head, before the dorsal fin. The species has a small mouth reaching the front edge of the eye, the dorsal and anal fins are large and continuous while the tail fin is deeply concaved or emarginated, almost entirely covered by small scales. The dorsal region is generally light grey-bluish, and the belly is lighter. There is a light blue central stripe along the dorsal and anal fins; the pectoral fins are typically blue with a yellow stripe near the center and the tail fin is yellow (Fischer et al., 1995).

Figure 1. Ocean whitefish, *Caulolatilus princeps* (Jenyns, 1840).

Distribution
The geographic area (Fig. 2) where the ocean whitefish (*C. princeps*) is distributed, is mainly subtropical; it is widely distributed from Vancouver Island in British Columbia, Canada to Peru, including almost the entire Gulf of California, Mexico and the Galapagos Islands, Ecuador (Dooley, 1978; Wertz and Kato, 2003).

Figure 2. Map of records of the Ocean whitefish (*Caulolatilus princeps*) (data obtained from https://www.gbif.org/, http://www.iobis.org/ & http://eol.org/).

Habitat

The ocean whitefish is part of the demersal fish community that inhabits the edge of the continental shelf and the upper continental slope; normally the species can be found on both rocky and sandy sea floors at depths of between 40 and 150 meters (Caraveo-Patiño and Elorduy-Garay, 1994; Fischer et al.1995).

With respect to their feeding habits, the whitefish is characterized by being a daytime generalist, omnivore and an opportunist predator that mainly feeds on crustaceans (ostracods) and pelagic or epibenthic prey that inhabit the continental shelf and upper continental slope (Caraveo-Patiño y Elorduy-Garay, 1994).

Reproduction

The ocean whitefish exhibits an annual reproductive cycle with a period of mass spawning from 5 to 7 months, beginning in October and ending in April. The ocean whitefish uses partial spawning as a reproductive strategy whereby the female ocean whitefish spawn at least two or three times throughout the reproductive season, which increases the probability of reproductive success (Elorduy-Garay and Ramirez-Luna, 1994).

Life cycle

The ocean whitefish (*C. princeps*) has a similar life cycle (Fig. 3) to the other members of the family Malacanthidae. This is a species that has a high site fidelity or, in other words, a more or less sedentary strategy (Caraveo-Patiño and Elorduy-Garay, 1994; Bellquist et al., 2008). The ocean whitefish selects deep and sandy habitats during the day whilst it feeds, and during the night the species seeks refuge in shallower waters in rocky habitats or kelp forests (Bellquist et al., 2008).

It has been suggested that the production of larvae by this species takes place mainly in Mexican water up to approximately 86 nautical miles from the coast, from Ensenada (Baja California; BC) to Bahia Magdalena (Baja California Sur; BCS), concentrating around Punta Eugenia to the north of BCS (Moser et al., 1986).

The ocean whitefish eggs are probably taken by oceanic currents; however, the details of the migration of these larvae, whose size can range between 2.6 mm and 7.9 mm, is unknown.

Nevertheless, it is possible that the currents play an important role in the distribution of this species in the north and the south of the Peninsula (Wertz and Kato, 2003). The pelagic ocean whitefish juveniles (16.8 mm) are most associated with the coast (Moser et al., 1986).

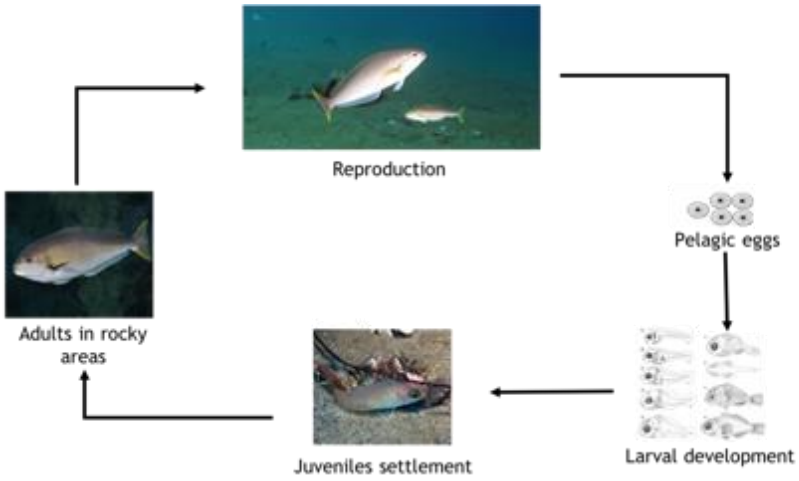

Figure 3. Life cycle of Ocean withefish (*Caulolatilus princeps*).

California sheephead
Taxonomy
Phylum: Chordata
Subphylum: Vertebrata
Superclass: Gnathostomata
Superclass: Pisces
Class: Actinopterygii
Order: Perciformes
Suborder: Labroidei
Family: Labridae
Genus: Semicossyphus
Species: *Semicossyphus pulcher* (Ayres, 1854)

Common names. English: California sheephead
Spanish: Vieja de fondo

Description
The body is of moderate height and compressed. The species has a large head (its length is approximately equal to or shorter than the maximum height of the body), terminating at a blunt point. Adults have a predominantly convex dorsal profile; males tend to be of large size with a fleshy hump between the eyes. The species has a small but prominent mouth, with the extreme posterior part located slightly in front of the level of the eye. The teeth are purely caniniform, with 2 anterior pairs embedded and curved in each mandibular. The posterior part of the upper mandibular consists of prominent canines on each side. The larger sized males have a large black head and a white chin.

The central region of the body is pink to dark red and the posterior region is black; the colors of the fins are, in general, similar to the adjacent regions of the body. Large-sized females generally have a red-brown to pink coloration, with a white chin. Juveniles are red-orange with a whitish mediolateral stripe and black spots on the dorsal, anal and pelvic fins, and on the base of the tail fin (Fisher *et al.* 1995) (Fig. 4).

Figure 4. California sheephead (*Semicossyphus pulcher*) (Images were taken from Left ©CA Clark; right: COBI).

Distribution

The California sheephead is found from Bahia de Monterey, California in U.S.A. to the North of the Mar de Cortes, in Mexico, including the islands of Canal de California and Guadalupe Island, México. *S. pulcher* was originally described as a disaggregated species, in which the individuals found in Mar del Norte de Cortés and on the northeast coast of the Pacific side of Baja California Peninsula, but absent in Mar de Cortes and Baja California del Sur (Miller y Lea 1972; 1987) (Fig. 5). However, this species appears (although rarely) as far south as Cabo San Lucas (the extreme south of Baja California) (Bernardi et al. 2003); thus, exhibiting a continuous range throughout the deepest waters where the feeding resources and the most homogenous habitats are propitious for the dispersion of *S. pulcher* adults (Bernardi et al., 2003).

Figure 5. Distribution of California sheephead (*Semicossyphus pulcher*) (www.aquamaps.org)

Habitat

The California sheephead is found throughout the water column up to 55 m depth, but is most common between 3 and 30 m. The species is usually found near the sea bed in rocky zones, preferentially between macroalgae. It feeds mainly on hard-shelled invertebrates, such as mollusks, sea urchins, lobsters and crabs (Fisher et al., 1995).

Reproduction

The California sheephead (*S. pulcher*) and the majority of the Labridae are protogenic hermaphrodite fish with juvenile and early adult in females and late adulthood in males. *S. pulcher* is a free spawner, with pelagic larvae that remain in the water column for approximately 30 days, which allows, at least in theory, a high dispersion in distance and increased gene flow (Warner,

1975; Cowen, 1985; Victor, 1986; Siegel et al., 2003; Andrews and Anderson, 2004; Caselle et al., 2011; Hamilton et al., 2011).

Life cycle

Tag and recapture studies have found that this species has very little movement (Davis and Anderson, 1989). Reproduction of this species occurs between June and October (Warner, 1975; Cowen, 1990). Females spawn approximately 86 times per year and have a fecundity of 5,755 eggs per spawning (DeMartini et al., 1994).

S. pulcher has a pelagic larval stage before recruitment. When the larvae reach an average size of 13.5 mm, they settle deeper in function of the oceanographic variables (Cowen, 1991; Cowen, 1985). A positive relationship has been found between the density of adults of this species and recruitment; however, there is no evidence of dense dependence (Cowen, 1995). As an adult, 7-8 years and 30 cm in standard length, S. pulcher has sex change in the winter season (Warner, 1975; Cowen, 1990). It is unknown whether the degree of sex change is determined by endogenous or exogenous signals, but it is believed that it depends more on the size than on the individual's age (Cowen, 1990) (Fig. 6).

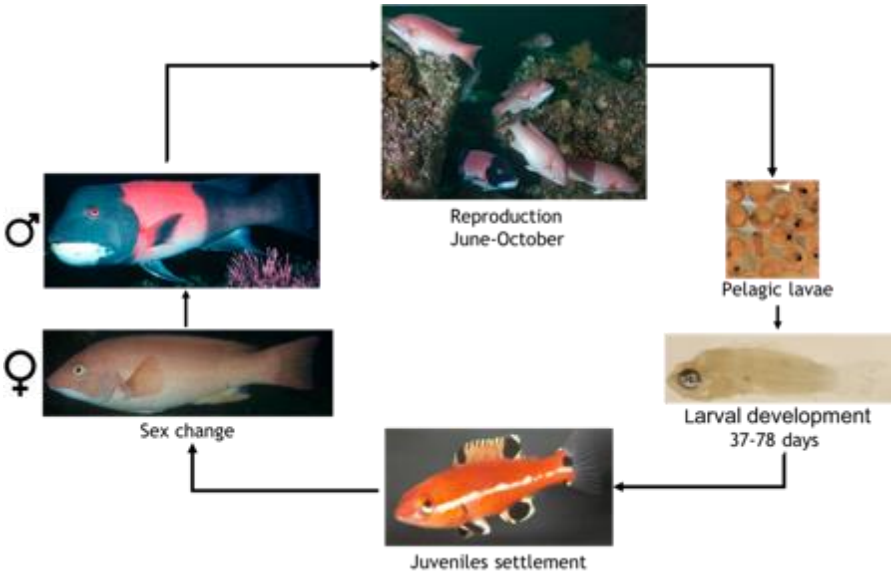

Figure 6. Life cycle of California sheephead (*Semicossyphus pulcher*).

Barred sand bass

Taxonomy

Phylum: Chordata
Subphylum: Vertebrata
Superclass: Gnathostomata
Superclass: Pisces
Class: Actinopterygii
Order: Perciformes
Suborder: Labroidei
Family: Serranidae
Genus: Paralabrax
Species: *Paralabrax nebulifer* (Girard, 1854)

Common names. English: Barred sand bass
Spanish: Verdillo, curricata

Description

The barred sand bass exhibits a finely serrated preopercle, from 66 to 71 scales on the lateral line. In specimens of 21 to 30 cm standard length, the height of the body is from 3.3 to 3.7 times and the length of the head is 2.6 to 2.8 times in standard length (Fig. 7). The dorsal fin has 13-15 soft rays.

It is a dark grey to green colored fish, hence its Spanish name (verdillo). The body exhibits dark marks and vertical stripes that disappear after capture, it has a dark band that is generally present between the eye and the gill aperture. The juveniles exhibit golden brown spots on the head and do not have dark spots on their bodies (Fischer et al., 1995).

Figure 7. Barred sand bass (*Paralabrax nebulifer*) (image taken from Guerrero-Bernal, 2016; modified from ©Mexican-fish.com).

Distribution

The distribution of the barred sand bass ranges from Santa Cruz, California, U.S.A. to Bahia Magdalena in Baja California Sur, Mexico (Heemstra, 1995) (Fig. 8).

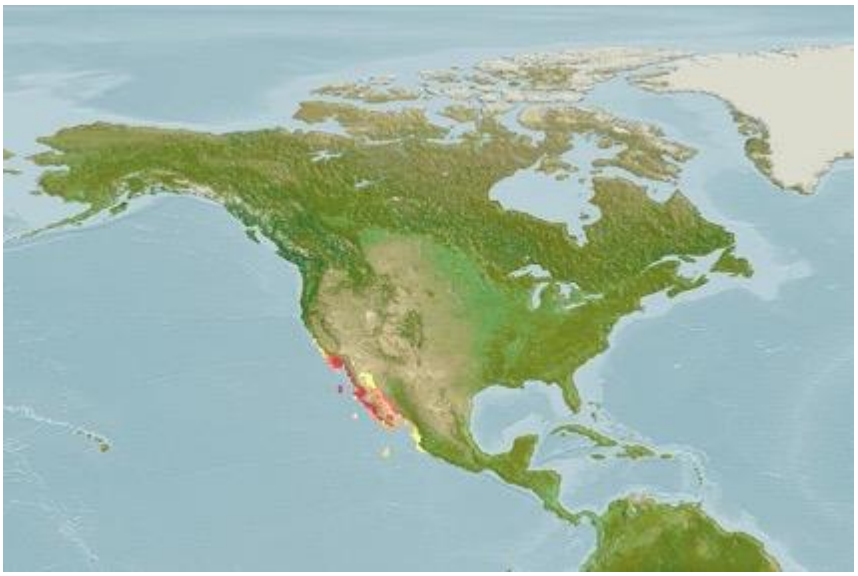

Figure 8. Distribution of Barred sand bass (*Paralabrax nebulifer*) (www.aquamaps.org)

Habitat

This species is associated with reefs found in sand substrates within or near rocks from shallow areas up to approximately 185 m deep; however, it is more common to find the species in waters deeper than 30 m. The juveniles consume benthic invertebrates (e.i. crabs, bivalves, and Mysidacea) and occasionally fish; whilst the adults consume fish and crustaceans (Heemstra, 1995).

Reproduction

Ribera-Camacho et al. (2014), studied the reproductive cycle of *P. nebulifer* on the west coast of B.C.S. (Guerrero Negro, Laguna San Ignacio, Punta Abreojos, Las Barrancas, and San Ignacio). They observed that the reproductive season occurs from May to September with a reproductive peak in August. The size of the females at first maturity was recorded at 30.1 cm and for the males, 29.0 cm total length, although the length of mature females was also reported from 27.2 cm and in males from 28.5 cm.

Life cycle

The barred sand bass is a gonochoric reproducer, exhibiting a single-sex throughout its life cycle (Fig. 9). It congregates in large groups (in the order of thousands of individuals) to spawn in sites during specific seasons (Love et al., 1996). It is known that organisms tagged in Southern California, U.S.A, move between 8 and 92 km along the coast, mainly due to the water temperatures and that 82% of the individuals return to the same spawning site every year (Jarvis et al. 2010).

The spawning sites typically include sand substrates at 20 to 40 m of depth; this species uses nearby natural and artificial reefs during the reproductive season for rest, shelter and feeding. The temperature, tidal range, and currents are important factors for spawning. It has been observed that the warm thermoclines elevate the fitness of the larvae. The eggs and larvae are pelagic, whilst the juveniles are encountered in less deep waters during late summer and at the beginning of winter (Love et al., 1996).

The size at first maturity (L50) of the barred sand bass has been estimated through several methods in different zones. In the south of California, 50% of the males have been observed to mature at 21.9 cm of length, between two and four years of age; and the females mature at 23.9 cm of length, between 2 and 5 years of age (Love et al., 1996).

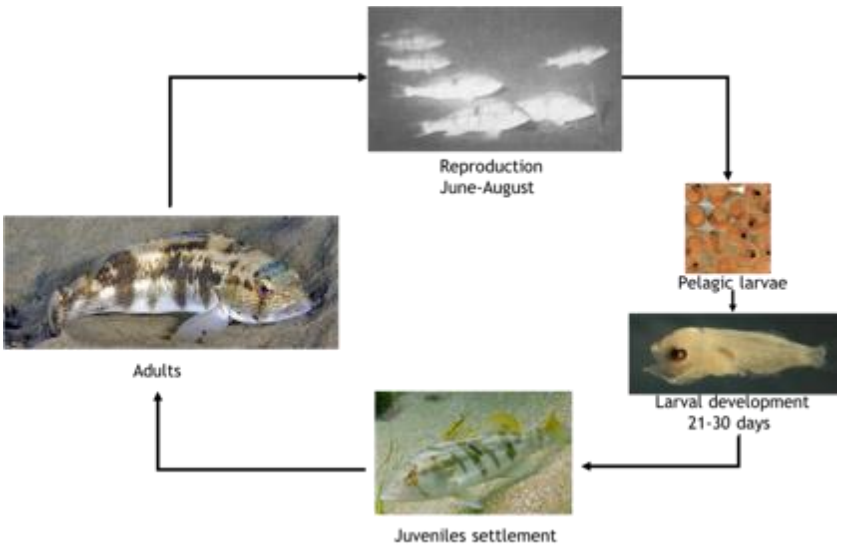

Figure 9. Life cycle of Barred sand bass (*Paralabrax nebulifer*).

Starry rockfish

Taxonomy

Phylum: Chordata
Subphylum: Vertebrata
Superclass: Gnathostomata
Superclass: Pisces
Class: Actinopterygii
Order: Scorpaeniformes

Suborder: Scorpaenoidei
Family: Sebastidae
Genus: Sebastinae
Species: *Sebastes constellatus* (Jordan & Gilbert, 1880)

Common names. English: Starry rockfish
Spanish: Rocote estrella, rocote estrellado

Description

The Starry rockfish has it concavity of interorbital and elevation of cranial ridges and spines rather strong fro a species of *Sebastomus*. The nuchal spines are almost always absent; coronal spines absent; spines on lowe edge of gill-covered more often absent than present. Mandibles ordinarily scaleless, ocassionally with some patches of scales; maxillaries scaled and branchiostegals scaleless (Chen, 1970).

This species has a life red color, lighter below, and white ventrally. The superior region of the head and posterior region of the body are darkly shaded which becomes more visible with age. The body is always profusely covered with small conspicuous white points. Dorsal fins, spines, and the body are red, other fins are golden yellow (Chen, 1970) (Fig. 10).

Figure 10. Starry rockfish (*Sebastes constellatus*) (Image taken from ©Luke Armstrong).

Distribution

The geographical range of this species is from San Francisco, U. S. A. to the bank of Thetis in Bahia Magdalena, Baja California Sur. The species is found at depths between 60 and 149 m (Fig. 11).

Figure 11. Distribution of Starry rockfish (*Sebastes constellatus*) (www.aquamaps.org)

Habitat

The majority of the rockfish are long-lived and slow-growing species. Those that have short life cycles reach their maximum size in a short period of time. The most northerly distributed species spawn more than once per year, mainly during the winter and the beginning of spring. The juveniles inhabit shallow zones and the adults prefer strata of different depths in rocky substrates, macroalgae forests and soft seafloors (INAPESCA, 2012a).

Reproduction and life cycle

All fish of the genus Sebastes are viviparous and exhibit internal fertilization; the eggs and embryos are incubated in the ovaries, with the subsequent expulsion of the larvae (Haldorson and Love, 1991; Wourms, 1991). In this genus, there is a gap between the copula and fertilization of the oocytes; the sperm is stored inside the interior of the lamellar tissue in the mature ovary (Moser, 1967). As a result, the reproductive development of the females and the males are asynchronous. Copula can precede the maturation of the oocytes by up to a period of 6 months (Shaw, 1999) (Fig. 12).

The fish of the genus Sebastes have different strategies of reproduction. *S. constellatus* exhibit the presence of two or more litters that have been reported throughout the reproductive season (Love et al., 1990).

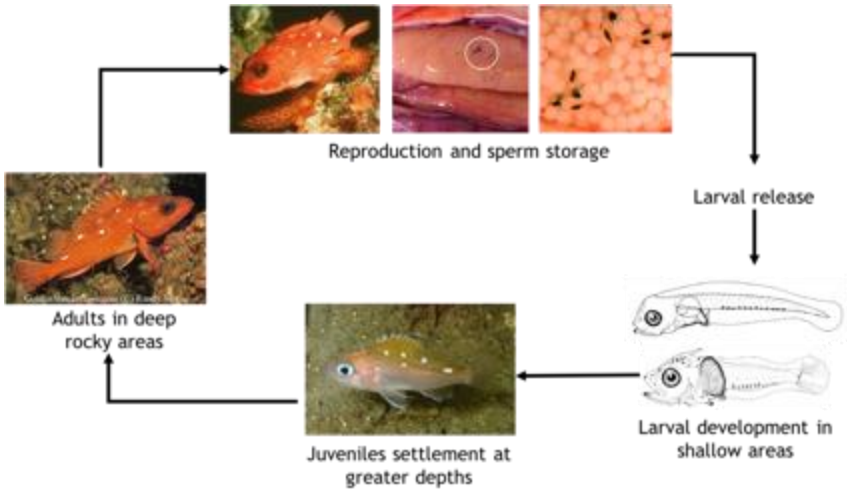

Figure 12. Life cycle of Starry rockfish (*Sebastes constellatus*)

Vermilion rockfish

Taxonomy

Phylum: Chordata
Subphylum: Vertebrata
Superclass: Gnathostomata
Superclass: Pisces
Class: Actinopterygii
Order: Scorpaeniformes
Suborder: Scorpaenoidei
Family: Sebastidae
Genus: Sebastinae
Species: *Sebastes miniatus* (Jordan & Gilbert, 1880)

Common names. English: Vermilion rockfish
Spanish: Rocote bermejo

Description

The vermilion rockfish has a depressed body. This fish has a large mouth, the lower jaw has scales and it is projected forward, which makes it rigid and slightly larger than the upper one (Chen, 1970). It has a total of 13 spines, 13-15 sural rays, 3 anal spines, and 7 smooth anal rays. The spines of the head are weak (Kramer and O'Connell, 1995).

Under the water, adults of S. miniatus have a color from brown to dark and light yellow, red and orange with gray or black dots on both sides. Another characteristic of the species is the white markings particularly along the lateral line and through the head to behind the eyes and at the base of the third and fourth spine. These marks can only be observed in S. miniatus when alive. They have three dark orange lines that radiate from their eyes. Juvenile fish of this species have more points on their skin and their fins tend to have black color on their banks (Chen, 1970). (Fig. 13).

Figure 13. Vermilion rockfish (*Sebastes miniatus*) (Photo by COBI).

Distribution

S. miniatus is distributed in the eastern Pacific, from the Queen Charlotte Islands, British Columbia, Canada to San Benito Island, Baja California, Mexico (California Department of Fisheries and Wildlife, 2019, Froese and Pauly, 2019). (Fig 14).

Figure 14. Distribution of Starry rockfish (*Sebastes miniatus*) (www.aquamaps.org).

Habitat

The vermilion rockfish inhabits waters from 60 to 239 meters deep and is regularly near or at the rocky bottom (Love et al., 2002). Juveniles and small adults are between 90 and 149 meters deep, while larger adults can be captured at greater depths. *S. miniatus* recruits have been found at depths of 5 to 30 m (Love et al., 1990).

A temperature preference has been found by this species. Eurothermal juveniles have a tolerance to warmer waters than adults, so it is common to find more abundance of adults in colder water sites (Love et al., 1990). The foregoing could be related to a behavior that has been observed in rockfishes in the area of the California cove called "Isothermal Immersion", where they are looking for deeper and colder waters within the warmest area of their distribution (Love et al., 1985).

It is thought that *S. miniatus* have a high side fidelity and a small range of movement, which has led them to be categorized as vulnerable species to fishing (Lea et al. 1999, Hannah and Rankin, 2011).

Reproduction

All fish of the genus Sebastes are viviparous and exhibit internal fertilization; the eggs and embryos are incubated in the ovaries, with the subsequent expulsion of the larvae (Haldorson and Love, 1991; Wourms, 1991). In this genus, there is a gap between the copula and fertilization of the oocytes, during which the sperm is stored inside the interior of the lamellar tissue in the mature ovary (Moser, 1967). As a result, the reproductive development of the females and the males are asynchronous. Copulat can precede the maturation of the oocytes by up to a period of 6 months (Shaw, 1999).

The fish of the genus Sebastes have different strategies of reproduction. *S. miniatus* exhibit the presence of one litter that has been reported throughout the reproductive season (Love et al., 1990).

Life cycle

Most rockfishes are species that have slow growth, high longevity and late sexual maturity that make them vulnerable to fishing (Yoklavich et al., 1999). They spend most of their time in sandy, rocky bottoms and in macroalgae forests (DOF, 2012).
The vermilion rockfish reaches its sexual maturity between 5 and 6 years of age. It has been estimated that an individual of *S. miniatus* of 31 cm in total length (LT) has a total of 63,000 eggs; an individual of 53 cm of LT contains 1,6000,000 eggs; and a 76 cm female can contain up to 500,000 eggs (Santhaman, 2019).

The reproduction of this species is through internal fertilization and the females store the sperm inside the ovary releasing larvae into the environment (Moser, 1966). Once the female is fertilized by the male, she can store the sperm in her ovaries where the embryos will be incubated until they are released as seedlings that will continue their development in the water column (Haldorson and Love, 1991; Moeser, 1996) (Fig. 14).

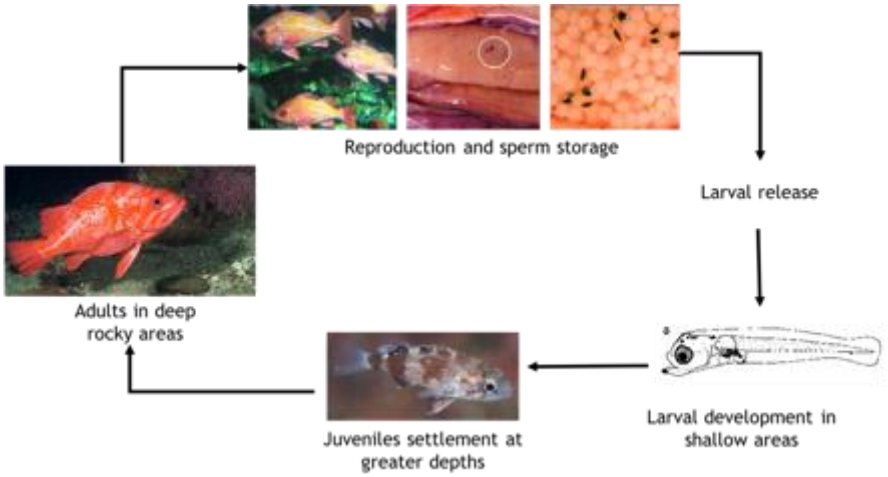

Figure 15. Life cycle of Vermilion rockfish (*Sebastes miniatus*)

b) Description of the fisheries

The small-scale finfish fishery in Baja California is composed of a wide diversity of species that ranges from species associated to the coastline and estuarine lagoon environments, including occasional visitors to inland waters (rivers), to marine fish communities associated with shallow or deep seabed, of rocky or reef types, and soft, sand, clay or muddy bottoms. These fish communities inhabit the water column to depths of 200 meters. The pelagic coastal component frequently moves along the coast's profile in direction of the currents, in wide latitudinal movements that maintain a relatively easy pattern to recognize, and variations depending on the critical distance of the bottom fall.

The finfish fisheries are multi-specific, multiple fleets, multiple gears, and use many fishing methods. The gears most used are gillnets and handlines. Handlines are one of the most selective fishing gears and has a minimal impact on the habitats, however, this fishery can be adapted for a wide variety of fish, with very different life history characteristics.

The National Fisheries Chart (2010) classifies the “marine finfish” resources into 10 different subgroups of target species: bass and groupers (“baqueta, cabrillas y verdillo”), seabass (“corvina y berrugata”), snappers (“huachinangos y pargos”), jacks (“jurel y esmedregal”), mullet (“lisa y lebrancha”), flatfish (“lenguado”), tilefish (“pierna y conejo”), rays (“rayas”), snook (“robalo”) and Pacific sierra (“sierra”).

The economic value generally defines the target species group. Some species can be fished in a defined season or throughout the year; the fisher can go to the known concentration zones of a group of species and decide the fishing system that is most effective. On the other hand, the associated species are those that share a habitat and belong to the same community or assembly, forming a functional group. They are vulnerable to the same fishing gear and may represent a potential fishing resource.

The finfish fishers use a great variety of fishing gear and methodologies. In this UoA, only handline and trap fishing gear is included.

Offices of the management authorities where the catch of marine resources are reported in northwestern Mexico are shown in Figure 16.

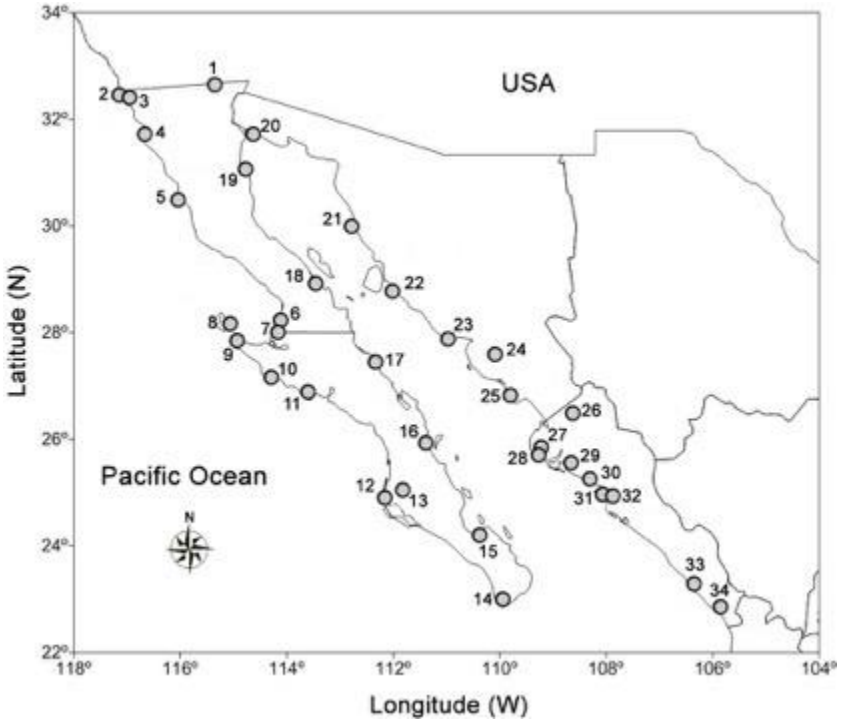

Figure 16. Northwest Mexico fishery management (CONAPESCA) offices (view table below for nomenclature).

Table 6. Northwest Mexico fishery management (CONAPESCA) offices .

No.	Locality	Nomenclature
1	Mexicali	MX
2	Tijuana	TJ
3	El Rosario	ER
4	Ensenada	ENS
5	San Quintín	SQ
6	Villa de Jesús María	VJM
7	Guerrero Negro	GN
8	Isla de Cedros	IC
9	Isla Tortugas	IT
10	Bahía de Asunción	BAS
11	Punta abreojos	PA
12	San Carlos	SC
13	Ciudad Constitución	CC
14	Cabo San Lucas	CSL
15	La Paz	LP
16	Loreto	LOR
17	Santa Rosalía	SR
18	Bahía de los Ángeles	BAN
19	San Felipe	SF
20	Golfo de Santa Clara	GSC
21	Puerto Libertad	PL
22	Bahía de Kino	BK
23	Guaymas	GYM
24	Ciudad Obregón	CO
25	Huatabampo	HU

26	El Fuerte	EF
27	Los Mochis	LM
28	Topolobampo	TOP
29	Guasave	GUA
30	La Reforma	LR
31	Navolato	NAV
32	Culiacán	CUL
33	Mazatlán	MZT
34	Escuinapa	ESC

Ocean whitefish

Fishery

In the National Fishery Chart (INAPESCA, 2010), the ocean whitefish (*C. princeps*) is found under the classification "Marine Finfish" in which the majority of bony fish of commercial importance in the Pacific Ocean are grouped. Within the subcategory "Whitefish and Tilefish", three species can be found including *C. princeps* (Ocean whitefish), *C. affinis* (Golden-eyed tilefish) and *C. hubbi* (Blanquillo), the latter is distributed in the South Pacific region of the country.

It is common to observe ocean whitefish and bighead tilefish in the landings; however, the ocean whitefish represents 70% of the catch with an increase in the capture of this species during the months of April to June. The catch of the two species is reported grouped as"Whitefish" (DOF, 2010).

Ocean whitefish (*C. princeps*) is mainly caught with handline equipped with Norwegian hooks numbers 4, 6, and 10. Purse seines with monofilaments (nylon) of 0.35-0.55 lb caliber are also used. In both BC and BCS, other fishing equipment is used such as longline and traps; the latter being the major producer of ocean whitefish in both the Pacific and in the Gulf of California (DOF, 2010).

It is not certain whether there are different stocks throughout the distribution of the species, but, based on the fishing sites, it can be assumed that there are at least two stocks in the region of the Baja California Peninsula, one in the West Coast (Pacific Ocean) and the other within the Gulf of California (Elorduy-Garay et al., 2005).

During the period 2002-2015, ocean whitefish catches (*C. princeps*) have fluctuated between 191-631 annual average tonnes in the Gulf of California and 550-1231 average annual tonnes in the West Coast of the Baja California Peninsula (Fig. 10). It is important to mention that more than 90% of the catch reported for ocean whitefish belongs to the state of BCS, including both the Gulf of California and the West Coast.

Fishing season

The fishing season for the ocean whitefish (*C. princeps*) on the Baja California Peninsula is throughout the year, with two catch peaks; one during March and April (until May for the West Coast) and the other in the second semester of the year during September and October. In the Gulf of California and the West Coast, this peak begins in August and continues until December.

Fishing Methods

The main method employed for the capture of ocean whitefish (*C. princeps*) is the handline, associated with fishing for bass and groupers; however, traps are also used whereby, apart from ocean whitefish, barred sand bass is also caught, being the objective species, in addition to ocean whitefish caught in nets, and gillnets used to capture school shark and Gulf corvina, among others (INAPESCA, 2010).

Catch Locations

The 60.2% of the catches reported for ocean whitefish (*C. princeps*) in the Baja California Peninsula correspond to Puerto San Carlos in the West Coast of BCS; according to La Paz and Cd. Constitution with 12.6% and 11%, respectively.

Barred sand bass

Fishery

In Mexico, before 1990, this resource was not commercially important, but due to the substitution of large size for smaller size species, the fishery became important by the end of the 1980s. The capture of this resource was conducted with gillnets and up to the beginning of 1990, traps were then introduced in the region.

The catch history exhibits fluctuations that appear to be periodical; therefore, they could be related to a change in the environmental conditions that favor the appearance of abundant cohorts. In terms of abundance estimation, the change in abundance is not necessarily a result of a change in the fishing pressure. Thus, the catch will unlikely to provide useful information for the optimum estimation of abundance. In management terms, the catch history indicates a certain level of stability that fluctuates around 4,200 tonnes. This apparent tendency would be more informative in relation to the function of the fishery if there were data on the fishing effort. This suggests that it is necessary to know as much as possible about how the fishing the different fishing communities have changed, including changes in their fishing strategies and the type of fishing gear they have been using.

Starry and vermilion rockfish

Fishery

The Baja California rockfish fishery represented 98% of the national catch of rockfishes, BCS and other Federal Entities exhibiting catches of other rockfish species but its value is very low with no economic importance. The small-scale fleet catches more than 90% of the production and the medium height fleet catches the remaining 10% (INAPESCA, 2012).

Fishery season

The fishing season for rockfish in the Baja California peninsula is conducted mainly during the spring-summer period from March to September and October when the fishing season for species of higher value, such as the lobster, begins.

California sheephead

Fishery

While there is no fishery exclusively targeting California sheephead, this species is susceptible to different fishing gears such as handlines, traps, floor nets, among others. The California sheephead is associated with the fisheries targeting other species such as the ocean whitefish, barred sand bass and rockfish.

In accordance with the arrival notices from 2015 to 2017, the main producer states of California sheephead are Baja California Sur (BCS) and Baja California (BC), with an average of 130 and 85 tonnes, respectively.

In areas such as El Rosario, BC, the capture and conservation of California sheephead is beginning to develop, in which the species are commercialized and transported to an exportation market to be sent to the U.S.A.

Fishery season

In accordance with the arrival notices of 2015-2017, fishing for the California sheephead in the states of BC and BCS is conducted throughout the year, increasing from March to August. In line with this, the California sheephead is the main species caught by trap and handline fisheries.

Fishing Methods

The California sheephead is caught using multiple fishing gears that are deployed on or near the marine floor such as handlines, finfish traps, bottom nets and trawling nets (INAPESCA, 2010, 2012a, 2018).

c) Stock status and harvest strategy

Management schemes

The National Fishery Chart (CNP) is the formal document that summarises the situation of the authorized fisheries and groups most of the commercially important bony fish within the category of "Marine Finfish" (INAPESCA, 2010; 2012a; 2018). Within this large category, there are subsets of species that are grouped according to their biological classification.

Ocean whitefish. The only existing regulation measure for the ocean whitefish in Mexico is the commercial fishing permit for finfish in general, which encompasses all species of fish under the category "Marine finfish" specifically in the subcategory "whitefish and tilefish" (INAPESCA, 2010).

The CNP (INAPESCA, 2010), indicates that the population of ocean whitefish is exploited to the limits of its Maximum Sustainable Yield (MSY), and must take the necessary measures and actions in the event that annual catches decrease to figures lower than 400 t for BCS, and 40 t in the states of Sonora and BC.

California sheephead. The only requirement to exploit the California sheephead resource is to have a commercial fishing permit for marine finfish. Since the California sheephead (*S. pulcher*) is not considered as a target species of any fishery, and it is not included in any version of the National Fishery Chart. However, the species is associated with other target species: whitefish and tilefish (DOF, 2010), rockfish (DOF, 2012), and barred sand bass (DOF, 2018). All these stocks are at their the MSY.

Barred sand bass. The only requirement for the exploitation of the barred sand bass resource is to have a commercial fishing permit for marine finfish. The version of the National Fishing Chart (2018), have a specific subsection for barred sand bass within the marine finfish category and notes that these resources are at their MSY (INAPESCA, 2018).

Starry and vermilion rockfish. The only requirement to exploit the rockfish resource is to have a permit for commercial fishing of marine finfish in general. Currently, on the Pacific coast, there is not sufficient information to define the reference points or the status of the fishery. The fishery is in the process of gathering information to conduct stock assessments. In BC the fishery is at MSY (INAPESCA, 2012).

In terms of yield, the catch appears stable; however, it is clear that this can change as the demand for the product increases. It is necessary to generate information about biological aspects, fishing and population dynamics of the species to allow future stock assessment and help to guide conservation and sustainable exploitation.

7.4.2 Catch profiles

Ocean whitefish

According to CONAPESCA, during the period 2005-2017, the capture of ocean whitefish (*C. princeps*) fluctuated between 0.4 and 13.9 tons annually between San Quintín and Punta San Antonio, in the Pacific coast of Baja California (Fig. 17). The maximum catch was reported for 2013, with 19.3 tons.

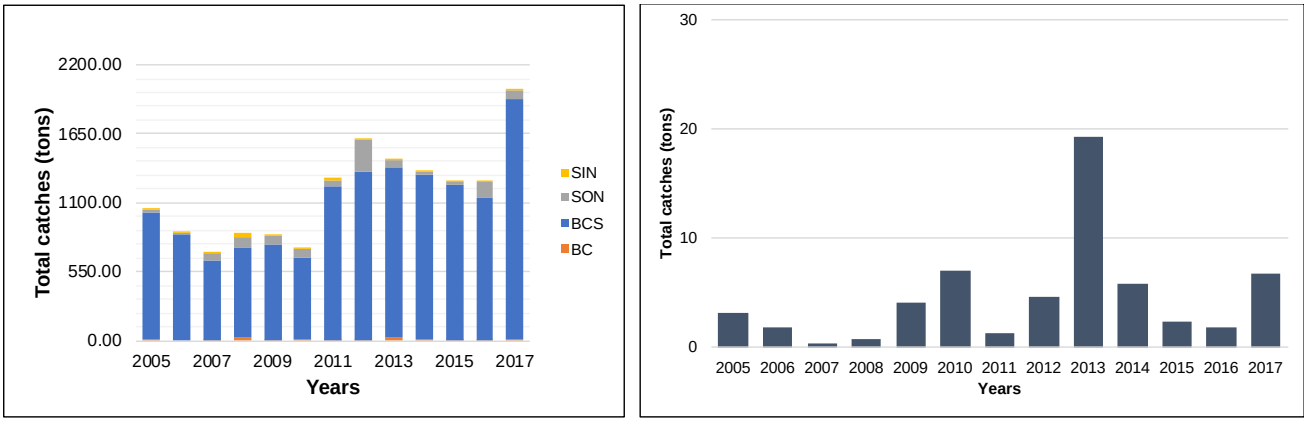

Figure 17. Annual average catches of the Ocean whitefish (*Caulolatilus princeps*) during 2005-2017 left, catch per state, right, catch in El Rosario.

California sheephead

According to CONAPESCA, during the period 2005-2017, the capture of California sheephead (*S. pulcher*) fluctuated between 23.1 and 128.3 tons annually between San Quintín and Punta San Antonio, in the Pacific coast of Baja California (Fig. 18). The maximum catch was reported for 2011, with 128.3 tons.

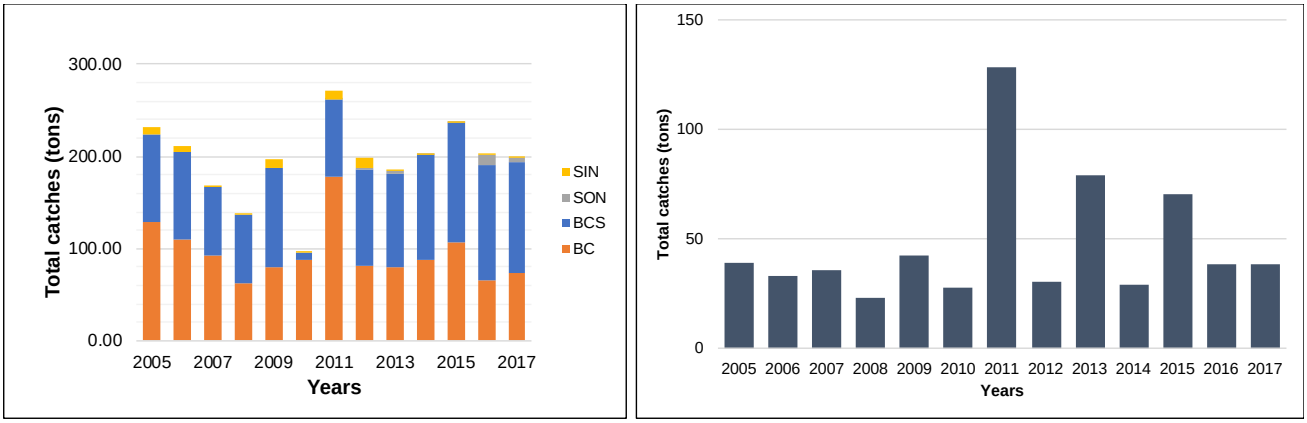

Figure 18. Annual average catches of the California sheephead (*Semicossyphus pulcher*) during 2005-2017. Left, catch per state, right catch in El Rosario.

Barred sand bass

According to CONAPESCA, during the period 2005-2017, the capture of Barred sand bass (*P. nebulifer*) fluctuated between 3.2 and 104.1 tons annually between San Quintín and Punta San Antonio, in the Pacific coast of Baja California (Fig. 19). The maximum catch was reported for 2013, with 104.1 tons.

The catch volume of the barred sand bass is unknown prior to the year 1999 since it has been reported in the fishing yearbooks as bass without specifying a species.

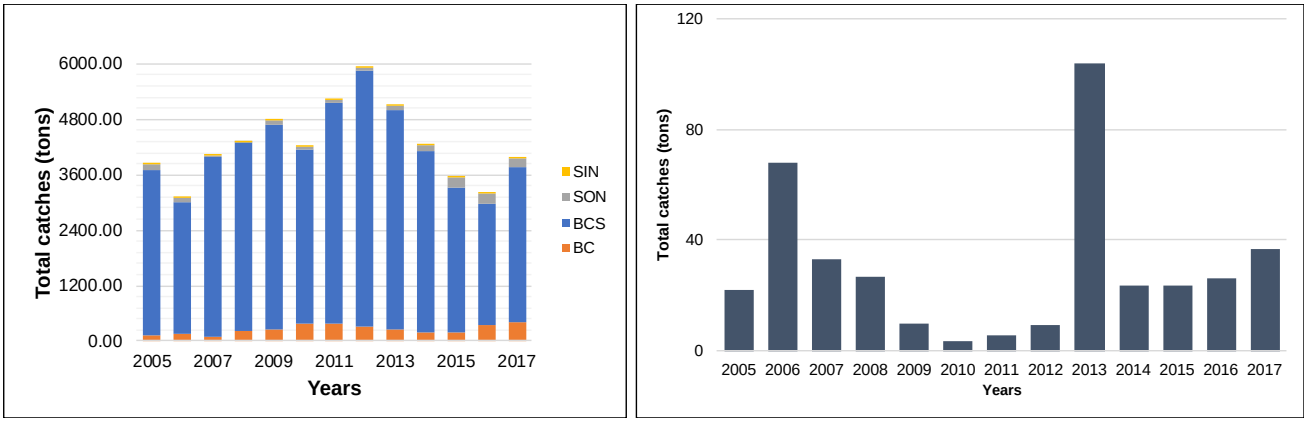

Figure 19. Annual average catches of Barred sand bass (*Paralabrax nebulifer*) during 2005-2017; left, catch per state, right, catch in El Rosario

Starry and vermilion rockfish

The rockfish fishery is one of the main small-scale fisheries in BC. According to CONAPESCA, during the period 2005-2017, the capture of Starry and Vermilion rockfish fluctuated between 86.6 and 360.8 tons annually between San Quintín and Punta San Antonio, in the Pacific coast of Baja California (Fig. 20). The maximum catch was reported for 2007, with 360.8 tons.

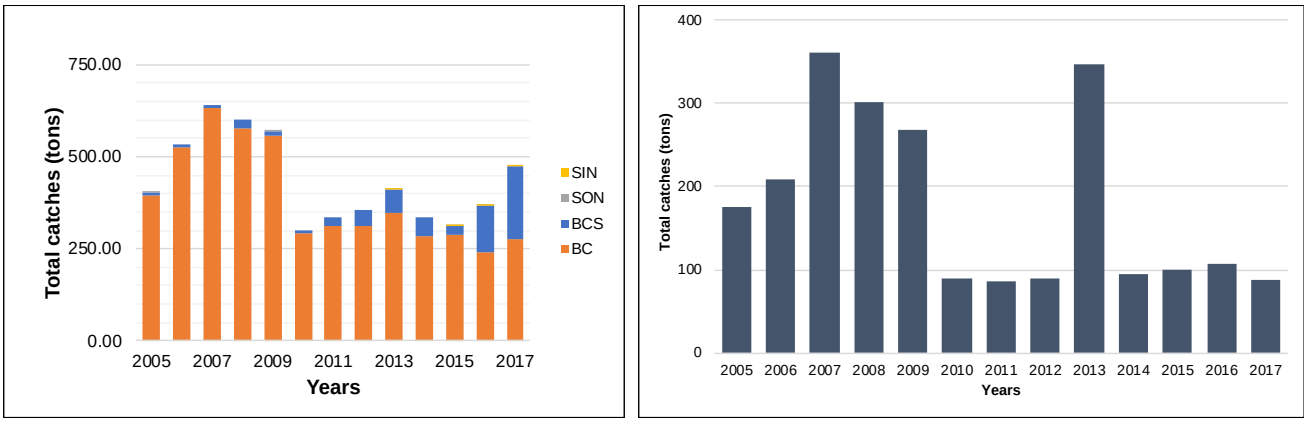

Figure 20. Annual average catches of Starry and Vermilion rockfish (*Sebastes miniatus* and *S. constellatus*) during 2005-2017 left catch per state; right, catch in El Rosario.

7.4.3 Total Allowable Catch (TAC) and catch data

Catch data per year was obtained from the CONAPESCA logbooks, where landings by fishing locality are defined. Catches are not reported by fishing gear.

Table 7 – Total Allowable Catch (TAC) and catch data – Common name and species name

Ocean Whitefish (*Caulolatilus princeps)*

TAC	Year	**NA**	Amount	**NA**
UoA share of TAC	Year	**NA**	Amount	**NA**
UoA share of total TAC	Year	**NA**	Amount	**NA**

Total green weight catch by UoC	Year (most recent)	**2017**	Amount	**6,836 kg**
Total green weight catch by UoC	Year (second most recent)	**2016**	Amount	**1,886 kg**

Table 8 – Total Allowable Catch (TAC) and catch data - California sheephead (*Semicossyphus pulcher)*

TAC	Year	**YYYY**	Amount	**NA**
UoA share of TAC	Year	**YYYY**	Amount	**NA**
UoA share of total TAC	Year	**YYYY**	Amount	**NA**
Total green weight catch by UoC	Year (most recent)	**2017**	Amount	**38,424 kg**
Total green weight catch by UoC	Year (second most recent)	**2016**	Amount	**38,392 kg**

Table 9 – Total Allowable Catch (TAC) and catch data – Barred sandbass (*Paralabrax nebulifer)*

TAC	Year	**NA**	Amount	**NA**
UoA share of TAC	Year	**NA**	Amount	**NA**
UoA share of total TAC	Year	**NA**	Amount	**NA**
Total green weight catch by UoC	Year (most recent)	**2017**	Amount	**36,577 kg**
Total green weight catch by UoC	Year (second most recent)	**2016**	Amount	**26,391 kg**

Table 10 – Total Allowable Catch (TAC) and catch data – Vermillion rockfish (*Sebastes constellatus)* and Starry rockfish (*S. miniatus)*

TAC	Year	**NA**	Amount	**NA**
UoA share of TAC	Year	**NA**	Amount	**NA**
UoA share of total TAC	Year	**NA**	Amount	**NA**
Total green weight catch by UoC	Year (most recent)	**2017**	Amount	**88,165 kg**
Total green weight catch by UoC	Year (second most recent)	**2016**	Amount	**106,622 kg**

7.4.1 Principle 1 Performance Indicator scores and rationales

PI 1.1.1 – Stock status

PI 1.1.1		The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing		
Scoring Issue		SG 60	SG 80	SG 100
a	Stock status relative to recruitment impairment			
	Guide post	It is **likely** that the stock is above the point where recruitment would be impaired (PRI).	It is **highly likely** that the stock is above the PRI.	There is a **high degree of certainty** that the stock is above the PRI.
	Met?	**NA**	**NA**	**NA**
Rationale				
There is no stock assessment for ocean whitefish, California sheephead, barred sand bass, starry rockfish or vermilion rockfish. Therefore, the status of the stocks is not known with respect to BMSY, PRI or any other proxy. A RBF was applied to score the five species (See Section 7.10: RBF Scoring Table). Productivity-susceptibility analysis scores entered into the MSC RBF worksheet resulted in an unconditional pass for the five species alredy listed above.				
b	Stock status in relation to achievement of Maximum Sustainable Yield (MSY)			
	Guide post		The stock is at or fluctuating around a level consistent with MSY.	There is **a high degree of certainty** that the stock has been fluctuating around a level consistent with MSY or has been above this level over recent years.
	Met?	**NA**	**NA**	**NA**
Rationale				
There are no reference points to know the state of the population, either derived from an analytical evaluation of the population or using empirical approaches. A RBF was applied to score the five species (See Section 7.10: RBF Scoring Table). Productivity-susceptibility analysis scores entered into the MSC RBF worksheet resulted in an unconditional pass for the five species. The SG80 is met.				
References				
DOF. 2010. Carta Nacional Pesquera. Dario Oficial. Mexico.				
Stock status relative to reference points				

	Type of reference point	Value of reference point	Current stock status relative to reference point
Reference point used in scoring stock relative to PRI (SIa)	NA	NA	NA
Reference point used in scoring stock relative to MSY (SIb)	NA	NA	NA

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	Ocean whitefish	**≥80-RBF**
	California sheephead	**≥80-RBF**
	Barred sand bass	**≥80-RBF**
	Starry rockfish	**≥80-RBF**
	Vermilion rockfish	**≥80-RBF**
Information gap indicator	**More information sought**	
Data-deficient? (Risk-Based Framework needed)	**Yes (**See Section 7.10: RBF Scoring Table)	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 1.1.2 – Stock rebuilding

PI 1.1.2	**Where the stock is reduced, there is evidence of stock rebuilding within a specified timeframe**		
Scoring Issue	SG 60	SG 80	SG 100
a	Rebuilding timeframes		

	Guide post	A rebuilding timeframe is specified for the stock that is the **shorter of 20 years or 2 times its generation time**. For cases where 2 generations is less than 5 years, the rebuilding timeframe is up to 5 years.		The shortest practicable rebuilding timeframe is specified which does not exceed **one generation time** for the stock.
	Met?	**NA**	**NA**	**NA**
Rationale				
This PI only shall be scored when stock status does not meet the SG80 level in PI 1.1.1				
b	Rebuilding evaluation			
	Guide post	Monitoring is in place to determine whether the rebuilding strategies are effective in rebuilding the stock within the specified timeframe.	There is **evidence** that the rebuilding strategies are rebuilding stocks, **or it is likely** based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the **specified timeframe**.	There is **strong evidence** that the rebuilding strategies are rebuilding stocks, **or it is highly likely** based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the **specified timeframe**.
	Met?	**NA**	**NA**	**NA**
Rationale				
NA				
References				

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**N/A**
Information gap indicator	**More information sought**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 1.2.1 – Harvest strategy

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
Scoring Issue		SG 60	SG 80	SG 100
a	Harvest strategy design			
	Guide post	The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1 SG80.	The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy **work together** towards achieving stock management objectives reflected in PI 1.1.1 SG80.	The harvest strategy is responsive to the state of the stock and is **designed** to achieve stock management objectives reflected in PI 1.1.1 SG80.
	Met?	**No**	**No**	**No**
Rationale				
SADER currently manages the finfish stocks as part of the multiespecific fishery in the Pacific and Gulf of California. The finfish permits include around 200 species and use a diversity of fishing gear. The National Fishing Chart (DOF 2010) divides the finfish fishery into 10 groups including snappers (Pacific red snapper and rooster hind), groupers (goldspotted sand bass), jacks (amberjack yellowtail) and ocean withefish. (see Description of the fisheries in Section 7.4.1). The five target species (ocean whitefish, California sheephead, barred sand bass, starry rockfish and vermilion rockfish) don't have a harvest strategy (only permits), with regular monitoring (landing reports), and there are no reference points or harvest controls. Considering that the harvest strategy is limited and that there are no stock assessments or specific stock objectives, SG 60 is not met.				
b	Harvest strategy evaluation			
	Guide post	The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy may not have been fully **tested** but evidence exists that it is achieving its objectives.	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.
	Met?	**No**	**No**	**No**
Rationale				
The finfish fishery of the UoAs (1 and 2) does not currently have a harvest strategy in place. The only official regulation is that a general fishing permit for marine finfish species is issued. Catches are not separated by fishing gear, so currently, the effectiveness of the only management tool (the fishing permits) cannot be evaluated. Also, since the status of the target stocks is not known, and target or limit reference levels do not exist, it is not possible to know if the (limited) strategy, namely the fishing permits, is likely to work. This issue does not reach the SG60.				

c	Harvest strategy monitoring			
	Guide post	Monitoring is in place that is expected to determine whether the harvest strategy is working.		
	Met?	**No**	**No**	**No**
Rationale				
CONAPESCA has been monitoring the landing reports for ocean whitefish, California sheephead, barred sand bass, starry rockfish and vermilion rockfish in the Mexican Pacific coast since the 1980s, through a landing-report system (“Avisos de arribo”), which includes landings and fishing effort information. However, the landing reports are not seggregated by species and fishing gear, so currently, the effectiveness of the harvest strategy cannot be assessed (DOF 2018). Considering that limited monitoring of the stock and the fishery take place, the (also) limited information produced would be insufficient to determine stock status or trends or to determine if the management measures in place are working. Thus, data are insufficient to assess if the harvest strategy is working, and SG60 is not likely to be met. Stock assessments will be critical in the development and evaluation of a harvest strategy.				
d	Harvest strategy review			
	Guide post			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			**No**
Rationale				
The National Institute of Fisheries and Aquaculture (INAPESCA) is responsible for periodically reviewing all the resources presented in the CNP and for improving the harvest strategies, as necessary. This is analyzed at the level of the category of "marine finfish” groups mentioned above. However, there is no harvest strategy in place, so SG100 is not met.				
e	Shark finning			
	Guide post	It is **likely** that shark finning is not taking place.	It is **highly likely** that shark finning is not taking place.	There is a **high degree of certainty** that shark finning is not taking place.
	Met?	**NA**	**NA**	**NA**
Rationale				
Sharks are not target species in these UoAs. The NOM-029-PESC-2006 prohibits the finning of sharks in Mexico.				
f	Review of alternative measures			

	Guide post	There has been a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock, and they are implemented, as appropriate.
	Met?	**No**	**No**	**No**

Rationale

UoAs do not have a harvest strategy. They are managed through fishing permits. However, the review of potential alternative measures to minimize the mortality on unwanted catch of the target stocks doesn't occur. The SG60 is not met.

References

DOF. 2010. Actualización de la Carta Nacional Pesquera y su anexo. Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación. Diario Oficial. México.

DOF. 2007. NORMA Oficial Mexicana NOM-029-PESC-2006, Pesca responsable de tiburones y rayas. Especificaciones para su aprovechamiento. Diario Oficial. Mexico.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	Ocean whitefish	**<60**
	California sheephead	**<60**
	Barred sand bass	**<60**
	Starry rockfish	**<60**
	Vermilion rockfish	**<60**
Information gap indicator	**More information sought**	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 1.2.2 – Harvest control rules and tools

PI 1.2.2	**There are well defined and effective harvest control rules (HCRs) in place**		
Scoring Issue	SG 60	SG 80	SG 100

a	HCRs design and application			
	Guide post	**Generally understood** HCRs are in place **or available** that are **expected** to reduce the exploitation rate as the point of recruitment impairment (PRI) is approached.	**Well defined** HCRs are **in place** that **ensure** that the exploitation rate is reduced as the PRI is approached, are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species a level consistent with ecosystem needs.	The HCRs are expected to keep the stock **fluctuating at or above** a target level consistent with MSY, or another more appropriate level taking into account the ecological role of the stock, **most** of the time.
	Met?	No	No	No
Rationale				
Neither stock status indicators nor reference points are available for the five target species (ocean whitefish, California sheephead, barred sand bass, starry rockfish and vermilion rockfish) in the Mexican Pacific coast. Thus, there are no limit or target biomass, catch or fishing mortality (effort) values that would trigger management action if they were approached or exceeded. Since the UoAs do not have HCRs, SG60 is not met for any of the five target species.				
b	HCRs robustness to uncertainty			
	Guide post		The HCRs are likely to be robust to the main uncertainties.	The HCRs take account of a **wide** range of uncertainties including the ecological role of the stock, and there is **evidence** that the HCRs are robust to the main uncertainties.
	Met?		**No**	**No**
Rationale				
There are no available harvest control rules for these five species (ocean whitefish, California sheep head, barred sand bass, starry rockfish and vermilion rockfish). The uncertainty in the UoAs is high. In particular the true scale and intensity of both artisanal and sport fisheries are unknown, as well as the interactions between species and the impact of removal of target species over each other. These and other factors need to be considered in the design of HCRs. SG80 is not met.				
c	HCRs evaluation			
	Guide post	There is **some evidence** that tools used **or available** to implement HCRs are appropriate and effective in controlling exploitation.	**Available evidence indicates** that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.	**Evidence clearly shows** that the tools in use are effective in achieving the exploitation levels required under the HCRs.
	Met?	No	No	No

Rationale
At present, there is no evidence that the tool used (permits) are appropriate or effective in controlling exploitation for the five target species (ocean whitefish, California sheep head, barred sand bass, starry rockfish and vermilion rockfish). The fact that the stocks are not monitored regularly, and that scientific reports from INAPESCA are not available to the public, provides very limited information to determine if the effectiveness of management tools is measured somehow or not. Thus SG60 is not met.
References
DOF. 2010. Actualización de la Carta Nacional Pesquera y su anexo. Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación. Diario Oficial. México.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	Ocean whitefish	**<60**
	California sheephead	**<60**
	Barred sand bass	**<60**
	Starry rockfish	**<60**
	Vermilion rockfish	**<60**
Information gap indicator	**More information sought**	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 1.2.3 – Information and monitoring

PI 1.2.3		Relevant information is collected to support the harvest strategy		
Scoring Issue		SG 60	SG 80	SG 100
a	Range of information			
	Guide post	**Some** relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy.	**Sufficient** relevant information related to stock structure, stock productivity, fleet composition and other data are available to support the harvest strategy.	A **comprehensive range** of information (on stock structure, stock productivity, fleet composition, stock abundance, UoA removals and other information such as environmental information), including some that may not be directly related to the current harvest strategy, is available.
	Met?	**Yes**	**No**	**No**
Rationale				
CONAPESCA has been monitoring catches of the five species (ocean whitefish, California sheephead, barred sand bass, starry rockfish and vermilion rockfish) in the Mexican Pacific coast since 2005, through a landing-report system (“Avisos de arribo”), which includes the fishing license and vessel registration number, landings by finfish group (in a few cases by species) in kilograms, type of product, price of sale, fishing and landing location. CONAPESCA compiles this data by state, port of landing, month, and year. Stock structure (age, size and sex) or stock productivity (maturity, growth, natural mortality and fecundity) data are not collected, and fishery independent surveys are not carried out. Some finfish research from INAPESCA and Mexican Universities includes studies on reproduction, age and growth, population dynamics, feeding habits, general life-history traits, fishing and description of the fisheries in the area. The harvest strategy is only limited to fishing licenses and considering the information of the previous paragraphs in this PI, there is some information to support the harvest strategy but it is not sufficient, so this issue might meet SG60, but not SG80.				
b	Monitoring			

	Guide post	Stock abundance and UoA removals are monitored and **at least one indicator** is available and monitored with sufficient frequency to support the harvest control rule.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest control rule**, and **one or more indicators** are available and monitored with sufficient frequency to support the harvest control rule.	**All information** required by the harvest control rule is monitored with high frequency and a high degree of certainty, and there is a good understanding of inherent **uncertainties** in the information [data] and the robustness of assessment and management to this uncertainty.
	Met?	**No**	**No**	**No**

Rationale

Fishery removals of the five species of both UoAs (ocean whitefish, California sheephead, barred sand bass, starry rockfish ans vermilion rockfish) in El Rosario have been collected by CONAPESCA since 2005. Landing statistics by finfish group (in a few cases by species), state, CONAPESCA office, year and month through 2014 are publicly available through the CONAPESCA portal. Nevertheless, data are not seggregated by gear and the landing information is by finfish group.

The catch records are not considered reliable because the collection of data and monitoring of the fishery is not systematic, only relies on the volume of catches and most frequently, catches are not reported at the species level. Removals are monitored but stock abundance is not, and there are no indicators of stock status. The information does not meet SG60.

C	Comprehensiveness of information			
	Guide post		There is good information on all other fishery removals from the stock.	
	Met?		**No**	

Rationale

Commercial catches are monitored by CONAPESCA. Nevertheless, catches from subsistence or (legal) recreational fleets are unknown. The existing monitoring program does not collect information on ocean whitefish, California sheephead, barred sand bass, starry rockfish or vermilion rockfish discards or bycatch in other industrial fisheries or catches with other fishing gears in the Mexican Pacific. Finally, quantities of Illegal, Unreported and Unregulated fishing (IUU) are unknown. This issue does not reach the SG80.

References

https://www.conapesca.gob.mx/wb/cona/informacion_estadistica_por_especie_y_entidad

DOF. 2010. Actualización de la Carta Nacional Pesquera y su anexo. Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación. Diario Oficial. México.

Cisneros-Montemayor et al. 2013. Extent and implications of IUU catch in Mexico´s marine fisheries. Marine Policy. DOI:10.1016/j.marpol.2012.12.003

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	Ocean whitefish	<60
	California sheephead	<60
	Barred sand bass	<60
	Starry rockfish	<60
	Vermilion rockfish	<60
Information gap indicator	**More information sought**	
Data-deficient? (Risk-Based Framework needed)	**Possibly**	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 1.2.4 – Assessment of stock status

PI 1.2.4		There is an adequate assessment of the stock status		
Scoring Issue		SG 60	SG 80	SG 100
a	Appropriateness of assessment to stock under consideration			
	Guide post		The assessment is appropriate for the stock and for the harvest control rule.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.
	Met?		**NA**	**NA**
Rationale				
When the MSC Risk Based Framework is used to assess stock status for PI 1.1.1 a default score of 80 is given to this PI.				
b	Assessment approach			
	Guide post	The assessment estimates stock status relative to generic reference points appropriate to the species category.	The assessment estimates stock status relative to reference points that are appropriate to the stock and can be estimated.	

	Met?	**NA**	**NA**	
Rationale				
NA				
c	Uncertainty in the assessment			
	Guide post	The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a **probabilistic** way.
	Met?	**NA**	**NA**	**NA**
Rationale				
NA				
d	Evaluation of assessment			
	Guide post			The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.
	Met?			**NA**
Rationale				
NA				
e	Peer review of assessment			
	Guide post		The assessment of stock status is subject to peer review.	The assessment has been **internally and externally** peer reviewed.
	Met?		**NA**	**NA**
Rationale				
NA				
References				
Working towards MSC certification: A practical guide for fisheries improving to sustainability (https://www.msc.org/docs/default-source/default-document-library/for-business/msc_capacity_building_toolkit.pdf?sfvrsn=3c080f7a_4)				

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	**More information sought**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

7.5 Principle 2

7.5.1 Principle 2 background

a. Primary, Secondary and Endangered, Threatened or Protected (ETP) species including their status and relevant management history.

Primary species

i. Handline

None of the non-target species caught with handline in El Rosario, BC. meets the requirements to be considered as primary species; except the California market squid *Doryteuthis opalescens,* which is used as bait. This species is bought by the SCPP Ensenada SCL from the California market squid fishery in San Diego, California. The cooperative buys an average of 5 tons per finfish season (5 months). The volume of squid used as bait represents 3% of the total handline finfish catch in El Rosario.

California market squid- *Doryteuthis opalescens*

Market squid belong to the family Loliginidae. These squid generally have a mixed, iridescent (opalescent) coloration of milky white and purple; however, color changes occur rapidly in response to environmental conditions. Similar to most squid species, market squid possess an ink sac, which serves as a defense mechanism by expelling ink to confound predators. Market squid are less than 3 mm at hatching and grow to anaverage mantle length of 152 mm at the time of spawning. Squid have eight arms andtwo longer feeding tentacles. Males are larger and more robust than females. Market squid are terminal spawners, spawning occurs at the end of their lifespan. In California, commercial fisheries target adults during spawning events. Recent age studies indicate that squid are a semi-annual species; the average age of squid taken in the fishery is six months (range 4-10 months, Butler et al. 2001).

The range distribution of market squid is from the southern tip of Baja California, Mexico (23° N latitude) to southeastern Alaska (55° N latitude). Juveniles and adults range throughout the California and Alaska Current systems (Roper and Sweeney 1984). Paralarvae, the life stage of market squid at the time of hatching, are often collected in the waters closer to the shoreline (Zeidberg and Hamner 2002).

There are two major fishery areas in California. The northern fishery is centered in Monterey Bay, and squid are landed primarily at Monterey and Moss Landing. The northern fishery operates predominately within a half-mile of the Monterey Bay shoreline. The southern fishery targets a multitude of fishing spots including the Channel Islands and coastal areas from Point Conception south to La Jolla. Squid are landed chiefly at the ports of Ventura, Port Hueneme, San Pedro, and Terminal Island.

Stock status

Market squid population dynamics are poorly understood. Although some information exists on the coastwide distribution and abundance of market squid from fishery-independent midwater and bottom trawl surveys aimed at assessing other species, there is no good measure of annual recruitment success beyond information obtained from the fishery. Because fishing activity occurs only on shallow-water spawning aggregations, it is not apparent if landings reflect availability to the fishery, or overall stock size since squid have been documented at greater depths using other gear. Historically, the squid resource was considered by some to be underutilized (MSFMP 2005).

Management reference points are based on an "eggescapement model," which allows for the estimation of reproductive output and fishing mortality rates, but this approach is not designed to assess species abundance and is not intended for that purpose in thisfishery (Dorval et al. 2013)

For market squid, the Overfishing Limit (OFL) and Allowable Biological Catch (ABC) are both set at the fishing mortality that results in a threshold level of egg escapement of at least 30% (the proxy for MSY) (http://www.pcouncil.org/wp-content/uploads/I2c_SUP_SSC_NOV2010BB.pdf). At the time these thresholds were set, managers considered the state measures in place (weekend closures, area closures, harvest cap) enough of a buffer to not worry about setting the ABC lower than the OFL

Management Mesaures for Market squid

The MSFMP (2005) establishes a management program for California's market squid resource and procedures by which the Commission will manage the market squid fishery. The goals of the MSFMP are to manage the market squid resource to ensure long term resource conservation and sustainability, reduce the potential for overfishing, and institute a framework for management that will be responsive to environmental and socioeconomic changes. The tools implemented to accomplish these goals include:

• Establishment of fishery control rules, including a seasonal catch limitation to prevent the fishery from over-expanding; continuing weekend closures, which provide for periods of uninterrupted spawning; continuing gear regulations regarding light shields and wattage used to attract squid, and maintaining monitoring programs designed to evaluate the impact of the fishery on the resource.

• Creation of a restricted access program, including provisions for initial entry into the fleet, types of permits, permit fees, and permit transferability that produces a moderately productive and specialized fleet.

• Establishment of a seabird closure restricting the use of attracting lights for commercial purposes in any waters of the Gulf of the Farallones National Marine Sanctuary.

ii. Traps

None of the non-target species caught with traps in El Rosario, BC, meets the requirements to be considered as primary species; except those used as bait. The trap fishery uses small pelagic species like sardines and mackerels to attract the target species.

The cooperative Ensenada uses the generic "sardine" term for all bait that groups several small pelagic species, including South American pilchard (*Sardinops sagax*), chub mackerel (*Scomber japonicus*), Pacific thread herring (*Ophistonema libertate*)and others. and are managed thought the Small Pelagic Fishery Management Plan (INAPESCA, 2012).

The fishing cooperative buys on average 10 to 60 tons of Monterey sadine per fishing season (5 months) in Ensenada, B. C.

South American pilchard or Monterey sardine (Sardinops sagax)

The method of capture is purse seine nets, targeted by 19 vessels in Ensenada and licensed by the Mexican government. The catches are landed in Ensenada, Baja California Mexico. The fleet's capacity and fishing gear characteristics are regulated by the Mexican federal government via the applicable Official Mexican Standard 003-PESC-2018.

The NOM specifies the minimum size for small pelagics. For Pacific sardine, the minimum size is 150 mm of standard length (SL). However, 30% of the total catch of this species is allowed to be smaller than the minimum size. Also, the Fisheries National Chart (Carta Nacional Pesquera) periodically reviews and establishes regulations for the fishery.

In November of 2012, The Small Pelagics Fisheries Management Plan was declared a law. This management plan includes definition of reference points. It establishes that the limit reference point, used as the biological acceptable catch computed as a fraction of the estimated MSY, has to be estimated annually. The Pacific sardine is categorized as "Actively Managed" in the 2012 law.

Secondary species

i. Handline

The handline catch profile for the cooperative Ensenada indicated a low bycatch (0.01%) for *Seriola lalandi* (*Seriola lalandi*), *Paralichthys californicus* (*Paralichthys californicus*) and white seabass *Atractoscion nobilis* (Table 11). The number of organisms caught is low, and none of the species meet the 2% volume threshold as secondary minor species.

Table 11 – Catch composition of the handline fishery by the Ensenada cooperative- Percentage of target species and bycatch (data form the fishery monitoring program 2018 - 2019). Species under 1% are not included below.

Species category	Species	%
Target species	*Sebastes spp.*	92
Target species	*Caulolatilus princeps*	5
Target species	*Paralabrax nebulifer*	3
Target speces	*Semicossyphus pulcher*	0.22
Secondary minor species	*Seriola lalandi*	0.01
Secondary minor species	*Paralichthys californicus*	0.01
Secondary minor species	*Atractoscion nobilis*	0.01

ii. Traps

Between 2018 and 2019, the cooperative Ensenada implemented fishing logbooks to record all of their catches. The trap catch profile indicates a bycatch of *Paralabrax clathratus* (8% of the catches) (table 12). The numbers of non target species caught are low (one species). However, the catch volume of *Paralabrax clathratus* in the traps is 8%. The team considers that this species is evaluated as main, since the catch exceeds 5% of the target UoA catch.

Table 12 – Catch composition of the trap fishery by the Ensenada cooperative- Percentage of target species and bycatch are show. Species under 0.22% are not included.

Species category	Species	%
Target species	*Caulolatilus princeps*	61
Target species	*Semicossyphus pulcher*	7
Target species	*Paralabrax nebulifer*	24
Secondary main species	*Paralabrax clathratus*	8
Secondary minor species	*Atractoscion nobilis*	0.2

The main bait used in the traps by the Ensenada cooperative, is the Dungeness crab (*Metacarcinus magister*), identified as a main secondary species. The cooperative uses an average of 35 tons per fishing season. This crab is captured with traps by a different fishery along the western coast of Baja California (see description below).

Dungeness crab

Taxonomy

Animalia

Arthropoda

Malacostraca

Decaopa

Cancridae

Metacarcinus magister (Dana, 185)

Common names: English: Dungeness crab
Spanish: Cangrejo moro

Description
The Dungeness crab has a widely oval shell, with uneven edges, but not very sculpted. It has small eyes. The shell is armed with ten anterolateral teeth, gently angled, including the orbital tooth (next to the eye). The body is wider in the tenth tooth, which is large and protruding. The fingers of the claws are the same color as the rest of the body, not dark. The carpus (wrist) has a strong internal spine. The color of the shell is beige to light brown with blue edges and is darker to the front. The bottom of the crab varies from light orange to light purple-gray, while the inner sides of the legs and claws are crimson. A typical adult (the type specimen) is 120.7 mm long x 177.8 mm wide (Pauley et al. 1986).

Distribution
M. magister record is distributed from Alaska (57 ° 19'18.91 "N and 160 ° 15'24.24" W), to Magdalena Bay in Baja California, Mexico, (24 ° 33 '31.00 "N and 115 ° 25'08.61" W) (CDFW 2011). A factor that determines the distribution of this species is temperature, which affects larvae more than adults (RASCF, 2013).

Habitat
The Dungeness crab has options for sandy or muddy sandy habitats, however, it can be found in

other types of funds. This species can be found from the intertidal zone to 229 meters, however, it has a greater abundance above 91 meters (RASCF, 2013).

Reproduction

Reproduction in the Dungeness crab occurs between hardshell males and newly molted females that are in a softshell condition (MacKay, 1943; Butler, 1960; Snow and Neilsen; 1966). The sperm is stored in paired spermathecae, and the ovules are fertilized as they pass through the sperm cells during expulsion (Jensen, 1995). Moorish crabs can store and use sperm for at least 2.5 years (Hankin et al., 1989). Dungeness crabs in southeastern Alaska begin to mate in June and July (Stone and O'Clair, 2001) and eject eggs from August to January (Swiney, 1999; Swiney and Shirley, 2001). Eggs hatch from April to August and most hatching occurs in May and June (Shirley et al., 1987; Swiney, 1999; Stone and O'Clair, 2001; Swiney and Shirley, 2001). Females carry up to 2.5 million offspring.

Fishery

The crab fishery includes 5 species on the western coast of Baja California. The activity is one of a kind throughout the country and began in the late sixties, favored by a decline in the crab fishery in the northern and central part of the neighboring state of California, USA, which today continue sustaining the fishery of *C*. *magister* in that region of the North Pacific (DOF, 2010).

The average production in the state of Baja California in the period 2000-2018 was 311 tons per year, with the maximum production in the period 1990-2010 and a peak in 2003 with 475 tons. Since its beginnings in the late '60s, the fishery has been based on *C. anthonyi*, and *C. antenarius*, which are the most accessible species to the artisanal coastal shallow water fleet, contributing 81 and 17% of the catch volumes respectively. *C. productus* and *C. gracilis* acquire lower fishing importance since each species contributes approximately 0.6% of the catch volumes (INAPESCA, 2010).

The crab resource is exploited at the MSY on the Pacific coast of Baja California with overexploited areas in the coastal distribution of the species *C. anthonyi*, *C. antenarius* and *C. productus*. In the case of *C. johngarthi* almost the entire distribution area can be considered virgin and consequently with development potential.

In Baja California, 95% of the fishery is carried out in small vessels or fiberglass between 18 and 22 feet length and outboard motors between 40 and 75 HP. The remaining 5% is done on larger vessels, between 25 and 50 feet length. The smaller vessels are generally operated by two fishermen that capture *C. anthonyi, C. antenarius, C. productus* and *C. gracilis*. For *C. johngarthi*, the fishing unit is integrated by a larger vessel operated by 10 or more fishermen.

In the fishery, there is uniformity in the fishing gear and methods used: the parabolic trap of Korean origin. However, the species of the genus *Cancridae* are an important part of incidental fishing in the lobster and finsifh trap fishery, as well as in nets. The smaller vessels work the traps individually, which they start and recover manually, which exceptionally use of winches. In the case of larger vessels, fishing is done with trap lines and winches are used for handling. The operating depth is also different. The smaller vessels operate between 10 and 35 meters, while the larger ones up to 180 meters depth (INAPESCA, 2010).

Productivity Susceptibility Analysis (PSA)

A productivity and susceptibility analysis (PSA) was performed to determine the risk of overexploitation of the Dungeness crab population.

The results indicate that this species, in the locality of El Rosario, has a low vulnerability to exploitation (score 1.88). Also, the productivity of this species in El Rosario has a low risk of being affected by the fishery (score of 1.9) (Fernández-Rivera and Flores-Guzmán, 2019).

b. Endangered, threatened, or protected species (ETP species) in the handline and trap fisher in El Rosario.

Within the area where the UoA operates, several species are on the IUCN Red List as vulnerable, endangered or critically endangered. They are also included in the NOM-059 or are listed by CITES (Table 13).

Based on the fishing logbooks of the Ensenada cooperative, there is no evidence of interactions of any of ETP species with the handline and trap finfish fishery in El Rosario, BC., except the California sheephead (*Semicossyphus pulcher*), which is a target species and classified as "vulnerable" in the Red List of Threatened Species of the International Union for the Conservation of Nature (IUCN). However, it is not in any category of vulnerability in Mexican regulations.

Table 13 – ETP species in El Rosario, BC (based in the IUCN list, CITES and NOM-059 species with Baja California coast distribution).

No.	Common name	Scientific Name	IUCN Red List Category	CITES (Appendix)	NOM-059
1	Whale Shark	*Rhincodon typus*	Endangered	II	X
2	Dusky Shark	*Carcharhinus obscurus*	Endangered		
3	White Shark	*Carcharodon carcharias*	Vulnerable	II	X
4	Shortfin Mako	*Isurus oxyrinchus*	Endangered		
5	Oceanic Whitetip Shark	*Carcharhinus longimanus*	Critically Endangered	II	
6	Hammerhead Shark	*Sphyrna lewini*	Critically Endangered	II	
7	Basking Shark	*Cetorhinus maximus*	Endangered	II	X
8	Pelagic Thresher	*Alopias pelagicus*	Endangered	I	
9	Giant Devilray	*Mobula mobular*	Endangered	I	
10	Sicklefin Devilray	*Mobula tarapacana*	Endangered	I	
11	Bentfin Devilray	*Mobula thurstoni*	Endangered	I	
12	Giant Manta Ray	*Mobula birostris*	Vulnerable	I	
13	Sei Whale	*Balaenoptera borealis*	Endangered	I	X
14	Blue Whale	*Balaenoptera musculus*	Endangered	I	X
15	Harbor Seal	*Phoca vitulina*	Least concern		X
16	Northern Elephant Seal	*Mirounga angustirostris*	Least concern		X
17	California Sea Lion	*Zalophus californianus*	Least concern		X
18	Green Turtle	*Chelonia agassizi*	Endangered	I	X
19	Hawksbill Turtle	*Eretmochelys imbricata*	Critically Endangered	I	X
20	Loggerhead turtle	*Caretta c. gigas*	Vulnerable		X
21	California sheephead	*Semicossyphus pulcher*	Vulnerable		

c. The aquatic ecosystem, its status and any particularly sensitive areas, habitats or ecosystem features influencing or affected by the UoAs.

The west coast of the Baja California peninsula, Mexico, is a highly variable ecosystem; in this region, waters and complex fauna from the north and south of the continent mix. The confluence of the California current (of cold-temperate and nutrient-rich waters) and the warm waters of the south, makes the South-Californian Pacific a complex zone of biotic transition, characterized by a relatively

high diversity of species, also including stretches of mangrove and kelp forests (Wilkinson et al., 2009).

The South-Californian Pacific is characterized by a very narrow continental shelf, that widens in the south, reaching between 110 and 140 kilometers in the Sebastian Vizcaino Bay and to the north of Magdalena Bay. From the break of the continental shelf, the seabed falls abruptly to depths of 1,000 and 3,000 meters. Between this slope, the deep plains and Marine South-Californian Mountains lie the continental margin of Baja California: mountainous regions, with depths of between 800 and 1,000 meters, that include islands, banks and deep basins (Wilkinson et al., 2009).

The region is influenced by various currents and upwellings during distinct periods of the year. In oceanographic terms this is dominated by the Californian current, which flows from the north to the south, transporting relatively cold and nutrient-rich water. In Punta Concepción, this current moves offshore, allowing currents near the coast to receive counter currents from the south of California, which are warmer and flow seasonally and discontinuously in a north direction, beginning between August and October and intensifying in winter. The counter-current from the south of California and extensions of the current from the coastal current of Costa Rica affect the coastline, mainly in winter (Wilkinson et al., 2009).

The confluence of warm waters from the south and colder waters from the north give this region its relatively high biological diversity; for instance, the southern limit of the distribution range of many marine fish, invertebrates and high latitude algae, as well as the northern limit of the distribution area of many equatorial species that are found in the surroundings of Punta Concepcion and in the southern region of Archipielago del Norte (Airamé et al., 2003). The productivity in the South-Californian Pacific is moderately elevated due to the coastal upwelling systems that transport nutrients to the surface near the shore. The intense upwellings favour the recruitment (incorporation of juveniles) in ichthyological populations of commercial importance (Wilkinson et al., 2009).

The bays of San Quintín and El Rosario are a combination of dunes, steep points, beaches and wetlands, coastal lagoons and shallow open bays. Located between Cabo Colonett and Punta San Antonio, this area also includes the volcanic islands of San Jerónimo and San Martín (Unpublished data, S. C. P. P. Ensenada).

The flourishing state of the unique ecosystem of this area is due to the intense upwellig in Cabo San Quintín and Punta Baja, in addition to the nutrient-rich runoff from the surrounding lands and the eddies that circulate in the area. The result is an area of high productivity and abundant fisheries (Fig. 23).

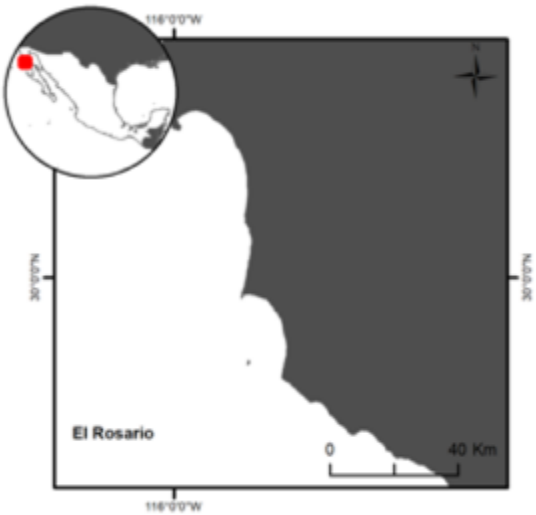

Figure 23. El Rosario, Baja California, Mexico.

San Jerónimo Island is located in the central part of the western coast of Baja California, Mexico, within El Rosario Bay at 29.8203 north latitude and -115.846 west longitude. Its estimated area is 376,000 m^2 and practically all its coast is rocky. Landings take place on a single protected beach, with thick gravel and sloping slope. On the east side of San Jerónimo there is a fishing community inhabited intermittently by fishermen of the S.C.P.P. “Ensenada” S.C.L. (Unpublished data, S. C. P. P. Ensenada).

To learn more about the oceanography of the area, the fishing cooperative installed a CTD-O on San Jerónimo Island. The results are shown in figure 24 (Unpublished data, S. C. P. P. Ensenada).

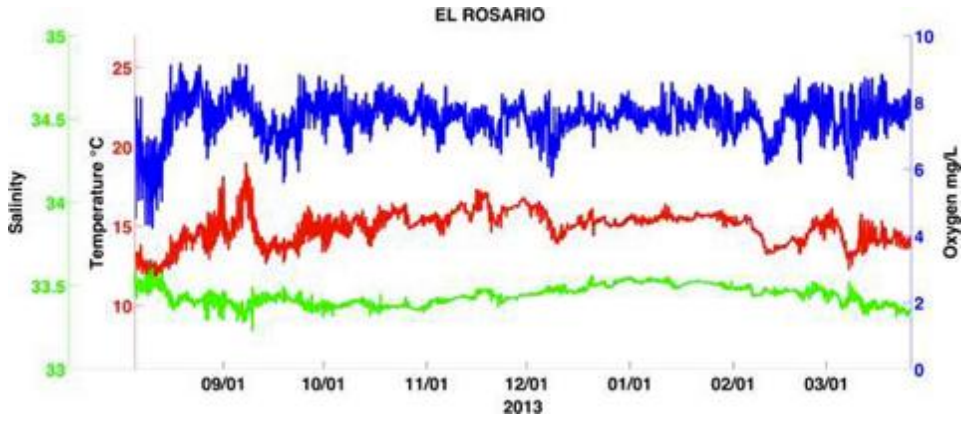

Figure 24. Data from CTD-O located on San Jerónimo Island (Unpublished data, S. C. P. P. Ensenada).

The underwater monitoring project carried out by Comunidad y Biodiversidad, A. C., and the fishing cooperative Ensenada, in the area of El Rosario, has found that the area is mainly composed of rocks larger than 1 m, followed by rocks larger than 10 cm and smaller than 1 m. The substrate is mainly composed of particles smaller than 0.5 cm (sand) (Unpublished data, S. C. P. P. Ensenada).

Within the fishing zone of the Ensenada cooperative, four fishing refuge areas have been established. The aim is to contribute to the improvement of fishery productivity in adjacent areas; recover fishing banks in the area; contribute to the maintenance of biological processes through the protection of recruitment sites and acquire legal protection before possible incursions by actors outside the convention area (Table 14) (Fig. 24) (Unpublished data, S. C. P. P. El Rosario).

Tabla 14 – No-take refuge zones in the concession area of the Ensenada cooperative (Unpublished data, S. C. P. P. Ensenada).

Zone	Category	Surface (ha)
Punta Baja	Temporary partial	715.5
China Town	Temporary partial	55.54
La Caracolera	Temporary total	422.96
Sport Fish	Temporary total	156.06

The refuge area called Punta Baja has depths of up to 45-50 m. The area of Sport Fish and ChinaTown has depths of 30-40 m. The Caracolera has depths between 30-40 m (Unpublished data, S. C. P. P. Ensenada).

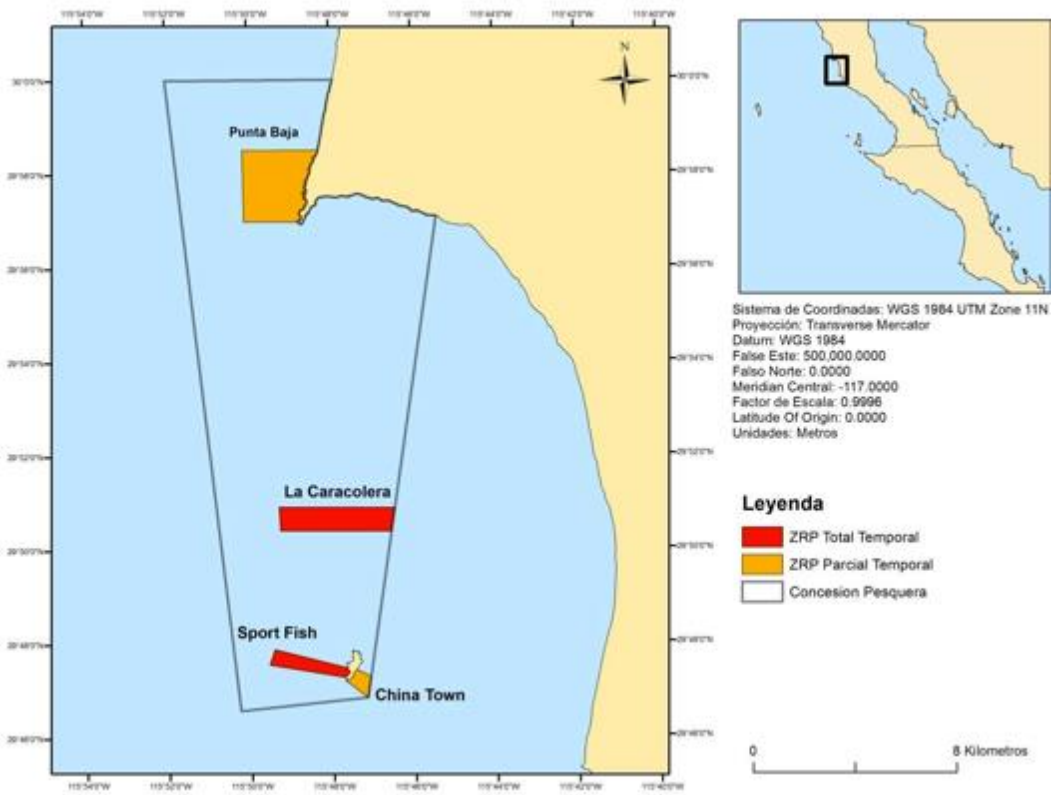

Figure 24. Fishing refuge areas in El Rosario Bay, Baja California (Unpiblished data, S. C. P. P. Ensenada).

Based on ecotrophic modeling, Vilalta-Nava (2017) suggest that the Western region of the Baja California Peninsula is conceived as an immature ecosystem where species with intermediate trophic levels (from 3.0 to 4.0; Lercari and Arreguin, 2009) have many inter-specific interactions and low levels of variation. Beas-Luna (2014), points out that fishing mortality affects fish species with a lower trophic level to a lesser extent. On the other hand, studies conducted for handline fisheries (Díaz, 2005), indicate an intermediate impact level derived from the use of this fishing gear. Díaz (2005) affirms that the decrease in energy flow is due to the increase in fishing pressure, a factor that can be remedied by reducing the capture of juveniles through regulation of the activity and the modification of fishing gear (hook size). In the case of the demersal trap fishery, Shester and Micheli (2011) report that given the trap's selectivity, the activity has low impact on the ecosystem, and therefore, low impact on the energy's flow between trophic levels.

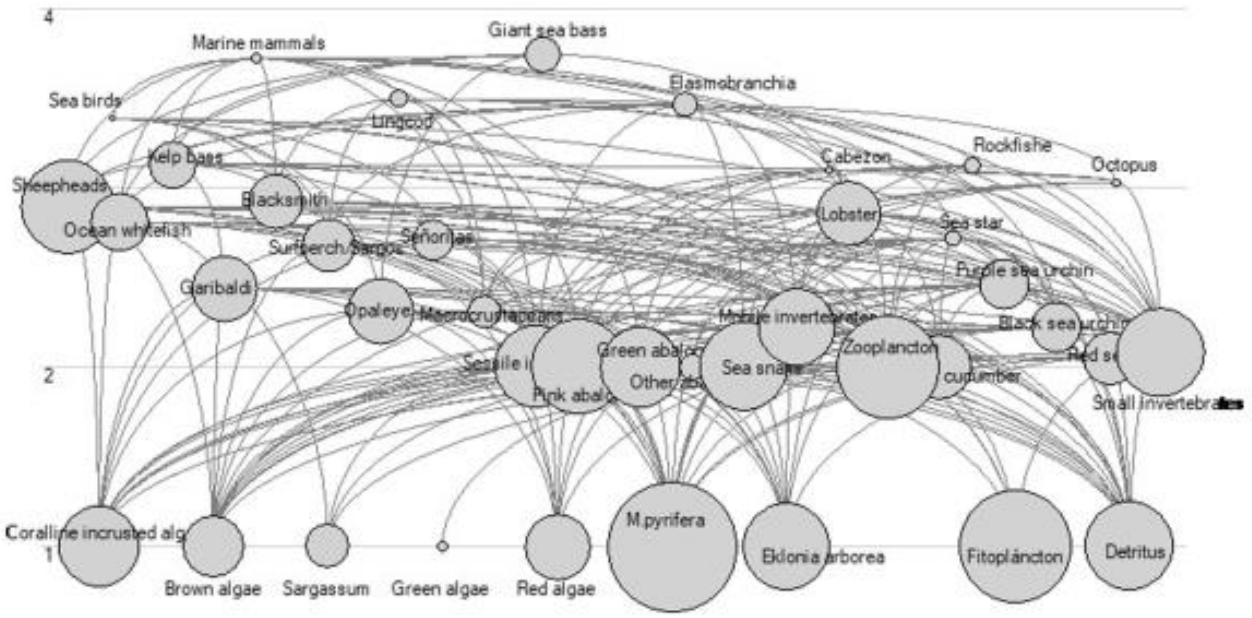

Figure 25. Flow diagram of Isla Natividad ecosystem. The FG are represented in circles, whose size is proportional to the biomass of the FG. They are distributed along the Y axis according to the trophic levels that Ecopath calculated, and the lines that join the FG with each other are the trophic interactions existing between them.

Table 15 – Scoring elements – UoA 1 (Traps)

Component	Scoring elements	Designation	Data-deficient
Primary Traps	Bait species: Pacific sardine *(Sardinops sagax)*	Main	No
Secondary Traps	Bait: Crab *(Metacarcinus magister)* Kelp bass (*Paralabrax clathratus)* White seabass (*Atractoscion nobilis)*	Main Minor	Yes
ETP Traps	No ETP species	NA	NA
Habitat Traps	Minor habitat	NA	Yes
Ecosystem Traps	Foodweb dynamics	NA	Yes

Table 16 – Scoring elements – UoA 2 (Handline)

Component	Scoring elements	Designation	Data-deficient
Primary Handline	California market squid, *Doryteuthis (Amerigo) opalescens*	Main	No
Secondary Handline	*Paralichthys californicus* (California halibut) *Atractoscion nobilis* (white seabass) *Seriola lalandi* (Yellowtail amberjack)	Minor	Yes
ETP Handline	No ETP species	NA	NA
Habitat Handline	Minor habitat	NA	Yes
Ecosystem Handline	Foodweb dynamics	NA	Yes

7.5.2 Principle 2 Performance Indicator scores and rationales PI 2.1.1 – Primary species outcome

PI 2.1.1		The UoA aims to maintain primary species above the point where recruitment would be impaired (PRI) and does not hinder recovery of primary species if they are below the PRI		
Scoring Issue		SG 60	SG 80	SG 100
a	Main primary species stock status			
	Guide post	Main primary species are **likely** to be above the PRI. OR If the species is below the PRI, the UoA has measures in place that are **expected** to ensure that the UoA does not hinder recovery and rebuilding.	Main primary species are **highly likely** to be above the PRI. OR If the species is below the PRI, there is either **evidence of recovery** or a demonstrably effective strategy in place **between all MSC UoAs which categorise this species as main**, to ensure that they collectively do not hinder recovery and rebuilding.	There is a **high degree of certainty** that main primary species are above the PRI **and are** fluctuating around a level consistent with MSY.
	UoA 1 (T) met?	American Pilchard-Yes	Yes	No
	UoA 2 (HL) Met?	California Market Squid-Yes	No	No
Rationale				

T: American Pilchard: The main primary species correspond to resources used as bait: small pelagics (*Sardinops sagax*). The Kobe diagram shows the trajectory of the level of exploitation of both temperate stocks of *S. sagax* has remained at sustainable levels of exploitation throughout the period evaluated. Sustainability indicators determined that the temperate stock of *S. sagax* has remained at sustainable exploitation levels for the period of 1989-2018. The analysis showed that the stock is being exploited below reference points such as F_{MSY} (0.27 $year^{-1}$; an average of 0.17 $year^{-1}$ was obtained for the period evaluated) and E_{MSY} (0.42 $year^{-1}$; an average of 0.16 $year^{-1}$ was obtained for the period evaluated) (Enciso et al 2019). The fishing mortality rate in Pilchard has been historically well under the LRP.The SG80 is met.

HL: The main primary species in the UoA's correspond to resources that are used as bait. For the handline, the fishing cooperative Ensenada uses market squid as bait. This species is bought in San Diego, California, and is managed by the State of California Resources Agency Department of Fish and Game Marine Region.

Market Squid can be considered to be below the PRI. Management reference points are based on an "egg escapement model," which allows for the estimation of reproductive output and fishing mortality rates. However, this approach is not designed to assess species abundance and is not intended for that purpose in this fishery (Dorval et al. 2013). For market squid, the Overfishing Limit (OFL) and Allowable Biological Catch (ABC) are both set at the fishing mortality that results in a threshold level of egg escapement of at least 30% (the proxy for MSY). The SG60 is met.

b	Minor primary species stock status			
	Guide post			Minor primary species are highly likely to be above the PRI. OR If below the PRI, there is evidence that the UoA does not hinder the recovery and rebuilding of minor primary species.
	UoA 1 (T) met?			**Yes**
	UoA 2 (HL) Met?			**Yes**
Rationale				

There are no minor primary species in the UoA 1 and 2, SG100 is met.

References

CDFW (2005). Market Squid Fishery Management Plan. California Department of Fish and Game.

Enciso-Enciso C. Nevárez-Martínez M.O., D.I. Arizmendi-Rodríguez, M. S. Zuñiga-Flores, C.E. Cotero-Altamirano, J.C. Peralta-Ramos y M. Moreno-Willerer. 2019. Informe tecnico: Evaluacion y Seguimiento de la Regla de Control para el stock templado de ardina del Pacifico S. Sagax en la costa Occidental de la peninula de Baja Claifonia. Instituto Nacional de Pesca. CRIPA Ensneada, Baja California.

DOF. 2018. Actualización de la Carta Nacional Pesquera y su anexo. Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación. Diario Oficial. México.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	UoA 1 (T)	**≥80**
	UoA 2 (HL)	**60-79**
Information gap indicator	**Information sufficient to score PI**	
Data-deficient? (Risk-Based Framework needed)	**No**	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.1.2 – Primary species management strategy

PI 2.1.2		**There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch**		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are **measures** in place for the UoA, if necessary, that are expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are likely to be above the PRI.	There is a **partial strategy** in place for the UoA, if necessary, that is expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are highly likely to be above the PRI.	There is a **strategy** in place for the UoA for managing main and minor primary species.

	UoA 1 (T) Met?	**American Pilchard- Yes**	**Pilchard- Yes**	**No**
	UoA 2 (HL) Met?	**California Market Squid- Yes**	**Squid- Yes**	**No**
Rationale				
T: The bait is purchased by the industrial small pelagic fleet from Ensenada, Baja California. South American pilchard, is part of the fishery for small pelagics, and as such are managed under the provisions outlined in the Norma Oficial Mexicana (NOM) 003-PESC-2018—including regulations of fishing gear, minimum size, and fleet capacity. The implementation of management provisions is guided and informed by the Small Pelagics Fishery Management Plan (2012) and the National Fisheries Chart (DOF 2018). Under this management framework, there is a sampling program in place to collect landing data, surveys to gather size data and stock assessments have been conducted for three species. The management measures, stock assessment and the fishery management plan are a partial strategy to maintain the South American pilchard above the PRI, so SG80 is met. The UoA does not have a strategy for managing main species, so SG100 is not met. HL: For the market squid, the Management Measures (MSFMP; California Coast) (2005) establishes a management program for California's market squid resource and procedures by which the Commission will manage the market squid fishery (CDFW, 2005). There are stablished control rules, seasonal catch limitation, weekend closures, gear regulations, and monitoring program to evaluate the impact of the fishery. Also, a seabird closure restricting the use of attracting lights for commercial purposes in any waters of the Gulf of the Farallon's National Marine Sanctuary is established. To control the fishing effort, a restricted access program is implemented. This program includes provisions for initial entry into the fleet, types of permits, permit fees and permit transferability that produces a moderately productive and specialized fleet. This constitutes a partial strategy, and based on the species' stock status, it is expected to maintain the main primary species at/to levels that are highly likely to be above PRI so SG80 is met. SG100 is not met since there is not a strategy in place for managing main and minor species.			
b	Management strategy evaluation			
	Guide post	The measures are considered **likely** to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is some **objective basis for confidence** that the measures/partial strategy will work, based on some information directly about the fishery and/or species involved.	**Testing** supports **high confidence** that the partial strategy/strategy will work, based on information directly about the fishery and/or species involved.
	UoA 1 (T) Met?	**Pilchard- Yes**	**Yes**	**No**
	UoA 2 (HL) Met?	**Squid- Yes**	**Yes**	**No**
Rationale				

T: Pilchard- Information collected from the observer program provides some objective basis for confidence of the likelihood that the partial strategy to manage small pelagic fishes used as bait (South American pilchard, Pacific thread herring, chub mackerel), as well as the current operations of the UoA fleet will work to manage impacts on the small pelagic fishery. The SG80 is met. However, SG100 is not met because testing to support higher confidence has not occurred.

HL: Market squid- The Management Measures (MSFMP) (2005) establishes a management program for California's market squid resource and procedures by which the Commission will manage the market squid fishery (CDFW, 2005). There are established control rules, seasonal catch limitation, weekend closures, gear regulations, and monitoring program to evaluate the impact of the fishery. To control the fishing effort, a restricted access program is implemented. This program includes provisions for initial entry into the fleet, types of permits, permit fees and permit transferability that produce a moderately productive and specialized fleet. The squid stock is currently below the PRI, so the measures are only considered likely to work, but there is no objective basis for confidence that they are working. Thus, SG60 is met but SG80 is not.

c	Management strategy implementation			
	Guide post		There is **some evidence** that the measures/partial strategy is being **implemented successfully**.	There is **clear evidence** that the partial strategy/strategy is being **implemented successfully and is achieving its overall objective as set out in scoring issue (a).**
	UoA 1 (T) Met?		**No**	**No**
	UoA 2 (HL) Met?		**No**	**No**

Rationale

T: There is some evidence that measures in the partial strategy are implemented (landing monitoring, dynamic models, size sampling), however, at present, the harvest control rule for small pelagics is not considered to be 'in place' (DOF, 2012). The absence of evidence of monitoring and enforcement to implement the harvest strategy, preclude the partial strategy from being considered as 'successfully' implemented, thus SG80 is not met.

HL: Management Measures for Market squid (MSFMP) (2005) establish a management program for California's market squid resource and procedures by which the Commission Deparment of Fish and Wildlife will manage the market squid fishery (CDFW, 2005). However, there is no evidence that the partial strategy is implemented successfully because the absence of evidence of monitoring and enforcement to implement the harvest strategy, thus SG80 is not met.

d	Shark finning

	Guide post	It is **likely** that shark finning is not taking place.	It is **highly likely** that shark finning is not taking place.	There is a **high degree of certainty** that shark finning is not taking place.
	UoA 1 (T) Met?	**NA**	**NA**	**NA**
	UoA 2 (HL) Met?	**NA**	**NA**	**NA**
Rationale				
Sharks are not primary species in the UoAs 1 and 2. The NOM-029-PESC-2006 prohibits the finning of sharks in Mexico.				
e	Review of alternative measures			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of all primary species, and they are implemented, as appropriate.
	UoA 1 (T) Met?	**NA**	**NA**	**NA**
	UoA 2 (HL) Met?	**NA**	**NA**	**NA**
Rationale				
Since the only primary species in the UoAs 1 and 2 are used for bait, there is no unwanted catch. This scoring issue is not relevant.				
References				

CDFW (2005). Market Squid Fishery Management Plan. California Department of Fish and Game.

INAPESCA. 2012. Acuerdo por el que se da a conocer el Plan de Manejo Pesquero para la Pesquería de Pelágicos Menores (sardinas, anchovetas, macarela y afines) del Noroeste de México. Secretaria de Agricultura, Ganaderia, Desarrollo Rural, Pesca y Alimetación. Diario Oficial de la Federacion a jueves 8 de noviembre de 2012.

INAPESCA. 2010. Acuerdo mediante el cual se da a conocer la actualización de la Carta Nacional Pesquera. Secretaria de Agricultura, Ganaderia,Desarrollo Rural, Pesca y Alimetación. Diario Oficial de la Federacion a jueves 2 de diciembre de 2010.

www.profepa.gob.mx › innovaportal › file › nom-029-pesc-2006

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	UoA 1 (T)	**60-79**
	UoA 2 (HL)	**60-79**
Information gap indicator	**More information sought to score PI**	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.1.3 – Primary species information

PI 2.1.3		Information on the nature and extent of primary species is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impact on main primary species			
	Guide post	Qualitative information is **adequate to estimate** the impact of the UoA on the main primary species with respect to status. **OR** **If RBF is used to score PI 2.1.1 for the UoA:** Qualitative information is adequate to estimate productivity and susceptibility attributes for main primary species.	Some quantitative information is available and is **adequate to assess** the impact of the UoA on the main primary species with respect to status. **OR** **If RBF is used to score PI 2.1.1 for the UoA:** Some quantitative information is adequate to assess productivity and susceptibility attributes for main primary species.	Quantitative information is available and is **adequate to assess with a high degree of certainty** the impact of the UoA on main primary species with respect to status.
	UoA 1 (T) Met?	**American Pilchard- Yes**	**Yes**	**No**
	UoA 2 (HL) Met?	**California Market Squid- Yes**	**Yes**	**No**

Rationale

T: The small pelagic fishery (Ensenada) landings and effort are monitored, providing some quantitative information on the amount taken of American pilchard and other small pelagic fishes. Monitoring information includes the catch volume by species The data is collected through a logbook and landing reports by fishermen and biological sampling carried out by CRIP staff (small pelagics) (Enciso-Enciso and Cotero-Altamirano 2014; Enciso et al 2019). Thus, some quantitative information is available and adequate to assess the impact of the UoA on the American Pichard with respect to status, the SG 80 is met. The information does not provide a high degree of certainy, so SG100 is not met.

HL: The market squid (California) landings and effort are monitored, providing some quantitative information on the amount taken by the fishery. The information obtained includes the catch volumes and approximate percentages taken by the UoA. Thus, some quantitative information is available and adequate to assess the impact of the UoA on the American Pichard with respect to status, the SG 80 is met. The information does not provide a high degree of certainy, so the SG100 is not met

b	Information adequacy for assessment of impact on minor primary species			
	Guide post			Some quantitative information is adequate to estimate the impact of the UoA on minor primary species with respect to status.
	UoA 1 (T) Met?			**Yes**
	UoA 2 (HL) Met?			**Yes**
Rationale				
T: There are no minor primary species for the traps finfish fishery in El Rosario, BC. Therefore SG100 is met. HL: There are no minor primary species for the handline finfish fishery in El Rosario, BC. Therefore SG100 is met.				
c	Information adequacy for management strategy			
	Guide post	Information is adequate to support **measures** to manage **main** primary species.	Information is adequate to support a **partial strategy** to manage **main** primary species.	Information is adequate to support a **strategy** to manage **all** primary species, and evaluate with a **high degree of certainty** whether the strategy is achieving its objective.
	UoA 1 (T) Met?	**Yes**	**Yes**	**No**
	UoA 2 (HL) Met?	**Yes**	**Yes**	**No**
Rationale				
T: The information available (catch and effort data and biological reference points from fishery models) for South American pilchard and other pelagics are considered adequate to support the partial strategy to manage these species. The data include dependent and independent fishery information (See primary species information in pag 64). The SG80 is met. HL: The information available (catch and effort data and compliance with fishery management tools) for market squid are considered adequate to support the partial strategy to manage these species. (See primary species information in pag 63). The SG80 met.				

References
CDFW (2005). Market Squid Fishery Management Plan. California Department of Fish and Game. INAPESCA. 2012. Acuerdo por el que se da a conocer el Plan de Manejo Pesquero para la Pesquería de Pelágicos Menores (sardinas, anchovetas, macarela y afines) del Noroeste de México. Secretaria de Agricultura, Ganaderia, Desarrollo Rural, Pesca y Alimetación. Diario Oficial de la Federacion a jueves 8 de noviembre de 2012.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	UoA 1 (T)	**≥80**
	UoA 2 (HL)	**≥80**
Information gap indicator	**More information sought to score PI**	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.2.1 – Secondary species outcome

PI 2.2.1		The UoA aims to maintain secondary species above a biologically based limit and does not hinder recovery of secondary species if they are below a biological based limit		
Scoring Issue		SG 60	SG 80	SG 100
a	Main secondary species stock status			
	Guide post	Main secondary species are **likely** to be above biologically based limits. OR If below biologically based limits, there are **measures** in place expected to ensure that the UoA does not hinder recovery and rebuilding.	Main secondary species are **highly likely** to be above biologically based limits. OR If below biologically based limits, there is either **evidence of recovery** or a **demonstrably effective partial strategy** in place such that the UoA does not hinder recovery and rebuilding. AND Where catches of a main secondary species outside of biological limits are **considerable**, there is either **evidence of recovery** or a, **demonstrably effective strategy in place between those MSC UoAs that have considerable catches of the species**, to ensure that they collectively do not hinder recovery and rebuilding.	There is a **high degree of certainty** that main secondary species are above biologically based limits.
	UoA 1 (T) Met?	**NA**	**NA**	**NA**

	UoA 2 (HL) Met?	**NA**	**NA**	**NA**
Rationale				
T: There are no stock assessments for *Metacarcinus magister* or *Paralabrax clathratus*, therefore, their status is not known with respect to the BMSY, PRI or some proxy. HL: There are no main secondary species for the handline finfish fishery in El Rosario, BC. Therefore this SI is not applicable. A desk-based RBF was employed to score the *Metacarcinus magister* and *Paralabrax clathratus* (See Section 7.10: RBF Scoring Table). Using the MSC RBF worksheet the score provided was that of unconditional pass.				
b	Minor secondary species stock status			
	Guide post			Minor secondary species are highly likely to be above biologically based limits. OR If below biologically based limits', there is evidence that the UoA does not hinder the recovery and rebuilding of secondary species
	UoA 1 (T) Met?			**NA**
	UoA 2 (HL) Met?			**NA**
Rationale				
T: There are no formal stock assessment for any of the minor secondary species. *Atractoscion nobilis* represents a very small percentage of the catch (0.2%) HL: There are no formal stock assessment for any of the minor secondary species: *Seriola lalandi* (0.01%), *Paralichthys californicus* (0.01%) and *Atractoscion nobilis* (0.01%) The RBF was used to score the status of the three species (*Seriola lalandi*, *Paralichthys californicus* and *Atractoscion nobilis*) identified as minor secondary species in both UoAs (See Section 7.10: RBF Scoring Table). Using the MSC RBF worksheet the score resulted in an unconditional pass				
References				

CNP (2010). Acuerdo mediante el cual se da a conocer la actualización de la Carta Nacional Pesquera. Secretaria de Agricultura, Ganaderia,Desarrollo Rural, Pesca y Alimetación. Diario Oficial de la Federacion a jueves 2 de diciembre de 2010.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	UoA 1 (T)	**≥80 (RBF)**
	UoA 2 (HL)	**≥80**
Information gap indicator	**More information sought to score PI**	
Data-deficient? (Risk-Based Framework needed)	**Yes**	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.2.2 – Secondary species management strategy

PI 2.2.2		**There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch**		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are **measures** in place, if necessary, which are expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be above biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a **partial strategy** in place, if necessary, for the UoA that is expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be above biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a **strategy** in place for the UoA for managing main and minor secondary species.
	UoA 1 (T) Met?	**Yes**	**No**	**No**

	UoA 2 (HL) Met?	**Yes**	**Yes**	**No**
Rationale				
TP: There are few measures in place that could limit the impact of the UoA on main secondary species (trap size, licensing, fishing area, and community closed areas). However, there is no monitoring of the CPUE that allows us to identify trends in stock biomass. The SG60 is met. Since there is no a partial strategy, SG80 is not met. HL: There are no main secondary species for the handline finfish fishery in El Rosario, BC, so SG80 is met. Since there is no strategy, SG100 is not met.				
b	Management strategy evaluation			
	Guide post	The measures are considered **likely** to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/species).	There is **some objective basis for confidence** that the measures/partial strategy will work, based on some information directly about the UoA and/or species involved.	**Testing** supports **high confidence** that the partial strategy/strategy will work, based on information directly about the UoA and/or species involved.
	UoA 1 (T) Met?	**Yes**	**No**	**No**
	UoA 2 (HL) Met?	**Yes**	**Yes**	**No**
Rationale				
T: There are few measures in place that could limit the impact of the UoA on main secondary species (trap size, licensing, fishing area, and community closed areas). Given that the fishery uses selective gear with very low catch rates, the measures are considered likley towork. Thus, SG60 is met. HL: There are no main secondary species and very low catches of minor secondary species for the handline finfish fishery in El Rosario, BC, therefore SG80 is met. SG100 is not met since there is no testing to support a partial strategy.				
c	Management strategy implementation			
	Guide post		There is **some evidence** that the measures/partial strategy is being **implemented successfully**.	There is **clear evidence** that the partial strategy/strategy is being **implemented successfully and is achieving its objective as set out in scoring issue (a).**

	UoA 1 (T) Met?		**No**	**No**
	UoA 2 (HL) Met?		**Yes**	**No**

Rationale

T: There is some information that measures in place that could limit the impact of the UoA 1 on secondary species (permits, number of traps, trap size and closed areas). However, at present, there are no stock assessments for finfish, and the status of the stocks is not known with respect to BMSY, PRI or any other proxy. There is no evidence that the partial strategy is implemented 'successfully', thus SG80 is not met.

HL: Given that there are no main secondary species and the very low catch rates of the minor secondary species, there is some evidence that the partial strategy is being implemented successfully, andSG80 is met. SG100 is not met since there is not clear evidence.

d	Shark finning			
	Guide post	It is **likely** that shark finning is not taking place.	It is **highly likely** that shark finning is not taking place.	There is a **high degree of certainty** that shark finning is not taking place.
	UoA 1 (T) Met?	**NA**	**NA**	**NA**
	UoA 2 (HL) Met?	**NA**	**NA**	**NA**

Rationale

For both UoAs (1 and 2), the secondary species is not a shark. However, in México the NOM-029-PESC-2006 prohibits the shark finning and mention as obligatory the shark landing with all the fins naturally attached.

e	Review of alternative measures to minimise mortality of unwanted catch			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of **unwanted** catch of main secondary species.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of **unwanted** catch of main secondary species and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of **unwanted** catch of all secondary species, and they are implemented, as appropriate.

	UoA 1 (T) Met?	**Yes**	**Yes**	**No**
	UoA 2 (HL) Met?	**Yes**	**Yes**	**No**

Rationale

For both UoAs (1 and 2), there are no main secondary species so SG80 is met. Since there is no biennial review of unwanted catch of all secondary species, SG100 is not met.

References

CNP (2010). Acuerdo mediante el cual se da a conocer la actualización de la Carta Nacional Pesquera. Secretaria de Agricultura, Ganaderia,Desarrollo Rural, Pesca y Alimetación. Diario Oficial de la Federacion a lunes 11 de junio de 2018.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	UoA 1 (T)	**60-70**
	UoA 2 (HL)	**≥80**
Information gap indicator	**More information sought to score PI**	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.2.3 – Secondary species information

PI 2.2.3		Information on the nature and amount of secondary species taken is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage secondary species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts on main secondary species			
	Guide post	Qualitative information is **adequate to estimate** the impact of the UoA on the main secondary species with respect to status. OR **If RBF is used to score PI 2.2.1 for the UoA:** Qualitative information is adequate to estimate productivity and susceptibility attributes for main secondary species.	Some quantitative information is available and **adequate to assess** the impact of the UoA on main secondary species with respect to status. OR **If RBF is used to score PI 2.2.1 for the UoA:** Some quantitative information is adequate to assess productivity and susceptibility attributes for main secondary species.	Quantitative information is available and **adequate to assess with a high degree of certainty** the impact of the UoA on main secondary species with respect to status.
	UoA 1 (T) Met?	**Yes-RBF**	**Yes-RBF**	**NA**
	UoA 2 (HL) Met?	**Yes**	**Yes**	**Yes**
Rationale				
T: When the MSC Risk Based Framework is used to score PI 2.2.1 and the quantitative information is adequate, and a score of 80 is given to this PI. HL: The catch data show that there are no main secondary species and that the catch of minor secondary species is very low. Therefore, there is quantitative information available (fishing logbooks) to adequately assess with a high degree of certainty the UoA's impact on main secondary species. SG100 is met.				
b	Information adequacy for assessment of impacts on minor secondary species			

	Guide post			Some quantitative information is adequate to estimate the impact of the UoA on minor secondary species with respect to status.
	UoA 1 (T) Met?			**No**
	UoA 2 (HL) Met?			**No**
Rationale				
For both UoAs (1 and 2), there is some quantitative information (fishing logbooks) which is expected to be adequate to estimate the impact of UoA on the status of minor secondary species. However, there are no stock assessments and a high level of uncertainty in the data, so the SG100 is not met.				
c	Information adequacy for management strategy			
	Guide post	Information is adequate to support **measures** to manage **main** secondary species.	Information is adequate to support a **partial strategy** to manage **main** secondary species.	Information is adequate to support a **strategy** to manage **all** secondary species, and **evaluate** with a **high degree of certainty** whether the strategy is **achieving its objective**.
	UoA 1 (T) Met?	**Yes**	**No**	**No**
	UoA 2 (HL) Met?	**Yes**	**Yes**	**No**
Rationale				
T: There is some quantitative information (fishing logbooks) which is expected to be adequate to support measures to manage the impact of UoA on the status of main secondary species. However, the information doesn't support a partial strategy, so SG80 is not met. HL: The catch data show that there are no main secondary species. This is due to the highly selective gear that is used, which constitutes a partial strategy. Therefore, SG80 is met. SG100 is not met since there is no strategy.				
References				
Ensenada SCPP (comments pers.), INAPESCA, 2018.				

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	UoA 1 (T)	**60-79**
	UoA 2 (HL)	**≥80**
Information gap indicator	**More information sought to score PI**	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.3.1 – ETP species outcome

PI 2.3.1		The UoA meets national and international requirements for the protection of ETP species The UoA does not hinder recovery of ETP species		
Scoring Issue		SG 60	SG 80	SG 100
a	Effects of the UoA on population/stock within national or international limits, where applicable			
	Guide post	Where national and/or international requirements set limits for ETP species, the **effects of the UoA** on the population/ stock are known and **likely** to be within these limits.	Where national and/or international requirements set limits for ETP species, the **combined effects of the MSC UoAs** on the population /stock are known and **highly likely** to be within these limits.	Where national and/or international requirements set limits for ETP species, there is a **high degree of certainty** that the **combined effects of the MSC UoAs** are within these limits.
	UoA 1 (T) Met?	Yes	Yes	Yes
	UoA 2 (HL) Met?	Yes	Yes	Yes
Rationale				
According to MSC Fisheries Standard v2.01; SA3.2.1, if an assessment team determines that a UoA has no impact on a particular component, it shall receive a score of 100 under the Outcome PI. Therefore, as it has been determined, the UoAs (1 and 2) (for the 5 species, ocean whitefish, California sheephead, barred sand bass, starry rockfish and vermilion rockfish) have no impact on the ETP species component, (mammals, birds, fishes and invertebrates include in NOM-059, CITES and UICN red list) automatically receive a score of 100 for this particular Outcome PI.				
b	Direct effects			
	Guide post	Known direct effects of the UoA are likely to not **hinder recovery** of ETP species.	Known direct effects of the UoA are likely to not **hinder recovery** of ETP species.	There is a **high degree of confidence** that there are no **significant detrimental direct effects** of the UoA on ETP species.
	UoA 1 (T) Met?	Yes	Yes	Yes
	UoA 2 (HL) Met?	Yes	Yes	Yes
Rationale				

For both UoAs (1 and 2), there is information on landing tickets, fishing logbooks program and literature that indicates null interactions of the handline and trap fishery with ETP species. This is supported by a robust explanation within book of Sustainability and Responsible Fishing in Mexico, CNP and assessment of impact gears (handline and lobster trap) in ETP species (FAO 2005; DOF, 2010; Gomez-Gomez et al. 2016; Chupenague et al. 2003; Shester and Micheli 2011). Therefore, with this information, it is possible to determine with a high degree of confidence that there are not significant detrimental on ETP species, so this scoring issue meets SG100.

c	Indirect effects			
	Guide post		Indirect effects have been considered for the UoA and are thought to be **highly likely** to not create unacceptable impacts.	There is a **high degree of confidence** that there are no **significant detrimental indirect effects** of the UoA on ETP species.
	UoA 1 (T) Met?		**Yes**	**Yes**
	UoA 2 (HL) Met?		**Yes**	**Yes**

Rationale

For both UoAs (1 nd 2), according to logbook data of the cooperative Ensenada (2018-2019) there is not interaction with ETP species, the fishing method (handline and traps) are highly selective. Ghost fishing is not considered a concern in handline and traps. Traps have biodegradable staples to limit their usable life span if they are lost or abandoned at sea. There is no evidence that the UoA has interacted with ETP species. Therefore, there is a high degree of confidence that the UoA does not cause significant detrimental indirect effects on ETP species. The fishery meets the SG100.

References

Chuenpagdee, R., Morgan, L. E., Maxwell, S. M., Norse, E. A., & Pauly, D. (2003). Shifting gears: assessing collateral impacts of fishing methods in US waters. Frontiers in Ecology and the Environment, 1(10), 517–524. doi:10.1890/1540-9295(2003)001[0517:sgacio]2.0.co;2

DOF. 2010. NOM-059-SEMARNAT. Diario Oficial. Mexico.

FAO 2005. Guía del administrador pesquero. FAO Italia. http://www.fao.org/3/y3427s/y3427s00.htm#Contents

Gomez-Gomez, A., Fernandez-Rivera Melo F.J., y Lejbowicz A. 2016. Reporte de la pesqueria de jurel (*Seriola lalandi*) en Isla Natividad, Baja California Sur del 2014 al 2016. Comunidad y Biodiversidad A.C. Guaymas, Sonora, Mexico.

Shester, G.G. & F. Micheli. 2011. Conservation challenges for small-scale fisheries: Bycatch and habitat impacts of traps and gillnets. Elsevier. Biological Conservation. 144:1673–1681.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	UoA 1 (T)	**≥80**
	UoA 2 (HL)	**≥80**

Information gap indicator	**Information sufficient to score PI**
Data-deficient? (Risk-Based Framework needed)	**No**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.3.2 – ETP species management strategy

PI 2.3.2		**The UoA has in place precautionary management strategies designed to:** - **meet national and international requirements;** - **ensure the UoA does not hinder recovery of ETP species.** **Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species**		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place (national and international requirements)			
	Guide post	There are **measures** in place that minimise the UoA-related mortality of ETP species, and are expected to be **highly likely to achieve** national and international requirements for the protection of ETP species.	There is a **strategy** in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to be **highly likely to achieve** national and international requirements for the protection of ETP species.	There is a **comprehensive strategy** in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to **achieve above** national and international requirements for the protection of ETP species.
	UoA 1 (T) Met?	**NA**	**NA**	**NA**
	UoA 2 (HL)	**NA**	**NA**	**NA**
Rationale				
The UoAs (1 and 2) do not interact with any ETP species that are under any regime of any of the national and international institutions / organizations and national and foreign laws, such as NOM-059, CITES, and IUCN, or any other of this nature. Since there are no national and/or international limitations, this scoring issue is not scored.				
b	Management strategy in place (alternative)			

	Guide post	There are **measures** in place that are expected to ensure the UoA does not hinder the recovery of ETP species.	There is a **strategy** in place that is expected to ensure the UoA does not hinder the recovery of ETP species.	There is a **comprehensive strategy** in place for managing ETP species, to ensure the UoA does not hinder the recovery of ETP species.
	UoA 1 (T) Met?	**Yes**	**Yes**	**No**
	UoA 2 (HL) Met?	**Yes**	**Yes**	**No**
Rationale				
There is no evidence of capture of ETP species within the UoAs 1 and 2. Also, in Mexico there are established measures that are expected to minimize interaction and mortality with ETP species in accordance with international requirements for the protection of these species. For example, the LGPA, LGEEPA, LGVS, CNP and NOM-059-SEMARNAT-2010, NOM-064-SAG/PESC/SEMARNAT-2013, Natural Protected Area Pacific Islands (DOF 2016). The selectivity of gear, location of fishing, permanent area closure for mammals constitute a partial strategy in place, wich ensure the UoA does not hinder the recovery of ETP species. The SG 80 is meet, SG 100 is not met since there is not a comprehensive strategy.				
c	Management strategy evaluation			
	Guide post	The measures are **considered likely** to work, based on **plausible argument** (e.g., general experience, theory or comparison with similar fisheries/species).	There is an **objective basis for confidence** that the measures/strategy will work, based on **information** directly about the fishery and/or the species involved.	The strategy/comprehensive strategy is mainly based on information directly about the fishery and/or species involved, and a **quantitative analysis** supports **high confidence** that the strategy will work.
	UoA 1 (T) Met?	**Yes**	**Yes**	**No**
	UoA 2 (HL) Met?	**Yes**	**Yes**	**No**
Rationale				
Both UoAs (1 and 2) have no interaction with ETP species. Due to the selectivity of the gear (handline and trap) and the strategy followed by fishery, there is an objective basis for the confidence that the strategy will work based on information directly from the fishery. SG80 is met, but SG100 is not met since there has been no quantitative analysis to support high confidence.				
d	Management strategy implementation			

	Guide post		There is some **evidence** that the measures/strategy is being implemented successfully.	There is **clear evidence** that the strategy/comprehensive strategy is being implemented successfully and **is achieving its objective as set out in scoring issue (a) or (b).**
	UoA 1 (T) Met?		**Yes**	**No**
	UoA 2 (HL) Met?		**Yes**	**No**
Rationale				
It has been determined with a high degree of confidence that the UoAs (1 and 2) do not have interaction with ETP species. There is some evidence that the strategy is being implemented successfully; therefore SG80 is met.				
e	Review of alternative measures to minimize mortality of ETP species			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality ETP species, and they are implemented, as appropriate.
	UoA 1 (T) Met?	**Yes**	**Yes**	**No**
	UoA 2 (HL) Met?	**Yes**	**Yes**	**No**
Rationale				
It has been determined with a high degree of confidence that the UoAs (1 and 2) do not have interaction with ETP species. There is clear evidence of the absence of ETP species (fishing logbook program). The NOMs are reviewed every 10 years, so there is a regular review of the effectiveness and potential feasibility of alternative measures to minimize the mortality of ETP species. SG80 is met but not SG100.				
References				

DOF. 2010. NOM-059-SEMARNAT. Diario Oficial. Mexico
DOF. 2018. Ley General de Vida Silvestre. Diario Oficial. Mexico.
DOF. 2015. Ley General del Equilibrio Ecologico y la Proteccion al Ambiente. Diario Oficial. Mexico.
NOM-064-SAG/PESC/SEMARNAT-2013
DOF. 2016. DECRETO por el que se declara Área Natural Protegida, con el carácter de reserva de la biosfera, la región conocida como Islas del Pacífico de la Península de Baja California. Diario Oficial. Mexico.
https://conapesca.gob.mx/work/sites/cona/dgop/2020/CUADRO_VEDAS_VIGENTES_17012020.pdf

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	UoA 1 (T)	**≥80**
	UoA 1 (HL)	**≥80**
Information gap indicator	**More information sought to score PI**	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.3.3 – ETP species information

PI 2.3.3		**Relevant information is collected to support the management of UoA impacts on ETP species, including:** - **Information for the development of the management strategy;** - **Information to assess the effectiveness of the management strategy; and** - **Information to determine the outcome status of ETP species**		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts			
	Guide post	Qualitative information is **adequate to estimate** the UoA related mortality on ETP species. **OR** **If RBF is used to score PI 2.3.1 for the UoA:** Qualitative information is **adequate to estimate productivity and susceptibility** attributes for ETP species.	Some quantitative information is **adequate to assess** the UoA related mortality and impact and to determine whether the UoA may be a threat to protection and recovery of the ETP species. **OR** **If RBF is used to score PI 2.3.1 for the UoA:** Some quantitative information is **adequate to assess productivity and susceptibility attributes** for ETP species.	Quantitative information is available to assess with a high degree of certainty the **magnitude of UoA-related impacts, mortalities and injuries and the consequences for the status** of ETP species.
	UoA 1 (T) Met?	**Yes**	**Yes**	**No**
	UoA 2 (HL) Met?	**Yes**	**Yes**	**No**
Rationale				
According to the justification presented in PI 2.3.1 and the information shown in the capture data, there is no interaction of the UoAs (1 and 2) with ETP species; therefore, this allows us to determine with a high degree of certainty that there are no impacts related to UoA, mortality, injuries and null consequences for the status of the ETP species. This meets the SG80.				
b	Information adequacy for management strategy			

	Guide post	Information is adequate to support **measures** to manage the impacts on ETP species.	Information is adequate to measure trends and support a **strategy** to manage impacts on ETP species.	Information is adequate to support a **comprehensive strategy** to manage impacts, minimize mortality and injury of ETP species, and evaluate with a **high degree of certainty** whether a strategy is achieving its objectives.
	UoA 1 (T) Met?	**Yes**	**Yes**	**No**
	UoA 2 (HL) Met?	**Yes**	**Yes**	**No**

Rationale

According to the justification presented in PI 2.3.1 and the information shown the in fishing logbook program, the UoAs (1 and 2) do not have interaction with ETP species; therefore, this information allows us to determine the impact of the UoA in ETP species. Information is adequate to measure trends and support a partial strategy to manage impacts on ETP species if any were to exist in the future so SG80 is met, SG100 is not met since there is not a comprehensive strategy.

References

DOF. 2010. NOM-059-SEMARNAT. Diario Oficial. Mexico
DOF. 2018. Ley General de Vida Silvestre. Diario Oficial. Mexico.
DOF. 2015. Ley General del Equilibrio Ecologico y la Proteccion al Ambiente. Diario Oficial. Mexico.
NOM-064-SAG/PESC/SEMARNAT-2013
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Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	UoA 1 (T)	**≥80**
	UoA 2 (HL)	**≥80**
Information gap indicator	**More information sought to score PI**	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.4.1 – Habitats outcome

PI 2.4.1		The UoA does not cause serious or irreversible harm to habitat structure and function, considered on the basis of the area covered by the governance body(s) responsible for fisheries management in the area(s) where the UoA operates		
Scoring Issue		SG 60	SG 80	SG 100
a	Commonly encountered habitat status			
	Guide post	The UoA is **unlikely** to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	The UoA is **highly unlikely** to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	There is **evidence** that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.
	UoA 1 (T) Met?	**Yes**	**Yes**	**No**
	UoA 2 (HL) Met?	**Yes**	**Yes**	**No**
Rationale				
T: The trap is a fishing gear with low impact habitat (Chuenpagdee, 2003; FAO 2005;). The species are fished in the bottom sea are considered to have minimal impacts, causing little or no damage to substrate, geomorphology and biota (Shester and Micheli 2011), the traps stay on sand seafloor for a small period of ttime (less than 1 hour). It can be inferred that it is highly unlikely that the gear type used in this fishery can reduce habitat structure and function to a point where there would be serious or irreversible harm. SG80 met. However, there is no direct evidence for this fishery, so SG100 is not met. HL: The handline is a fishing gear with low impact habitat (Chuenpagdee, 2003; FAO 2005). The species are fishing in midwater and close to the bottom sea are considered to have minimal impacts, causing little or no damage to substrate, geomorphology and biota (Bjarnason 1995; INAPESCA 2000). It can be inferred that it is highly unlikely that the gear type used in this fishery can reduce habitat structure and function to a point where there would be serious or irreversible harm. SG80 met. However, there is no direct evidence for this fishery, so SG100 is not met.				
b	VME habitat status			

	Guide post	The UoA is **unlikely** to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	The UoA is **highly unlikely** to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	There is **evidence** that the UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.
	UoA 1 (T) Met?	**NA**	**NA**	**NA**
	UoA 2 (HL) Met?	**NA**	**NA**	**NA**
Rationale				
Fot both UoAs (1 and 2), there are no known VME habitats in the fishing areas, so this SI is not scored.				
c	Minor habitat status			
	Guide post			There is **evidence** that the UoA is highly unlikely to reduce structure and function of the minor habitats to a point where there would be serious or irreversible harm.
	UoA 1 (T) Met?			**No**
	UoA 2 (HL) Met?			**No**
Rationale				
Fot both UoAs (1 and 2), according to the information presented in PI 2.4.1 (a and b) the gear has limited contact with the bottom and no benthic species interaction occurs, thus there is low habitat impact. Thus, negative impacts that reduce the structure and function of minor habitats are very unlikely. However there is no robust evidence where the UoA operates (the information was taken from literature review and for other fisheries), so SG 100 is not met.				
References				
Shester, G.G. & F. Micheli. 2011. Conservation challenges for small-scale fisheries: Bycatch and habitat impacts of traps and gillnets. Elsevier. Biological Conservation. 144:1673–1681.				

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	UoA 1 (T)	**≥80**
	UoA 2 (HL)	**≥80**
Information gap indicator	**Information sufficient to score PI**	
Data-deficient? (Risk-Based Framework needed)	**Yes**	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.4.2 – Habitats management strategy

PI 2.4.2		**There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats**		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are **measures** in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance.	There is a **partial strategy** in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.	There is a **strategy** in place for managing the impact of all MSC UoAs/non-MSC fisheries on habitats.
	UoA 1 (T) Met?	**Yes**	**Yes**	**No**
	UoA 2 (HL) Met?	**Yes**	**Yes**	**No**
Rationale				
The UoAs (1 and 2) have not been considered to pose a risk of serious or irreversible harm to habitat types (see PI 2.4.1). Additionally, there are fishing refuges in the area which contribute to minimize the fishery impact. These and the low impact gears are considered a partial strategy that helps ensure UoA does not represent a risk to the habitat. SG80 is reached, but SG100 is not since there is not a strategy				
b	Management strategy evaluation			
	Guide post	The measures are **considered likely** to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/habitats).	There is some **objective basis for confidence** that the measures/partial strategy will work, based on **information directly about the UoA and/or habitats** involved.	**Testing** supports **high confidence** that the partial strategy/strategy will work, based on **information directly about the UoA and/or habitats** involved.

	UoA 1 (T) Met?	**Yes**	**Yes**	**No**
	UoA 2 (HL) Met?	**Yes**	**Yes**	**No**
Rationale				
FAO (2005), Chuenpagdee et al. (2003) and Shester and Micheli (2011) assessed the collateral impact (bycatch and impact on habitat) of a variety of fishing gear by integrating the knowledge of a wide range of fisheries stakeholder and assessments in the field. They concluded that the UoAs (1 and 2) showed relatively low impact compared to other gear types like bottom trawl and bottom gillnet. There is some objective basis that the partial strategy will work based on the normal fishing operation method of the handline and trap fisheries, but also on the effectiveness of closed areas and of restoring benthic habitats. SG80 is met. Since there is no testing , SG100 is not met.				
c	Management strategy implementation			
	Guide post		There is **some quantitative evidence** that the measures/partial strategy is being implemented successfully.	There is **clear quantitative evidence** that the partial strategy/strategy is being implemented successfully and is achieving its objective, as outlined in scoring issue (a).
	UoAs 1 (T) Met?		**Yes**	**No**
	UoAs 2 (HL) Met?		**Yes**	**No**
Rationale				
Fot both UoAs (1 and 2), there are quantitative evidence (fishing logbooks and submarine moitoring) to ensure that the measures are being carried out successfully. The SG80 is reached, but since there is no clear quantitative evidence, SG100 is not.				
d	Compliance with management requirements and other MSC UoAs'/non-MSC fisheries' measures to protect VMEs			

	Guide post	There is **qualitative evidence** that the UoA complies with its management requirements to protect VMEs.	There is **some quantitative evidence** that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.	There is **clear quantitative evidence** that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.
	UoA 1 (T) Met?	**NA**	**NA**	**NA**
	UoA 2 (HL) Met?	**NA**	**NA**	**NA**

Rationale

The UoAs (1 and 2) do not interact Vulnerable Marine Ecosystem (VME) habitats; therefore, this scoring issue does not need to be scored.

References

FAO 2005. Guia del administrador pesqeuro. FAO Italia. http://www.fao.org/3/y3427s/y3427s00.htm#Contents

Chuenpagdee, R., Morgan, L. E., Maxwell, S. M., Norse, E. A., & Pauly, D. (2003). Shifting gears: assessing collateral impacts of fishing methods in US waters. Frontiers in Ecology and the Environment, 1(10), 517–524. doi:10.1890/1540-9295(2003)001[0517:sgacio]2.0.co;2

Nevárez-Martínez, M.O., A. Balmori-Ramírez, E.V. Miranda-Mier, J.P. Santos-Molina, F.J. Méndez-Tenorio, & C. Cervantes-Valle. 2008. Estructura de tallas, selectividad y composición específica de las capturas en trampas para peces marinos en el Golfo de California. Revista de Biología Tropical. 56(3):1403-1417.

Shester, G.G. & F. Micheli. 2011. Conservation challenges for small-scale fisheries: Bycatch and habitat impacts of traps and gillnets. Elsevier. Biological Conservation. 144:1673–1681.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	UoA 1 (T)	**≥80**
	UoA 2 (HL)	**≥80**
Information gap indicator	**Information sufficient to score PI**	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.4.3 – Habitats information

PI 2.4.3		Information is adequate to determine the risk posed to the habitat by the UoA and the effectiveness of the strategy to manage impacts on the habitat		
Scoring Issue		SG 60	SG 80	SG 100
a	Information quality			
	Guide post	The types and distribution of the main habitats are **broadly understood**. **OR** **If CSA is used to score PI 2.4.1 for the UoA:** Qualitative information is adequate to estimate the types and distribution of the main habitats.	The nature, distribution and **vulnerability** of the main habitats in the UoA area are known at a level of detail relevant to the scale and intensity of the UoA. **OR** **If CSA is used to score PI 2.4.1 for the UoA:** Some quantitative information is available and is adequate to estimate the types and distribution of the main habitats.	The distribution of all habitats is known over their range, with particular attention to the occurrence of vulnerable habitats.
	UoA 1 (T) Met?	**Yes**	**No**	**No**
	UoA 2 (HL) Met?	**Yes**	**No**	**No**
Rationale				
The Mexican Pacific has been extensively studied (but the information is not always open access) and this is adequate to estimate the types and distribution of the main habitats, thus meeting SG60. More detail relative to the vulnerability, scale or intensity of the UoAs (1 and 2) are not known, so SG80 is not met.				
b	Information adequacy for assessment of impacts			

	Guide post	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. OR **If CSA is used to score PI 2.4.1 for the UoA:** Qualitative information is adequate to estimate the consequence and spatial attributes of the main habitats.	Information is adequate to allow for identification of the main impacts of the UoA on the main habitats, and there is reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear. OR **If CSA is used to score PI 2.4.1 for the UoA:** Some quantitative information is available and is adequate to estimate the consequence and spatial attributes of the main habitats.	The physical impacts of the gear on all habitats have been quantified fully.
	UoA 1 (T) Met?	**Yes**	**No**	**No**
	UoA 2 (HL) Met?	**Yes**	**No**	**No**
Rationale				
For both UoAs (1 and 2), data from logbooks show the fishing areas and the depth for the small-scale handline fleet. There is reliable information on the spatial distribution of fishing effort and its distance relative to shore/depth to broadly understand the impacts of gear as a function of contact with the substrate. Due to the level of information, the SG60 is met, but not the SG80.				
c	Monitoring			
	Guide post		Adequate information continues to be collected to detect any increase in risk to the main habitats.	Changes in all habitat distributions over time are measured.
	UoA 1 (T) Met?		**Yes**	**No**

	UoA 2 (HL) Met?		**Yes**	**No**

Rationale
For both UoAs (1 and 2), the cooperatives and COBI signed an agreement to continue with the implementation of a fishing logbook program, as well as the assessment and monitoring of fishing refuge areas. Thus, information continues to be collected to detect any increase in risk to habitats, and the SG80 is met.

References
Shester, G.G. & F. Micheli. 2011. Conservation challenges for small-scale fisheries: Bycatch and habitat impacts of traps and gillnets. Elsevier. Biological Conservation. 144:1673–1681.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	UoA 1 (T)	**60-79**
	UoA 2 (HL)	**60-79**
Information gap indicator	**More information sought to score PI**	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.5.1 – Ecosystem outcome

PI 2.5.1		The UoA does not cause serious or irreversible harm to the key elements of ecosystem structure and function		
Scoring Issue		SG 60	SG 80	SG 100
a	Ecosystem status			
	Guide post	The UoA is **unlikely** to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	The UoA is **highly unlikely** to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	There is **evidence** that the UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.
	UoA 1 (T) Met?	**Yes**	**Yes**	**No**
	UoA 2 (HL) Met?	**Yes**	**Yes**	**No**

Rationale

There is no evidence that both UoAs (1 and 2) will modify the structure and function of the ecosystem, causing serious or irreversible damage. The gears used are two of the most selective and low impact fishing gear, however, this has not been proven locally. Since the target species are not likely overfished, the unwanted catch is likely minimal, there are no interactions with ETP species, and there is little to no contact of the gear with the seafloor, the UoAs are highly unlikely to disrupt the key elements of the ecosystem. SG80 is reached.

Also, regional studies using Ecopath (South region of the Gulf of California) Díaz-Uribe (2005) indicate that the hook and line fishery produces less impact on the ecosystem than the use of longlines and nets. Díaz-Uribe et al. (2012) and Tovar-Cortes (2013) point out that the populations of yellowtail amberjack, snappers and serranids in this region present intermediate vulnerability and high index of inter-specific interactions, but low energy flow. These organisms are affected by the increase in fishing effort, which influences the decrease in ecotrophic efficiency. While the UoA (fishing effort) has an effect on trophic dynamics, it is is highly unlikely to disrupt the key elements of the ecosystem. SG80 is reached. Evidence for this is incomplete, so SG100 is not met.

References

Shester, G.G. & F. Micheli. 2011. Conservation challenges for small-scale fisheries: Bycatch and habitat impacts of traps and gillnets. Elsevier. Biological Conservation. 144:1673–1681.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	UoA 1 (T)	**≥80**
	UoA 2 (HL)	**≥80**

Information gap indicator	**More information sought to score PI**
Data-deficient? (Risk-Based Framework needed)	**No**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.5.2 – Ecosystem management strategy

PI 2.5.2		**There are measures in place to ensure the UoA does not pose a risk of serious or irreversible harm to ecosystem structure and function**		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are **measures** in place, if necessary which take into account the **potential impacts** of the UoA on key elements of the ecosystem.	There is a **partial strategy** in place, if necessary, which takes into account **available information and is expected to restrain impacts** of the UoA on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance.	There is a **strategy** that consists of a **plan**, in place which contains measures to **address all main impacts of the UoA** on the ecosystem, and at least some of these measures are in place.
	HL Met?	**Yes**	**No**	**No**
	TP Met?	**Yes**	**No**	**No**
Rationale				
The finfish fishery does not have any unwanted species, interactions with ETP species, or poses risks to habitats or to the main ecosystem. In addition, the establishment of fishing refuges as tools to reduce the impact of fishing on the ecosystem.are considered as measures that take into account potential impacts on the ecosystem. However, there i clear and specific measures or a strategic management proposal within the legal framework, which allow determining the impact of extracting certain finfish biomass on other elements of the trophic chain. The SG 60 is met.				
b	Management strategy evaluation			

	Guide post	The **measures** are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar UoAs/ ecosystems).	There is **some objective basis for confidence** that the measures/ partial strategy will work, based on some information directly about the UoA and/or the ecosystem involved.	**Testing** supports **high confidence** that the partial strategy/ strategy will work, based on information directly about the UoA and/or ecosystem involved.
	UoA 1 (T) Met?	**Yes**	**No**	**No**
	UoA 2 (HL) Met?	**Yes**	**No**	**No**
Rationale				
For both UoAs (1 and 2), the high selectivity of the gears, the low impact on the habitat and the implementation of fishing refuges can be considered as measures that are working. However, little knowledge of the target species stock status does not form a coherent strategy that considers the relative equilibrium of the species. Diaz et al (2012) report these organisms are affected due to the increase in fishing effort, which influences the decrease in ecotrophic efficiency The SG60 is met.				
c	Management strategy implementation			
	Guide post		There is **some evidence** that the measures/partial strategy is being **implemented successfully**.	There is **clear evidence** that the partial strategy/strategy is being **implemented successfully and is achieving its objective as set out in scoring issue (a).**
	UoA 1 (T) Met?		**No**	**No**
	UoA 2 (HL) Met?		**No**	**No**
Rationale				
There is not clear evidence that the measures are benig implemented successfully given the little knowledge of the fishing effort on target species (UoA 1 and UoA 2) that can potentially influence the decrease in ecotrophic efficiency of the ecosystem. The SG80 is not reached.				
References				
https://www.conapesca.gob.mx/wb/cona/informacion_estadistica_por_especie_y_entidad				

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	UoA 1 (T)	**60-79**
	UoA 2 (HL)	**60-79**
Information gap indicator	**More information sought to score PI**	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.5.3 – Ecosystem information

PI 2.5.3		**There is adequate knowledge of the impacts of the UoA on the ecosystem**		
Scoring Issue		SG 60	SG 80	SG 100
a	Information quality			
	Guide post	Information is adequate to **identify** the key elements of the ecosystem.	Information is adequate to **broadly understand** the key elements of the ecosystem.	
	UoA 1 (T) Met?	**Yes**	**No**	
	UoA 2 (HL) Met?	**Yes**	**No**	
Rationale				
Trophic structures have not been studied in this area, but studies in nearby areas of the Gulf of Californiaand Natividad Island provide an overview of trophic relationships in the area of the fishery. With respect to the general problems of ecosystems, the extraction of target finfish by both of the UoAs (1 and 2) and over-exploitation of these could have negative effects on the ecosystem (Díaz-Uribe 2005; Vilalta-Navas et al 2018). The SG60 is reached because information is adequate to identify key elements and key issues, but not to broadly understand them, so SG80 is not met.				
b	Investigation of UoA impacts			

	Guide post	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, but **have not been investigated** in detail.	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, and **some have been investigated in detail**.	Main interactions between the UoA and these ecosystem elements can be inferred from existing information, and **have been investigated in detail**.
	UoA 1 (T) Met?	**Yes**	**No**	**No**
	UoA 2 (HL) Met?	**Yes**	**No**	**No**
Rationale				
The main impacts of the UoAs (1 and 2) on the key elements of the ecosystem can be inferred from existing information that has been generated and published in nearby areas (Natividad Island).This information provides an overview of trophic relationships. However, these have not been investigated in detail so this scoring issue remains at SG60.				
c	Understanding of component functions			
	Guide post		The main functions of the components (i.e., P1 target species, primary, secondary and ETP species and Habitats) in the ecosystem are **known**.	The impacts of the UoA on P1 target species, primary, secondary and ETP species and Habitats are identified and the main functions of these components in the ecosystem are **understood**.
	UoA 1 (T) Met?		**No**	**No**
	UoA 2 (HL) Met?		**No**	**No**
Rationale				
The handline and trap fisheries are highly selective and present low or no interaction with primary, secondary species, ETP species, or with the habitat. However, there is little information on their interactions with other species and the habitat, so it is considered that the information is not sufficient to reach SG80.				
d	Information relevance			

	Guide post		Adequate information is available on the impacts of the UoA on these components to allow some of the main consequences for the ecosystem to be inferred.	Adequate information is available on the impacts of the UoA on the components **and elements** to allow the main consequences for the ecosystem to be inferred.
	UoA 1 (T) Met?		**No**	**No**
	UoA 2 (HL) Met?		**No**	**No**
Rationale				
The main impacts of the UoAs (1 and 2) on the key elements of the ecosystem in the Baja California Coast can be inferred from existing information that has been generated and published in nearby areas, which provides an overview of trophic relationships. However, an Ecopath analysis is being conducted to assess what the impacts of the UoA may be on key ecosystem components. Therefore, this scoring issue does not reach the SG80 score.				
e	Monitoring			
	Guide post		Adequate data continue to be collected to detect any increase in risk level.	Information is adequate to support the development of strategies to manage ecosystem impacts.
	UoA 1 (HL) Met?		**No**	**No**
	UoA 2 (HL) Met?		**No**	**No**
Rationale				
For both uoAs (1 and 2), the cooperatives and COBI signed an agreement to continue with the implementation of a fishing logbook program. The program includes data collection of fishing trips (capture) and morphometric information. There are other investigations on different aspects of the ecosystems by various research centers in the area, however, the SG80 is not reached.				
References				

Díaz-Uribe, J.G., F. Arreguín-Sánchez, D. Lercari-Bernier, V.H. Cruz-Escalona, M.J. Zetina-Rejón, P. del-Monte-Luna, S. Martínez-Aguila. 2012. An integrated ecosystem trophic model for the North and Central Gulf of California: An alternative view for endemic species conservation. Ecollogical modelling. 230: 73-91.

Vilalta Navas, A., Beas Luna, R., Calderón Aguilera, L. E., Ladah, L. B., Micheli, F., Christensen, V., & Torre Cosío, J. (2018). A mass-balanced food web model for a kelp forest ecosystem near its southern distributional limit in the northern hemisphere. Food Webs, 16(91), 9. doi: 10.1016/j.fooweb.2018.e00091.

DOF 2010. Carta Nacional Pesquera. Diario Oficial. Mexico

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	UoA 1 (T)	**60-79**
	UoA 2 (TP)	**60-79**
Information gap indicator	**More information sought to score PI**	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

7.6 Principle 3

7.6.1 Principle 3 background

Legal Framework
In Mexico, federal, state and municipal government agencies develop and apply fisheries policies. Also, state and regional committees, councils, academic institutions, and Civil Society Organizations (NGOs) are also involvedin the Mexican fishery policy. Currently, coastal and oceanic management in Mexico is governed by a collection of federal laws, regulations, decrees and secretarial agreements. Two main laws define the fishing management system in Mexico: 1) Ley General de Pesca y Acuacultura Sustentable (LGPAS), and 2) Ley General para el Equilibrio Ecologico y la Proteccion del Ambiente (LGEEPA).

In Mexico, there are 18 ministries at the federal level, two of which are closely linked to fishery management (SEMARNAT and SADER), and two more with a secondary role (SEMAR and SCT). SEMARNAT (Secretaria de Medio Ambiente y Recursos Naturales) incorporates criteria and tools that assure the optimum protection, conservation and exploitation of the country's natural resources and allow the sustainable development of ecosystems and biodiversity conservation. SADER (Secretaria de Agricultura y Desarrollo Rural) is a dependency of the federal executive whose main objective is to manage, regulate and promote the integral and sustainable development of primary activities (fishing, agriculture, livestock, and aquaculture). Fishing and aquaculture activities are managed through two decentralized agencies, Instituto Nacional de Pesca y Acuacultura (INAPESCA) and Comision Nacional de Pesca y Acuacultura (CONAPESCA) that are also under the scope of the Federal executive. Fisheries management is carried out through operative plans, management plans, official regulations,fishery refuge zones, and by the Federal Fishery Law, LGPAS (DOF 2018) (Table 17).

The INAPESCA conducts, directs, and coordinates scientific research and the development of proposals for fisheries management and, in conjunction with SEMARNAT, is responsible for producing the National Fisheries Chart, a document that outlines the strategies and actions that, following the fishery law, must be met to regulate each fishery without altering the ecological equilibrium. In practice, surveys and stock assessments are completed by Regional Fishery Centres known as "CRIPs" (Centro Regional de Investigación Pesquera), which are subdivisions of INAPESCA. INAPESCA serves as a technical advisory role to CONAPESCA. The information and guidelines generated by INAPESCA are submitted to CONAPESCA, an agency that is responsible for the formal and legal development and implementation of fishery and aquaculture policies and programs.

Table 17 – Management measures described in the CNP for finfish fishery (handline and trap) in El Rosario (Taken from DOF, 2010).

Management Control	Yes / No	Measures	Reference
Official Mexican Standard	No	NA	
Fishery Management Plan	No	NA	
Type of access	Yes	Commercial fishing permit for	DOF 2018: Technical opinion from

		marine finfish	INAPESCA
Minimum size	No	NA	
Fishing gears and methods	Yes	Only specifies trap for barred sand bass fishery which includes *S. pulcher* and *C. princeps.*	DOF 2018
Closed season	No	NA	
Quota	No	NA	
Fishing unit	Yes	Smaller vessels	DOF 2018
Effort	No	56,412 small vessels in Mexico 20 small vessels for finfish fishery in El Rosario (S. C. P. P. Ensenada)	DOF 2010 Unpiblished information, S. C. P. P. Ensenada.
Fishing zone	Yes	Marine waters of Federal Jurisdiction in the state of Baja California Valle tranquilo (Baja California) (30.284568, -115.804042) Punta San Antonio (Baja California) (29.896361, -115.699136)	Permission specifications

Fisheries laws

Fisheries' legislation in Mexico includes a series of national laws, regulations, decrees and secretarial agreements. The foundation for the use of natural resources in Mexico is provided in Article 27 of the Mexican Constitution, from which the Fishery Law is derived (issued on 25th June 1992). The law's objective is to regulate, promote and manage the exploitation of the fishing and aquaculture resources in the territorial waters of Mexico (LGPAS 2018). There are two main laws linked to fisheries management:

1) LGPAS came into force in 2007 and supports the comprehensive and sustainable development of these activities. The LGPAS, through article 94, confers authority to the LGPAS for the exploration, exploitation, use and management of Aquatic resources. Fishing activities are also linked to the Federal Law of the Sea, which establishes fishing limits within the Economic Exclusive Zone (excluding areas of Natural Protection) and promotes the optimal utilization of the resources.

2) General Law of Ecological Balance and Environmental Protection (LGEEPA) was implemented in January 1988. This law promotes sustainable development based on the creation of environmental policies and instruments for the protection and preservation of biodiversity, and the restoration and improvement of the environment.

Official Standards and Regulations

At the national level, the specific instrument for Mexican fisheries legislation is the LGPAS, which provides guidelines for the regulation of fisheries. Linked to this law are fisheries regulations and Official Mexican Norms (NOMs) that define management measures, such as temporal/seasonal/spatial closures, size limits, vessel/gear specifications, fishing licenses, limited entry, catch quotas, etc. NOMs are mandatory (legally binding) and consist of technical regulations that control specific fisheries. However, NOMs have not been developed for the target species of the handline and trap fishery that operates in El Rosario.

The National Fishing Chart (INAPESCA, 2000 and periodic updates: 2010, 2012, 2018, etc.) is the most influential document on the Mexican fisheries. The chart represents the primary assessment of fish and shellfish stocks and includes an inventory for each known fishing resource in the nation. It also provides a short description of each fishery, defines levels of effort applied to each species or group of species in a given area, and the permitted fishing gear. The National Fishery Chart (CNP) groups the majority of the commercially important fish within the category of “Marine Finfish” (DOF 2010). Within this large category, there are subgroups of species that are grouped according to their classification or biological relationship.

Fishery management plans (FMP) are also used by INAPESCA as a tool to establish the management goals and the harvest strategy for each fishery. However, the finfish fishery does not have a FMP.

Fishery-specific management system
The finfish fishery is currently managed through regulations outlined in the 2010 CNP. General measures include fishing permits and authorized gears. These fishing permits are granted to cooperative fishery production societies or to individuals who meet the requirements set by CONAPESCA. Some of these fishing permits are issued for a particular species or groups of species. An example is the “marine finfish” permit, which covers a large majority of marine finfish species.

Monitoring, Control and Surveillance
The finfish fishery in Mexico is regulated by SADER, via INAPESCA and CONAPESCA, and through interministerial agreements with SEMAR (Secretaría de Marina), SCT (Secretaría de Comunicaciones y Transportes), SEMARNAT (Secretaría de Medio Ambiente y Recursos Naturales), PROFEPA (Procuraduría Federal de Protección al Ambiente), the Army (SEDENA, Secretaría de la Defensa Nacional), and the Police force.

According to the LGPAS (2018), CONAPESCA is the regulatory agency in charge of the management, coordination, and development of marine resource policies (LGPAS 2018). Also, CONAPESCA is in charge to conduct monitoring, control, and surveillance activities in coordination with federal, state, and municipal entities, according to the scope of their authority. Fishery violations are sanctioned according to the LGPAS (Art. 132. Fraction I to XXXI and Art. 133. Fraction I to VII), and the fines are described in the Art. 138. Fraction I to IV.

Some examples of sanctions in LGPAS (Art. 133) are:
I. Warning;
II. The imposition of a fine;
III. The imposition of an additional fine for each day the violation persists;
IV. Administrative arrest for up to thirty-six hours;
V. The confiscation of vessels, vehicles, fishing gear and / or products obtained from the aquaculture and fisheries directly related to the offenses committed, and
VI. Suspension or revocation of the corresponding permits, concessions, and authorizations

SEMAR is the federal agency in charge of monitoring, control, and surveillance (MCS) activities at sea, within the Mexican EEZ. On land, CONAPESCA carries out MCS activities at landing sites,

collection sites, or processing facilities. During transportation of fishery products, the state and road police, the army, and the SCT (Fitosanitary Division) conduct surveillance activities. However, the procedure of a surveillance strategy is not known, and the inspection reports are not available.

CONANP (Comisión Nacional de Áreas Naturales Protegidas) is the agency in charge of Natural Protected Areas (NPAs), including marine areas. In case of violations within NPAs, PROFEPA (Procuraduria Federal de Proteccion al Ambiente), the federal agency responsible for environmental protection, is the enforcement agency. In Sonora NPAs, the state environmental agency SEMARNAT is also involved in the enforcement of environmental laws. The NPAs have management plans that include zoning of use (areas of use and core areas). The park rangers carry out inspection and surveillance activities (at sea) to comply with the NPA management plan. However, surveillance strategies and inspection reports are not available.

All MCS activities carried out by local agencies (state governments) are listed in the Organic Law of the State and are aligned with the State Development Program.

7.6.2 Principle 3 Performance Indicator scores and rationales

PI 3.1.1 – Legal and/or customary framework

PI 3.1.1		The management system exists within an appropriate legal and/or customary framework which ensures that it: - Is capable of delivering sustainability in the UoA(s); - Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and - Incorporates an appropriate dispute resolution framework		
Scoring Issue		SG 60	SG 80	SG 100
a	Compatibility of laws or standards with effective management			
	Guide post	There is an effective national legal system **and a framework for cooperation** with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2	There is an effective national legal system and **organised and effective cooperation** with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2.	There is an effective national legal system and **binding procedures governing cooperation with other parties** which delivers management outcomes consistent with MSC Principles 1 and 2.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				
Mexico has a constitutional government with a legislature that sets overall governance and policy through a national fishery law (LGPAS). The law delegates management and research responsibility to CONAPESCA and INAPESCA. State Fisheries Committees can participate in the development of fisheries policies, but normally have only a consultative role. NOMs (Official Mexican Standard, Norma Oficial Mexicana), CNP (National Fishing Chart, Carta Nacional Pesquera), and Fishery Management Plans set specific requirements for individual fisheries. There is a federal and state-based legal framework for cooperation among management agencies and with stakeholders, capable of delivering sustainable fisheries. This represents an effective, binding national legal system, likely to meet SG100.				
b	Resolution of disputes			
	Guide post	The management system incorporates or is subject by law to a **mechanism** for the resolution of legal disputes arising within the system.	The management system incorporates or is subject by law to a **transparent mechanism** for the resolution of legal disputes which is **considered to be effective** in dealing with most issues and that is appropriate to the context of the UoA.	The management system incorporates or is subject by law to a **transparent mechanism** for the resolution of legal disputes that is appropriate to the context of the fishery and has been **tested and proven to be effective**.
	Met?	**Yes**	**Yes**	**No**

Rationale
There is a conflict resolution mechanism through a judicial system. The sanctions imposed by the authorities for infractions of the law and its regulations must comply with the requirements of the Federal Administrative Procedures Law. To the team's knowledge, there have been no cases in which they have use a conflict resolution process. In addition, the mechanism was revised and is suitable for the fishery. No evidence was found about any legal event/conflict in which the fishery has implemented such a mechanism, so there is no way to prove that it was tested and proven to be effective. This scoring issue thus meets SG80, but not SG100.

c	Respect for rights			
	Guide post	The management system has a mechanism to **generally respect** the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to **observe** the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to **formally commit** to the legal rights created explicitly or established by custom of people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.
	Met?	**Yes**	**Yes**	**Yes**

Rationale
Environmental and fisheries laws and regulations recognize the dependence on fishing for food and livelihood and include clauses to generally respect customary or traditional legal rights of local fishermen. The LGPAS sets the basis to the development of fisheries in Mexico under the principle of sustainability and accounting for other biological, environmental and socio-economic factors. For example, article 72 of the LGPAS allows fishing without permits when fishing for food and livelihood by coastal communities. This article prohibits the sale of the product that was fished for subsistence and without permit. The rights for indigenous people to use fish as food and/or for cultural rituals are given priority and special considerations (OECD 2013). SG100 is likely to be met.

References
DOF. 2007. Ley General de Pesca y Acuacultura Sustentables. Diario Oficial. Mexico. DOF. 2018. Ley General de Pesca y Acuacultura Sustentables. Diario Oficial. Mexico. DOF. 2015. Ley General del Equilibrio Ecológico y la Protección al Ambiente. Diario Oficial. Mexico. OECD. 2013. Review of Fisheries: Policies and Summary Statistics 2013. (DOI:10.1787/rev_fish2013-en)

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report	
Overall Performance Indicator score	
Condition number (if relevant)	

PI 3.1.2 – Consultation, roles and responsibilities

PI 3.1.2		**The management system has effective consultation processes that are open to interested and affected parties** **The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties**		
Scoring Issue		SG 60	SG 80	SG 100
a	Roles and responsibilities			
	Guide post	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are **generally understood**.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are **explicitly defined and well understood for key areas** of responsibility and interaction.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are **explicitly defined and well understood for all areas** of responsibility and interaction.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				
There is good knowledge of the roles, authority, and key areas of responsibility (data collection, management decision-making, technical innovation for capture, etc.) of the legislature. According to the LGPAS, different institutions interact with the fisheries authority: SADER, SEMARNAT, SEMAR, INAPESCA, CONAPESCA and SENASICA, local authorities, and the different stakeholders that are involved in the fishery. The roles and responsibilities of the main government agencies involved in the fisheries management system are provided in the Principle 3 background section of this report. Therefore this scoring issue meets SG100.				
b	Consultation processes			
	Guide post	The management system includes consultation processes that **obtain relevant information** from the main affected parties, including local knowledge, to inform the management system.	The management system includes consultation processes that **regularly seek and accept** relevant information, including local knowledge. The management system demonstrates consideration of the information obtained.	The management system includes consultation processes that **regularly seek and accept** relevant information, including local knowledge. The management system demonstrates consideration of the information and **explains how it is used or not used**.

	Met?	**Yes**	**Yes**	**No**
Rationale				
The management system incorporates consultation processes that regularly seek and accept local and empirical knowledge and information. In the LGPAS, article 2, objective VII, aims to establish the basis for the creation, operation mechanisms for the producers' participation and their engagement with fishing and aquaculture activities (DOF, 2012). CONAPESCA/ SADER holds multiple workshops involving fishermen and other stakeholders, and the process includes national and state councils and advisory committees that promote an inter-sectorial forum for the support, coordination, consultation and assistance in fisheries management activities. However, neither INAPESCA nor CONAPESCA explain how the information is used or not used, therefore, this scoring issue meets SG80 but does not meet SG100.				
c	Participation			
	Guide post		The consultation process **provides opportunity** for all interested and affected parties to be involved.	The consultation process provides **opportunity and encouragement** for all interested and affected parties to be involved, and **facilitates** their effective engagement.
	Met?		**Yes**	**Yes**
Rationale				
The national and state councils provide the opportunity for all stakeholders to be involved in the consultation process, including federal, state, and local authorities (fishery, environmental, enforcement), scientists, fishermen, industry groups, and NGOs. All interested parties are called to take part in workshops and meetings and are given opportunities to participate. The consultation process encourages and facilitates active engagement of stakeholder groups involved in drafting, reviewing, and approving norms, the CNP, and FMPs before they are published in the final version. SG100 is likely met.				
References				
DOF. 2007. Ley General de Pesca y Acuacultura Sustentables. Diario Oficial. Mexico. DOF. 2018. Ley General de Pesca y Acuacultura Sustentables. Diario Oficial. Mexico. DOF. 2018. Ley General de Mejora Regulatoria. Diario Oficial. Mexico.				

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	**More information sought**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 3.1.3 – Long term objectives

PI 3.1.3		The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Fisheries Standard, and incorporates the precautionary approach		
Scoring Issue		SG 60	SG 80	SG 100
a	Objectives			
	Guide post	Long-term objectives to guide decision-making, consistent with the MSC Fisheries Standard and the precautionary approach, are **implicit** within management policy.	**Clear** long-term objectives that guide decision-making, consistent with MSC Fisheries Standard and the precautionary approach are **explicit** within management policy.	**Clear** long-term objectives that guide decision-making, consistent with MSC Fisheries Standard and the precautionary approach, are **explicit** within **and required by** management policy.
	Met?	**Yes**	**Yes**	**Yes**

Rationale

The fisheries law (LGPAS) incorporates these main objectives:

- Promote and regulate the integrated management and sustainable utilization of fisheries and aquaculture, considering the social, technological, productive, biological and environmental aspects;
- Promote enhanced quality of life of the country's fishing and aquaculture livelihoods through programs implemented for fisheries and aquaculture sectors;
- Establish the basis for the management, conservation, protection, rebuilding and sustainable utilization of fisheries and aquaculture resources and the protection and rehabilitation of ecosystems in which these resources are found;
- Set ground rules for planning and regulating the exploitation of fishery resources and aquaculture media or selected environments;
- To procure the preferential access, use and enjoyment rights for indigenous communities in the regions where they live.
- Establish the basis for coordination among federal, state, and local authorities to implement the fisheries laws.
- Set out the basis to provide fishing concessions and permits for fishing activities and aquaculture.
- Establish the baseline for monitoring, control, and surveillance activities.
- Provide support and promote scientific and technological research.

The LGPAS incorporates clear long-term objectives that guide decision-making, consistent with the MSC standard. As outlined above, the LGPAS defines one of its prime objectives as establishing the basis for the conservation, protection, rebuilding, and sustainable utilization of fisheries and aquaculture resources, and of the supporting ecosystems. The LGPAS also establishes that the Authority (CONAPESCA) must adopt the precautionary approach for the conservation and protection of fishery resources and ecosystems. The terms sustainable use, preservation, and conservation are used repeatedly in the management policy, implicitly and explicitly incorporating precautionary concepts. This indicator is likely to meet SG100.

References
DOF. 2018. Ley General de Pesca y Acuacultura Sustentables. Diario Oficial. Mexico.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 3.2.1 – Fishery-specific objectives

PI 3.2.1		The fishery-specific management system has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2		
Scoring Issue		SG 60	SG 80	SG 100
a	Objectives			
	Guide post	**Objectives**, which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are **implicit** within the fishery-specific 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-specific 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-specific management system.
	Met?	**No**	**No**	**No**

Rationale
The finfish fishery in Mexico does not have a NOM or an FMP where fishery-specific objectives would be described. The fishery is managed through the National Fishing Chart 2010, where management measures and recommendations for the fishery are outlined by subgroups of finfish species. The only information in LGPAS is article II, which focuses on economic, social and environmental aspects applicable to all fisheries in the country. This indicator does not meet SG 60.
References
DOF. 2018. Ley General de Pesca y Acuacultura Sustentables. Diario Oficial. Mexico. DOF 2010. Carta Nacional Pesquera. Diario Oficial. Mexico.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report	
Draft scoring range	**<60**
Information gap indicator	**More information sought**

Overall Performance Indicator scores added from Client and Peer Review Draft Report	
Overall Performance Indicator score	
Condition number (if relevant)	

PI 3.2.2 – Decision-making processes

PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery		
Scoring Issue		SG 60	SG 80	SG 100
a	Decision-making processes			
	Guide post	There are **some** decision-making processes in place that result in measures and strategies to achieve the fishery-specific objectives.	There are **established** decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.	
	Met?	**Yes**	**No**	

Rationale

The process to review, evaluate, and revise management regulations in Mexico is often based on demand by producers and fishermen. The process starts with a scope to address issues and potential solutions. The public has an opportunity to provide information and opinions. Subsequently, the authorities propose measures, either in the form of regulations or legislation. Workshops with stakeholders are held to receive comments. Draft laws or regulations are published in the Official Gazette (Diario Oficial) and undergo another opportunity for public comment before implementation. Public comments affect the final product, and in some cases, by weakening the original proposed measures. However, scientific advice is not always incorporated into the decisions, or it can take several years before recommendations are considered in the regulation.

Despite the high economic value and ecological importance of the finfish fishery in the Mexican Pacific, the decision-making process has a number of obstacles, possibly stemming from conflicting interests among stakeholder groups, and because the existing measures and strategies are very weak or non-existent. However, some measures are in place (e.g., permitting and vessel/ gear), which means that some general decisions were made for the fishery. SG60 is meet but not SG80 because the processes to implement measures do not seem clearly established.

b	Responsiveness of decision-making processes			
	Guide post	Decision-making processes respond to **serious issues** identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take some account of the wider implications of decisions.	Decision-making processes respond to **serious and other important issues** identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.	Decision-making processes respond to **all issues** identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.
	Met?	**No**	**No**	**No**
Rationale				
Two types of decisions are made by the management system in Mexico: changes to laws and regulations, and emergency regulations that respond to critical issues. The regular process is described in the scoring issue a. above. Once draft laws or regulations are published in the Official Gazette (Diario Oficial), they undergo an opportunity for public comment before implementation. Public comments affect the final product, but scientific advice is not always incorporated into the decisions or can take several years before recommendations are considered in the regulation. The process may be slow, but in general, it is considered transparent and inclusive. No evidence was available for this analysis to know whether the public has supported previous management recommendations provided by INAPESCA/ CONAPESCA for the finfish fishery in the Mexican Pacific (e.g., 2010 CNP), or to know what the management priorities are for the current administration. The updated 2018 CNP did not include finfish for the Mexican Pacific management recommendations or provide a clear idea if a finfish NOM or FMP were under consideration, or when the HCR minimum size or closed season regulations would be produced. SG60 is not met.				
c	Use of precautionary approach			
	Guide post		Decision-making processes use the precautionary approach and are based on best available information.	
	Met?		**No**	
Rationale				
There is no evidence suggesting that the precautionary approach or the best available information is used in the decision-making processes for the finfish fishery in the Mexican Pacific. To date, the fishery has not implemented tools to protect recruitment and avoid overfishing. There is not a seasonal closure, minimum length, or other more precautionary measures (than licensing or gear restriction) to protect the spawning stock or to prevent growth or recruitment overfishing. SG80 is not met.				
d	Accountability and transparency of management system and decision-making process			

	Guide post	Some information on the fishery's performance and management action are generally available on request to stakeholders.	**Information on the fishery's performance and management action are available on request**, and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.	Formal reporting to all interested stakeholders **provides comprehensive information on the fishery's performance and management actions** and describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.
	Met?	**Yes**	**No**	**No**
Rationale				
Information on the performance of the fishery is generally available and explanations are provided when deemed relevant. In Mexico, the National Fishing Chart is the official presentation of the information, which describes the health of resources and the strategic direction of management. However, it is not documented how the management system responds to the relevant conclusions and recommendations that result from research, monitoring, and evaluation of the activity (Stiles et al. 2014). SG60 is met but not SG80.				
	Approach to disputes			
e	Guide post	Although the management authority or fishery may be subject to continuing court challenges, it is not indicating a disrespect or defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability for the fishery.	The management system or fishery is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges.	The management system or fishery acts proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges.
	Met?	**Yes**	**No**	**No**
Rationale				
The management system is inclusive and there is no evidence of obstacles that would prevent the timely resolution of conflicts. There are no pending legal disputes. However, there is no evidence that the management system or the fishery act proactively in order to avoid conflicts (Stiles et al. 2014). To resolve illegal fishing conflicts in the locality, the Cooperatives of Guaymas relies mainly on communication and reports its problems to the competent authorities such as CONAPESCA. For both SG60 is met, but the SG80 and SG100 levels are not met.				
References				
DOF. 2018. Ley General de Pesca y Acuacultura Sustentables. Diario Oficial. Mexico. DOF 2010. Carta Nacional Pesquera. Diario Oficial. Mexico. DOF. 2018. Carta Nacional Pesquera. Diario Oficial. Mexico.				

Draft scoring range and information gap indicator added at Announcement Comment Draft Report	
Draft scoring range	**<60**
Information gap indicator	**More information sought**

Overall Performance Indicator scores added from Client and Peer Review Draft Report	
Overall Performance Indicator score	
Condition number (if relevant)	

PI 3.2.3 – Compliance and enforcement

PI 3.2.3		**Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with**		
Scoring Issue		SG 60	SG 80	SG 100
a	MCS implementation			
	Guide post	Monitoring, control and surveillance **mechanisms** exist, and are implemented in the fishery and there is a reasonable expectation that they are effective.	A monitoring, control and surveillance **system** has been implemented in the fishery and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.	A **comprehensive** monitoring, control, and surveillance system has been implemented in the fishery and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.
	Met?	**No**	**No**	**No**
Rationale				
SADER, via CONAPESCA, and through inter-ministerial agreements with SEMAR, SCT, and SEMARNAT, regulates and carries out monitoring, control, and surveillance of the handline finfish fishery in the Mexican Pacific. Fishery violations are sanctioned according to the LGPAS and other applicable laws and regulations. However, there are not monitoring mechanisms implemented in the fishery under evaluation. At the cooperative level, there is a culture of compliance with fishing regulations. For both SG60 is not met.				
b	Sanctions			
	Guide post	Sanctions to deal with non-compliance exist and there is some evidence that they are applied.	Sanctions to deal with non-compliance exist, **are consistently applied** and thought to provide effective deterrence.	Sanctions to deal with non-compliance exist, are consistently applied and **demonstrably** provide effective deterrence.

	Met?	**Yes**	**No**	**No**
Rationale				
The LGPAS specifies how field fisheries officers should conduct surveillance activities, report fishery violations and apply sanctions. They have to submit the case to the Public Ministry, which is an independent body of the judiciary and the executive, responsible for investigating the offenses based on evidence. Fishery violations are sanctioned according to the LGPAS and other applicable laws and regulations. No hard evidence was available from the El Rosario trap and handline finfish fishery to know the nature of common violations, the frequency of occurrence, what sanctions are applied (e.g., seizure of the catch, vessels, or gear, arrests, fines, prison time, etc.), or whether they provide effective deterrence. is met, but the SG80 and SG100 levels are not met.				
c	Compliance			
	Guide post	Fishers are **generally thought** to comply with the management system for the fishery under assessment, including, when required, providing information of importance to the effective management of the fishery.	**Some evidence exists** to demonstrate fishers comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery.	There is a **high degree of confidence** that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery.
	Met?	**Yes**	**No**	**No**
Rationale				
Registered fishers are expected to comply with the regulations in general terms. However, this has not been evaluated. On the other hand, as well as in the entire Mexican fisheries, there is the problem of illegal fishing, unregulated fishing, and unreported fishing. SG60 is met.				
d	Systematic non-compliance			
	Guide post		There is no evidence of systematic non-compliance.	
	Met?		**No**	
Rationale				
Systematic non-compliance is not known to occur. However, there are illegal fishers in the area that are unaccounted for (Bracamontes pers. Comm.), whose consistent IUU activities represent a systematic non-compliance with fisheries rules and regulations, so SG80 is not met.				
References				
DOF. 2018. Ley General de Pesca y Acuacultura Sustentables. Diario Oficial. Mexico. DOF 2010. Carta Nacional Pesquera. Diario Oficial. Mexico. Cisneros-Montemayor et al. 2013. Extent and implications of IUU catch in Mexico´s marine fisheries. Marine Policy. DOI:10.1016/j.marpol.2012.12.003				

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**<60**
Information gap indicator	**More information sought**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

PI 3.2.4 – Monitoring and management performance evaluation

PI 3.2.4		**There is a system of monitoring and evaluating the performance of the fishery-specific management system against its objectives** **There is effective and timely review of the fishery-specific management system**		
Scoring Issue		SG 60	SG 80	SG 100
a	Evaluation coverage			
	Guide post	There are mechanisms in place to evaluate **some** parts of the fishery-specific management system.	There are mechanisms in place to evaluate **key** parts of the fishery-specific management system.	There are mechanisms in place to evaluate **all** parts of the fishery-specific management system.
	Met?	**No**	**No**	**No**
Rationale				
The UoAs do not have mechanisms to evaluate parts of the management system, the only information available is at the National Fishing Chart or the statistical fishing yearbook, however other systems lack such mechanisms. The SG60 is no met.				
b	Internal and/or external review			
	Guide post	The fishery-specific management system is subject to **occasional internal** review.	The fishery-specific management system is subject to **regular internal** and **occasional external** review.	The fishery-specific management system is subject to **regular internal and external** review.
	Met?	**No**	**No**	**No**
Rationale				
The National Fishing Chart and the fishing yearbook for CONAPESCA are the only legal documents that include a few specific management systems and these documents are not subject to regular internal and external review. SG60 is not met.				
References				
DOF 2010. Carta Nacional Pesquera. Diario Oficial. Mexico.				

Draft scoring range and information gap indicator added at Announcement Comment Draft Report	
Draft scoring range	**<60**
Information gap indicator	**More information sought**
Overall Performance Indicator scores added from Client and Peer Review Draft Report	
Overall Performance Indicator score	
Condition number (if relevant)	

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(1) www.fishbase.org
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8 Appendices

8.1 Assessment information

8.1.1 Small-scale fisheries

To help identify small-scale fisheries in the MSC program, the CAB should complete the table below for each potential Unit of Assessment (UoA). For situations where it is difficult to determine exact percentages, the CAB may use approximations e.g. to the nearest 10%.

Table 18 – Small-scale fisheries

Unit of Assessment (UoA)	Percentage of vessels with length <15m	Percentage of fishing activity completed within 12 nautical miles of shore
Handline	100%	100%
Traps	100%	100%

8.2 Evaluation processes and techniques

8.2.1 Site visits

Starting in October 2016, meetings were held with the board of directors of the Ensenada Cooperative Society where COBI's working model and the sustainability standards of the MSC were presented. Subsequently, in December 2016, the working model was presented to the El Rosario community.
In April 2017, the general scope of COBI's sustainable fisheries program and the existing alternatives for the fisheries, including certifications or recommendations and fishery improvement projects were presented to the client. The results of a multi-criteria workshop were presented with emphasis on differentiating the species (stocks) that could be candidates for a fishery improvement project. The results were shown for the two best-rated species, flatfish and ocean whitefish, so that members could select their preferred species (any of the fish species identified).

Ocean whitefish was selected because promoting a sustainable fishery for this species was highly requested. Previously, fishing was intense but has declined over time due to a decrease in price. Fishermen would like to target other market types that might appreciate the species as one that is caught with trap and hand line. Alternatives for channeling funds to biological and fishing monitoring were presented.

In August 2017, the main results of the first pre-assessment of the ocean whitefish fishery caught with traps in El Rosario, B. C. were officially presented to the Secretariat of Fishing and Aquaculture of the state Government of Baja California (SEPESCA-BC), SmartFish, the board of the SCPP Ensenada and some of their partners. The intentions to collaborate on different aspects of the program were discussed, such as the establishment of communication and coordination channels for the development of the program, joint research activities, education, training and outreach activities, staff exchange to participate in workshops, conferences, symposiums, and research and training projects; production and dissemination of data, publication of information and other materials resulting from research activities. The collaboration needed to generate financial and political support for the development of joint projects was made explicit.

In September 2018, the progress of the FIP for ocean whitefish caught using traps in El Rosario was reviewed, and it was consistent with the scores obtained in the initial pre-assessment that was based on the MSC fishery sustainability criteria. It was also indicated that the advances obtained during the present year are related to the implementation of fishing logs, which provide information that contributes to improved scores on several criteria. The discussion of the workplan strongly suggests that it is important to seek alternatives to involve institutional actors such as CONAPESCA in the FIP, since many of the Principle 3 criteria require their participation. Another important aspect was that it was agreed to configure the ocean whitefish FIP as a multi-specific FIP of finfish caught using traps and handline because it better represents the finfish fishery in the area. It was proposed that the main target species, such as ocean whitefish, barred sea bass, tilefish, California sheephead, and rockfish, caught with handline and trap, should be included in the FIP.

8.2.2 Recommendations for stakeholder participation in full assessment

It is recommended that the following organizations participate in a full assessment:

Table 19 – Recommended organizations to consult in a full assessment.

Stakeholders	Roles/description
SCPP Ensenada SCL	Cooperative Society of Fishing Production that makes use of the finfish resource in El Rosario, BC and participates in the Fishery Improvement Project.
Comunidad y Biodiversidad, A. C. (COBI)	Mexican NGO that works with fishing communities, promoting marine conservation and sustainable fisheries through community participation.
INAPESCA	Mexican institution responsible for scientific research in fisheries and aquaculture.
CONAPESCA	The institution responsible for managing, ordering and promoting fishing and aquaculture activity.
SADER	Dependence of the Federal Executive State, which has among its objectives to promote the exercise of a support policy that allows to produce better, to take better advantage of the comparative advantages of the agricultural sector, to integrate the activities of the rural environment to the productive chains of the rest of the economy, and stimulate the collaboration of producer organizations with their own programs and projects, as well as with the proposed goals and objectives, for the agricultural sector, in the National Development Plan.
UABC	The socially responsible institution that contributes to the best quality standards, to increase the level of human development of Baja California society and the country.
CIBNOR	A public research center of contribution to the sustainable economic and social progress of the country, especially in the Northwest, through the generation of scientific knowledge, and innovation in the field of biological sciences and in the use, management and preservation of natural resources.
Sub-Secretaria de Pesca y Acuacultura del Gobierno del Estado de Baja California	The institution is responsible for matters expressly conferred by the Fisheries and Aquaculture Law for the State of Baja California and its Fisheries and Aquaculture Management Plans for the State, as well as the regulations, decrees, agreements, circulars and orders of the Governor of the State.

8.3 Risk-Based Framework outputs – delete if not applicable

The review and analysis of the presented information in this pre-assessment indicate that the default assessment tree is adequate and appropriate for the marine finfish fishery which uses traps and handlines; however, it was necessary to use a risk-based framework for some of the scoring guidelines.

The pre-assessment required the application of a risk-based framework (RBF), which is a set of precautionary assessment methods for fisheries that present limited quantitative methods and assessments of the unavailable stock and certain deficiencies or absence of information.
For the marine fishery for finfish caught using traps and handline, the risk-based framework was used as a precautionary approach due to the insufficient information to allow an adequate and complete evaluation of the fishery.

The RBF is only applied to a small number of indicators (PI): PI 1.1.1 State of the population, PI 2.1.1 Primary species and PI 2.4.1 Habitat.

For each PI there is a method of analysis: Consequence analysis (CA), which evaluates PI 1.1.1. Productivity and Susceptibility analysis (PSA) which assesses PI 1.1.1, 2.1.1 and the Consequence Spatial Analysis (CSA), which assesses PI 2.4.1.

8.3.1 Consequence Analysis (CA)

Table 20 – CA scoring template - *Caulolatilus princeps*

	Scoring element	Consequence subcomponents	Consequence score
Principle 1: Stock status outcome	*Caulolatilus princeps*	Population size	≥80
		Reproductive capacity	
		Age/size/sex structure	
		Geographic range	
Rationale for most vulnerable subcomponent	There is no official stock assessment for any of the species in the handline and trap finfish fisheries of El Rosario, BC. It was necessary to use the RBF to assess the status of the target stocks. Results showed that it is highly likely that the population is above the point where recruitment could be impaired (PRI).		
Rationale for consequence score	The catches of ocean whitefish (*C. princeps*) group “whitefish and tilefish” have oscillated between on average of 20-80 tons per year for the state of Sonora. The National Fishing Chart (2010) mentions as a point of reference that if “whitefish and tilefish” group catches in Baja California fall below the average 40 tons per year, necessary management measures will have to be taken. Similarly, from 2016 to 2017, lower catches were observed for the five species assessed in this pre-assessment. Taking into account the RBF approach, results showed that the stock is, or oscillates, around a level consistent with MSY.		

Table 21 – CA scoring template - *Semicossyphus pulcher*

	Scoring element	Consequence subcomponents	Consequence score
Principle 1: Stock status outcome	*Semicossyphus*	Population size	≥80

	pulcher	Reproductive capacity	
		Age/size/sex structure	
		Geographic range	
Rationale for most vulnerable subcomponent	There is no official stock assessment for any of the species in the handline and trap finfish fisheries of El Rosario, BC. It was necessary to use the RBF to assess the status of the target stocks. Results showed that it is highly likely that the population is above the point where recruitment could be impaired (PRI).		
Rationale for consequence score	The catches of California sheephead (*S. pulcher*) are classified as associated to the groups of "whitefish and tilefish" and "groupers, bass, and sand bass". There is no "precautory approach" reference point for this species.		

Table 22 – CA scoring template – *Paralabrax nebulifer*			
Principle 1: Stock status outcome	Scoring element	Consequence subcomponents	Consequence score
	Paralabrax nebulifer	Population size	≥80
		Reproductive capacity	
		Age/size/sex structure	
		Geographic range	
Rationale for most vulnerable subcomponent	There is no official stock assessment for any of the species in the handline and trap finfish fisheries of El Rosario, BC. It was necessary to use the RBF to assess the status of the target stocks. Results showed that it is highly likely that the population is above the point where recruitment could be impaired (PRI).		
Rationale for consequence score	The catches of barred sand bass (*P. nebulifer*), classified in the group "groupers, bass, y sand bass", have oscillated between of 250-600 tons, on average, per year for the state of Baja California. The National Fishing Chart (2010) mentions as a point of reference that if "groupers, bass, and sand bass" group catches in BC fall below the average of 200 tons per year, necessary management measures will have to be taken. Similarly, from 2016 to 2017, lower catches were observed for the five species assessed in this pre-assessment. Taking into account the RBF approach, results showed that the stock is, or oscillates, around a level consistent with MSY.		

Table 23 – CA scoring template – *Sebastes constellatus*			
Principle 1: Stock status outcome	Scoring element	Consequence subcomponents	Consequence score

	Sebastes constellatus	Population size	≥80
		Reproductive capacity	
		Age/size/sex structure	
		Geographic range	
Rationale for most vulnerable subcomponent	There is no official stock assessment for any of the species in the handline and trap finfish fisheries of El Rosario, BC. It was necessary to use the RBF to assess the status of the target stocks. Results showed that it is highly likely that the population is above the point where recruitment could be impaired (PRI).		
Rationale for consequence score	The only reference values described for *S. constellatus* in the CNP (2012) as "precautory approach" were related to maintaining total annual catch fluctuating around the last five years.		

Table 24 – CA scoring template – *Sebastes miniatus*

	Scoring element	Consequence subcomponents	Consequence score
Principle 1: Stock status outcome	*Sebastes miniatus*	Population size	≥80
		Reproductive capacity	
		Age/size/sex structure	
		Geographic range	
Rationale for most vulnerable subcomponent	There is no official stock assessment for any of the species in the handline and trap finfish fisheries of El Rosario, BC. It was necessary to use the RBF to assess the status of the target stocks. Results showed that it is highly likely that the population is above the point where recruitment could be impaired (PRI).		
Rationale for consequence score	The only reference values described for *S. miniatus* in the CNP (2012) as "precautory approach" were related to maintaining total annual catch fluctuating around the last five years.		

8.3.2 Productivity Susceptibility Analysis (PSA)

It is important to note that the PSA, does not evaluate secondary species, or ETP species. Since the handline and trap fishery is very selective, there is a minimal bycatch or discarded species, and those that are discarded are released alive. Also, no species with direct interaction with this fishery are found under any type of special protection or are in danger of extinction; therefore, the evaluation of RBF attributes for these indicators do not apply to the finfish fishery that uses traps and handlines.

Table 25 – PSA productivity attributes and scores of the Ocean Whitefish		
Performance Indicator	1.1.1	
Productivity		
Scoring element (species)	Ocean Whitefish, *Caulolatilus princeps* (Jenyns, 1840)	
Attribute	Rationale	Score
Average age at maturity	Is reported 4-5 years in males and 3-4 years to females (Wertz y Kato, 2003).	**1**
Average maximum age	Maximum age reported to ocean whitefish is 21 years (Elorduy-Garay, 2005).	**2**
Fecundity	A fecundity of 0.2 to 4.1 millions of eggs (Roos and Merriner, 1983).	**1**
Average maximum size Not scored for invertebrates	A maximum size of 102 cm total length was reported (1).	**2**
Average size at maturity Not scored for invertebrates	48-56 cm for males; 41-48 cm for females (Wertz y Kato, 2003).	**2**
Reproductive strategy	The ocean whitefish uses a partial spawning reproductive strategy by which the females spawn two to three times throughout the reproductive seasons, which provides a greater probability of reproductive success (Elorduy-Garay and Ramirez-Luna, 1994). They have free living larvae.	**1**
Trophic level	3.9 +/- 0.5, generalist, omnivorous and opportunistic predator; it feeds mainly on crustaceans and pelagic or epibentonic prey (Caraveo-Patiño y Elorduy-Garay, 1994)	**3**

Density dependence Invertebrates only		**NA**
Susceptibility		
Fishery Only where the scoring element is scored cumulatively	*Insert list of fisheries impacting the given scoring element (FCP v2.1 Annex PF 7.4.10)*	
Attribute	Rationale	Score
Areal Overlap	*C. princeps* is mainly subtropical; its wide distribution goes from Vancouver Island in British Columbia, Canada to Peru, including almost entirely the Gulf of California, Mexico, and the Galapagos Islands, Ecuador (Dooley, 1978; Wertz and Kato, 2003). In Mexico it is captured throughout the entire Pacific coast, mainly by the states of Baja California, Baja California Sur, Sonora and Sinaloa (DOF, 2010).	**3**
Encounterability	The position of ocean whitefish's stock in relation to the water column and the fishing gear are coincident. Traps are in the bottom and are designed to catch ocean whitefish. Handline cover 20% of the dispersal area of this specie.	**3** **2**
Selectivity of gear type	T: The fishing gear is directed and oriented to capture marine finfish. Regularly, catched organisms are above the average size of first maturity (Fishing Logs of the S. C. P. P. Ensenada SCL, 2015-2016). H: Globally, incidental fishing with hook and line is around 2% (Kelleher, 2005).	**1** **1**
Post capture mortality	T: According to Nevárez-Mártinez et al. (2008), the traps are characterized by the posibility to release unwanted specimens alive. H: Bycatch with line can be returned to the sea with a high survival rate (Chuenpagdee et al., 2003).	**2** **1**

Catch (weight) Only where the scoring element is scored cumulatively	During the period 2002-2015, ocean whitefish catches have fluctuated between 191-631 annual average tonnes in the Gulf of California, and 550-1231 average annual tonnes in the West Coast of the Baja California Peninsula. Catches of 755 kg was report from El Rosario in 2017.	**2**

Table 25 – PSA productivity attributes and scores of the California sheephead		
Performance Indicator	1.1.1	
Productivity		
Scoring element (species)	California sheephead, *Semicossyphus pulcher* (Ayres, 1854)	
Attribute	Rationale	Score
Average age at maturity	*S. pulcher* reach it maturity between 3-6 years (Cowen, 1990).	**2**
Average maximum age	A maximum age of 53 years has been reported (Shanks and Eckert, 2005).	**3**
Fecundity	It was reported a maximum fecundity of 300,000 eggs per year (1).	**1**
Average maximum size Not scored for invertebrates	The maximum size reported is 91cm (Eschmeyer et al., 1983).	**1**
Average size at maturity Not scored for invertebrates	Reproductives females are reported between 12-16 cm, changing into mature males after 28 cm (Cowen, 1990).	**1**
Reproductive strategy	External fertilization and free-living larvae; they are broadcast spawners (1).	**1**
Trophic level	Carnivorous organism, feeds on mollusks, echinoderms and crustaceans. According with Fishbase items, the trophic level for *S. pulcher* is 3.6 +/-0.43 (1).	**3**
Density dependence Invertebrates only		**NA**
Susceptibility		

Fishery Only where the scoring element is scored cumulatively	*Insert list of fisheries impacting the given scoring element (FCP v2.1 Annex PF 7.4.10)*	
Attribute	Rationale	Score
Areal Overlap	*S. pulcher* is distributed in the Eastern Pacific, recording in Monterey Bay in California, USA to Guadalupe Island (off northern central Baja California) and Gulf of California.	**3**
Encounterability	T: The position of the species is coincident in relation to the water column and fishing gear, because the trap is placed on the sandy or rocky seabed which is the habitat of this species. H: Handline cover 20% of the dispersal area of this specie.	**3** **2**
Selectivity of gear type	T: The fishing gear is directed and oriented to capture marine finfish. Regularly, catched organisms are above the average size of first maturity (Fishing Logs of the SCPP Ensenada SCL, 2015-2016). H: Globally, incidental fishing with hook and line is around 2% (Kelleher, 2005).	**1** **1**
Post capture mortality	T: According to Nevárez-Mártinez et al. (2008), the traps are characterized by the posibility to release unwanted specimens alive. H: Bycatch with line can be returned to the sea with a high survival rate (Chuenpagdee et al., 2003).	**2** **1**
Catch (weight) Only where the scoring element is scored cumulatively	Total catches reported to California sheephead in 2015 reached 70.4 tonnes in El Rosario BC, decreasing to 38.4 tonnes in 2016 and 2017.	**2**

Table 27 – PSA productivity attributes and scores of the Barred sand bass	
Performance Indicator	1.1.1
Productivity	
Scoring element (species)	Barred sand bass, *Paralabrax nebulifer* (Girard, 1854)

Attribute	Rationale	Score
Average age at maturity	Is reported 2-5 years to females and 2-4 years to males (Love et al. 1996).	**1**
Average maximum age	The average maximum age reported is 24 years (Love *et al*. 1996).	**2**
Fecundity	Absolute fecundity estimated is 4 millions of eggs (Shanks and Eckert, 2005).	**1**
Average maximum size Not scored for invertebrates	Maximum size reported is 66.2 cm in total length (Love *et al*. 1996).	**1**
Average size at maturity Not scored for invertebrates	The average maturity size in *P. nebulifer* is 23.9 and 21.9 cm in total length for females and males, respectively (Love *et al*. 1996).	**1**
Reproductive strategy	External fertilization and free-living larvae; they are broadcast spawners (Shanks and Eckert, 2005).	**1**
Trophic level	According to fishbase data, *P. nebulifer* have a trophic level of 3.5 +/-0.54 (1).	**3**
Density dependence Invertebrates only		**NA**
Susceptibility		
Fishery Only where the scoring element is scored cumulatively	*Insert list of fisheries impacting the given scoring element (FCP v2.1 Annex PF 7.4.10)*	
Attribute	Rationale	Score
Areal Overlap	*P. nebulifer* is an endemic species of the Eastern Pacific and is found from Southern California (E. E. U. U.) to the southern part of the Gulf of California (2).	**3**
Encounterability	T: The position of the species is coincident in relation to the water column and fishing gear, because the trap is placed on the sandy or rocky seabed which is the habitat of this species. H: Handline cover 20% of the dispersal area of this specie.	**3** **2**

Selectivity of gear type	T: The fishing gear is directed and oriented to capture marine finfish. Regularly, catched organisms are above the average size of first maturity (Fishing Logs of the SCPP Ensenada SCL, 2015-2016). H: Globally, incidental fishing with hook and line is around 2% (Kelleher, 2005).	**1** **1**
Post capture mortality	T: According to Nevárez-Mártinez et al. (2008), the traps are characterized by the posibility to release unwanted specimens alive. H: Bycatch with line can be returned to the sea with a high survival rate (Chuenpagdee et al., 2003).	**2** **1**
Catch (weight) Only where the scoring element is scored cumulatively	A stable trend was observed from 1999 to 2009, with a certain stability level fluctuated around 4,400 tonnes (2006-2012), in 2017 was reported 36.5 tonnes catched in El Rosaro (CONAPESCA landings reports)	**1**

Table 28 – PSA productivity attributes and scores of the Rockfishes		
Performance Indicator	1.1.1	
Productivity		
Scoring element (species)	Rockfish, *Sebastes constellatus* and *Sebastes miniatus* (Jordan & Gilbert, 1880)	
Attribute	Rationale	Score
Average age at maturity	6 years to females; 3-4 years to males (Lea *et al.* 1999).	**2**
Average maximum age	A maximum average age of 29 years is reported (Lea *et al.* 1999).	**3**
Fecundity	The reported fecundity is 230,000 oocytes per female (Love *et al.* 2002)	**1**
Average maximum size Not scored for invertebrates	Total length reported is 46.7 cm (Lea *et al*. 1999).	**1**

Average size at maturity Not scored for invertebrates	To *Sebastes spp.* is reported a range from 26.5 to 36.5 cm of total length (Lea *et al*. 1999). However, it is also reported 32 cm males and 31 cm females (Love *et al*. 1990).	**1**
Reproductive strategy	*Sebastes spp.* are ovoviviparous. They reproductive strategy is internal fertilization, that is to say they have “young”, larvae (Boehlert and Yoklavich, 1984; Wourms et al., 1988; MacFarlane and Bowers, 1995). They produce "offspring" once a year, the newly released larvae are pelagic and are close to the surface for three to four months, and are frequently associated with algae (Love et al. 1990; Ven Tresca, 2001).	**3**
Trophic level	According with FishBase items, *Sebastes sp.* have a trophic level of 3.7 +/-0.6 (1).	**3**
Density dependence Invertebrates only		**NA**
Susceptibility		
Fishery Only where the scoring element is scored cumulatively	*Insert list of fisheries impacting the given scoring element (FCP v2.1 Annex PF 7.4.10)*	
Attribute	Rationale	Score
Areal Overlap	*Sebastes sp.* are distributed from San Francisco, California (USA) to the south of the Baja California peninsula, including the Gulf of California (1).	**3**
Encounterability	T: The position of the species is coincident in relation to the water column and fishing gear, because the trap is placed on the sandy or rocky seabed which is the habitat of these species. H: Handline cover 20% of the dispersal area of these species.	**3** **2**
Selectivity of gear type	T: The fishing gear is directed and oriented to capture marine finfish. Regularly, catched organisms are above the average size of first maturity (Fishing Logs of the SCPP Ensenada SCL, 2015-2016). H: Globally, incidental fishing with hook and line is around 2% (Kelleher, 2005).	**2** **1**

Post capture mortality	T: According to Nevárez-Mártinez et al. (2008), the traps are characterized by the posibility to release unwanted specimens alive. H: Bycatch with line can be returned to the sea with a high survival rate (Chuenpagdee et al., 2003).	**1** **1**
Catch (weight) Only where the scoring element is scored cumulatively	During 2004-2010, the average catch reached 479 tonnes, and the maximum figure recorded was 663 tonnes. In 2016-2017, were reported 106-88 tonnes to the Rockfish complex in El Rosario.	**2**

8.3.3 Consequence Spatial Analysis (CSA)

Complete the Consequence Spatial Analysis (CSA) table below for PI 2.4.1, if used, including rationales for scoring each of the CSA attributes. Reference(s): FCP v2.1 Annex PF Section PF7

Table 29 – CSA attributes and scores of the handline (HL) and trap (T) finfish fishery of El Rosario, BC.

Consequence	Rationale	Score
Regeneration of biota	H: Marine finfish are fished with handline, both near the surface and half water and near the seabed, so that the contact and interaction with the bottom is little or practically null (Bracamonte, pers. Comm.; Chuenpagdee et al., 2003). T: Fish traps are thrown to the bottom, but do not have a great impact on this (Shester and Micheli, 2011). However, this indicator has not been evaluated locally.	**2** **2**
Natural disturbance	H: According to the distribution of the species, there are no major natural disturbances (Chuenpagdee et al., 2003). T: According to the distribution of the species, there are no major natural disturbances (Shester and Micheli, 2011).	**2** **2**
Removability of biota	H: Marine finfishes are fished at the middle and bottom water level, minimal contact of the fishing gear with the seabed (Chuenpagdee et al., 2003). T: According to Shester and Micheli (2011), the finfish fishery does not have an impact on any specific biota.	**1** **2**

Removability of substratum	H: Marine finfishes are fished at the middle and bottom water level, minimal contact of the fishing gear with the seabed (Chuenpagdee et al., 2003). T: It is expected that the finfish fishing does not perform any specific substrate removal (Shester and Micheli, 2011).	**2** **2**
Substratum hardness	H: Marine finfishes are fished at the middle and bottom water level, minimal contact of the fishing gear with the seabed (Chuenpagdee et al., 2003). T: The marine finfish complex is distributed over the edge of the continental shelf and the type of sediment found in the area is unconsolidated sediment.	**1** **2**
Substratum ruggedness	H: Marine finfishes are fished at the middle and bottom water level, minimal contact of the fishing gear with the seabed (Chuenpagdee et al., 2003). T: The marine finfish complex is distributed over the edge of the continental shelf and the type of sediment found in the area is unconsolidated sediment.	**3** **3**
Seabed slope	H: Marine finfishes are fished at the middle and bottom water level, minimal contact of the fishing gear with the seabed (Chuenpagdee et al., 2003). T: Medium level, terraces of the coast.	**2** **2**
Spatial	Rationale	Score
Gear footprint	H: Low risk, due to fishing gear impact (Chuenpagdee *et al*., 2003). T: Low risk, due to fishing gear impact (Shester and Micheli, 2011).	**1** **2**

Spatial overlap	H: The distribution range of these species coincides with its capture area (≤60%). T: The distribution range of these species coincides with its capture area (≤60%).	**2** **2**
Encounterability	H: The probability of encounter/contact of fishing gear with the habitat is ≥75%. T: The probability of encounter/contact of fishing gear with the habitat is ≥75%.	**3** **3**