Marine Stewardship Council fisheries assessments

Swimming crab (*Callinectes bellicosus*) fishery from Puerto Peñasco, Sonora México

Pre-Assessment Report

Prepared for:
Sociedad Cooperativa de Producción Pesquera Ejidal Bahía San Jorge S.C.L. de R.L. de C.V.

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Conformity Assessment Body (CAB)	
Fishery client	S.C.P.P. Ejidal Bahía San Jorge S.C.L. de R.L. de C.V.
Assessment type	Pre-assessment
Date	January 2023

Introduction

This template details the information required from Conformity Assessment Bodies (CABs) when creating a pre-assessment report.

If any discrepancies are noted between this template and the MSC Fisheries Standard, CABs should use the wording of the MSC Fisheries Standard. CABs may make amendments to the scoring tables to reflect multiple Units of Assessment or multiple scoring elements (e.g. extra rows under each scoring issue). CABs should ensure it is clear which Unit of Assessment or scoring element is being referenced. CABs should provide rationale for all Units of Assessment and scoring elements and may group rationales when addressing multiple Units of Assessment or scoring elements.

Where possible, this template has been designed to be consistent with the full assessment reporting template. However, the MSC understands that as pre-assessments are conducted with limited resources, some information detailed in this template may not be available, and that clients may have different needs in terms of pre-assessments. Please complete all unshaded fields where information is available. For all notes and guidance indicated in *italics*, please delete and replace with your specific information. All grey boxes containing instructions may be deleted, e.g. the 'Introduction' section.

The swimming crab (*Callinectes bellicosus*) fishery is one of the most important in the northern region of Sonora, the capture is carried out mainly with Chesapeake-type traps by the small-scale fleet. However, in recent years a downward trend has been detected in the availability of crab and a group of fishermen concerned about this situation have looked for alternatives to improve the performance of the fishery. As a result, in April 2019 the fishery improvement project (FIP) of the swimming crab fishery from the Puerto Peñasco to Puerto Lobos Corridor in Sonora Mexico was registered in Fishery Progress. To carry out the registration of this FIP, the crab fishery was evaluated by means of a rapid assessment based on the criteria of the Marine Stewarship Council, under these terms the general performance of the fishery was analyzed and a work plan was developed and is currently being implemented.

During 2019 to 2022, opportunities for improvement have been detected in the work plan and in the possibility of analyzing the fishery for possible certification in the mid-term, it was therefore decided to evaluate the fishery again under the most recent version of the MSC standard. This document represents the effort of the members of the basic swimming Crab FIP to review performance and direct the work towards improving fisheries sustainability specifically in the Bahia San Jorge region in Sonora, Mexico.

Commented [CA1]: Por favor, asegúrate que a lo largo de todo el texto, después de un párrafo haya un espacio de 6pt para distinguir párrafos, de lo contrario se dificulta mucho la lectura.

Commented [r2R1]: Ok muy bien

Commented [r3R1]:

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1 Glossary

CAB Certification Assessment Body

CEDO Centro Intercultural para el Estudio de Desiertos y Océanos

CETMAR Centro de Estudios Tecnológicos del Mar

CITES Convención sobre el Comercio Internacional de Especies Amenazadas de Fauna y Flora Silvestres

CNP Carta Nacional Pesquera (National Fisheries Chart)

CONANP Comisión Nacional de Áreas Naturales Protegidas

CONAPESCA Comisión Nacional de Acuacultura y Pesca (National Comition for fisheries and aquaculture)

CPUE Captura por Unidad de Esfuerzo (Catch Per Effort Unit)

CRIAP Centro Regional de Investigación Acuícola y Pesquera (Regional Center for Fisheries and Aquaculture Research)

CSA Consequence Spatial Analysis

CV Capital Variable

DOF Diario Oficial de la Federación (Official Gazette)

ENSO El Niño-La Niña Southern Oscillation

ETJ Estudio Técnico Justificativo

ETP Endangered, threatened or protected

FAO Organización de las Naciones Unidas para la Alimentación y la Agricultura

FCP Fisheries Certification Process

FIP Fishery Improvement Project

FMP Fishery Management Plan

FMAS Federación Mexicana de Actividades Subacuáticas

HCR Harvest Control Rule

HMS Highly migratory species

HS Harvest Strategy

INAPESCA Instituto Nacional de Pesca

ITESM Instituto Tecnológico de Estudios Superiores de Monterrey

IUCN Unión Internacional para la Conservación de la Naturaleza

K Capacidad de carga (load capacity)

LGPAS Ley General de Pesca y Acuacultura Sustentables

LFPA Ley Federal de Procedimiento Administrativo

MED MRS Máximo Rendimiento Sostenible media (MSY Maximum Sustainable Yield)

MIA Manifiesto de Impacto Ambiental

MSC Marine Stewarship Council

MSY Maximum Sustainable Yield

NA Not Applicable

NOM Norma Oficial Mexicana (Mexican Official Standard)

PADI Professional Association of Divers Instructors

PANGAS Pesca Artesanal en el Norte del Golfo de California Ambiente y Sociedad

PDO Pacific Decadal Oscillation

PI Perforance Indicator

PMP Plan de Manejo Pesquero

POA Programa Operativo Anual

POEMGC Programa de Ordenamiento Ecológico Marino del Golfo de California

PRI Point where recruitment would be impaired

PSA Productivity-Susceptibility Analysis

RBF Risk-Based Framework

RL Responsabilidad Limitada

SADER Secretaria de Desarrollo Rural

SAGARPA Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación. (Ahora SADER)

SCL Sociedad Cooperativa Limitada

SEMAR Secretaría de Marina

SEMARNAT Secretaria de Medio Ambiente y Recursos Naturales

SG Scoring Guideposts

Sistema Producto jaiba, Comité Nacional Sistema Producto Jaiba (National Productive System Committees).

Es la representación de los agentes de la cadena productiva de la jaiba en México

UNISON Universidad de Sonora

UoA Unit of Assessment

UoC Unit of Certification

VEM Vulnerable Marine Ecosystems

2 Executive summary

(- The names and a brief description of the assessors or authors.
- A brief explanation of the process applied and summary of assessment activities)

This evaluation is for the swimming crab (*Callinectes bellicosus*) small scale fishery from the upper Gulf of California at Puerto Peñasco, Sonora, México, which is harvested by a group of cooperatives and permit holders utilizing wire mesh Chesapeake traps equipment. The pre-assessment identified several components of the scope of the Unit of Assessment (UoA) which would require further consideration in a full assessment. For a detailed description of the UoA see Section 6 of this report. The fishery was assessed against pre-assessment reporting template Version 3.2 of the MSC using this template as guide, with consultation of the MSC Capacity Building Toolkit for fisheries working towards MSC certification, MSC Fisheries Certification Processes v2.1, MSC Fisheries Standard v2.01, consultation of crab producers, and consultation of crab available scientific literature, other fisheries pre assessments documents and Mexican fisheries legislation, standards and management documents.

M. Sc. Rene David Loaiza Villanueva carried out the pre-assessment. Rene's formal education is as Biochemical Engineer in Exploitation of Aquatic Resources from the School of Maritime and Food Sciences from The Institute of Technology and Higher Studies of Monterrey ITESM; He has a Specialty in Sustainable Development from the University of Sonora UNISON and a Master in Sustainability from the Department of Industrial Engineering UNISON. He took the "Working Toward Certification Marine Stewardship Council,

Level 2 Capacity building" training course. Rene has 28 years of experience working in the areas of commercial exploitation, commercial distribution, social participation and sustainable management of fishery resources. In addition to this, he has taught for 5 years at the Center for Technological Studies of Oceans (CETMAR). He is a diving instructor for the Professional Association of Diving Instructors PADI, for the Mexican Federation of Underwater Activities FMAS and is an instructor for Emergency First Responders. For the last 12 years he has worked for the Intercultural Center for the Study of Deserts and Oceans (CEDO), where he is now Manager of Sustainable Fisheries and Aquaculture, a program seeking improvements in the quality of life of coastal communities while maintaining healthy ecosystems through responsible fishing. His main functions are to coordinate the organization's strategic collaboration with institutions related to fishing and aquaculture. Rene has coordinated activities for fishery improvement projects for swimming crab, white clam and goldspotted sand bass in Puerto Peñasco.

(The main strengths and weaknesses of the client's operation.)
The organization Sociedad Cooperativa de Producción Pesquera Ejidal Bahía San Jorge S.C.L. by R.L. de C.V. was established in 1973. It currently has 59 members, of which 30 are women.

The fishing organization belongs to the Oyster Product System Committee and they are not part of unions or federations of cooperatives. The fishing organization has a board of directors that will last for two years from October 2022, it was elected by vote in the general assembly, this board is made up of a president, a secretary, a treasurer, a chief of work and an inventory manager. The main strength of the cooperative is that it is a consolidated organization, it has the infrastructure of machine shop and offices within the Rodolfo Campodónico town where the members reside and it has a plant for the gathering and for the processing of its products, it has a long fishing tradition in the capture of crab and has managed to consolidate its operation under legal terms and with respect for governance and legislation. It also has around 49 fishing vessels with permits for crab and other fisheries, it has managed to maintain a high control of its fishing zone within San Jorge Bay and in general the organization has a vision on the sustainable use of fishing.

The weaknesses of the clients' operations are, limited capacities for modernization, undertaking of new management initiatives and new markets search or added value for production, the average age of the members of the fishing organization is high, the current structure of the cooperative is limited to the entry of new members that could encourage entrepreneurship and new opportunities.

(The extent to which the fishery is or is not consistent with the MSC Fisheries Standard)

The pre-evaluation of the fishery against the MSC standards, has determined that this fishery is within the MSC Scope criteria since: 1) The crab trap capture method does not make use of harmful practices such as poisons or explosives, 2) The fishery is not under any type of international controversy or international management agreement, 3) In the fishery there is no evidence of any type of labor abuse or employment of children, 4) There are mechanisms for the resolution of conflicts or disputes in the Mexican legal structure for fisheries, 5) There is no use of introduced species, 6) The fishery is based on a native species under a healthy population status that has not been impacted by port or other infrastructure works. It can be concluded from this report that some improvements are necessary to meet the MSC requirements to become a candidate for certification. This pre-assessment should help to identify the main issues that the ongoing FIP should address.

3 Report details

3.1 Aims and constraints of the pre-assessment

The pre-assessment report does not attempt to duplicate a full assessment against the MSC Fisheries Standard. A full assessment involves a group of assessment team members and public consultation stages

that are not included in a pre-assessment. The pre-assessment provides a provisional assessment based on the Mexican legislation, on the literary analysis made and a limited set of information provided by the client.

3.2 Version details

Table 1 – Fisheries program documents versions

Document	Version number
MSC Fisheries Certification Process	**Version 0.0**
MSC Fisheries Standard	**Version 2.01**
MSC General Certification Requirements	**Version 0.0**
MSC Pre-Assessment Reporting Template	**Version 3.2**

4 Unit(s) of Assessment

4.1 Unit(s) of Assessment

The Unit of Assessment (UoA) refers to the unit stock or target population of swimming crab from the northern Gulf of California that ranges from the Desemboque-Caborca (municipality) on the northern coast of Sonora, around the Upper Gulf of California coastline, to the area south of San Felipe in Baja California (for details about the biological elements to define the vulnerable stock, see Background for Principle 1 below). The UoA includes the small-scale fishery carried out in open boats or skiffs with outboard engines, using Chesapeake-type traps in the coastal areas of the northern region of the Gulf of California. In this region there is an eligible group of 21 cooperatives and 16 individual permit holders that take advantage of the fishery both on the north coast of Baja California (San Felipe) and on the north coast of Sonora (Desemboque, Santo Tomás, Punta Jaguey, Bahía San Jorge, Puerto Peñasco, Bahía Adair and El Golfo de Santa Clara. Summarizing a total of around 358 boats.

Commented [CA4]: Podemos saber cuantas pangas estarían incluidas en estas cooperativas y permisionarios?

Commented [r5R4]: Si, en la region de Peñasco hasta el Desemboque de Caborca son 318 pangas, en San Felipe operan alrededor de 20 y en Golfo de Santa Clara otras 20, haciendo un total en el norte del golfo de alrededor de 358 pangas.

4.2 Unit(s) of Certification

The Unit of Certification is represented by the same stock but harvested only by one cooperative from Bahia San Jorge, which in total include 46 boats. In this assessment, only these fishers will be evaluated against the MSC standard and there will be no other eligible fishers. It is possible however that fishers from other communities may be interested in joining the UoC, in which case, these fishers would have to be evaluated separately.

Fishing Effort	**Cooperatives list and individual permit holders in Puerto Peñasco**	
	COOPERATIVE NAME	**Number of boats permits**
	SCPP Y A "CERRO BALLENA" SCL	22
	SCPP "LOS FRAYLES" SCL	9

SCPA Y P "ISLAS DE SONORA" SCL	8
SCPP "PESCADORES ISLA DEL ANGEL" SCL	7
SCPP "PESCADORES DE RIBERA UNIDOS DE PEÑASCO" SC DE RL	6
SC "FARO DEL GAVILAN" SC DE RL DE CV	5
SCPP "JAIBEROS Y ESCAMEROS" SC DE RL	5
SCPP "MAR Y TIERRA DEL GOLFO DE CORTEZ" SC DE RL	5
SCPP "RIBEREÑA TORRES" SCL	5
SC "PESCADORES DE SAN JUDAS" SC DE RL DE CV	4
SCPP "ARUBA" SCL	4
SCPP "OPOXTLY" SC DE RL DE CV	4
SC P Y T "LOS PINGUINOS DEL GOLFO DE CALIFORNIA" SC DE RL DE CV	3
SC "CAMAYABELO" SC DE RL DE CV	2
SCPP "DUNAS DEL PINACATE" SC DE RL DE CV	2
SCPP "FUENTE DEL MAR BERMEJO" SC DE RL DE CV	2
SCPP "LOS ANZUELOS" SCL	2
SCPP "LOS RONCOS DE BAHIA ADAIR" SC DE RL DE CV	2
SCPP A Y T "PESCASOLMAR" SC DE RL DE CV	2
ESTRELLA DE LA MAÑANA OREB, S.C. DE R.L. DE C.V.	1
S. UNION DE PRODUCTORES DEL BORRASCOSO, SPR DE RL	1
Total	101

Individual permit holders

Names	Number of boats permits
JESUS GILBERTO ARENAS FELIX	7
FEDERICO LOPEZ REYES	3
OCTAVIO ORTIZ VALENZUELA	3
ARIEL HOMAR CAREAGA GONZALEZ	2
RAMIRO VELARDE CASTILLO	2
ALBERTO ZUBIATE FIERRO	1
CARLOS ALBERTO CHAVEZ IBARRA	1
JOSE ALBERTO APODACA OCHOA	1
JOSE RUBEN MONROY NIEBLAS	1
JUAN CARLOS SANCHEZ CASTRO	1
KARINA ALEJANDRA GARCIA VILLANUEVA	1
MARIO ISMAEL RAMOS ESTRADA	1
MIGUEL ANGEL PORTILLO BLANCO	1
MIRIAM GUADALUPE RAMIREZ BARCENAS	1
RAFAEL GOMEZ RODRIGUEZ	1
VICTOR GONZALEZ RENDON	1
Total	28
Total Puerto Peñasco	129

List of cooperatives and individual permit holders in the municipality of Caborca

Bahía San Jorge	
SCPP Ejidal Bahía San Jorge S.C. de R.L. de C.V.	46
Desemboque	

	SCPP PESCADORES DEL DESEMBOQUE S.C de R.L.	10
	GONZALEZ LOZANO MARCO ANTONIO	8
	Punta Jaguey	
	S.C.P.P. MAR Y CULTURA DEL OESTE S.C.L.	10
	SCPP PESCADORES DEL JAGUEY S.C DE R.L.	9
	S.C.P.P. CABEZA DE AGUILA S.C.L	5
	Total Caborca	88

In the region, there is particularly a cooperative that carries out its fishing activities in Bahía San Jorge region. This group is interested in obtaining the MSC certification as a unit of certification.
For details about the elements to define the vulnerable stock, see Background for Principle 1 below.

The fishery is within the MSC Scope criteria because: 1) The crab trap capture method does not make use of harmful practices such as poisons or explosives, 2) The fishery is not under any type of international controversy or international management agreement, 3) In the fishery there is no evidence of any type of labor abuse or employment of children, 4) There are mechanisms for the resolution of conflicts or disputes in the Mexican legal structure for fisheries, 5) There is no use of introduced species, 6) The fishery is based on a native species under a healthy population status that has not been impacted by port or other infrastructure works. The fishery has not been enhanced, neither the Unit of Assessment include introduced species.

Table 2 – Unit(s) of Assessment (UoA)

UoA X	Description
Species	*Callinectes bellicosus* (swimming crab)
Stock	Swimming crab from the northern Gulf of California from the Desemboque de Caborca on the northern coast of Sonora, surrounding the Upper Gulf of California to the surrounding areas of southern San Felipe in Baja California.
Fishing gear type(s) and, if relevant, vessel type(s)	Chesapeake crab traps on small scale boats no larger than 10 m.
Client group	Sociedad Cooperativa de Producción Pesquera Ejidal Bahía San Jorge S.C.L. de R.L. de C.V.
Other eligible fishers	There are no other eligible fishers even though there are other cooperatives harvesting the same stock, with the same gear in the surrounding area. For now, they are not interested in certification or being part of the UoA, therefore they are not evaluated.
Geographical area	Northern Gulf of California from approximately the 30th parallel to the Colorado River Delta.
Justification for choosing the Unit of Assessment	The unit of assessment was defined based on the genetic characteristics of the population, oceanography of the region and on the fishing fleet that take advantage of this resource.

Commented [CA6]: René, quizá ya hemos hablado antes de esto, pero nunca es tarde para retomar el tema y reflexionar sobre los alcances del FIP y lo que de manera realista se puede lograr. Me vuelvo a plantear las siguientes preguntas:

Solo ellos? Si, como UoC

Solo un grupo dentro de una cooperativa? Es la cooperativa completa que agremia el poblado completo de Campodónico en la Bahia San Jorge específicamente

Qué porcentaje del total de la cooperativa representa este grupo de pescadores? El 100%

Qué posibilidades hay de que se extienda a toda la cooperativa? Incluye toda la cooperativa

Si son pocos, como podemos garantizar el cumplimiento de las necesidades de la pesquería? Son 46 pangas

Commented [CA7]: Aclarar si es toda la cooperativa o sólo parte de ella.

Commented [r8R7]: Es toda la cooperativa

Commented [r9R7]:

5 Traceability

5.1 Traceability within the fishery

The CAB may include in the report a description of the tracking, tracing and segregation systems within the fishery and how these systems will allow any products sold as MSC certified to be traced back to the Unit(s) of Assessment.

The CAB may include in the report an evaluation of the robustness of the management systems related to traceability.

The CAB may include in the report any traceability references, including hyperlinks to publicly-available documents.

The CAB may include in the report a description of the factors that may lead to risks of non-certified seafood being mixed with certified seafood prior to entering Chain of Custody using the table below. For each risk factor, there should be a description of whether the risk factor is relevant for the fishery and, if so, a description of the relevant mitigation measures or traceability systems in place.

The commercial route of the swimming crab fishery for the state of Sonora and Sinaloa has been described in a general way in the Crab Fishery Management Plan published in 2014 (DOF, 2014) (https://www.gob.mx/inapesca/documentos/plan-de-manejo-pesquero-de-jaiba-de-sinaloa-y-sonora)

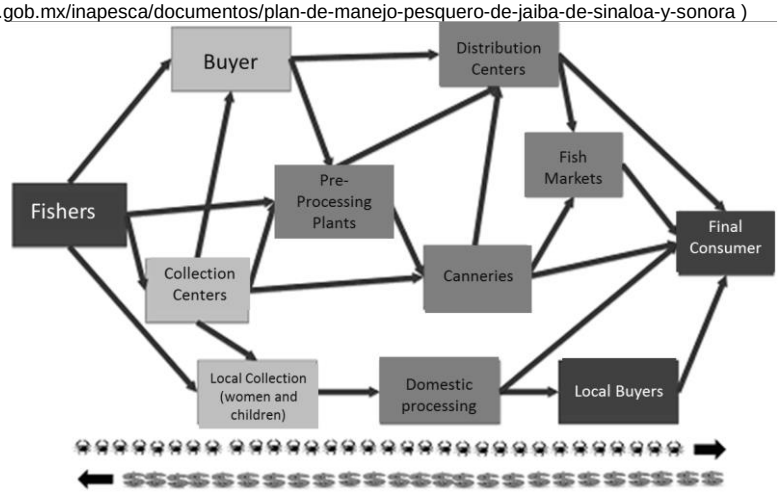

Figure 1. Trade route for the products of the swimming crab caught in Sinaloa and Sonora. The base represents the flow of crab products and the economic resource derived from its commercialization. Source: Cisneros-Mata et al., 2011.

However, for the part of the fishery referred by the Certification Unit in the Puerto Peñasco region in particular, stages of the chain of custody are contemplated in a linear manner. (fig 2)

Figura 2. Supply chain in the swimming crab fishery in Puerto Peñasco.

PRIMARY PRODUCTION (CATCH).

Fishing with traps, during a fishing day fishers approach the buoy and a crew member lifts it manually, once out of the water traps are opened to extract the catch and place new bait, simultaneously the rider goes to the next trap, the newly rebaited trap is placed in the water and the next one is extracted, the catch is placed in boxes or in bulk in the boat, at this stage there are no possibilities of risk of mixing the catch with the harvest of other boats outside of the certification unit.

ARRIVAL.

Landing the catch takes place on the beach by shoveling the catch in plastic boxes with grids if the catch comes in bulk, if in boxes, they are unloaded directly for delivery. Once they have been weighed on the scales, the receivers take possession of the catch. At this stage there is no risk of mixing with catch outside the certification unit since there is only one receiver and one cooperative producer in San Jorge Bay.

TRANSPORTATION.

In summer, a cooling process is carried out using a mixture of sea water and ice that is previously prepared in a container to avoid dehydration and death of the crab during the time it takes to be received on the beach and transferred to the plant. As the crab boxes are received, they are stowed inside the insulated box vehicle and covered with ixtle sheet or blankets, placing crushed ice on the surface. There is also no risk of mixing of certified product.

PROCESSING.

There is a very particular process for the production of crab meat, this begins with the reception of fresh crab, which is cooked in autoclaves with steam from boiler systems, this goes to cooling to be fleshed the next day, the process of Fleshing requires skilled labor and fine sanitary care, the meat from the body of the crab is separated and placed in containers such as canned crab meat, the presentations are: Jumbo lump, backfin lump, claw meat, and claws (cocktail claws), once the container is closed it goes through a pasteurization stage, subsequently cooling and storage at low temperatures (DOF, 2014). At this stage there is a risk that non-certified production could be mixed if the processing batches are not separated in the meat and canning stages.

DISTRIBUTION TO MARKETS.

For both cases of production of crab meat and whole frozen products, the finished product is kept in a conservation warehouse regularly until the load of a container (around 20 tons) is accomplished according to the product delivery needs of the purchasing company, by then is carry out the transportation in trailer containers for distribution or export. At this stage there is also the risk of non-certified product mixing if finished product batches or lots are not marked and separated, to avoid this risk a chain of custody audit and tagging should keep a rigorous record of the volume coming in and out in a processing room. In case of a MSC certification it must enter the chain of custody to certification and pass. In this way, the fishery must maintain, through full assessments and audits, two certifications, the MSC sustainable fishing and the chain of custody.

Table 3 – Traceability within the fishery

Factor	Description
Will the fishery use gears that are not part of the Unit of Certification (UoC)?	No

Commented [CA10]: Quizá en los puntos de recepción, durante la descarga, recepción y carga en el transporte no haya posibilidad de mezclar producto dentro de los contenedores. Pero lo que sí veo viable es que al camión refrigerado se suban cajas idénticas, procesadas de la misma manera, pero que provienen de pescadores que no son parte de la UoC. La única manera de evitar esto, es que los pescadores que son parte de la UoC tengan contenedores en las pangas que tengan un etiquetado especial que sea escaneado a la salida y puesto en un registro. Los contenedores se llenan con producto en el mar y al llenarse se cierran y a la descarga se vuelven a escanear indicando que ha sido subido al transporte. De esa manera la cadena de custodia es cerrada y todo contenedor que suba al transporte y se pretenda manejar como parte de la UoC, debe llevar el etiquetado escaneado. El transporte podrá llevar contenedores de otros pescadores que no son parte de la UoC, pero si los contenedores no son etiquetados dentro de la cadena de custodia, nunca podrán venderse como parte de la UoC.

Commented [r11R10]: La UoC es la cooperativa completa, las camionetas transportarán solo el producto de la coooperativa hacia la planta de procesamiento que procesará solo la producción de la cooperativa, a menos que se maquilara en plantas donde se reciba producto de otros productores habría que separar el producto

Commented [r12R10]:

Commented [CA13]: There is a high risk indeed! Para evitar esto, una auditoría de cadena de custodia deberá de llevar un riguroso registro del volumen trabajado en un cuarto de procesamiento. Es decir, llega un contenedor con producto de la UoC, se escanea y se pesa. Una vez completado el proceso de empaquetado, la misma etiqueta se adhiere al producto terminado que en un número de paquetes, deberá sumar aproximadamente el peso ingresado para ese contenedor o contenedores (más menos la merma del procesado). De esa manera se hace imposible que ingrese producto no etiquetado.

Commented [r14R13]: Ok, muy bien, ya le agregué un texto aclarando esto

Commented [CA15]: MUY IMPORTANTE

Definitivamente, para entrar a certificación, la pesquería debe determinar como va a usar el certificado, las posibilidades son:

1. Si no hay cadena de custodia como lo describí anteriormente, la pesquería puede ofrecer a la venta producto certificado por MSC y los compradores deben de tener claro que el producto se asegura que es parte de pesca sostenible certificada HASTA EL PUNTO DE DESEMBARCO. Por lo cual deberá de, o estar presente al punto de desembarco para comprar ese producto, o confiar que lo que se le entrega es efectivamente producto certificado. **De ninguna manera**, en estas condiciones, el producto empacado o bajo cualquier otra presentación, puede venderse con un etiquetado de certificación de MSC.

2. Si hay cadena de custodia y el producto quiere venderse en empaquetado con sello de certificación de MSC, debe de entrar a la certificación de cadena de ...

Commented [r16R15]: Ok, lo mencioné en el párrafo.

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.	Swimming crab in the Unit of Assessment and unit of certification are only captured by Chesapeake traps, using small scale boats.
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. The main fishing area of the UoC is located within the waters of Sonora, along the coast of Bahia San Jorge. For nearby communities, it isn´t cost effective to travel to the area in Bahia San Jorge to catch crabs.
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.	During the fishing operations of the cooperative members interested in being certified, there is no product handling from other vessels outside the group of the fishery to be certified. There will be no risk of mixing with non-certified product. At the moment the activities that cover the group of cooperatives inside of the UoC include wild capture, storage and transportation, as well as sale to processors.
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.	There is no transhipment in the fishery, this is carried out only by smaller vessels within the fishing areas near the area.
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*

Commented [CA17]: Quizá no hay posibilidad de mezclar producto por parte de los pescadores, pero el camión que recolecta sí puede traer producto de otras localidades que no son de la UoC y existe el riesgo de revolverlas.

Commented [r18R17]: Así es, aunque el plan actual es que la cooperativa transporte y procese su captura de forma independiente.

6 Pre-assessment results

6.1 Pre-assessment results overview

6.1.1 Overview

The CAB should include in the report an overview of the key points arising from the analysis, emphasising any potential obstacles to certification and any issues to be considered prior to entering full assessment.

The CAB may describe any other issues of particular relevance to the fishery, including answers to any questions raised by the client.

Principle 1

In the course of the pre-assessment only 3 performance indicators (PIs) were identified as having the potential to fall below the SG60 (representing a pre-condition to certification).

In Principle 1 according to the recent studies the stock is not overfished or in need of rebuilding, therefore PI 1.1.2 Stock Rebuilding is considered as Not Applicable. There are three PIs (PI 1.2.1 Harvest Strategy, 1.2.2 Harvest Control Rule, and PI 1.2.3 Information and monitoring) which are likely to achieve the SG60 but not the SG80.

The fishery has the strength of not being overfished or in need of rebuilding. The capture strategy is considered robust, with clear rules and tools, however the consideration of uncertainty and veracity in implementation is limited. The information and monitoring is considered with limitations regarding the timeliness and veracity of the catch records.

Principle 2

This principle had limited performance due to the fact that changes in the proportions, species composition and volumes of bycatch were observed in the bycatch monitoring program in the UoC during 2020 and due to the limited information on the status and management of these species, as well as the limited information and habitat and ecosystem management. In addition, instruments such as the fishery management plan do not contemplate specific strategies for bycatch. Even though there is no interaction with ETP species. PI's 2.2.1 Secondary outcome, 2.2.2 Secondary Management and 2.2.3 Secondary information did not reach SG60 (Fail <60); The PI's 2.1.2 Primary management, 2.4.2 Habitat management, 2.4.3 Habitat information, 2.5.1 Ecosystem outcome, 2.5.2 Ecosystem management, and 2.5.3 Ecosystem information, the available information suggests fishery will reach SG60 but may not meet all scoring issues at SG80, a condition may be needed.

Principle 3

The legal and customary structure of the crab fishery is considered robust; however, it is not considered fully understood by the fishing organizations or individuals involved in the fishery. The management policy has clear long-term management objectives, consistent with MSC standards under the precautionary principles. The specific objectives of the fishery are considered partially well-defined and not clearly measurable in the short and long term, the decision processes, inspection and surveillance, and compliance with regulations are limited and with a long history of non-compliance. Postponement of the evaluation is observed in the management performance. For these conditions, PI's 3.1.2 Consultation, roles and responsibilities, 3.2.1 Fishery specific objectives, 3.2.2 Decision making processes, 3.2.3 Compliance and enforcement and 3.2.4 Management performance evaluation will reach SG60 but may not meet all scoring issues at SG80, a condition may be needed.

6.2 Summary of potential conditions by 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	**0**
Principle 2 – Minimising environmental impacts	**3**
Principle 3 – Effective management	**0**

6.3 Summary of Performance Indicator level scores

The CAB shall include in the report a completed 'summary of Performance Indicator level scores table below' and may include completed full scoring tables for Performance Indicators scored in sections 7.4 – 7.6. If the full scoring sections are not used, then they may be deleted. The CAB shall indicate in the report if Performance Indicators were not assessed as part of the pre-assessment, and no score shall be provided.

When scoring the draft scoring ranges, the CAB shall use the following key to determine the result:

- Information suggests fishery is not likely to meet the SG60 for any scoring issue (Fail <60).
- Information suggests fishery will reach SG60 but may not meet all scoring issues at SG80, a condition may be needed (Pass with condition 60 – 79).
- Information suggests fishery is likely to exceed SG80 resulting in an unconditional pass for this Performance Indicator. Fishery may meet one or more scoring issues at SG100 level (Pass ≥80).

The CAB shall apply cell shading to the draft scoring range cells (e.g. ,60 = red, 60-79 = amber, green = ≥80, or similar).

Where scoring issues are referred to in the summary tables, scoring issues should be described using the language from the MSC Fisheries Standard.

Where relevant, comment should be provided on the implication of the individual Performance Indicator scores for the aggregate Principle scores. This may for example, identify whether there are many Performance Indicators within one Principle which are likely to raise conditions that may lead to the fishery failing to meet the MSC Fisheries Standard.

If a fishery is data-deficient and may need to use the MSC Risk-Based Framework (RBF), the CAB shall indicate this to the fishery (FCP v2.2 Table 3). If the RBF is expected to be used to score PI 1.1.1, no score needs to be provided for PI 1.1.2 and a default 80 score should be assigned to PI 1.2.4.

For performance indicators 1.1.1 (stock status), 2.1.1 (Primary species outcome), 2.2.1 (Secondary species outcome) and 2.3.1 (ETP outcome) a preliminary PSA should be conducted as described in FCP PF4, and the result recorded in the space provided in the table for the relevant PI.

For performance indicator 2.4.1 (Habitats outcome) a preliminary CSA should be conducted as described in FCP PF7, and the result recorded in the space provided in the table for this PI.

Table 5 – Summary of Performance Indicator level scores

Performance Indicator	Draft scoring range	Data deficient?
1.1.1 – Stock status	Pass ≥80	**Yes / No**
The existing evaluations of the stock, mainly the most recent ones from 2017, highlight that the UoA population is in good condition below the defined maximum sustainable yield. recovery		
1.1.2 – Stock rebuilding	**NA**	**Yes / No**
Not applicable; according to Rodriguez-Felix, 2017 and INAPESCA previous assessment results the crab stock is not overfished or in need of rebuilding. Since this Performance indicator is only scored when the assessment for 1.1.1 (stock status) is lower 80, it is being considered as NA.		
1.2.1 – Harvest Strategy	Pass with condition 60 – 79	**Yes / No**
The components of the harvest strategy are considered robust and appropriate; however, the monitoring and evaluation of HS is considered limited.		
1.2.2 – Harvest control rules and tools	Pass with condition 60 – 79	**Yes / No**

Commented [CA19]: Hay que tener cuidado con el lenguaje. Ya has dicho que no es necesario el recovery, particularmente si en total la calificación es de 80 o más. Hay que identificar bien que es lo que está en riesgo aquí.

Commented [r20R19]: Ok, eliminé el comentario del recovery

Harvest control rules and tools in the fishery are varied, appropriate and robust, but uncertainty and veracity in implementation are limited.		
1.2.3 – Information and monitoring	Pass with condition 60 – 79	**Yes / No**
It is considered that there is enough information related to the structure of the stock, to the productivity of the stock, to the composition of the fishing fleet. However, the current information available and the information on mortality from industrial fishing and incidental catch is considered limited, as well as the veracity in the records of the capture.		
1.2.4 – Assessment of stock status	Pass ≥80	**Yes / No**
The stock assessments carried out, mainly the most recent one from 2017, are considered appropriate, since it considers uncertainty and is evaluating stock status relative to reference points in a probabilistic way, and has also been peer-reviewed.		
2.1.1 – Primary Outcome	Pass ≥80	**Yes / No**
The results of the 2020 bycatch catch monitoring program show that the proportions have decreased considerably, converting the primary species of the black and pink murex snails to minor primary species. Therefore, Minor primary species are highly likely to be above the PRI.		
2.1.2 – Primary Management	Pass with condition 60 – 79	**Yes / No**
The primary species of murex snails have management measures with limitations and inconsistencies, the Fisheries Management Plan for the crab fishery does not have specifications for bycatch management, the evaluation and implementation of measures to minimize bycatch mortality is limited. .		
2.1.3 – Primary Information	Pass ≥80	**Yes / No**
For the primary minor species of murex snails, there is information on the status of the fisheries within the UoA and the UoC, both qualitative and quantitative.		
2.2.1 – Secondary Outcome	Fail <60	**Yes / No**
In the community monitoring of the incidental catch of the certification unit in Bahia San Jorge / Pinta, during the 2020 fishing season only one secondary main species and several secondary minors were observed, the information available on these species and their status is extremely limited. There is no evidence of recovery or a demonstrably effective partial strategy for these species.		

2.2.2 – Secondary Management	Fail <60	**Yes / No**
Instruments such as the Fishery Management Plan for the fishery or the National Fisheries Chart or official standard NOM-039-PESC-2003, do not have specifications for the management of bycatch and no specific actions to monitor, manage or evaluate retained species or bycatch are included in the plan or in any other regulatory instrument.		
2.2.3 – Secondary Information	Fail <60	**Yes / No**
It is believed that the still scarce qualitative information could be adequate to estimate the impact of the UoA on the only one main secondary species with respect to status, but for the minor secondary species the information is practically non-existent on their status.		
2.3.1 – ETP Outcome	Pass ≥80	**Yes / No**
None of the bycatch species registered in the monitoring 2020 program is in the international or national protection status or fell under ETP species.		
2.3.2 – ETP Management	**NA**	**Yes / No**
There is no interaction with ETP species, Not applicable		
2.3.3 – ETP Information	**NA**	**Yes / No**
There is no interaction with ETP species, Not applicable		
2.4.1 – Habitats Outcome	Pass ≥80	**Yes / No**
The fishery is carried out mainly in soft sand and muddy bottom areas of the coastal zone on the continental shelf, the fishery on the UoA does not interact with habitats that can be considered VME or minors, in addition the interaction of the gear traps with the sea floor is considered minimal.		
2.4.2 – Habitats Management	Pass with condition 60 – 79	**Yes / No**
The swimming crab fishery has no explicit habitat management strategy, the evaluation and implementation of habitat management is considered limited.		
2.4.3 – Habitats Information	Pass with condition 60 – 79	**Yes / No**

Commented [CA21]: Si en 2.4.1 calificaste con 80 o más argumentando que no hay daño a los ecosistemas, entonces no es necesaria una estrategia de manejo. Nota en el lenguaje del requerimiento "There is a partial strategy in place, if necessary,…." If necessary es la clave, es decir, cuando en 2.4.1 no se alcanza 80, es porque hay un daño potencial que requiere manejo, si no existe tal potencial de daño, no se requiere esa estrategia.

Commented [CA22]: Este sí, no importa la situación de 2.4.1, siempre es necesario tener algo de información sobre las características del hábitat, y que permita detectar cambios que representen un incremento en el riesgo a los hábitats.

The soft sediment bottoms where the fishery takes place in the UoA (area specified on the fishing permits) is broadly understood. Interstitial species studies, carried out inside the UoA provide information on the nature, distribution and vulnerability of the main fishing area, however there is not a comprehensive assessment impact or monitoring.		
2.5.1 – Ecosystems Outcome	Pass with condition 60 – 79	**Yes / No**
Because of the nature of the fishery, the health of the target stock, and the fishing method, it is unlikely that this activity would affect species composition, community distribution or other key ecosystem elements, however there is no direct evidence to prove it and ghost fishing is known to occur.		
2.5.2 – Ecosystems Management	Pass with condition 60 – 79	**Yes / No**
The existing official partial measures or strategy for ecosystem management coupled with voluntary measures such the respect for voluntary fishing refuges, in accordance with the productive nature of the swimming crab can be considered adequate, which takes into account available information and is expected to restrain impacts of the UoA on the ecosystem, likewise the evaluation and implementation of ecosystem management can be considered appropriate, even though the descent in availability and catch of the last two years (2019-2020) limit the certainty of that the strategy is properly implemented.		
2.5.3 – Ecosystems Information	Pass with condition 60 – 79	**Yes / No**
There is relevant information in the region to assess various ecosystem aspects, on the characterization of the habitat, and ecosystem within the swimming crab fishery area. This information is considered to be adequate to broadly understand the key elements of the ecosystem, however the interactions, or the impacts on all species of bycatch, have not been investigated in detail, nor does the monitoring of the ecosystem that would allow to understand the main consequences on the ecosystem in detail.		
3.1.1 – Legal and customary framework	Pass ≥80	**Yes / No**
Regardless of its application, the legal and customary structure for the management of the fishery is considered adequate since the fishery has instruments, tools and standards that contemplate management with transparency, there is space and structure for conflict resolution and respect of user rights.		
3.1.2 – Consultation, roles and responsibilities	Pass with condition 60 – 79	**Yes / No**
The management system can be considered to have effective consultation processes that are open to interested and affected parties, however, the roles and responsibilities of organizations, institutions and individuals who are involved in the management process are not clearly understood by all relevant parties.		

Commented [CA23]: Habrá que revisar los detalles de esto. Dado que esta sección de P3 se refiere al marco normativo general para las pesquerías, es posible que esto esté cubierto. Hay que distinguir esto respecto a los indicadores de la sección 3.2.X que son específicos de la pesquería.

3.1.3 – Long term objectives	Pass ≥80	**Yes / No**
The actual management has clear long-term objectives described mainly in the general fishing law and in the swimming crab fishery management plan to guide decision-making that are consistent with MSC Fisheries Standard, and incorporates the precautionary approach.		
3.2.1 – Fishery specific objectives	Pass with condition 60 – 79	**Yes / No**
The components, lines of action and specific actions described in the swimming crab fishery management plan are considered consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, these are explicit within the fishery-specific management system. However, these specific objectives are only considered Well defined and measurables partially on short and long-term.		
3.2.2 – Decision making processes	Pass with condition 60 – 79	**Yes / No**
According to the fishery management plan, the official standard NOM-039-PESC-2003 and CNP this fishery allow the implementation of management trough measures and strategies which allow us to deduce that decision-making processes have been followed. Although scientific advice is not always incorporated into the decisions, or can take a long time, even years, before recommendations are considered in the regulation, the process in general is considered transparent, adaptive and inclusive, under precautionary principles.		
3.2.3 – Compliance and enforcement	Pass with condition 60 – 79	**Yes / No**
Unfortunately, in the fishery there are antecedents of strong limitations in monitoring, control and surveillance mechanisms that ensure the management measures in the fishery are enforced and complied with.		
3.2.4 – Management performance evaluation	Pass with condition 60 – 79	**Yes / No**
Although a system of monitoring and evaluating the performance of the fishery-specific management system against its objectives is specified in the fishery management instruments and tools, it is appreciated that the specified times have not been met.		

6.4 Principle 1

6.4.1 Principle 1 background

The CAB may include in the report a summary of the fishery based on the topics below, referencing electronic or other documents used:

- An outline of the fishery resources including life histories as appropriate.
- An outline of status of stocks as indicated by stock assessments, including a description of the assessment methods, standards, and stock indicators, biological limits, etc.
- Information on the seasonal operation of the fishery.
- A brief history of fishing and management.

The CAB should provide any information used as supporting rationale in the scoring tables, if used.

The CAB may indicate in the report whether the target species may be key Low-Trophic Level (LTL). If there are multiple Principle 1 species, the CAB should indicate in the report which are key LTL.

Reference(s): FCP v2.2 Annex PA, Fisheries Standard v2.01

An outline of the fishery resources including life histories as appropriate

The crab fishery has several official online information such as the published fishery management plan (DOF, 2014), has the official standard NOM-039-PESC-2003 (DOF, 2006) for the regulation of the fishery, as well as the updates of the crab file in the National Fisheries Chart (DOF, 2018), published off season agreements (DOF, 2014), the swimming crab chapter in the book "Sustainability and Responsible Fishing of Mexico. Evaluation and Management" (INAPESCA, 2000). In addition, there are scientific research articles and academic papers on topics such as population biology, genetics, ecosystem impacts, bycatch, and management.

The ~~evaluation~~ unit of assessment was defined based on recent studies of genetic diversity and metapopulation structure of swimming crab on the Sonora coast of Cisneros-Mata et al. 2019, which suggest that the northern crab populations (Desemboque and Puerto Peñasco) present particular genetic characteristics of differentiation in genetic allelic diversity (the crab in the north presented a lower diversity of alleles with respect to the central-south areas of Sonora) as an isolated population, also have specific characteristics of "sinking population" due to the high local retention and the minimum amount of propagules that it exports to the rest of the populations, which may be the product of the oceanographic currents present in the place which trap these larvae during the reproductive period, coupled with this in this region phenotypic morphometric differences have been identified in size and maturation of females, growth rate and sex ratio caused by differences in water temperature and availability of wetland areas that occur latitudinally on the coast of Sonora (Rodríguez-Félix et al., 2015, 2016; 2018).

In addition to this, the numerical models of oceanographic dispersion in the northern Gulf of California highlight the existence of a larval dispersal pattern during the crab reproductive period that is coincident with the summer cyclonic circulation that generates an entrapment of larvae in the region (Marinone, 2012; Turk-Boyer et al., 2014).

In this sense, and according to table G2 of the MSC Fisheries Certification Process and guidance v2.1, the structure of the Northern Gulf of California stock identified as Unit of assessment, coincides with category C "*the characteristics of C. bellicosus fall within the definition of local populations with moderate connectivity within a metapopulation*".

In recent studies (Cisneros-Mata et al. 2019c) ~~carried out through~~ based on ~~the estimation~~ estimates of genetic flow rates, ~~it was~~ determined that the crab in Sonora presents characteristics of a metapopulation~~,~~ ~~recognizing the northern part with a~~It was suggested that the northern portion has a tendency to function as a sink ~~in relation~~ compared ~~to~~with the other fishing grounds in central and southern Sonora. In addition, similarities / differences were tested in population growth rates, reproduction sizes of 50% and in the sex ratio of crabs along the Sonoran coast. This has made it possible to determine five fishing areas for

Commented [CA24]: Este párrafo está fuera de lugar, no es precisamente un texto introductorio, es un aspecto muy específico del manejo de la pesquería. Sugiero moverlo a un lugar más apropiado.

Commented [CA25]: Hay que pasar esta información a los antecedentes de P1 y aquí hacer una referencia a esa sección. Ver arriba.

Commented [r26R25]: Ok bien, ya lo pasé, ya lo puse aquí en P1

Commented [r27R25]:

swimming crab along the Sonoran coast from north to south: Puerto Peñasco, Bahía de Kino, Guaymas, Costa de Ciudad Obregón and Bahía de Yavaros.

Taxonomic classification

Class: Click here to enter text.
Order: Click here to enter text.
Family: Click here to enter text.
Genus: Click here to enter text.
Species: Click here to enter text.

Life history

The crab begins its life cycle as a zoea larva, suspended in the water column for between 30 and 50 days, feeding on phytoplankton and algae. It transforms into a megalopa larva with a duration of 6 to 20 days. The megalopa is associated with the sea bottom, is omnivorous, and travels to the estuaries actively swimming and aided by the currents (Castro Longoria et al., 2003; Pfeiler et al., 2004). In the estuaries and lagoons, after several molts, the juvenile crab appears with all the adult characteristics. (Molina-Ocampo et al., 2006) swimming crab can reproduce at a year, when it is around 115 mm wide. They generally live three to four years and in some cases up to five. Crabs have separate sexes and exhibit clear sexual dimorphism (Castro Longoria et al., 2003). Males have a long, thin abdomen in the shape of a "T" and females have a broad abdomen (Torre-Cosio et al., 2004). During mating, the male mounts the female for a week, waiting until she molts to place the sperm with the petasmas. The male can mate several times in his life, while the female is likely to reproduce only once (based on what happens in other similar species)~~.~~ However, ~~S~~sperm can live inside the female for up to two years and therefore have multiple spawning events~~. The~~ therefore, females can spawn twice a year, beginning between 2 to 9 months after mating. Fertilized eggs form a spongy mass in the abdomen known as an egg cup. Days before mating, the females prepare to undergo their last molting liberating hormones that attract males. Males then get on top of the females, holding them and remaining attached until the female molts and the ventral plate drops allowing fertilization. At this stage, females are very vulnerable as their shell is very soft. At the beginning the egg sponge is orange, as the embryos mature the egg sponge turns dark. The female on average has 1,400,000 eggs and incubation lasts 2 to 3 weeks, then hatch as a zoea and start the life cycle of the specie again.

Swimming crabs have ~~has a~~ moderate individual growth rates (k between 0.7 and 1.1 / year) and asymptotic lengths (carapace width) between 160 and 188 mm (Cisneros-Mata et al. 2014, López-Martínez et al. 2014, Labastida-Che et al. 2015, Pérez-Velázquez et al. 2015, Apolinar-Romo 2017, Rodríguez-Félix 2018 at INAPESCA 2019 POA), however, their growth is not continuous as they undergo multiple molting events.

Commented [CA28]: Complementar esto con el texto relativo a esta misma información que está en la definición de la UoA. Mover lo de arriba para este lugar y arriba referirse a esta sección.

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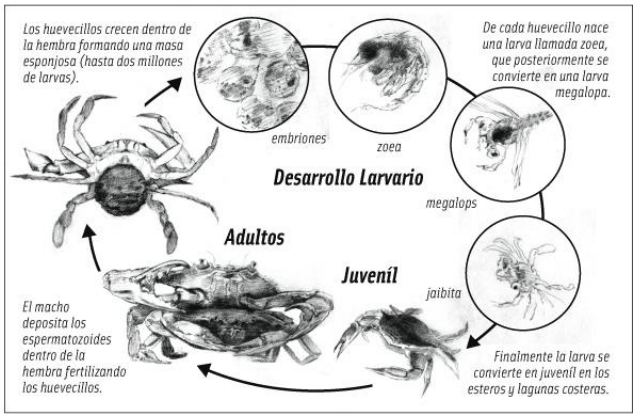


Figure 3. Life history cicle

An outline of status of stocks as indicated by stock assessments, including a description of the assessment methods, standards, and stock indicators, biological limits, etc

INAPESCA, through CRIAP Guaymas, has monitored the crab fishery in Sonora since 1997. In 2001, the first evaluation of the crab stock was carried out for the Bahía de Kino-Infiernillo Canal region, and there have also been evaluations of the crab stock for three species present in the Gulf of California with models of yield per recruit~~s~~ carried out by Molina-Ocampo et al., 2006. A production model assessment model was carried out in 2013 by INAPESCA for *C. bellicosus* in Sonora (Cisneros Mata et al., 2013), an assessment was carried out for the Gulf of California for the three species combined in Sonora and Sinaloa using the Martell and Froese method (2012)~~. and~~

More recently, an independent population assessment of the fishery was carried out by Rodriguez-Felix in 2017~~,~~ for the 5 main fishing sites ~~of~~in the state of Sonora, Puerto Peñasco, Bahía de Kino, Guaymas, Costa de Ciudad Obregón and Bahía de Yavaros.~~, t~~This evaluation was carried out using the Martell and Froese (2012) population model~~,s and~~ the biomass dynamic model of Schaefer ~~without flow (~~without migration rates~~,)~~ and a variant of the ~~-~~Schaefer model to include~~with flow (with~~ migration rates~~.) with which the values~~ These models were used to obtain parameter estimates~~of~~ for the intrinsic ~~rate parameters of~~ population growth rate (r)~~, / year,~~ initial biomass (Bo)~~, tons~~ and ~~load~~ the carrying capacity (K) ~~tons~~ for Puerto Peñasco and Desemboque de Caborca (Table X)~~. were estimated:~~

Table 1. Estimates of population parameters obtained by Felix-Rodriguez (2017) using different versions of surplus production models, and landings in the Puerto Peñasco and Desemboque de Caborca areas.

Modelo	Parámetro	Puerto Peñasco	Desemboque de Caborca
Martell y Froese	r	0.34	0.34
	Bo	10,447.10	1,044.71
	K	15,548.00	1,554.80
Schaefer sin flujo	r	0.27	0.34
	Bo	11,468.50	1,000.00
	K	15,717.10	1,200.00
Schaefer con flujo	r	0.49	0.44
	Bo	7.749.50	2,780.70
	K	15,369.80	1,527.00

Using these parameters, an analysis of alternative management scenarios was carried out assuming constant simulated catch from 2015 to 2024, and a second scenario assuming an annual increase of 30% in catch with respect to the previous year for the period 2015 to 2035. It stands out that the population of the

Commented [CA30]: Haciendo una revisión de las evaluaciones hechas en todo Sonora, te falta Alvarez-Flores C.M. 2011. Evaluación del estado actual y potencial pesquero de la jaiba, *Callinectes bellicosus*, en el estado de Sonora, México. Reporte final bajo contrato para Comunidad y Biodiversidad A.C. 77 pp.

Commented [CA31]: No conozco todos los trabajos que mencionas, pero en ninguno de ellos se presenta el estado actual del recurso. En los más recientes, los análisis se hicieron todos con modelos de producción que permiten muy fácilmente presentar N_actual / No, o, N_actual / K, como medida del grado de reducción del stock y comparar ese estado respecto a puntos de referencia como K/2 o 0.5*(K/2). Presentas el resultado de proyecciones a futuro bajo regímenes alternativos de manejo, pero no el estado actual del recurso.

Commented [CA32]: Asegúrate que el formato de los encabezados sea el mismo para el mismo tipo de nivel de sección. Creo que esta sección está al mismo nivel de "Life history" pero tienen formato distinto.

Commented [CA33]: Agregar el número de table mediante la función de Referencia cruzada de Word. Primero se agrega un "Table Caption" a la parte superior de la tabla y luego se agrega aquí la referencia a la tabla.

Commented [CA34]: Estos resultados son únicamente del trabajo de Felix-Rodriguez (2017)?

Commented [CA35]: Se entiende que estás únicamente describiendo la metodología del análisis realizado. Sin embargo, este es un aspecto importante para la evaluación. Para que sea informativa, en una proyección para evaluar una medida, la captura constante debe de asumir esfuerzo constante, lo cual puede ser difícil de adoptar. En un análisis de permisos de escama entregados en años recientes se observó un incremento importante en el número de permisos, lo cual fue interpretado como un aumento en el esfuerzo pesquero. No necesariamente es así si se trata únicamente de regularización de pescadores. Sin embargo, se considera que aun con un componente importante regularización, sí hubo aumento de esfuerzo reflejado en un aumento en el número de permisos. Habrá que ver en que medida eso ocurrió con la jaiba para verificar el supuesto de esfuerzo constante en este análisis, de lo contrario, los resultados pueden ser poco informativos. En general, hacer estos análisis aplicando políticas de manejo para este tipo de recursos, basadas en capturas constantes o capturas directas es poco recomendable.

Puerto Peñasco region under the first management scenario shows population recovery, ~~and~~ while under the second scenario ~~it is observed that~~ the biomass ~~is~~ fell below the K / 2 reference limit. ~~,~~ ~~u~~Under ~~this second~~ the scenario of increase in catch, the study suggests that the population of Puerto Peñasco would not only affect itself but would also affect the population of Desemboque de Caborca.

Information on the seasonal operation of the fishery.

Normally, swimming crabs in Puerto Peñasco ~~is~~are caught from July to November, when they are more available to the fishery. ~~due to the availability of the product, since t~~ The catch ~~is~~ becomes scarce (?) and is economically unaffordable ~~during~~ from December to February, however, ~~and the capture continues~~ fishing resumes in March and April~~,~~ until the beginning of the official closure which starts ~~from~~ in May 1 ~~to~~ and ends in June 30 for females and males. ~~, and t~~The closure is maintained from June 1 to 9 only for females.

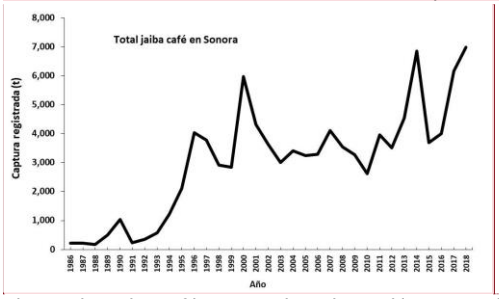
A brief history of fishing and management.

The commercial crab fishery began in the central and southern state of Sonora in the 1980s, while in the Puerto Peñasco region it began until the 1990s. To ~~reverse~~ control the impact of the crab fishery~~fishing~~, ~~in 2001~~ Regional Subcommittees for the Management of the Jaiba Fishery in Sonora were formed in 2001 ~~for the management of the fishery (~~ to regulate operations in Puerto Peñasco, Bahía de Kino and Huatabampo~~)~~, ~~in which the~~ These Subcommittees were established with the participation of fishing authorities, ~~the producers~~fishers, distributors and retailers. ~~marketers.~~ Although the subcommittees stopped meeting for several years, in 2011 the Crab System-Product Committee was installed in Sonora, ~~to~~ seeking to make a better use and increase the availability of the resource in a sustainable way.

6.4.2 Catch profiles

The CAB may include in the report any relevant catch profiles showing Unit of Assessment (UoA) catch over time.

In 2018, the fishing production of crab in Sonora was 7,187 ton in landed weight, of which 6,985 t was of brown crab (97.1%) and the rest (202 t) of blue crab (fig. 2). 32% of the crab catch was made in Zone 1, 20% in Zone 2, 12% in Zone 3 and 12% in Zone 4 (CONAPESCA 2018). del POA



The total catches of brown crab registered in Sonora have increased in the last three seasons (figure 3). The annualized growth rate (geometric mean) in the period from 2011 to 2018 is 12.15%.

~~A recent~~The analysis of ~~(~~Cisneros-Mata et al. 2019a~~,)~~ that includes the official statistics ~~for~~ of 2018, showed that in Zones 2 to 5 the catch of brown crab in 2018 ~~is~~ was above the estimated median limit reference point that is the maximum sustainable yield (MSY), exceeding the upper confidence limit only in zone 4. In addition, in Zone 1 in 2014 the MSY was exceeded. However, in all cases, the catch is seen for the most part between the estimated median MSY and the lower confidence limit. These results indicate that the crab fishing effort in Sonora is at the limit, therefore, the current number of vessels should be left as is or reduce the fishing effort.

Commented [CA36]: Seguro que definieron K/2 como límite? Usualmente es el target.

Commented [CA37]: OK, pero, un incremento de 30% anual durante 20 años es excesivo! Es obvio que a esa tasa incremento en la explotación absoluta vas a tener afectaciones muy grandes. Me parece que este estudio aunque bien intencionado y posiblemente, técnicamente bien hecho, no hizo la mejor selección de escenarios y políticas alternativas de manejo.

Commented [CA38]: Algo falta ahí?

Commented [CA39]: OK, pero eso no tiene nada que ver con los Subcomités de manejo, que pasó con ellos? Si siguen sin funcionar hay que decirlo tal cual porque es algo que deberá observarse en P3 como una falla de la pesquería para la toma de decisiones.

Commented [CA40]: Al inicio del reporte se habla de "swimming crab", creo que C. bellicosus también se conoce como "green crab". Entonces al mero principio donde introduces la pesquería y mencionas por primera vez la especie, habría que poner todas las formas en las que se conoce. Quizá también por consistencia, adoptar un solo nombre común y usarlo a lo largo de todo el texto.

Commented [CA41]: No recuerdo que hayas definido las zonas, presentar un mapa?

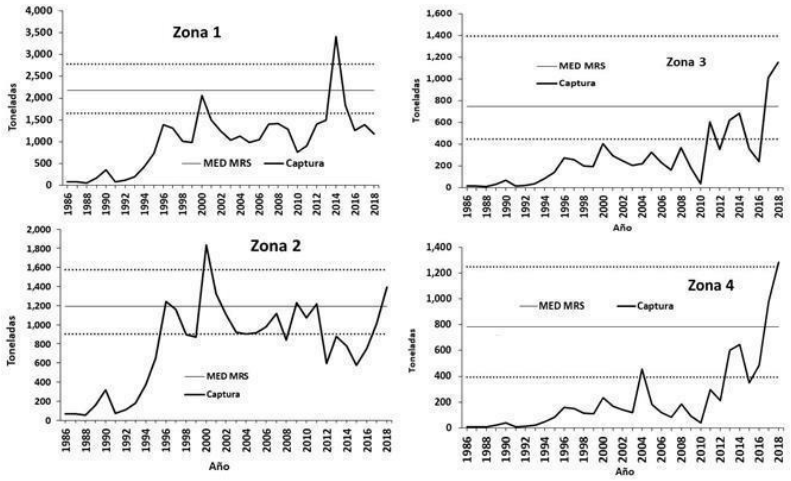
Commented [CA42]: Las figuras necesitan pie de figura y referenciarlas en el texto con la función de referencia cruzada de Word.

Commented [CA43]: Claro, si tomas la captura del 2011 como referencia es inevitable concluir que para el 2018 la captura se incrementó dramáticamente. Sin embargo, no se que digan los reportes de evaluación, pero con esta serie de tiempo, lo que se ve es una captura promedio, desde 1996 hasta el 2018, bastante estable, oscilando alrededor de un promedio de unas 4,500 t. La serie de tiempo se puede interpretar también como que se presenta la aparición de cohortes muy fuertes en el 2000, 2014 y 2017/18. Cohortes menos abundantes, pero que sobresalen se ven también en otros años, p. ej. 1996, 2007, 2011. Los picos del 2014 y 2017/18 son tan grandes que dominan el campo visual y hacen aparecer como si la captura en general hubiera aumentado como una tendencia general, pero observa que del 2011 al 2018, son únicamente esos tres años los de producción muy elevada, es muy engañosa la figura.

Commented [CA44]: Solo se muestra hasta la zona 4.

Commented [CA45]: De nuevo, verificar si se trata efectivamente de un punto de referencia límite u objetivo.

Commented [CA46]: Esto concluye Miguel Angel? Me parece raro, a mi me da más la impresión de que tenemos un recurso con reclutamiento muy variable, que puede tener fuerte dependencia de forzantes ambientales, y que los volúmenes de captura se relacionan más a los pulsos de reclutamiento más que a incrementos desproporcionados en el esfuerzo. Observando por zonas, la 1 tiene capturas muy estables con algunas excepciones, notablemente el 2014. La zona 2 inclusive parece tener una tendencia a declinar, no sé por qué. La zona 3 es la que definitivamente tiene al menos tres períodos, el inicial desarrollando la pesquería del 86 hasta el 96, el segundo período de estabilidad hasta el 2010 y luego ...



6.4.3 Total Allowable Catch (TAC) and catch data

The CAB should include in the report a Total Allowable Catch (TAC) and catch data table using the table below. If possible, a separate table should be provided for each species or gear.

The crab fishery does not have a catch quota system, however the Fisheries Management Plan (DOF, 2014) in its Research Program considers as a relevant activity to integrate into the National Program for Scientific and Technological Research in Fisheries and Aquaculture that INAPESCA will carry out a study to evaluate the possibility of establishing a quota system. Nothing so far has been done to this end however.

Commented [CA47]: Verificar.

6.4.4 Principle 1 Performance Indicator scores and rationales – delete if not applicable

The CAB may include, in the Performance Indicator scoring tables in the report, sufficient rationale for each Scoring Issue or for each Performance Indicator and should make reference to Scoring Guideposts (SG). References may be included in the form of hyperlinks, citations or by providing the quantitative information. The CAB should identify in the report if there are information gaps.

For any Performance Indicator for which scoring is not required or a default score is applied, the CAB should record this in the relevant scoring table.

If the Risk-Based Framework (RBF) has been used to score a Performance Indicator, the CAB should include in the report a justification for use and the relevant RBF outputs table may include scores and rationales.

Additional scoring tables may be used and should be clearly marked for modified assessment trees, e.g. PI 2.5.2 - Modified.

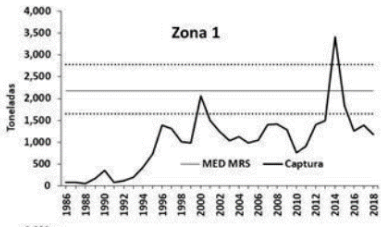
PI 1.1.1 – Stock status

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?	**Yes**	**Yes**	**No**
Rationale				

It is highly likely that the stock is above the PRI, since the independent assessment of the fishery stock carried out by Rodriguez--Felix in 2017 shows that the stock of the Puerto Peñasco region within the assessment unit is not overexploited. However, ~~the~~ monitoring of the catch in the certification unit that was carried out during 2020 under ~~the~~ a community monitoring program, ~~of the FIP,~~ shows that the availability of the resource has decreased in both 2019 and 2020, in addition to the fact that average female catch sizes during the season are below the legal minimum size (CEDO, 2021). SG 80 is likely to be met.
~~(This leads us to believe that it is necessary to update the stock assessment with the recent information from 2019-2020.)~~

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?		**Yes**	**Yes**
Rationale				

As mentioned before, the most recent independent population assessment of the fishery carried out by Rodriguez-Felix in 2017 and the most recent analyzes by Cisneros Mata et al., 2019 for the 5 main fishing sites in the state of Sonora, highlights that the catch in the Puerto region Peñasco is well below the limit reference point that is the maximum sustainable yield (MSY), only in 2014 was the MSY exceeded.



However, based on the results of the community monitoring program of the Crab FIP fishery in the certification unit, the CPUE is known and the total catch has been ~~decreased~~ declining in ~~the last seasons of~~ 2019 and 2020. Therefore, it is considered that there is a high degree of certainty that the stock has been fluctuating

Commented [CA48]: Esto no está en el background. Lo que está en relación a estado del stock es el de Cisneros-Mata (2019a) pero no dice dónde son las zonas 1 a 4. Entonces no se sabe cual corresponde a PP.

Commented [CA49]: El 'however' parece conectar una idea de que lo dicho previamente no se aplica. En este caso, justificas que es stcok no está sobreexplotado y dices, sin embargo, el monitoreo de la captura indica una reducción en la disponibilidad del recurso en los últimos años, pero concluyes que se cumple SG80. Entonces, si el 'sin embargo' es una objeción a la primera parte, significa que SG80 no se puede alcanzar. Quizá lo que quieras decir es que, la información indica que el stock no está sobreexplotado, a pesar de que el monitoreo en la captura indica que en los últimos años la disponibilidad parece haber disminuido. Necesitas decidir que es lo que quieres decir, teniendo cuidado que si decides por la opción de que el estado del recurso alcanza SG80, necesitas describir mejor por qué lo piensas a pesar de la menor disponibilidad de los años recientes. No necesitas para la preevaluación una explicación muy detallada, pero algo que indique que tienes información para apoyar tu idea.

De nuevo, temenos otra pieza de información que apoya la idea de un recurso altamente variable. Cada vez veo más que estamos aprendiendo con información que se nos va presentando poco a poco, pero cada vez más se revela la naturaleza de la dinámica del recurso, es de ciclo de vida corto, con hembras fundamentalmente semélparas, con los reclutas muy vulnerables a las condiciones ambientales.

Commented [CA50]: OK, pero no lo pongas aquí.

around a level consistent with MSY or has been above this level over recent years. SG 100 is likely to be met.

It is worth mentioning that the fishery management plan (DOF, 2014) contains reference points that are considered inappropriate, since it only mentions “For all the coastal states of the Pacific Ocean, except Chiapas, they will take the necessary measures if the annual catch per entity decreases below the historical average” but it is not mentioned what necessary measures would be taken. In this sense, "in the Gulf of California, maintain the catch per unit of average daily effort at 0.35 kg / gear / day (annual 84kg / gear)" This data is considered out of reality since the catch of that level is economically unviable.

Commented [CA51]: Lo mismo que en el comentario anterior. Los elementos de la justificación no son consistentes con la conclusión. Revisar.

Commented [CA52]: Esta información es importante, pero no debe ir aquí. Puedes mencionarlo en 1.2.2 en relación a la regla de control y en 1.2.4 en relación a los puntos de referencia que serían usados por una evaluación de stock si se siguen las definiciones del plan de manejo. Por otra parte, estas definiciones (tomar medidas si la captura está por debajo de XXX) usualmente vienen de la CNP, hay que verificar si es un tema del plan de manejo o de la CNP.

References

Rodriguez-Felix, 2017
CEDO 2021. Reporte Monitoreo comunitario
Cisneros Mata et al., 2019

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)	*Tasa intrinseca de crecimiento poblacional Martell y Froese (r)* *Capacidad de carga (K)* ~~*Insert type of reference point e.g. B_{LOSS}*~~	*(r) de 0.26 a 0.40 para 5 sitios* *(K) entre 1,250 y 21,898 Ton para 5 sitios.* *Include value specifying units e.g. 50,000t total stock biomass.*	*(r) 0.34 Sitio Puerto Peñasco* *(K) Puerto Peñasco=15,548 Ton* *Include current stock status in the same units as the reference point e.g. 90,000/B_{LOSS} = 1.8.*
Reference point used in scoring stock relative to MSY (SIb)	*MED MSY* ~~*Insert type of reference point e.g. B_{MSY}*~~	*MED MSY 2,200 Ton* *Include value specifying units e.g. 100,000t total stock biomass.*	*Catch less than 1000 ton. 1000/2200=0.45* *Include current stock status in the same units as the reference point e.g. 90,000/B_{MSY} = 0.9.*

Commented [CA53]: Estos son parámetros de dinámica poblacional, es decir, son características propias de los animales y su relación con el ambiente, no son parámetros de manejo que puedan ser utilizados como puntos de referencia. MSY es un parámetro de manejo derivado de los parámetros de dinámica poblacional (en el caso del modelo de Schaefer, MSY=(r*K)/4. La tasa de explotación en MSY es HRmsy = 1-exp(-Fmsy)…. Etc…. Entonces, no tiene sentido comparar el estado del stock en relación a sus propias características intrínsecas.

Commented [CA54]: De nuevo, hay que revisar cómo ha sido definido el uso del MSY. En tu texto haces referencia al punto de referencia *límite*, pero en el estándar, el PRI es considerado un punto de referencia límite, aunque esto no es obligatorio. En el estándar, usualmente se considera que MSY es un punto de referencia objetivo (target). Sin embargo, ese lenguaje y requerimiento fue removido para que las pesquerías tuvieran libertad de definir sus puntos de referencia como más les convenga.

Dicho lo anterior, es aceptable y de mayor valor si MSY es considerado en las evaluaciones como punto de referencia límite. Pero necesitamos establecerlo en algún lado. Ahora, para esta tabla, en relación a este renglón sobre MSY, no importa si MSY se estableció como límite, sólo tenemos que poner los valores tal como están en la tabla. Y lo que debemos de establecer es si hay un valor para el PRI, en el caso de que no haya valor para PRI, pero el stock está por arriba de Bmsy, entonces, se dirá que B >> PRI.

Ahora, la captura relativa a una estimación de MSY no es tan útil a menos que la distancia sea muy amplia. Lo útil sería Bhoy/Bmsy, pero eso es difícil de obtener, entonces, dado que hay una estimación de MSY y la captura actual, se debe de poder proporcionar Fhoy/Fmsy.

Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	**>80**
Information gap indicator	**More information sought / Information sufficient to score PI** *If more information is sought, include a description of what the information gap is and what is information is sought*
Data-deficient? (Risk-Based Framework needed)	**No**

PI 1.1.1A – key Low Trophic-Level – delete if not applicable

Swimming crab is not considered a Low Trophic-Level species, it is an omnivorous and predatory species. There are many other species occupying its place in the food web and it doesn't form dense beds, like schools of anchovies and sardines.

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**
Rationale				
NA				
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				
The CAB should list any references here, including hyperlinks to publicly-available documents.				
Overall Performance Indicator (PI) Rationale				
Not applicable; according to Rodriguez-Felix, 2017 and INAPESCA previous assessment results the crab stock is not overfished or in need of rebuilding. Since this Performance indicator is only scored when the assessment for 1.1.1 (stock status) is lower 80, it is being considered as NA. In addition to this there is the initiative of the certification unit in this case the SCPP Ejidal Bahia San Jorge to respect 4 voluntary fishing refuge areas as an empirical strategy to favor the recruitment and recovery of				

the stock (ETJ, 2021), it is also considered appropriate to recognize the existence of the official standard NOM-039-PESC-2003 that specifies a minimum legal size of 115 mm of carapace width, which according to Rodriguez Felix 2017 is 7 mm above the first maturity size, as well as the mandatory use of at least 2 circular excluders for the escape of small sizes in the traps. The existence and respect of an official ban from May 1 to June 30 to protect the reproductive period, prohibition of capture of gravid females and the recognition by Rodriguez Felix 2017 that the females of the region are among the most fertile in the state of Sonora. Likewise, the limit of the number of traps per vessel of 80 traps specified in the fishery management plan, leads us to think that under all these conditions it is not necessary to implement actions to recover the stock. In this sense, Rodriguez Felix 2017 evaluated the recovery capacity of the crab population in the region where the certification unit is located, modeling the K / 2 population subjected to constant extraction for the period 2015-2024, detecting the recovery capacity of the population.
(However, the behavior of the catches in the last years 2019 and 2020 leads us to think that for different reasons the recovery of the population could be affected and perhaps it is time to design a stock recovery program)

Draft scoring range	**NA**
Information gap indicator	**More information sought / Information sufficient to score PI** *If more information is sought, include a description of what the information gap is and what is information is sought*

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?	**Yes**	**Yes**	**No**
Rationale				

A harvest strategy is a combination of monitoring, stock assessment, harvest control rules (HCR) and management actions. The fishery is regulated by the official standard NOM-039-PESC-2003, by its Fishing Management Plan (DOF, 2014), and the updates of the National Fishing Chart (DOF, 2018). These instruments contain specifications to limit effort, limit catch sizes, protect gravid females and the reproductive period as there is an official off season, fishermen are obliged to report their catches and CONAPESCA and INAPESCA monitor the catch. However, community monitoring of the certification unit during 2020 shows that the specifications are applied and partially met.
In general, it can be said that the available information, including stock assessments, relative abundance trends, and harvest levels, suggest that the harvest strategy works to achieve stock management objectives. SG 80 is likely to be 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?	**Yes**	**Yes**	**No**
Rationale				

The current catch strategy has been officially implemented since 2006 with some adjustments in the closure off season periods in recent years, as previously mentioned, the yields of the fishery have fluctuated above MSY, although it is considered that HS has not been proven completely, there is some evidence that is achieving its objectives, and is periodically reviewed. SG 80 is likely to be met.

c	Harvest strategy monitoring	
	Guide post	Monitoring is in place that is expected to determine whether the harvest strategy is working.

Commented [CA55]: Es muy importante cuando se analizan estos indicadores prestar mucha atención tanto a la retórica, como a la estructura y los detalles palabra por palabra. Voy a desglosar este requerimiento para usarlo como ejemplo.

The harvest strategy is **responsive** to the state of the stock

Esto significa que debe de haber un mecanismo para identificar cual es el estado del stock y otro para **responder** al resultado de evaluar el estado del stock. Sin embargo, es la capacidad de respuesta la que se evalúa en este fragmento del requisito. En ese sentido las medidas pasivas, como tallas, número de permisos, vedas fijas, etc., no permiten a la estrategia responder al estado del stock por sí solas. Algunas podrían usarse si se les vincula con situaciones específicas relativas a la biomasa o mortalidad por pesca asociados a puntos de referencia y que disparan acciones mediante mecanismos de decisión.

and the elements of the harvest strategy **work together**

Este es otro elemento importante, los elementos que describiste, monitoreo e información, evaluación de stock, y regla de control, deben de funcionar de manera **conjunta**. Entonces, si no existe uno de ellos, esta condición ya no se puede cumplir.

towards achieving stock management objectives reflected in PI 1.1.1 SG80

Finalmente, el accionar conjunto de los elementos de la estrategia, debe necesariamente estar **dirigido a cumplir con los objetivos** que se manifiestan en el indicador 1.1.1 al nivel de SG80

Entonces, para cumplir con SG80 en este SI, hace falta una narrativa de cómo es que se cumple cada uno de los tres aspectos desglosados arriba. Tal como está ahora, no hay evidencia de la capacidad de respuesta al estado del stock, no está claro como interactúan los elementos de la estrategia, ni si los mecanismos como control de esfuerzo, captura, etc están (y cómo) dirigidos a mantener el stock lejos del PRI y alrededor de MSY. Aunque si no existe tal evidencia y no alcanza SG80, podrías articular una narrativa del por que se **espera** que la estrategia alcance los objetivos de PI 1.1.1. y alcanzar SG60.

	Met?	**Yes**		
Rationale				

The fishery has established a monitoring structure, although its compliance is not completely evident, there is monitoring of fishing operations and catches by producers and in process plants by CONAPESCA and INAPESCA, there are also studies of marking and recapture of crab in the wild to evaluate growth, mortality and migration patterns carried out by INAPESCA; there is also monitoring of environmental variables; studies of spawning and nursery areas and population assessment (Rodriguez Felix 2017), although this monitoring is carried out by different institutions and researchers, it is considered that this information is used to support the ~~capture~~ harvest strategy. SG 60 is met.

d	Harvest strategy review			
	Guide post			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			**No**
Rationale				

The ~~capture~~ harvest strategy is considered to be reviewed with relative periodicity, the official standard NOM-039-PESC-2003 was published in 2006 (DOF, 2006), with the passage of time, improvements were detected, eg. the size of escape openings, it is until 2019 that a modification project is published in the official gazette., ~~however~~ Although the crab ~~file~~ section in the ~~national fishing chart~~National Fisheries Chart that contains some ~~capture~~ harvest strategies has been updated more frequently, the modifications are only partial to the entire strategy and, therefore SG 100 is not ~~likely to be~~ 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				

~~This fishery has no interaction with any type of sharks, there is a high degree of certainty that shark finning is not taking place.~~ Not applicable, the target species of this fisheries is not a shark.

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?	~~NA~~Yes	~~NA~~No	~~NA~~No
Rationale				

~~Scoring Issue need not be scored if sharks are not a target species. Not applicable. However, it is known that there is a crab mortality due to the industrial shrimp trawl fleet that has not been evaluated and there is some crab mortality due to lost traps, in this sense an estimate is being made of the effect of the use of degradable staples in the construction of crab traps, which allows the structure of the lost traps to detach and stop capturing.~~

This SI attempts to evaluate the existence of measures to reduce unwanted catch by the UoA if it occurs. To this end is useful to observe the definition of "unwanted catch" in the MSC standard. Section 3.1.6 indicates that: *the term 'unwanted catch' shall be interpreted by the team as the part of the catch that a fisher did not intend to catch but could not avoid, and did not want or chose not to use*. In the fishery of the swimming crab in Puerto Peñasco, the only unintended catch is that occurring with traps lost. Because the level of mortality inflicted by these traps is unknown, this SI should be scored with regards of measures to minimize unwanted crab mortality.

Acknowledging the potential problem of ghost fishing in the crab fishery of Puerto Peñasco, there is a current evaluation of implementing the use of biodegradable staples so that the trap stops holding animals inside. This meets the requirement at SG60. However, the requirement at SG80 is that there is a "regular review" of measures and that they are implemented, therefore SG80 is not yet met.

References

DOF, 2006. NOM
Rodriguez Felix 2017
DOF, 2018. Carta Nacional Pesquera

Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	**60-79**
Information gap indicator	**More information sought / Information sufficient to score PI** *If more information is sought, include a description of what the information gap is and what is information is sought*

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?	**Yes**	**Yes**	**No**
Rationale				

The official standard contains clear specifications of minimum catch size, prohibits the capture of ovigerous females, allows only the use of bait of marine origin, use of a maximum of traps per vessel and maximum number of traps per state, prohibition in reproductive period, among other specifications, however, there is in the Management Plan as a point of reference to: "take the necessary measures if the annual catch per entity falls below the historical average", without specifying what the necessary measures would be; as well as maintaining the catch per unit of average daily effort at 0.35 kg / gear / day (annual 84kg / gear), which is considered erroneous and economically unviable since the fishermen themselves recognize it as such. Fishermen's daily log reports used to generate these benchmarks are believed to be untrue. SG 80 is likely to be met.

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?		~~**Yes**~~ **No**	**No**
Rationale				

The main uncertainties believed to affect the control rules consist of uncertainties in the levels of veracity in inaccurately reported catch records, arrival notices, and catch totals. These uncertainties are believed to be factored into the assessment process carried out by fisheries authorities, although it is not known whether there is evidence that uncertainties in control rules, especially technical measures, have been more widely explored.
SG 80 is likely to be met.

c	HCRs evaluation			
	Guide post	There is **some evidence** that tools used **or available** to	**Available evidence indicates** that the tools in use	**Evidence clearly shows** that the tools in use are

Commented [CA56]: De acuerdo a la justificación que se encuentra abajo, no parece que exista evidencia de una **regla de control** que al menos esté **disponible** y se **espere que reduzca** el nivel de explotación cuando el stock se aproxima al PRI (al nivel de SG60) o, al nivel de SG80, que la regla de control **esté bien definida e implementada**, para asegurar que la intensidad de explotación se reduzca a medida que la biomasa se aproxima al PRI y que permita esperar que el stock **fluctúe alrededor del MSY**.

Para comprender mejor que es lo que se debe buscar en relación a la existencia de una regla de control, el documento "MSC-MSCI Vocabulary" V1.0., define "Harvest Control Rule" como:
A set of well-defined pre-agreed rules or actions used for determining a management action in response to changes in indicators of stock status with respect to reference points.

En esta definición es importante entender que la HCR debe estar *bien definida*, es decir, debe de ser explícita en algún documento regulatorio. La HCR es un conjunto de *reglas o acciones*, las cuales deben de estar *pre-acordadas*, es decir, se trata de lineamientos que han sido discutidos y aprobados *antes* de que se inicie la actividad de pesca. Por último, estas reglas o lineamientos, deben permitir la definición de acciones *como respuesta* a los cambios en indicadores del estado del recurso respecto a puntos de referencia. En resumen, las HCR son un mecanismo formal que permite tomar decisiones de acuerdo a una estructura pre-acordada, con el objeto de responder al estado del recurso.

Entonces, regulaciones como la prohibición de captura de hembras ovígeras, número máximo de trampas (de manera estática), o sugerir acciones indefinidas cuando se detecte un estado particular de un indicador, no son parte de una regla de control. Considero en este SI, que la pesquería de jaiba en esta región no alcanza siquiera el nivel de SG60.

Commented [CA57]: No puede alcanzar SG80 cuando no hay HCR.

		implement HCRs are appropriate and effective in controlling exploitation.	are appropriate and effective in achieving the exploitation levels required under the HCRs.	effective in achieving the exploitation levels required under the HCRs.
	Met?	**Yes**	**Yes**	**No**

Commented [CA58]: De la misma manera, si no hay HCR no se puede evaluar lo que no existe.

Rationale

The available information indicates that the management tools used in the fishery when applied by fishermen are believed to be adequate and effective to achieve the levels of exploitation considered by the control rules. SG 80 is likely to be met.

References

NOM
Plan de manejo

Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	**60-79**
Information gap indicator	**More information sought / Information sufficient to score PI** *If more information is sought, include a description of what the information gap is and what is information is sought*

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**	**Yes**	**No**
Rationale				

It is considered that there is enough information related to the structure of the stock, the productivity of the stock, the composition of the fishing fleet, included in the management plan, which compiles the most relevant information for 2014 after the publication of the management plan there are some recent scientific publications that support the harvest strategy. SG 80 is met. However, the available environmental information and information on industrial fishing mortality as well as the veracity of the registered catch is considered limited, SG 100 is not met.

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?	**Yes**	**Yes**	**No**
Rationale				

As mentioned, there is monitoring of the catch through logbooks of the fishermen's daily catch, arrival notices, although it is believed that the veracity of the information is limited, even so, the abundance of the stock has been monitored indirectly and directly sporadically, it is believed that the level of precision and coverage can be consistent with the catch control rules. In addition to this, the basic Crab FIP of Puerto Peñasco has a community monitoring program that is generating daily information on the catch independently. SG 80 is likely to be met.

c	Comprehensiveness of information

Commented [CA59]: OK, puede ser, solo me preguntaría si la información es suficiente para hacer una buena evaluación de stock cada 3 o 5 años. Captura, indicadores de abundancia, crecimiento, reproducción, etc. Si consideras que todo eso está ahí, entonces estamos de acuerdo con SG80.

Commented [CA60]: Estas dos declaraciones son contradictorias. Si hay duda de la veracidad de los datos no podemos decir que la información sea consistente con las necesidades de la regla de control. Si yo estuviera calificando este SI lo pondría al nivel de SG60 aunque sea sólo por precaución y forzar a un mejor sistema de información.

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

Rationale

Not all the information on the mortality of the stock originated is available, as industrial shrimp trawling, neither by removal of crab outside the size allowed for processing in fishermen's homes (personal observation and Management Plan). SG 80 is not met.

References

Plan de manejo
Publicaciones del stock

Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	**60-79**
Information gap indicator	**More information sought / Information sufficient to score PI**
Data-deficient? (Risk-Based Framework needed)	**Yes / No** *If more information is sought, include a description of what the information gap is and what is information is sought*

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?		**Yes**	**Yes**
Rationale			

Several relevant assessments have been conducted since 2006, including the one informing the Fisheries Management Plan published in 2014. The assessment of Rodriguez-Felix (2017) included size, genetics, sex ratios, maturity, fecundity and migration patterns of the swimming crab. This assessment also considered the environmental variability along the coast of the state of Sonora and identified four spatial units that were dimmed feasible for individual management. One of these units is the one around Puerto Peñasco and defines the UoA. Migration patterns inferred from genetic connectivity studies were incorporated into dynamic and static models to estimate biomass abundance. It is considered that this assessment takes into account the major features relevant to the biology of the species and the nature of the UoA and meets SG100.

~~There are several efforts done to assess the stock, the most relevant have done since 2006, as well as the assessment included in the Fishery Management Plan published in 2014, as well as the stock assessment carried out by Rodriguez-Felix 2017, in which is considered sizes, genetics, sex ratios, maturity, fecundity and migration patterns of swimming crab, as well as the environmental variability along the coast of the State of Sonora. In this we identified four spatial units along the Sonoran coast, suitable for applying individual management strategies for the swimming crab populations one of these being the Puerto Peñasco as part of this Evaluation Unit. Furthermore, migration patterns inferred from genetic connectivity were incorporated into dynamic and static models for determining biomasses. It is considered that this assessment takes into account the major features relevant to the biology of the species and the nature of the UoA. SG 100 is met~~.

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?	**Yes**	**Yes**
Rationale			

Both the evaluation by Rodríguez-Félix 2017 and Cisneros-Mata et al. 2019 have estimated the status of the stock in relation to reference points that can be estimated and are appropriate for the stock. In addition to this, the monitoring and evaluation of this fishery is carried out under the premise that the crab population in Sonora is not homogeneous, it is a metapopulation (Rodríguez-Félix 2017, Rodríguez-Félix et al. 2016, 2018, Cisneros-Mata et al. 2019c). SG 80 is met.

Commented [CA61]: OK, vamos a considerar que la evaluación de stock es buena y que es apropiada para el stock. Sin embargo, queda la duda si está estimando el estado del stock respecto a puntos de referencia que puedan ser usados por una regla de control aun cuando esta no esté definida todavía.

Difícil decisión la de aceptar que usar un modelo logístico, determinístico, y con curva de producción simétrica sea una representación "apropiada para el stock" y quizá para una posible regla de control. La razón es la siguiente, el ciclo de vida de la jaiba es muy corto, consecuentemente con una estrategia reproductiva tipo r, una muy intensa r. Lo cual lleva a preguntarse si existe una relación stock-recluta y por lo tanto, si el reclutamiento de esta especie no es más dependiente de la variabilidad ambiental que del número de reproductores (a menos de que las hembras alcancen un número muy muy bajo). Si esto fuera así, entonces, en el parámetro de pendiente de una versión generalizada de stock-recluta, estaría muy cerca de 1 y la biomasa que produce el nivel de MSY estaría muy por debajo de K/2 como en el modelo utilizado. Una de las consecuencias de lo anterior es que el punto de referencia quedaría artificialmente muy elevado (p.ej. 0.5K vs 0.1K), lo cual obliga a que en muchas ocasiones se tomen medidas innecesarias de protección del recurso. El problema de los modelos logísticos es que tienen una limitación grande en la magnitud de sesgo que le puedes poner a la curva de producción y difícilmente se puede hacer mucho para resolverlo.

El otro problema es que una versión determinística del modelo logístico no puede capturar la variabilidad que puede observarse en la abundancia debido al proceso aleatorio que es la fluctuación en la calidad ambiental. Si las jaibas que hay en el agua son de una o dos cohortes a lo más, entonces la abundancia que ves depende completamente del reclutamiento del año, el cual a su vez depende de las condiciones ambientales. Ignorando el problema de la potencial extrema ...

Commented [CA62]: Siguiendo la discusión de arriba, se puede cuestionar si puntos de referencia que parten de estimaciones directas de MSY son la mejor opción para este tipo de recurso cuyo nivel de MSY puede estar en niveles de biomasa muy bajos en relación con K. En el caso del pulpo de BLA, observamos que la captura acumulada a medida que transcurre una temporada de pesca, permite identificar temprano cuando habrá una "buena", "regular" o "mala" temporada. Una mala temporada ocurrirá cuando la disponibilidad del recurso es baja, que puede deberse a un reclutamiento pobre de esa cohorte, en cuyo caso habrá que proteger a la hembras de no ser explotadas en exceso ya que no son muy abundantes. Entonces, lo que se dibuja es una estrategia de manejo basada principalmente en la protección del reclutamiento, de manera que una veda bien establecida para cuidar la reproducción, evitando la captura de hembras de caparazón suave o cargadas. Esto complementado con un inicio flexible de la veda, de manera que, cuando se anticipe una mala temporada, inicie antes de la fecha pre-establecida, proporcionando protección adicional cuando la abundancia es baja. En realidad no sé si esta sea la mejor idea para la jaiba. Pero sí creo que los puntos de referencia derivados de un modelo logístico básico, y la toma de decisiones basados en puntos de referencia derivados de esos modelos no van a ser la mejor opción.

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?	**Yes**	**Yes**	**Yes**
Rationale				

The assessments consider uncertainty and are evaluating stock status relative to reference points in a probabilistic way. SG 100 is likely to be met.

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?			**Yes**
Rationale				

The Rodríguez Felix 2017 assessment is considered that que has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been explored. SG 100 is likely to be met.

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?		**Yes**	**Yes**
Rationale				

The most recent fishery-independent stock assessment (Rodríguez Felix 2017) has been internally and externally peer-reviewed. SG 100 is likely to be met.

References

Rodríguez-Félix 2017, Rodríguez-Félix et al. 2016, 2018, Cisneros-Mata et al. 2019c de POA
Rodríguez Felix 2017
Cisneros-Mata, M.Á., A.A. Apolinar-Romo, M.V. Muriel-Bernal, R. Navarro-Sandoval, D. Rodríguez-Félix, D. Guevara-Aguirre, E Miranda-Valdez, L.C. Gómez Salinas y V. Rivera. 2019a. Jaiba en Sonora: monitoreo, evaluación, estimación de abundancia e innovación de la pesquería. Informe final de investigación 2018. Instituto Nacional de Pesca y Acuacultura, CRIAP Guaymas. 37 pp.

Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	**≥80**
Information gap indicator	**More information sought / Information sufficient to score PI**

Commented [CA63]: No vi nada de esto en la sección de antecedentes.

Commented [CA64]: No conozco el trabajo de Rodriguez-Felix más allá de lo descrito en los antecedentes (no lo pude bajar de la dirección que pusiste en las referencias), sin embargo, este SI es muy demandante. Según vi en los antecedentes, se analizaron dos escenarios proyectados directamente de la misma estructura de modelo. En ellos se usan dos procedimientos basados directamente en capturas sin consideración de variaciones en el esfuerzo pesquero, lo cual es muy riesgoso. No quiero expandirme mucho en comentarios sobre un trabajo que no conozco bien, pero creo que aun cuando el modelo sea sólido y las opciones de manejo no conlleven un riesgo

Commented [CA65]: Es muy difícil discutir cuando un trabajo ha sido publicado en una revista arbitrada. Sin embargo, no es lo mismo publicar en el Canadian Journal of Fisheries o ICES, a publicar en casi cualquier revista latinoamericana. Por ejemplo, me encontré esto que posible deriva de la tesis que citas y que no pude bajar del servidor donde está depositado:

Rodríguez-Félix Demetrio, Cisneros-Mata Miguel Ángel, Aragón-Noriega Eugenio Alberto, Arreola-Lizárraga José Alfredo. Influencia de la proporción sexual y del ambiente en la tasa de crecimiento poblacional de Callinectes bellicosus (Decapoda: Portunidae) del Golfo de California. Rev. biol. trop. 64(3):1259-1271.

Está interesante, y más aún, da la impresión de que atiende algunos de los comentarios que hice arriba antes de encontrar el artículo. Sin embargo, es difícil comprar su idea porque metodología no está suficientemente descrita! Si quisiéramos replicar lo que hicieron, hay dos o tres partes donde tendríamos que adivinar lo que hicieron y eso no es correcto. Por ejemplo, dice que se aplicó error de proceso a la captura, lo cual sugiere que modificaron el procedimiento de Martel y Froese, pero no sabemos si el factor de captura va directo o como función de F o más aun, de f. Y por qué aplicarlo sobre la captura y no sobre la producción, se tiene que presuponer que la captura es un reflejo de la abundancia, pero la abundancia está variando de manera determinística, entonces es otro factor lo que modifica la variabilidad de la captura…. No sé, hay mucho que discutir en este trabajo, no por ello malo ni mucho menos, sólo creo que falta discusión y no está para adoptarlo tan fácilmente… Lo siento, no quiero ser aguafiestas, sólo trato de ser objetivo…

	If more information is sought, include a description of what the information gap is and what is information is sought

6.5 Principle 2

6.5.1 Principle 2 background

The CAB may include in the report a summary of the Unit(s) of Assessment (UoA) based on the topics below, referencing electronic or other documents used:

- The aquatic ecosystem, its status and any particularly sensitive areas, habitats or ecosystem features influencing or affected by the UoA.
- The Primary, Secondary and Endangered, Threatened or Protected (ETP) species including their status and relevant management history.
- Specific constraints, e.g. details of any unwanted catch of species, their conservation status and measures taken to minimise this as appropriate.
- If cumulative impacts need consideration for any Principle 2 Performance Indicators, the report should contain a summary of how this has been addressed, i.e. which other MSC UoAs/fisheries and how the cumulative impacts were considered.

The CAB should provide any information used as supporting rationale in the scoring tables.

The CAB may include background information justifying how scoring elements were assigned to components within Principle 2 of the MSC Fisheries Standard (Fisheries Standard v2.01 Sections SA3.1, SA3.4.2-SA3.4.5, and SA3.7.1). The CAB may amend the table below to present this information. The CAB may include in the report the catch and UoA related mortality of all main Primary, main Secondary and ETP species together with a description of the adequacy of information, identification of data sources used and whether they are qualitative or quantitative.

Reference(s): Fisheries Standard v2.01

Summary of the Unit(s) of Assessment (UoA)

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

Ecosystem

The Gulf of California is a subtropical semi-closed sea, considered a mega-diverse region, with a high degree of endemism (Ainsworth, et al., 2012); the northern region (above 28 ° north) where the UoA is located, is known as the northern Gulf of California, the region extends from the great islands of the Gulf of California to the Colorado River Delta. This is considered one of the most productive ecosystems in the world. Researchers consider that the wealth of the Gulf of California could be threatened by the effects of climate change, since it is estimated that in the period from 2020 to 2029, an increase of 0.5 ° C to 1 ° C in global ocean temperature is projected. This will generate changes in current patterns, upwelling patterns and in the frequency and intensity of oceanographic anomalies; even in the northern Gulf of California region, changes in seasonal temperature patterns have already been noted, so increases of 0.5-1 m in mean sea level are expected throughout the Gulf of California region in the next 100 years (Morzaria, et al., 2013, 2020).

Weather

The type of climate is characterized as more continental than oceanic, it is extreme of type BWhw (dry warm desert climate) according to the Köppen classification (Contreras-Espinoza, 1993). The temperature varies between 8 ° C in winter and 42 ° C in summer (Valdés-Casillas et al., 1999). The region has mainly two seasons, the mid-latitude winter season from November to May, and the subtropical summer season from June to October (Mosiño and García, 1974 in CONANP, 2007).

Winds

During the winter, cold winds from the northwest (with speeds of approximately 8-12 m / s) occur, directed along the axis of the Gulf of California, from the desert to the Gulf (CONANP, 2007). During the summer, large-scale pressures direct weak winds from the southeast (2-5 m / s) oriented along the Gulf (Badan-Dangon et al., 1985).

Extreme hydro meteorological events such as tropical storms, hurricanes or storm surges can occur in the region, but these are isolated and infrequent. In general, environmental variability in the area as in the rest of the Gulf of California seems to be dominated by the interaction of decadal and interdecadal variability derived from the Pacific Decadal Oscillation (PDO) and El Niño Southern Oscillation (ENSO) (Lluch -Cota et al., 2010). The presence of tropical storms are sporadic events, for the specific case of

Commented [CA66]: Interesante lo que has incluido ahí, habrá algo más sobre los factores que determinan la productividad y sobre todo, factores que determinan micro ambientes (que puedan influir en la diferenciación de unidades poblacionales)? Si no tienes inmediatamente a la mano esa información no importa, pero sería bueno conseguir algo.

Puerto Peñasco the Baja California peninsula, the islands Tiburón and Ángel de La Guarda are the main natural barriers that prevent the free passage of tropical storms and hurricanes.

Topography and Bathimetry

Peñasco is characterized by having a high part of the beach that rises approximately 8 m above the low-water terrace, followed by a beach face of approximately 55 m perpendicular length, with a slope of around 16% (1: 6.25), ending in a wide terrace at low tide that can extend hundreds of meters offshore with a very gentle slope. The pronounced discontinuity between the beach step with a large terrace in the low sea are typical of coastlines where the tidal regime is large compared to the height of the waves (Inman and Folluox, 1959 in Villicaña-Yépez, 2012).

The shoreline of the beach is oriented in a northwest-southeast direction around 290 degrees with a gentle slope to the southwest, with isobaths parallel to the coastline.

The bathymetric profile of the coast of Puerto Peñasco shows a gentle slope up to approximately 500 m away from the shore where it is 8 m deep (mean sea level), further away the slope becomes even smoother, reaching a distance of 2000 m depth of around 15 m (Villicaña-Yépez, 2012).

Oceanography

In the Northern Gulf or Upper Gulf of California, the phenomenon known as upwelling occurs in winter, in which the coldest and saline surface water in the extreme north sinks and is carried near the bottom by a convective movement, to later be carried south by an advection component, while the bodies of water on the east coast of the gulf carry masses from the bottom. This movement of water has a strong effect on the vertical distribution of the various physical and chemical properties of the northern Gulf (Álvarez-Borrego and Schwartzlose, 1979). This thermohaline circulation together with tidal mixing represents a natural fertilization mechanism for this region (Lavín and Organista, 1988).

In this northern region of the Gulf of California, currents, tides and winds give a rotational direction to the surface layers of the sea (0-10 m), in the summer months from June to September the prevailing winds from the south and the Coriolis effect produce a cyclonic circulation behavior in a counterclockwise direction, becoming complex in winter from November to April due to the prevailing winds from the north and northeast that make general circulation in the opposite direction, anticyclonic, in the direction of clockwise circulation with certain irregular patterns in areas near the coast and islands (Lavin and Marinone, 2003; Villicaña-Yépez, 2012).

The submersible area of Puerto Peñasco is shallow, strongly influenced by the climate of the surrounding desert, so it experiences extreme annual variations in water temperature, common winter temperatures fluctuate between 13-14 ° C, but can drop as low as 8 -12 ° C and reach 30 ° C or more in summer (Brusca et al., 1980).

As the Gulf of California is considered as an evaporation basin, the salinities on the water surface are high, particularly in the area of interest, they are 35.5-37.5 ppt. (Hendrickx, Brusca & Findley, 2005).

Tides

The Upper Gulf of California is characterized by having the most extreme tides in the world, reaching amplitudes of up to 10 m vertical near the Colorado River Delta, during spring tides on full moon and new moon days. The annual tidal range in Puerto Peñasco is approximately 7 m (Brusca et al., 1980).

Semi-diurnal tidal cycles predominate in this region (Lavin and Marinone, 2003), that is, in one day there are two neap tides and two low tides. This variation gives rise to tidal currents with speeds of 0.4 to 1.7 knots along the coasts of Sonora and Baja California, respectively (Hendrickson, 1973 in CONANP, 2007)

Waves

Puerto Peñasco receives at least three wave regimes, from the east mainly in winter, from the south and from the southeast in the rest of the year, which will be refracted or diffracted due to the geomorphology (beaches, points and indentations of the coast). The waves that come from the east during winter winds, like those generated by the breeze systems, are short-term because the fetch (F) is reduced, that is, the distance from where the wave formation begins to where It is measured is short, in this case the maximum distance is the north coast of San Felipe BC., for this reason the generation of waves is reduced. This surf can be frequent and has short wavelengths. At low tide, the waves do not appreciably change its

direction, since the change in depth behind the submerged beach is strong and therefore the concentration and energy rarefaction processes are minimal for this wave (Villicaña-Yépez, 2012) .
For the south-southeast swell, the one generated in a collinear direction towards the main axis of the Gulf of California, has had a large fetch, greater than 200 km, counted from the northern part of the region of the great islands (Tiburon and Guardian Angel), therefore directly up to the coast between La Choya and Puerto Peñasco with wave periods between 6-8 s. Due to its longer wavelength, this wave is affected at a greater distance before reaching the coast. Although behind the submerged beach terrace there is a slope and then a gentle slope, this wave loses energy due to friction processes, causing waves with heights of around 1 m in the summer to occur near the coast. The points of La Choya and Puerto Peñasco, as they have concentric bathymetries, will tend to concentrate energy, without removing the possibility that deep water wave heights are restored and their approach to the coast is up to 2 m (Villicaña-Yépez, 2012) .

Sandy bottom characteristics

Studies have been carried out in Puerto Peñasco to characterize the invertebrate's assemblage in soft sandy bottoms. In this study a total of 11 samples were taken in Puerto Peñasco with a sediment core (7.5 cm of diameter and 20 cm long) for micro invertebrates and granulometry study, another 11 samples were taken from quadrants of 1 m2 by 10 cm depth sediment with an airlift suction sampler with onboard screening for bigger invertebrates; sediment was sieved with a wire mesh of 2 mm. Macro invertebrates were remove manually while the micro invertebrates were separated by a sediment suspension technique and sieved with a wire mesh of 355 micra. Samples were fixed with formaldehyde, stained (dyed) and preserved in alcohol. Species were identified, counted and weighted for each taxonomical group. Indices of diversity, richness, evenness, and dominance were determined.
The studies carried out on the area where swimming crab inhabits in Puerto Peñasco showed that sediment is mainly composed of fine sand 0.15-0.38 mm and smaller proportion of limo 0.0063-0.15 mm. The study showed that biota is composed of communities of small invertebrates with a biomass average of 124.58 g/m² (± 151.23 g/m²) the mayor group of invertebrates are Pelecypoda with 92.2 %, Gastropoda 4.03 %, Crustacea 1.4 %, Asteroidea 1.3%, Polychaeta 0.4, % and others 0.67 % (Loaiza-Villanueva 2015).
As a second part of the analysis of the biological composition of the study sites, the collection and identification of the organisms collected with the air lift system with on-board screening was carried out, this analysis allowed us to evaluate the total biomass of the site, it was observed that the biomass in Puerto Peñasco of 124.58 g / m² (± 151.23 g / m²) it is higher than what was observed in areas as San Felipe of 12.34 g / m² (± 10.57 g / m²), this reflects the result of the interaction of the factors mentioned. Although these sites were identified as sites of high biodiversity, no species with a protection status were observed according to NOM-059-SEMARNAT-2010, or IUCN (Loaiza-Villanueva 2015).

Larval dispersal analysis

There are oceanographic models that give us an idea of the larval dispersal that takes place in the natural environment during the reproductive peaks of crab in summer, it is known that crab larvae can remain up to 70 days at the mercy of currents, in summer the surface currents of the Northern Gulf go clockwise, coupled with genetic analysis, these models confirm that larvae from various sites mix with each other, with some sites providing larvae to many sites and others such as in the upper Gulf (Puerto Peñasco and San Felipe) have a unique genetic diversity, with a high local recruitment of larvae. (PANGAS, 2012).

Crab predators

The main predators of crab species of the same genus are the octopus, the cat shark and different kinds of fish, birds and mammals. Cannibalism is recognized as an important source of juvenile mortality (Soler-Blanco, 2017).

Areas of importance

There are studies that indicate that wetlands are important for crab stocks since the ratio of females to males and the area of wetlands are directly related to the population growth rate (r), in addition to that wetlands favor recruitment (Rodriguez Felix et al., 2016) this same study suggests that the management

Commented [CA67]: Esto es muy interesante, pero no va aquí ya que describes un proceso de la especie objetivo.

of the crab fishery in Sonora should seek to protect females. This could be achieved by establishing fishing refuges in and at the mouths of coastal lagoons during the period of peak reproductive activity.

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

In the fishery, an exhaustive analysis of bycatch was carried out (Balmori et al., 2012) the analysis of 20,170 traps revealed that bycatch represented 21% of the total catch (1.24 kg of swimming crab and 0.27 kg of bycatch per trap). 90 percent of the bycatch was composed by pink snail (Hexaplex erythrostomus), 3 percent by sand bass (Paralabrax maculatofasciatus), 3 percent by trigger fish (Balistes polylepis) and the rest by different types of crabs, rays (Urobatis halleri and Urolophus concentricus), snail, octopus and fishes. None of the bycatch species is endangered, threatened or protected. <2 percent of the bycatch was discarded, while the biggest proportion was retained for domestic consumption or for bait. The study acknowledged differences in bycatch composition by location along the State of Sonora. ~~In addition to this study, the basic Crab~~The crab FIP in Puerto Peñasco ~~has among its activities the community monitoring of~~ monitors the incidental catch ~~of~~ by the unit of certification ~~unit~~ in Bahia San Jorge / Pinta~~,~~ ~~,~~ ~~d~~During the 2020 fishing season~~,~~ ~~a~~the proportion of bycatch ~~that fluctuated was~~ observed ~~D~~during the months of July to November~~,~~ fluctuated between 3.67% to 7.48% in relation to the total crab catch ~~of crab~~ per trap~~,~~ ~~,~~ ~~the~~ Table 2 shows that the main bycatch species in order of relevance are: ~~of bycatch ordered from greatest to least importance are:~~ Puffer fish (*Sphoeroides annulatus*), ~~Cabrilla arenera~~sand bass (*Paralabrax maculatofasciatus*), Pacific spadefish (*Chaetodipterus zonatus*), Black murex Snail (*Muricanthus nigritus*), Pink murex Snail (*Phyllonotus erythrostoma*), Trigger fish (*Balistes polylepis*), Roncacho (Haemulon sp), and Tractor crab (Hepatus spp.).

~~Table 2. Species, weight per species (gr), percentage of the total caught and type P2 species.~~

Table 2. Species, weight per species (gr), percentage of the total caught, and MSC type of P2 species, recorded as bycatch in the fishery of the swimming crab off Puerto Peñasco during the 2020 fishing season.

Especie nombre común	Nombre científico	BSJ	LA PINTA	Total general	%	P2 species
Puffer fish	*Sphoeroides annulatus*	22,610	15,937	34,171	3.11%	Secondary main
Cabrilla arenera	*Paralabrax maculatofasciatus*	497	2,617	3,114	0.25%	Secondary minor
Pacific Spadefish	*Chaetodipterus zonatus*		71	71	0.01%	Secondary minor
Black murex snail	*Muricanthus nigritus*	193		193	0.02%	Primary minor
Pink murex snail	*Phyllonotus erythrostoma*	2,050	12,737	14,491	1.19%	Primary minor
Trigger fish	*Balistes polylepis*	7,880		6,890	0.64%	Secondary minor
Roncacho	*Haemulon sp*		44	44	0.001%	Secondary minor
Tractor crab	*Hepatus spp.*	191	12,946	13,137	1.06%	Secondary minor
Total general		**33,421**	**44,352**	**72,111**		

None of the species are registered under any national or international protection status IUCN, CITES or NOM-059.

- Specific constraints, e.g. details of any unwanted catch of species, their conservation status and measures taken to minimise this as appropriate.

Commented [CA68]: Habrá que tener cuidado en la evaluación de 2.2.1 (supongo que es una especie no manejada) ya que la captura incidental de esta especie es considerable.

Commented [CA69]: En el caso de la cabrilla y el cochito, la captura incidental es de individuos inmaduros? (por la selectividad de la boca de entrada)

6.5.2 Principle 2 Performance Indicator scores and rationales – delete if not applicable

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
	Main primary species stock status			
a	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.
	Met?	~~NA~~ Yes	~~NA~~ Yes	~~NA~~ Yes
Rationale				

~~The studies of Balmori et al., from 2012 showed that pink murex snail represented at that time the main specie in bycatch, however, in the recent results of the community monitoring of the FIP in the 2020 season, it is observed that the proportion of catch of Pink murex snail has decreased considerably to 1.19%, this makes it a minor primary species according to the MSC standard (Figure GSA3: Decision tree). This is why it is considered that the crab fishery in Puerto Peñasco does not have a Main primary specie. Not applicable NA.~~

There are no managed species caught in this fishery that are not in the UoA.

	Minor primary species stock status			
b	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.
	Met?			**Yes**
Rationale				

~~Pink Murex and black murex snails species are listed in the 2018 National Fisheries Chart as bycatch from the crab fishery. In the pink and black murex snail card of the 2018 National Fishing Chart, the status of the~~

Commented [CA70]: Es correcto que no se aplica calificar este PI, pero no por la razón que indicas en la justificación. Checa en Fisheries Standard V2.01

SA3.1.3.3 Species where management tools and measures are in place, intended to achieve stock management objectives reflected in either limit or target reference points.

Dudo que estos caracoles tengan medidas y herramientas de manejo en estos términos. Entonces estas especies pasarían a ser Secundarias. Pero si me equivoco y esta u otra especie cumple con esas definiciones habrá que incluirlas aquí o en las menores como lo tienes.

En el caso de que decidimos que efectivamente no hay especies primarias, entonces seguimos las siguientes definiciones del estándar

SA3.2.1 If a team determines that a UoA has no impact on a particular component, it shall receive a score of 100 under the Outcome PI.

SA3.3.1 If a team determines that the UoA has no impact on a particular component and has therefore scored 100 under the Outcome PI, the Information PI shall still be scored. Vuelvo a esto en PI 2.1.3

Nota que el estándar no dice nada respecto a Manejo ya que hay consideraciones especiales que hacer y las presento abajo en el PI 2.1.2.

~~stocks are "in recovery", with the condition to increase the fishing effort for exploitation requiring previous technical opinion by INAPESCA, the murex snail fisheries are managed with fishing permits, minimum catch size, fishing quotas per vessel and recently, off season agreements have been published in the reproductive period. Therefore, Minor primary species are highly likely to be above the PRI SG 100 is likely to be met.~~

There are no managed species caught in this fishery that are not in the UoA.

References

Balmori et al., 2012
Carta Nacional Pesquera 2018
CEDO 2021 Informe monitoreo

Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	**>80 (100)**
Information gap indicator	**More information sought / Information sufficient to score PI** *If more information is sought, include a description of what the information gap is and what is information is sought*
Data-deficient? (Risk-Based Framework needed)	**Yes / No**

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.
	Met?	**Yes**	**Yes**	**No**
Rationale				

~~According to the most recent information available from the 2020 fishery bycatch, there are two primary minor species, the murex pink and black snails. For these species, it can be considered that there is a partial in-place strategy in which the UoA is found, this includes management through permits, minimum capture sizes, prohibition in reproductive period, selective fishing methods such as diving with manual collection and traps, as well as the management of catch quotas. In addition, within the Certification Unit, there is the acceptance of 4 fishing refuge areas that have been respected by users, these fishing refuges are expected to maintain or not hinder rebuilding of primary species. Although there is a Fishery Management Plan for the fishery, it does not have specifications for the management of bycatch and no specific actions to monitor or manage retained species or bycatch are included in the plan or in any other regulatory instrument. SG 80 is likely to be met.~~

There are no primary species caught in this fishery, therefore, the "if necessary" condition at SG80 is here responded as negative, it is not necessary, therefore the fishery meets SG80. Notice however that at SG100 there is not "if necessary" condition, therefore GSA3.5.2 is applied:

If the UoA has no (or negligible: see below) impact on this component, scoring issue (a) does not need to be scored for SG60 and SG80 (see definition of 'if necessary' in Table SA3 and Table GSA2).

However, there is no 'if necessary' clause in SG100 so that in order to score a 100 on this component, a management strategy should be in place for the UoA for P2 species, since gear loss or other incidental impacts could still occur.

Because there are still no "in place" measures to prevent gear loss or the impact of gear lost or any other consideration to minimize catch of Secondary species, 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 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.
	Met?	**Yes**	~~**No**~~**Yes**	**No**
Rationale				

~~The measures that comprise the partial in-place strategy for the mentioned pink and black murex snails of management through permits, minimum catch sizes, closure in the reproductive period, selective fishing methods such as diving with manual collection and traps, as well as management by catch quotas, as well as the obligation of fishermen to record the daily catch in fishing logbooks and arrival notices when the effort is directed to these snails as target fishing, these information available to the fishing authorities would allow the evaluation of the management strategy and is considered likely to work. However, there is no evidence that the strategy evaluation process is being carried out and disseminated through public documents. SG 60 is met.~~

There are no primary species caught in this fishery, therefore, the "if necessary" condition at SG80 was responded as negative in SIa, it is not necessary. If no strategy was required at SG80 in SIa, then, in SIb the fishery also meets SG80. Notice however that in SIa at SG100, there is not "if necessary" condition, therefore GSA3.5.2 was applied (see above SIa). In SIb at SG100 it is assumed that a strategy is expected at SG100 in SIa, therefore the requirement here is also applied. As there are no "in place" measures to prevent gear loss or the impact of gear lost or any other consideration to minimize catch of Secondary species, SG100 is not 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 overall objective as set out in scoring issue (a).**
	Met?		**Yes**	**No**
Rationale				

~~There is some evidence that the aforementioned partial strategy measures are being successfully implemented in the murex pink and black snail fisheries, however these fisheries do not have a management plan or official standard that contains these specifications. SG 80 is likely to be met.~~

The same rationale of SIb is applied here. The fishery meets SG80 but not SG100.

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.
	Met?	**NA**	**NA**	**NA**
Rationale				

~~NA~~
There are no primary species in this fishery and therefore no sharks are caught that may fall in this category. The SId is not scored.

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	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted

		catch of main primary species.	catch of main primary species and they are implemented as appropriate.	catch of all primary species, and they are implemented, as appropriate.
	Met?	~~Yes~~NA	~~No~~NA	~~No~~NA

Rationale

The ~~UoC of the current Crab FIP has a bycatch monitoring program that was carried out~~ fishery monitored bycatch in the 2020 season. ~~, as well as the implementation of s~~Selectivity experiments were also implemented using ~~of~~ 4 different types of bait~~s~~ and 3 types of trap. ~~s, a~~Although the preliminary results of the experiments ~~do not have shown~~ didn´t show significant differences between the variables, ~~the continuity of the experiments is considered to result in differences that allow us to generate~~ it was suggested that the replicating the experiment may lead to more significant results that could lead to recommendations ~~with scientific support~~ to improve the performance of the gear to reduce bycatch. ~~, that is why we consider that there is a review of the potential effectiveness and practicality of alternative measures to minimize UoA-related mortality of unwanted catch of main primary species.~~ SG 60 is met.

René, considera si lo que escribiste arriba debe de ir aquí o en especies secundarias, yo pienso que aquí no hay especies primarias de ningún tipo, entonces no se califica y el rationale es:

There are no Primary species in this fishery, therefore, as per GSA3.5.3, this SI is not scored.

References

references here,.

Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	~~60 79~~ 80
Information gap indicator	**More information sought / Information sufficient to score PI** *If more information is sought, include a description of what the information gap is and what is information is sought*

Commented [CA71]: Es muy importante en las secciones relativas a medidas alternativas para reducir la captura no deseada, entender bien que es lo que el estándar está entendiendo por “unwanted catch”, lo cual no está directo en la documentación, te pongo una ruta de secciones que hay que seguir para lograr la comprensión de estos SI (hay en P1 también), y voy a subrayar palabras o frases relevantes y comentarios adicionales en corchetes [comentario].

Primero que nada:
GSA3.5.3
If there is no unwanted catch of primary species, or no primary species at all, then the ‘Review of alternative measures’ scoring issue (e) is not scored.

[Al parecer no tenemos ningún tipo de especie primaria, por lo cual aquí no vamos a calificar este SI. Sin embargo, lo voy a dejar aquí para usarlo en especies secundarias porque los criterios son los mismos]

SA3.5.3 If there is unwanted catch as defined in SA3.1.6, the team shall assess scoring issue (e).

SA3.1.6 In PIs 2.1.2 and 2.2.2, the term ‘unwanted catch’ shall be interpreted by the team as the part of the catch that a fisher did not intend to catch but could not avoid, and did not want or chose not to use.

[Notar que se refiere a captura no deseada que el pescador no retuvo, es decir, descartes. No califican en esta categoría capturas no intencionales de otras especies, p. ej. cabrillas, pero que los pescadores retuvieron y utilizaron]

GSA3.1.6 Unwanted catch
Where a UoA has a management plan, some species and sizes may be considered and designated to be ‘unwanted catch’ (including through using terms such as ‘non-target’, ‘bycatch’ or ‘discards’ in the plan). If not designated, unwanted catch of species are those that are not covered under the plan. Unwanted catches of species may also be designated as catch that is prohibited in that fishery.

[Aquí hay que tener cuidado porque ciertas especies o tallas de algunas especies que pueden estar prohibidas y los pescadores por no meterse en problemas las descartan inmediatamente, deben ser consideradas en esta categoría de captura no deseada, a menos de que el nivel de captura sea insignificante. Ver la siguiente sección para las consideraciones sobre el término “insignificante”].

GSA3.5.3
Any non-negligible proportion of the catch that meets the unwanted definition (see SA3.1.6 and GSA3.1.6) for a particular species should be assessed as unwanted catch.

However, in cases where there is negligible unwanted catch of a species, the team may use their discretion as to whether the scoring issue would be scored, but the decision should be made in accordance with a precautionary approach. When determining what is ‘negligible’ the MSC does not specify a set cut-off; the team may consider the significance of the catch in relation to things like the proportion of the unwanted catch as part of the total catch or as part of the total amount of unwanted catch, as well as the regularity o ...

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
	Information adequacy for assessment of impact on main primary species			
a	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.
	Met?	~~NA~~Yes	~~NA~~Yes	~~NA~~Yes
Rationale				

~~Not Applicable,~~ The Standard indicates in SA3.3.1, that "if a team determines that the UoA has no impact on a particular component and has therefore scored 100 under the Outcome PI, the Information PI shall still be scored". The 2020 bycatch monitoring results do not present any main primary species, therefore, ~~the~~ the fishery meets SG100.

	Information adequacy for assessment of impact on minor primary species			
b	Guide post			Some quantitative information is adequate to estimate the impact of the UoA on minor primary species with respect to status.
	Met?			**Yes**
Rationale				

~~There is some information on the status of murex snail fisheries within the UoA and the UoC, both qualitative and quantitative, during 2015-2018, there was monitoring of the fishery in terms of capture and biometries of murex snails from the main sites of fishing of the UoA in the 5 communities located from Puerto Peñasco to Puerto Lobos (CEDO 2018), in addition to this, there is a study carried out during 2012 in which a compilation of the existing information is made and recommendations for the management of the fisheries are made for black and pink murex snails under the existing structure of the Fisheries Management Plan proposal available at that time, this includes monitoring of the abundance of the black murex snail for the years 2005-2010, stock assessment, information and recommendations on socioeconomic factors and management of fisheries (Loaiza-Villanueva et al., 2012), in addition there are several publications on the management and reproductive biology of the species generated from the doctoral dissertation of Cudney-Bueno 2007. There is also an analysis of Productivity and Susceptibility of murex snails carried out by CEDO in 2016.~~

~~All this information could be considered adequate to assess the impact of the UoA on the minor primary species with respect to status. SG 100 is likely to be met.~~

Commented [CA72]: SA3.3.1 If a team determines that the UoA has no impact on a particular component and has therefore scored 100 under the Outcome PI, the Information PI shall still be scored.

Commented [CA73]: Checa el contenido y ve si queda en Secondary Species.

The Standard indicates in SA3.3.1, that “if a team determines that the UoA has no impact on a particular component and has therefore scored 100 under the Outcome PI, the Information PI shall still be scored”. The 2020 bycatch monitoring results do not present any main primary species, therefore, the fishery meets SG100.

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.
	Met?	~~NA~~Yes	~~NA~~Yes	~~NA~~Yes
Rationale				

~~Not Applicable, 2020 bycatch monitoring results do not present any main primary species.~~

The Standard indicates in SA3.3.1, that “if a team determines that the UoA has no impact on a particular component and has therefore scored 100 under the Outcome PI, the Information PI shall still be scored”. The 2020 bycatch monitoring results do not present any main primary species, therefore, the fishery meets SG100.

References

CEDO 2018, Propuesta corridor
Loaiza-Villanueva…2012 Propuestas de manejo caracoles
Cudney-Bueno 2007 PhD
Archivo productividad Susceptiv caracol chino negro

Overall Performance Indicator (PI) Rationale

Rational is provided for each scoring issue.

Draft scoring range	**>80 (100)**
Information gap indicator	**More information sought / Information sufficient to score PI** *If more information is sought, include a description of what the information gap is and what is information is sought*

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.
	Met?	**Yes**	**No**	**No**
Rationale				

In the community monitoring of the incidental catch of the certification unit in Bahia San Jorge / Pinta, during the 2020 fishing season, Puffer fish (*Sphoeroides annulatus*) was observed as the only secondary main species with 3.1% in the catch. As a Main secondary specie is likely to be above biologically based limits, since it is an abundant species as a secondary species in several fisheries and widely distributed, it lives from California, United States to Peru, although it is present on the IUCN Red List this species has a status of least concern. This species is on the list of marine finfish species in the National Fisheries Chart 2010, without having more information from the biologically based limits. SG 60 is likely to be met.

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

Commented [CA74]: René, por favor revisa las calificaciones y justificación de este PI de acuerdo a los comentarios en 2.1.X arriba. Posiblemente alcanza más de 60. Por ejemplo, el tema de los caracoles y veo puffer fish con captura de 3.1%.

Sin embargo, me parece que en los antecedentes se habla de cabrilla y cochito con porcentajes mayores. Revisa y asegura que la información es consistente con lo que se vaya a escribir aquí.

	Met?			**No**

Rationale

As mentioned in the community monitoring of the incidental catch of the certification unit in Bahia San Jorge / Pinta, during the 2020 fishing season the following were observed as Minor secondary species: Cabrilla arenera (*Paralabrax maculatofasciatus*), Spadefish (*Chaetodipterus zonatus*), trigger fish (*Balistes polylepis*), roncacho (*Haemulon sp*), and Tractor (*Hepatus spp*.). All these species with the exception of the tractor crab are listed in the marine Fin fish species in the 2010 National Fisheries Chart, which does not have more information regarding the status of the stocks of these species, in this sense, the information on the stock in scientific publications is very limited or non-existent. Although these species have a wide geographic distribution and are relatively abundant, in addition to being in status of least concern in the IUCN lists, in reality there is no information that leads us to think that these Minor secondary species are highly likely to be above biologically based limits. SG 100 is not met.

References

Instituto Smithsonian de investigaciones tropicales. https://biogeodb.stri.si.edu/sftep/es/thefishes/species/2433
Fish base https://www.fishbase.se

Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	**<60**
Information gap indicator	**More information sought / Information sufficient to score PI**
Data-deficient? (Risk-Based Framework needed)	**Yes / No** *If more information is sought, include a description of what the information gap is and what is information is sought*

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.
	Met?	**No**	**No**	**No**
Rationale				

During the 2020 fishing season in the bycatch monitoring program, the Botete (*Sphoeroides annulatus*) was observed as the only secondary main species with 3.1% in the catch. The CNP 2010 in its file on marine finfish does not mention that any of the bycatch species registered in the crab fishery have overexploitation problems; however, it is unclear what information this determination is based on. More information on status of bycatch species is needed.
Instruments such as the Fisheries Management Plan for the fishery or the National Fisheries Chart or official standard NOM-039-PESC-2003, do not have specifications for the management of bycatch and no specific actions to monitor or manage retained species or bycatch are included in the plan or in any other regulatory instrument.
For these reasons it is considered that there are no 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. SG 60 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.
	Met?	**No**	**No**	**No**
Rationale				

It is considered that there is no management strategy evaluation. SG 60 is not 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).
	Met?		**No**	**No**
Rationale				

Since there are no measures / partial strategy there is no evidence of its implementation. SG 80 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.
	Met?	**NA**	**NA**	**NA**
Rationale				

The fishery has no interaction with any species of shark. Not applicable.

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.
	Met?	**NA**	**NA**	**NA**
Rationale				

Not applicable. Scoring issue need not be scored if no Secondary species are sharks.

References

DOF 2010 Carta nacional Pesquera
DOF 2006. NOM 039
DOF 2014. Plan de Manejo.

Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	**<60**
Information gap indicator	**More information sought / Information sufficient to score PI** *If more information is sought, include a description of what the information gap is and what is information is sought*

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.
	Met?	**Yes**	**No**	**No**
Rationale				

Bycatch composition was obtained by the results from community monitoring of bycatch in the 2020 season and then analyzed by groups and species; the total weight and number of individuals for each group was also logged. It is believed that the still scarce qualitative information could be adequate to estimate the impact of the UoA on the only one main secondary species with respect to status, based on the fact that the secondary species of the bycatch are species of wide distribution and abundance. SG 60 is likely to be 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.
	Met?			**No**
Rationale				

Information on minor secondary species is very scarce, it is not believed that this information is adequate to estimate the impact of the UoA on minor secondary species with respect to status. SG 100 is not likely to be 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**.
	Met?	No	No	No

Rationale

As mentioned, the information on minor secondary species is very scarce, for this reason it is believed that the information is not adequate to support measures to manage main secondary species.

References

CEDO 2021. Informe de monitoreo de bycatch.

Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	**<60**
Information gap indicator	**More information sought / Information sufficient to score PI** *If more information is sought, include a description of what the information gap is and what is information is sought*

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.
	Met?	**NA**	**NA**	**NA**
Rationale				

None of the bycatch species registered in the community bycatch monitoring program 2020 from the FIP are under international or national NOM-059-SEMARNAT-2010 (DOF, 2010) ETP protections status check year of last modification.
Scoring issue need not be scored if there are no national or international requirements that set limits for ETP species.

b	Direct effects			
	Guide post	Known direct effects of the UoA are likely to not **hinder recovery** of ETP species.	Direct effects of the UoA are **highly 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.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

Since there areis no records of ETP species in the monitoring of the fishery, as with the primary/secondary PI's, it is considered that the swimming crab fishery does not interact with ETP species. Therefore, per SA3.2.1, if it is established that a UoA has no impact on the species considered (Primary, Secondary or ETP), it shall receive a score of 100 under the Outcome PI. ~~there is a high degree of confidence that there are no significant detrimental direct effects of the UoA on ETP species.~~ SG 100 is met.

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.
	Met?		**Yes**	**Yes**
Rationale				

~~Since there is no record of ETP species in the monitoring of the fishery~~There is nothing that could lead to assume that the fishery could inflict an indirect level of mortality on any ETP species, therefore, there is a high degree of confidence that there are no significant detrimental indirect effects of the UoA on ETP species. SG 100 is met.

References

CEDO 2021. Inofrme monitoreo bycatch
NOM 039

Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	**≥80 (100)**
Information gap indicator	**More information sought / Information sufficient to score PI** *If more information is sought, include a description of what the information gap is and what is information is sought*
Data-deficient? (Risk-Based Framework needed)	**Yes / No**

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.
	Met?	**NA**	**NA**	**NA**
Rationale				

None of the bycatch species registered in the bycatch community monitoring program fell under ETP protections international or national NOM-059-SEMARNAT-2010 (DOF, 2010). Scoring issue need not be scored if there are no requirements for protection or rebuilding provided through national ETP legislation or international agreements.

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.
	Met?	~~NA~~Yes	~~NA~~Yes	~~NA~~Yes
Rationale				

~~There is no interaction with ETP species, Not applicable~~

It has been established that the fishery does not cause any level of mortality to any ETP species, therefore, no strategy is needed, meeting SG100.

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.
	Met?	~~NA~~Yes	~~NA~~Yes	~~NA~~Yes
Rationale				

~~There is no interaction with ETP species, Not applicable~~

It has been established that the fishery does not cause any level of mortality to any ETP species, therefore, no strategy is needed, meeting SG100.

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).**
	Met?		~~NA~~Yes	~~NA~~Yes
Rationale				

~~NA~~

It has been established that the fishery does not cause any level of mortality to any ETP species, therefore, no strategy is needed, meeting SG100.

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.
	Met?	**NA**	**NA**	**NA**
Rationale				

NA

References

NOM 059

Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	~~NA~~ >80 (100)
Information gap indicator	**More information sought / Information sufficient to score PI**

	If more information is sought, include a description of what the information gap is and what is information is sought

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.
	Met?	~~NA~~Yes	~~NA~~Yes	~~NA~~Yes
Rationale				

~~NA~~

It has been established that the fishery does not cause any level of mortality to any ETP species, therefore, meets SG100.

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.
	Met?	~~NA~~Yes	~~NA~~Yes	~~NA~~No
Rationale				

It has been established that the fishery does not cause any level of mortality to any ETP species, and the information from the monitoring program can be adequate to measure potential trends in impacts tha could occur in the future, therefore, the fishery meets SG80. As there are no ETP species caught, there is no anticipated need of a comprehensive strategy to reduce this type of mortality, therefore, the monitoring program cannot be adequate to such end, it does not meet SG100.
~~NA~~

References

The CAB should list any references here, including hyperlinks to publicly-available documents.

Overall Performance Indicator (PI) Rationale

NA

Draft scoring range	~~NA~~>80 (90)
Information gap indicator	**More information sought / Information sufficient to score PI** *If more information is sought, include a description of what the information gap is and what is information is sought*

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.
	Met?	**Yes**	**Yes**	**No**
Rationale				

The fishery is carried out mainly in soft sand and mud bottom of the coastal area on the continental shelf, these areas are considered highly dynamic areas capable of withstanding tropical storms and hurricanes. In the UoA there are no seagrasses or other sensitive habitats. Although ghost fishing traps ~~is~~ are known to occur at a low level (Torre-Cosio 1990), the vulnerability of the habitat to interactions by traps is sufficiently well known to have confidence that the fishery will not pose a risk to the habitat, is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm. SG 80 is likely to be met. Since there are no specific studies that evaluate the impact of the fishery on the habitat, SG 100 is not considered to be met.

Commented [CA75]: De acuerdo, pero te hace falta la evidencia. Por favor recuérdame que te envíe la información.

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.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

Within the UoA, the areas that could be considered as VME are the core areas of the Alto Golfo de California Biosphere Reserve and the Colorado River Delta, as well as the areas of channels in bays and in wetlands where juveniles, egg bearing females or crab in the molting stage exist, however the crab fishery has no interaction with these sites, even in the UoC of Bahia San Jorge those sites that could be considered VME are not used due to the acceptance of voluntary fishing refuge areas; SG 100 is met.

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.

	Met?			**Yes**
Rationale				

In the UoA it is not known interaction of the fishery with habitats that can be considered minor or vulnerable, in addition to the fact that the interaction with the bottom of the trapping gear is considered minimal. SG 100 is likely to be met.

References

Torre-Cosio 1990
ETJ refugios

Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	**≥80**
Information gap indicator	**More information sought / Information sufficient to score PI** *If more information is sought, include a description of what the information gap is and what is information is sought*
Data-deficient? (Risk-Based Framework needed)	**Yes / No**

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.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

This fishery it is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm, therefore, no strategy is necessary and meets SG100.

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.
	Met?	**Yes**	**No**	**No**
Rationale				

The measures or partial strategy mentioned in the previous paragraph are considered likely to work considering the type of passive fishing gear and its degree of selectivity. SG 60 is 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).
	Met?		**Yes**	**No**
Rationale				

Although it is considered that there is no negative impact on the habitat, no evidence exists to prove it. Specifications on the fishing commercial permits and the management instruments mentioned as Plan de Manejo pesquero and Norma official 039, represents a partial strategy, so previous quantitative evidence to support these specifications are considered to exist.
SG 80 is met. SG 100 is not met because there is no clear quantitative evidence that the partial strategy/strategy is being implemented successfully and is achieving its objective, as outlined in scoring issue (a).

Commented [CA76]: Para este PI, te voy a recomendar que veas el full assessment de langosta de Baja California para que puedas ver si tienen acciones similares que puedan favorecer un mejor manejo de las artes de pesca de manera que reduzcan el riesgo de impactos al hábitat. Con eso, ve si puedes mejorar esta justificación, si no, simplemente déjalo con las dos líneas que incluí.

Commented [r77R76]: Ok, lo dejé con las dos líneas que incluiste

Commented [r78R76]:

Commented [CA79]: Igual que arriba en el inciso a.

Commented [CA80]: Id.

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.
	Met?	**NA**	**NA**	**NA**

Rationale

As mentioned within the UoA, the areas that could be considered as VME are the core areas of the Alto Golfo de California Biosphere Reserve and the Colorado River Delta, as well as the areas of channels in bays and in wetlands where juveniles could aggregate, egg bearing females or crab in the molting stage, however the crab fishery has no interaction with these sites, even in the UoC of Bahia San Jorge those sites that could be considered VME are not used due to the acceptance of the fishing refuge areas volunteers; this issue is not scored.

References

POEM 2016
Plan de manejo pesquero
NOM 039

Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	**60-79**
Information gap indicator	**More information sought / Information sufficient to score PI** *If more information is sought, include a description of what the information gap is and what is information is sought*

Commented [CA81]: Revisa la calificación final después de hacer las modificaciones sugeridas.

PI 2.4.3 – Habitats information

Commented [CA82]: Te recomiendo que para este PI también revises el full assessment de langosta de Baja California y sigas los criterios ahí plasmados.

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.
	Met?	**Yes**	**Yes**	**No**
Rationale				

The soft sediment bottoms where the fishery takes place in the UoA same as specified on the fishing permits is broadly understood. Interstitial species studies carried out in the UoA (Loaiza-Villanueva 2015) provide information on the nature, distribution and vulnerability of the main fishing area. SG 80 is likely to be 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.
	Met?	**Yes**	**Yes**	**No**
Rationale				

The biological, fishing, bycatch, ghost trap mitigation and waste generation programs of the FIP are operating and generating information, this is considered 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. SG 80 is met.

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.
	Met?		**Yes**	**No**
Rationale				

The UoC in Bahia San Jorge keeps collecting information from the biological, fishing, bycatch, mitigation of the effect of ghost traps and the generation of waste from the FIP fishery programs, which is why it is considered that adequate information continues to be collected to detect any increase in risk to the main habitats Adequate information continues to be collected to detect any increase in risk to the main habitats.SG 80 is likely to be met.

References

Loaiza-Villanueva 2015 tesis sedimentos
Informes de actividades de monitoreos del FIP

Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	**≥80**
Information gap indicator	**More information sought / Information sufficient to score PI** *If more information is sought, include a description of what the information gap is and what is information is sought*

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.
	Met?	**Yes**	**Yes**	**No**
Rationale				

Swimming crabs have high natural productivity and rapid individual growth. Information on stock abundance demonstrated that present and past extraction levels have not approached the ecosystem carrying capacity. Therefore, it is highly improbable the fishery could deplete swimming crabs and alter other trophic elements either up or down the trophic chain. Because of the nature of the fishery, the general health of the target stock, and the fishing method, it is unlikely that this activity would affect species composition, community distribution or other key ecosystem elements. It is considered highly unlikely that the fishery would disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm. Despite the bycatch of some specimens of several species, traps are considered to be selective gear and the impacts on the ecosystem to be low. To reduce the chances of ghost fishing and other unknown impacts on the ecosystem UoC is studying the effect of using degradable clips on the traps to use only those type of clips on new traps in the near season, SG 80 is met. Since there is no direct evidence of disruption for this fishery, SG100 is not met.

References

The CAB should list any references here, including hyperlinks to publicly-available documents.

Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	**≥80**
Information gap indicator	**More information sought / Information sufficient to score PI** *If more information is sought, include a description of what the information gap is and what is information is sought*
Data-deficient? (Risk-Based Framework needed)	**Yes / No**

Commented [CA83]: No voy revisar esta sección a tanto detalle porque desconozco los estudios o la evidencia que puede apoyar las conclusiones.

En general te recuerdo que lo crucial es justificar bien las conclusiones en el 2.5.1. Después, dependiendo del resultado en 2.5.1, determinar si en 2.5.2 se aplica la condición *if necessary*. Como en hábitat, si en 2.5.1 el outcome es SG80 o mayor, entonces *if necessary* no se aplica en 2.5.2 y califica al menos a SG80.

En 2.5.3 sobre información, si 2.5.1 fue 80 o más, entonces únicamente hay que cuidar el SIe en relación al monitoreo, de manera que se mantenga un sistema de monitoreo que permita detectar incrementos en el riesgo de daños potenciales.

Commented [CA84]: Necesitas presenter la evidencia de esto, la sola mención no es suficiente.

Commented [CA85]: Necesitas revisar el estándar para tener claro cuál es la expectativa respecto a este tipo de afirmación. En especial, revisa la p. 98 del estándar en la sección de Guía GSA3.16.2

Commented [CA86]: Se necesita algo de soporte para estas afirmaciones.

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.
	Met?	**Yes**	**Yes**	**No**
Rationale				

The management measures / partial strategy in place described in the Fisheries Management Plan, in the official Norm NOM-039-PESC-2003 and off season agreements required for the fishery (gear restrictions, size limits, berried female prohibition, off season) such as the initiative to respect the fishing refuge zones chosen by the UoC, combined with the high productivity of swimming crabs provide some measure of assurance that harvest of crab will not impede crab recruitment, which tends to maintain the trophic structure of the ecosystem. However the important role of swimming crab in the trophic chain, and particularly their role as forage, is not considered in the management of the fishery. SG 80 is likely to be met. However, there is a lack of a plan to address all the main impacts, so 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/ 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.
	Met?	**Yes**	**Yes**	**No**
Rationale				

The measures / partial strategy mentioned previously are considered will work, based on the history and the performance of the UoA in the region; However, the behavior of the last two fishing seasons and the results of the biological and fishing monitoring of the fishery show signs of deterioration of the fishery, besides this, the effects of climate change are difficult to understand. SG 80 is likely to be met. SG 100 is not 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).
	Met?		**Yes**	**No**

Rationale

As mentioned in the previous paragraphs, although with limited clarity it can be said that there is some evidence that the measures / partial strategy is being implemented successfully. SG 80 is likely to be met.

References

Plan de manejo
Norma
Acuerdo de veda
Informe de refugios

Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	**≥80**
Information gap indicator	**More information sought / Information sufficient to score PI** *If more information is sought, include a description of what the information gap is and what is information is sought*

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.	
	Met?	**Yes**	**Yes**	
Rationale				

Substantial research has occurred in the region to assess various ecosystem aspects, mainly from the studies of environmental impact manifests developed for the Upper Gulf of California and Colorado River Delta reserve (Perez Valencia et al., 2012). Information is available on the characterization of the habitat, and ecosystem within the swimming crab fishery area. This information is considered to be adequate to broadly understand the key elements of the ecosystem, hence SG 80 is 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**.
	Met?	**Yes**	**Yes**	**No**
Rationale				

Main impacts of the UoA on these key ecosystem elements can be considered to be inferred from existing information, and some have been investigated in detail. SG 80 is likely to be met.

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**.
	Met?		**Yes**	**No**
Rationale				

Main functions of the ecosystem components are known through the research carried out in this specific region through the environmental impact manifests carried out in recent years for the coastal fisheries of the Alto Golfo de California and Deta del Rio Colorado Biosphere Reserve and some studies on the soft bottom system where the fishery is carried out (Loaiza-Villanueva 2015); SG 80 is met. Impacts of the UoA on habitat and the main functions of these components on the ecosystem are only partially understood; SG 100 is not met.

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.
	Met?		**Yes**	**No**
Rationale				

Information available is considered to be adequate on the impacts of the UoA. There is some bycatch and no interaction with ETP species and VME. SG 80 is likely to be met. Information is considered to be limited on the components and elements to allow inference on main consequences on the ecosystem; SG 100 is not met.

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.
	Met?		**No**	**No**
Rationale				

There is no monitoring or research being done on the ecosystem aspects of the UoAs, there is only one specific monitoring in the UoC of Bahia San Jorge by the monitoring programs of the Crab FIP, so neither SG 80 nor SG 100 is met

References

MIA.
Informes monitoreo fip

Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	**≥80**
Information gap indicator	**More information sought / Information sufficient to score PI** *If more information is sought, include a description of what the information gap is and what is information is sought*

6.6 Principle 3

6.6.1 Principle 3 background

The CAB may include in the report a summary of the UoA and the fishery-specific management system based on the topics below, referencing electronic or other documents used including:

- Area of operation of the UoA and under which jurisdiction it falls (see also point 2 below).
- Particulars of the recognised groups with interests in the UoA.
- Details of consultations leading to the formulation of the management plan.
- Arrangements for on-going consultations with interest groups.
- Details of other non-MSC fishery users or activities, which could affect the UoA, and arrangements for liaison and co-ordination.
- Details of the decision-making process or processes, including the recognised participants.
- Objectives for the fishery (referring to any or all of the following if relevant):
    - Resource
    - Environmental
    - Biodiversity and ecological
    - Technological
    - Social
    - Economic
- An outline of the fleet types or fishing categories participating in the fishery.
- Details of those individuals or groups granted rights of access to the fishery and particulars of the nature of those rights.
- Description of the measures agreed upon for the regulation of fishing in order to meet the objectives within a specified period. These may include general and specific measures, precautionary measures, contingency plans, mechanisms for emergency decisions, etc.
- Particulars of arrangements and responsibilities for monitoring, control and surveillance and enforcement.
- Details of any planned education and training for interest groups.
- Date of next review and audit of the management plan.

Some of the above may be of a generic nature and hence be dealt with in the general rules of fishing (e.g. a national fishery legislation), in which case these can be referred to in the plan, without repeating all the details. However, specific points or detail may be required for specific fisheries.

The CAB may indicate in the report which combination of jurisdictional categories apply to the management system of the UoA, including consideration of formal, informal and/or traditional management systems when assessing performance of UoAs under Principle 3, including:

- Single jurisdiction
- Single jurisdiction with indigenous component
- Shared stocks
- Straddling stocks
- Stocks of highly migratory species (HMS)
- Stocks of discrete high seas non-HMS

The CAB should provide any information used as supporting rationale in the scoring tables.

Reference(s): Fisheries Standard v2.01

- Area of operation of the UoA and under which jurisdiction it falls (see also point 2 below).

The unit of assessment is the crab fishery from the northern Gulf of California from the Desemboque de Caborca on the northern coast of Sonora, surrounding the Upper Gulf of California to the surrounding areas of southern San Felipe in Baja California, UoA falls within a single management jurisdiction in Mexico. The stock is not a migratory species; it's not considered a stock shared with other countries, nor does it take place on the high seas.

- Particulars of the recognised groups with interests in the UoA.

In this region there is an eligible group of so many cooperatives and so many permit holders that take advantage of the fishery both on the north coast of Baja California (San Felipe) and on the north coast of Sonora (Desemboque, Santo Tomás, Punta Jaguey, Bahía San Jorge, Puerto Peñasco, Bahía Adair and El Golfo de Santa Clara. (In the northern region of Sonora it is carried out by around 230 boats organized in 21 cooperatives and 16 independent permit holders.) sin contar el GSC y sfe

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

The National Institute of Fisheries and Aquaculture conducts, directs, and coordinates the scientific research and the development of proposals for fisheries management, the management plan for the swimming crab fisheries of Sonora and Sinaloa is seven years old now. The Sinaloa and Sonora crab Fishery Management Plan was carried out through an intense participatory process, which included a regional meeting held on March 7 and 8, 2011, three regional meetings between October and December 2011 and through a survey of 195 fishermen from 27 fishing sites on the coast of Sinaloa and Sonora, in addition to 26 interviews with processors, Federal and State authorities, researchers and members of the Organized Civil Society. (DOF 2014)

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The preparation and publication of this fishing management plan corresponds to INAPESCA; the sanction prior to its publication corresponds to CONAPESCA, based on the attributions established for both agencies by the General Law on Sustainable Fisheries and Aquaculture.

- Arrangements for on-going consultations with interest groups.

Generally, for the formulation of official fishing regulations and instruments such as the Fisheries Management Plans, public consultation processes are carried out during the process of creation, updating and prior publication in the Official Gazette DOF.

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

There are other figures that could influence the UoA, such as the Product System Committee associations, cooperative federations and producer unions.

Directly related to the crab fishery, the national and state Crab Product System Committees exist, these figures represent a mechanism for planning, communication and permanent agreement between the economic actors that are part of the productive chains. These are represented in legal figures (civil associations) and have planning instruments (master programs, master plans and multi-year planning files), which mark the strategic lines to follow to lead them to improve their competitiveness and expand the possibilities of participation in the markets. Some achievements that some committees have generally had are the development of collective brands, generation of products with added value, consolidated purchases of biological inputs, food and equipment, as well as consolidated sales of products, certification of fisheries, and generation of points of sale, among other. Unfortunately, its performance in the management and development of the crab fishery has been very limited.

The groups of fishermen of Cooperative Federations and Producer Unions could also have influence in the UoA, since its corporate purpose is its capacity for alliance and coordination for actions for sustainable management, however its performance has also been very limited.-

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

Although the management system for decision-making depending on the type of decision-making process is not so clear, it can be said that there are two types of decision-making processes: changes to laws and regulations and emerging regulations. For changes to existing laws and regulations, the process begins with an exhortation to address problems and possible solutions, in this process the public has the opportunity to provide information and opinions. Subsequently, the government proposes measures, whether normative or legislative, and the government (CONAPESCA) conducts public consultation workshops with stakeholders to receive comments, it can be said that in general, the public supports the recommendations provided by INAPESCA, in this way the drafts of laws or regulations are published as projects in the official gazette and the authorities have the opportunity to receive public comments before their implementation and these public comments influence the final project; in some cases, weakening the original proposals or in other cases validating these proposals. For emerging regulations, due to their nature, the process takes less public intervention and they are more expeditious.

- Objectives for the fishery (referring to any or all of the following if relevant):
- Resource
- Environmental
- Biodiversity and ecological
- Technological
- Social

- Economic

During the preparation of the fishery management plan, a target image for 2022 was defined through strategic planning as follows: “In 2022, the Sinaloa and Sonora crab fishery is ordered, certified and differentiated for its comprehensive quality and innovation, with high economic returns in the long term, equitable and environmentally friendly, managed in an adaptive way based on scientific and community information by a multi-stakeholder group from both states, with organized fishermen, respectful of the regulations and their rules, and proud of their activity ” (DOF 2014) in this sense, the following components were defined as the central objective of the management plan: "Crab fisheries in Sinaloa and Sonora are sustainable. "Likewise, the following components were defined as strategic objectives:

C 1. Conserved crab populations
C 2. Profitability of crab fishery increased
C 3. Balanced social environment
C 4. Improved environment

Each of these components has a series of lines of action and specific actions with indicators, goals, and managers involved.

An outline of the fleet types or fishing categories participating in the fishery.

As mentioned above, the fleet that directly takes advantage of the crab fishery in the UoA is the small scale fleet of vessels from the Northern Gulf of California. In the Peñasco region, 230 vessels organized into 21 cooperatives and 16 independent permit holders, in San Felipe XX and in GSC XXX have the rights to use the resource. Permits are valid for 2 to 4 years, they are not transferable, they can be extended based on the evaluation carried out by INAPESCA, they can also be terminated for reasons of revocation, nullity, term expiration or declaration of redemption for interest public, as well as expiration for various reasons (DOF ley de pesca).-

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

Fishermen who have the rights access to the fishery is through commercial fishing permits that have been described in table XX, there are no concessions granted to fishermen for the crab fishery. Permits have the specifications of the permit holder, characteristics of the authorized vessels, specifications of the number and type of fishing gear, the authorized fishing area, the specifications of the binding fishery management and conservation instruments, authorized species, validity, etc.-

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

The main regulatory measures of the fishery are contemplated in the official standard NOM-039-PESC-2003, in the National Fishing Chart and the specifications for the fulfillment of objectives are specified in the Fishing Management Plan.

The Official Mexican Standard (NOM-039-PESC-2003), establishes the terms and conditions for the exploitation of the species of swimming crab on the Pacific coast of Mexico, this legal instrument contains the provisions to regulate the fishing effort, fishing gear, the minimum legal size per specie, etc. The most relevant specifications for UoA and UoC are described below.

Fishing gear:

- Pots with rigid structure, Chesapeake or similar style, with maximum size of 60 cm (length) and 40 cm (width) within the entire Pacific coast. The pots must include 2 escape windows in order to allow small individuals to escape. Pots with 2 sections or levels must include an escape window per section or level.
- Maximum time in the water for the pots is 24 hours
- Rings with webbing 76 mm (3 inches) mesh size for all the Pacific coast
- Extractors with minimum mesh size of 76 mm for all the Pacific coast
- Functioning of the authorized gear must allow the extraction of live organisms and return those smaller than the minimum legal size and egg-bearing females to the natural environment, in good condition to survive.
- Any other gear or fishing system will require authorization from SAGARPA, based on technical evaluation from INAPESCA, with the exception of the already prohibited gears, which include:
- Gillnets, snoop and cast nets
- Rings with mesh size webbing smaller than 76 mm

It is prohibited to use bait from sources different to the marine environment (skin, bones, intestines, etc.)

It is prohibited to “Shave” egg-bearing females; activity which consists of cutting or removing the egg masses from mature, egg-bearing females.
It is prohibited to capture, own, transport, commercialize or process shaved females
Minimum legal sizes authorized for the Pacific coast, including the Gulf of California are:
- 115 mm shell width for C. bellicosus
- 95 mm shell width for C. arcuatus
- 120 mm shell width for C. toxotes
Undersized crabs and egg-bearing females must be returned to the fishing location in good condition to survive.

Fishing effort:

- Maximum fishing gear/vessel: 80 pots or rings, 1 extractor or 1 metallic hook; except for the cases where a smaller number of fishing gear per State.
- Fishing effort levels per State:

Southern Baja California: ≤ 8,000 pots or rings
Sonora: ≤ 43,600 pots or rings
Sinaloa: ≤ 70,800 pots or rings
For the rest of the Pacific Coast fishing effort levels will be established based on the INAPESCA technical reports.

Closed season

The official standard NOM-039-PESC-2003 (DOF, 2006) indicates that seasonal and spatial closures will be established during the reproductive and growth periods for all swimming crab species through official notifications published in the Official Registry and in accordance to the procedures established in NOM-009-PESC-1993 (DOF, 1994).

The fishery has an official off season for the protection of the reproductive period that begins from May 1 to June 30 for females and males, and the closure is maintained from June 1 to 9 only for females, this is published as closure agreements in the official gazette of the federation. (DOF, 2012?)

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

The NOM-039-PESC-2003 standard specifies for enforcement, observance of the Standard will based on inspections conducted by the CONAPESCA enforcement unit, as follows:

- At the reception/landing/gathering places and the fishing vessels during the fishing operations.
- For minimum legal size, inspectors will sample 20% of the catch for captures ≤ 80 Kg or 200 organisms for captures > 80 Kg.
- For fishing gears, verifying the gears´ characteristics.

- Details of any planned education and training for interest groups.

In regard of education and training the fisheries management plan specify within Component 1. Conserved crab populations, in Line of action 1.3. Control fishing effort. 1.3.3. Teach courses on fishing regulations and responsible fishing. A training program on regulations and responsible fishing is implemented for the actors of the crab fishery Training program in operation for year 1 after its publication.
Component 2. Profitability of crab fishing increased. Line of action 2.4. Promote product processing. 2.4.2. Develop value-added processes. Train plants in value-added processes. By year 2.
Component 3. Balanced social environment Line of action 3.2. Promote Community Social Organization. 3.2.1. Implement a program to strengthen the Community Social Organization There has been a program to strengthen the Community Social Organization as of year 1.
Component 3. Balanced social environment.
Line of action 3.3. Strengthen Fishing Organizations 3.3.1. Train the fishermen on issues related to organization and cooperativism. A training program for fishermen on organization and cooperativism is implemented. Year 1 onwards.
3.3.2. Certify and professionalize coastal crab fishermen. A certification and professionalization program for crab fishermen is implemented. Year 2.
Component 4. Improved environment.

Line of action 4.2. Promote an environmental culture in fishing communities. 4.2.1. Carry out training programs in fishing communities on environmental conservation. A training program on environmental conservation is implemented in the communities. From year 1.

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

The update of the PMP will be carried out every three years, considering that it is the period contemplated to implement the proposed actions in the short term (1 to 3 years). Regarding the establishment of the results indicators (effectiveness), it will be precisely one of the tasks of the Fishery Management Committee to define them for the levels of components, purpose and ends, within a period not exceeding three years after the implementation of the management plan.

The CAB may indicate in the report which combination of jurisdictional categories apply to the management system of the UoA, including consideration of formal, informal and/or traditional management systems when assessing performance of UoAs under Principle 3, including:

- Single jurisdiction
- Single jurisdiction with indigenous component

The management system applicable to the crab fishery in the UoA is based on the management of resources in marine waters of federal jurisdiction in Mexico, the fishery does not share the northern Gulf of California stock with other countries, it is not a straddling stock, nor is a discrete or highly migratory species (HMS). However, there is a specific area at the mouth of the Rio Colorado, within the core area of the biosphere reserve of the Upper Gulf of California and Delta of the Colorado River where the Cucapá indigenous community has unlimited rights for its use, although this indigenous community does not capture crabs commercially.

- Shared stocks
- Straddling stocks
- Stocks of highly migratory species (HMS)
- Stocks of discrete high seas non-HMS

6.6.2 Principle 3 Performance Indicator scores and rationales – delete if not applicable

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				

The Political Constitution of the United Mexican States establishes as a property of the nation the seas within the limits of the national territory. Mexico's General Law of Sustainable Fisheries and Aquaculture (LGPAS) delegates to the National Commission of Aquaculture and Fisheries CONAPESCA the administration of fishery resources and the technical arm for research is delegated to INAPESCA. Likewise the state of Sonora has a law of fisheries and aquaculture for the state of Sonora and state fisheries committees, as well as regional and municipal subcommittees that allow the participation and consultation of the fisheries sector and other stakeholders. In addition, there is the CNP National Fisheries Chart, the Official Mexican Standards that contain technical specifications and fisheries policy instruments such as Fishery Management Plans that allow delivery of management outcomes consistent with MSC Principles 1 and 2.

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**	**Yes**
Rationale				

The legal management structure in fisheries mentioned in the previous paragraph has mechanisms for resolution that are considered to be effective within the context of the evaluation unit. Stakeholders including fishers can make requests and clarifications during the deliberation process and resolution of legal disputes. The system has a structure for a transparent mechanism for the resolution of legal conflicts.

Fisheries violations are registered by fisheries field inspectors (CONAPESCA) and submitted to the Public Ministry (independent body of the Judiciary and Executive government Branches) is responsible for investigating and issuing sanctions for the offenses based on evidence (DOF, 8th November 2012).
México also has a law defining federal administrative procedures (Ley Federal de Procedimientos Administrativos, LFPA), which describes the path and nature of the administrative actions of the federal government that would have to be followed to resolve legal disputes and appeals, and how these actions can be reviewed and nullified when there is a legal dispute (DOF 1994).
Generally it can be considered that the system has been tested and proven effective; SG100 is likely to be met.

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

The management system has a mechanism to observe the legal rights created explicitly or established by the customs of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2. La Ley General de Pesca y Acuacultura Sustentables (LGPAS) recognizes in its article 72 that fishing for domestic consumption is fishing carried out using nets and manual lines individually without profit purposes and with the sole purpose of obtaining food individually and for their dependents, and as such it cannot be the object of commercialization; and no concession or permit is required; in addition to this, NOM-039-PPESC-2006 specifies for domestic consumption of crab, only a maximum of 5 kg of specimens of any species of crab can be caught per fisherman per day, as long as they comply with the minimum catch sizes established in this Standard and ovigerous females are not caught. SG100 is likely to be met.

References

DOF, 2007, 2018. Ley General de Pesca y Acuacultura Sustentables (LGPAS) http://www.diputados.gob.mx/LeyesBiblio/pdf/LGPAS_240418.pdf
NOM-039-PPESC-2006
Ley de Pesca y Acuacultura para el Estado de Sonora, 2008. Ley 169, B. O. No. 17 sección IV, de fecha 28 de agosto de 2008. http://contraloria.sonora.gob.mx/ciudadanos/compendio-legislativo-basico/compendio-legislativo-basico-estatal/leyes/337-ley-de-pesca-y-acuicultura-para-el-estado-de-sonora/file.html

Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	**≥80**
Information gap indicator	**More information sought / Information sufficient to score PI**

	If more information is sought, include a description of what the information gap is and what is information is sought

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**	**No**
Rationale				

The General Law of Sustainable Fisheries and Aquaculture explicitly defines the responsibility for management of fishing with the institutions of SADER, CONAPESCA, INAPESCA, SEMAR, SEMARNAT, as well as the participation of communities and producers in the National Council of Fisheries and Aquaculture, and in the State Fisheries and Aquaculture Councils. Each institution has explicit functions, roles and responsibilities. the roles and responsibilities for all areas are not explicitly defined; SG100 is not considered to be met.

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 development of laws, regulations and fishery management plan have consultation processes, CONAPESCA and INAPESCA hold workshops with fishermen and other stakeholders in the development of these instruments. The National and State Crab Product System Committees may also provide information. One of the objectives of the LGPAS is to determine and establish the bases for the creation and operation of participation mechanisms of producers dedicated to fishing and aquaculture activities (obj 7, article 2), also in article 8 Section XXXV specifies promoting the active participation of communities and producers in the administration and management of fishery and aquaculture resources, through the National Council for Fisheries and Aquaculture and the State Councils for Fisheries and Aquaculture (DOF, 2007). The management system both seeks and uses stakeholder input. However, the management system demonstrates consideration of the information but do not explain how it is used or not used. SG 80 is met.

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 consultation process provides opportunity and encouragement for all interested and affected parties to be involved, and facilitates their effective engagement through the actual management system of National Council for Fisheries and Aquaculture and the State Councils for Fisheries and Aquaculture. At the local level there are also some municipal committees for fisher participation in coastal municipalities. There is also the figure of the national and state Productive System Committees in which the members of the value chain participate. In the specific case of the crab fishery, the fishery management plan specifies that the Fishery Management Committee will be established in accordance with the provisions of article 39 section III of the General Law on Sustainable Fisheries and Aquaculture and participation will be ensured of the individuals and communities associated with the use of crab for the review, follow-up and update of the management plan; for this purpose, CONAPESCA will establish a Committee that may be made up of representatives of Federal, State and Municipal Government Institutions, fishermen from both the social and private sectors, and representatives of academic and research institutions. The Committee may develop its own operating rules, however now a day the Crab Fishery Management Committee has not been formalized. Generally, for the formulation of official fishing regulations and instruments such as the updating of the National Fishing Chart or the Fisheries Management Plans, there are also public consultation processes during the process of creation, updating and prior publication in the Official Gazette if the DOF Federation. SG 100 is likely to be met.

References

DOF, 2007, 2018. Ley General de Pesca y Acuacultura Sustentables (LGPAS)
http://www.diputados.gob.mx/LeyesBiblio/pdf/LGPAS_240418.pdf
DOF Plan de manejo jaiba

Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	**60-79**
Information gap indicator	**More information sought / Information sufficient to score PI** *If more information is sought, include a description of what the information gap is and what is information is sought*

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				

According to the 2nd article of the LGPAS there are 15 long-term objectives for fisheries management. Objective I states: to establish and define the principles for ordering, promoting and regulating the integral management and sustainable use of fisheries and aquaculture, considering social, technological, productive, biological and environmental aspects. Similarly, objective III states: To establish the bases for the management, conservation, protection, repopulation and sustainable use of fishery and aquaculture resources, as well as the protection and rehabilitation of the ecosystems in which these resources are found. Mexico is a signatory of the FAO Code of Conduct for Responsible Fisheries and compliance with its principles as observed in the Sectorial PROGRAM for Agriculture and Rural Development 2020-2024 (DOF 2020), which defines as a priority strategy to promote sustainable fishing practices and gear for the conservation of marine species respecting the natural environment. Mexican regulations do have long-term objectives that guide decision-making consistent with the MSC criteria and the precautionary approach and these regulations are explicit within management policy. This indicator is likely to meet SG100.

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DOF 2020 PROGRAMA Sectorial de Agricultura y Desarrollo Rural 2020-2024 https://www.dof.gob.mx/nota_detalle.php?codigo=5595549&fecha=25/06/2020
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Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	**≥80**
Information gap indicator	**More information sought / Information sufficient to score PI** *If more information is sought, include a description of what the information gap is and what is information is sought*

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?	**Yes**	**Yes**	**Partial**

Rationale

During the preparation of the fisheries management plan, the following was defined as the central objective of the management plan: "Crab fishing in Sinaloa and Sonora is sustainable." A target image was also defined for 2022: "In 2022, the Sinaloa and Sonora crab fishery is ordered, certified and differentiated for its comprehensive quality and innovation, with high economic returns in the long term, equitable and environmentally friendly, managed in adaptive way based on scientific and community information by a multi-stakeholder group from both states, with organized fishermen, respectful of the regulations and its rules, and proud of their activity" (DOF 2014) There were also defined as strategic objectives the following components:
C 1. Conserved crab populations
C 2. Increased Profitability of crab fishing
C 3. Balanced social environment
C 4. Improved environment
Each of these components has a series of lines of action and specific actions with indicators, goals, and those responsible for it.
The specific objectives are:
1) Produce scientific knowledge on biological and fishery aspects to improve management of the fishery.
2) Maintain exploitation levels in line with biomass availability.
3) Promote technical advances and modernizing the industry to offer a profitable and high-quality product.
4) Create instruments for social participation that allow catch shares as a means to define management measures with the participation of fishery stakeholders.
In addition, the NOM 039 implicitly describes a sustainability objective by stating that the regulations are designed to assure adequate recruitment.
These components, lines of action and specific actions are considered consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery-specific management system. SG 80 is likely to be met. However, they are partially considered Well defined and measurable short and long-term objectives. SG 100 is not likely to be met

References

DOF plan de manejo
DOF 2006. NOM-039

Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	**≥80**
Information gap indicator	**More information sought / Information sufficient to score PI** *If more information is sought, include a description of what the information gap is and what is information is sought*

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**	**Yes**	
Rationale				

Mexico has decision-making processes defined in the general structure of management system described in PI 3.1.1 and 3.1.2, however the management system for the swimming crab fishery is clear. According to the Fishery management plan, the official standard NOM-039-PESC-2003 and CNP this fishery has specifications and recommendations that allow the implementation of management trough measures and strategies which allow us to deduce that decision-making processes have been followed. Therefore, processes that result in measures and strategies to achieve the fishery-specific objectives is clear. The fishery meets SG80.

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?	**Yes**	**Yes**	**No**
Rationale				

In Mexico Laws, regulations, standards, specifications and recommendations are published in the official gazette (Diario Oficial de la Federación DOF). Decision making processes respond to serious and other important issues before and after the publication in the DOF. The public has the opportunity to comment and influence the resulting final decision. Although scientific advice is not always incorporated into the decisions, or can take a long time, even years, before recommendations are considered in the regulation, the process in general is considered transparent, adaptive and inclusive. The fishery meets SG80.

c	Use of precautionary approach			
	Guide post		Decision-making processes use the precautionary approach and are based on best available information.	

	Met?		**Yes**	
Rationale				

There is evidence suggesting that the precautionary approach or the best available information is used in the decision-making processes for the swimming crab fishery in the state of Sonora. To date, the fishery has implemented several tools to protect stock, recruitment and avoid overfishing. The fishery meets SG80.

d	Accountability and transparency of management system and decision-making process			
	Guide post	Some information on the fishery's performance and management action is generally available on request to stakeholders.	**Information on the fishery's performance and management action is available on request**, and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.	Formal reporting to all interested stakeholders **provides comprehensive information on 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**	**Yes**	**No**
Rationale				

Information on the fisheries performance and management actions are considered to be available on request. INAPESCA provided relevant information from swimming crab population evaluations, monitoring and research, although it does not always describe the methodology used to define parameters (POA 2019). The fishery is likely to meet SG 80.

e	Approach to disputes			
	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**	**Yes**	**No**
Rationale				

Conflict resolution is mainly accomplished through communication; fishermen alert problems to CONAPESCA and other local authorities and in coordination with institutions such as INAPESCA, CONANP, SEMAR and the different Committees, the nature of the problem and its origin is sought. Once the problem and its origin have been identified, communication with the interested party is established again and an administrative and operative solution is proposed. When conflicts go beyond dialogue, the support of the Public Minister and Suprema Court is sought to deal with the dispute. Thus, the management system or fishery is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges. The fishery meets SG80 level.

References

POA 2019
Plan de manejo
NOM
CNP jaiba

Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	**≥80**
Information gap indicator	**More information sought / Information sufficient to score PI** *If more information is sought, include a description of what the information gap is and what is information is sought*

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?	**Yes**	**No**	**No**
Rationale				

Institutions such as CONAPESCA, INAPESCA, SEMAR and PROFEPA have limited capacities for surveillance along the coast. The General Directorate of Inspection and Surveillance (Dirección General de Inspección y Vigilancia) from CONAPESCA has the responsibility of survellience to preserve marine ecosystems and species; it has 210 Federal Fisheries Officers strategically distributed throughout the national territory, inland waters and in the 17 states of the coastal republic. A monitoring, control and surveillance system exists for fisheries but the ability to enforce relevant management measures, strategies and/or rules is only partially achieved, Thus SG 60 is likely to be 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				

According to LGPAS, through its field fisheries officers CONAPESCA should conduct surveillance activities, report fishery violations and also apply sanctions. The Public Ministry, which is an independent body of the judiciary and the executive, is responsible for investigating the offenses based on evidence. Fishery violations are sanctioned according to the LGPAS and other applicable laws and regulations. In the swimming crab fishery and other related fisheries there is evidence that sanctions to deal with non-compliance exist. SG 60 is met.
There is no evidence that sanctions are consistently applied so SG 80 and SG 100 is not likely to be 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	**Some evidence exists** to demonstrate fishers comply with the management system under assessment, including, when required, providing information of importance to	There is a **high degree of confidence** that fishers comply with the management system under assessment, including, providing information of importance to

		importance to the effective management of the fishery.	the effective management of the fishery.	the effective management of the fishery.
	Met?	**Yes**	**Yes**	**No**

Rationale

Fisherman from the group of producers under assessment UoC (SCP Ejidal Bahia San Jorge del FIP de jaiba de Puerto Peñasco) generally comply with the management measures included in their fishing permits for the crab resource. There is evidence that fishermen comply with the management system and provide the required information through landing records, and fishing logbooks, thus SG80 is met. However, there is not a high degree of confidence that other fishermen (UoA) also comply; therefore SG100 is not met.

d	Systematic non-compliance			
	Guide post		There is no evidence of systematic non-compliance.	
	Met?		**Yes**	

Rationale

There is no evidence of systematic non-compliance from the group of producers under assessment (SCP Ejidal Bahia San Jorge del FIP de jaiba de Puerto Peñasco).

References

DOF, 2007, 2018. Ley General de Pesca y Acuacultura Sustentables (LGPAS)
http://www.diputados.gob.mx/LeyesBiblio/pdf/LGPAS_240418.pdf

Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	**60-79**
Information gap indicator	**More information sought / Information sufficient to score PI** *If more information is sought, include a description of what the information gap is and what is information is sought*

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?	**Yes**	**Yes**	**No**
Rationale				

There are mechanisms in place to evaluate key parts of the fishery-specific management system. According to the LGPAS, the National Fisheries Chart CNP is reviewed and updated periodically, although the system for when the updates are conducted is not clearly outlined. INAPESCA through its Regional Center for Aquaculture Research and Fishery CRIAP of the municipality of Guaymas Sonora has a swimming crab program (POA 2019) in charge of attending requests from the fishing sector, as well as carrying out the corresponding evaluations to determine the status of the resource in the area of interest. The information collected serves as a tool for decision-making

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?	**Yes**	**Yes**	**No**
Rationale				

The fishery-specific management system is subject to regular internal and occasional external review. The fishery management (based on the NOM) undergoes a scheduled 5-year review, with input from stakeholders, INAPESCA, and CONAPESCA. All aspects of management are considered, so that revisions to regulations can occur as needed. In the intervals between formal review, INAPESCA staff monitor the performance of the management plan to prepare for recommendations for revisions.
The FMP considers a review and update of the FMP every 3 years as part of the evaluation process. CONAPESCA will set up a fishery committee to conduct the review. Two main types of indicators will be evaluated: 1) Management indicators to measure progress in FMP activities, and 2) Results, to assess if objectives are being met.

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DOF. Carta Nacional Pesquera
POA annual 2019 crip

Overall Performance Indicator (PI) Rationale

Rationale is provided for each Scoring Issue.

Draft scoring range	**60-79**
Information gap indicator	**More information sought / Information sufficient to score PI** *If more information is sought, include a description of what the information gap is and what is information is sought*

6.6.3 Appendices

6.6.4 References

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6.7 Assessment information

6.7.1 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%. Where possible the CAB should indicate the number of vessels in each potential Unit of Assessment.

Table X – Small-scale fisheries

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

Northern Gulf of California that ranges from the Caborca Desemboque on the northern coast of Sonora, surrounding the Upper Gulf of California to the surrounding areas south of San Felipe in Baja California	100	100

6.8 Evaluation processes and techniques

6.8.1 Site visits

The CAB may include in the report:

- A description of any field activities that were conducted during the pre-assessment.
- A list of meetings held.
- Details of any other engagement with stakeholders.

Reference(s): FCP v2.2 7.1.5

6.8.2 Recommendations for stakeholder participation in full assessment

The CAB may include in the report:

- Details of people to be interviewed or included in a full assessment: local residents, representatives of stakeholder organisations including contacts with any regional MSC representatives.
- A description of stakeholder engagement strategy and opportunities available.

It is recommended that the following stakeholders be interviewed for a full assessment of the Puerto Peñasco swimming crab local fishery

Stakeholder	**Performance RoI**
Presidente C. José María Flores	The Sociedad Cooperativa de Producción Pesquera Ejidal Bahía San Jorge S.C.L. de R.L. de C.V. has permits to extract crab in Bahia San Jorge/ Puerto Peñasco
Secretario C. Rubén Astorga	
Tesorero C. Cosme Cortés	
Jefe de trabajo C. Francisco Javier Carrillo	
Jefe de Inventario C. Joel Flores Astorga.	
CEDO AC	Civil Society Organization that works with fishing communities, promoting sustainable fisheries through social participation.
INAPESCA, CRIAP Guaymas	Mexican institution in charge of fisheries scientific research and aquaculture nationwide
CONAPESCA	Government agency responsible for administering, ordering and promoting fishing and aquaculture activity.
Instituto de Acuacultura estado de Sonora IAES	State agency promoting sustainable fishing and aquaculture.
Subsecretaria de Pesca y Acuacultura estado de Sonora	Subsecretaría de Pesca of the State of Sonora (State Government).
PRONATURA NOROESTE	Civil society organization that supports Coastal communities development, sustainable use of resources
CIBNOR	Research and Academic Institute in Mexico
Smart Fish	Civil society organization that supports sustainable fishing and value rescue

7 Corporate branding

This template may be formatted to comply with the Conformity Assessment Body (CAB) corporate identity. The CAB shall ensure that content and structure follow the template.

Examples of appropriate amendments are:

a. A title page with the company logo,
b. A company header and footer used throughout the report,
c. Replacement of font styles,
d. Inclusion of contact details for the CAB in relation to consultation,
e. Deletion of any sections that are not applicable, though CABs should leave any sections that will be populated later in the assessment, and,
f. Deletion of introductory text or instructions.

8 Template information and copyright

This document was drafted using the 'MSC Pre-Assessment Reporting Template v3.2'.

Template version control

Version	Date of publication	Description of amendment
1.0	15 August 2011	Date of first release
1.1	31 October 2013	Updated in line with changes to CR v1.3
2.0	08 October 2014	Confirmed background sections (Section 3) as optional (use of 'may' statements) Modified Table 6.3 to create a simplified scoring sheet to be completed in place of full evaluation tables Made amendments to PIs based on Fishery Standard Review changes (e.g. removed original PIs 1.1.2, 3.1.4 and 3.2.4).
2.1	9 October 2017	Inclusion of optional full evaluation tables
3.0	17 December 2018	Release alongside Fisheries Certification Process v2.1
3.1	29 March 2019	Minor document changes for usability
3.2	25 March 2020	Release alongside Fisheries Certification Process v2.2

A controlled document list of MSC program documents is available on the MSC website (msc.org).

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