Mexico Guaymas finfish/handline
Three-Year Audit Report

Version 1.2, September 2021

Purpose

FishChoice developed the three-year audit report template. The objectives of the three-year audit report are:

1. To assess the fishery's performance indicator scores
2. To verify the results of the FIP's environmental work plans as reported on FisheryProgress
3. Optional: To provide recommendations to the FIP on environmental workplan actions that should be modified, including recommending additional actions/tasks that should be taken or suggested changes to timelines to help the IP achieve their stated objectives.

FIP Information

Target species scientific name(s) and common name(s)	Yellowtail amberjack (*Seriola lalandi*) Red snapper (*Lutjanus peru*) Goldspotted sand bass (*Paralabrax auroguttatus*) Ocean whitefish (*Caulolatilus princeps*) Gulf grouper (*Hyporthodus acanthistius*)
Fishery location	Guaymas, Sonora, Mexico.
Gear type(s)	Hand line
Estimated FIP Landings (weight in tons)	63 metric tons (Data from FIP March 2021)
Vessel type(s) and size(s)	Small-scale vessels (Approx. < 10 meters in length)
Number of vessels	Number of small-scale vessels: 16
Management authority	National Fisheries Commission (CONAPESCA)
Auditor name(s)	Ivan Martinez-Tovar
Auditor Organization/Affiliation	Ocean Outcomes
Date of report completion	May 18, 2023

FIP Background

The finfish fishery in the northwest of Mexico is one of the most important in terms of value. In Guaymas, Sonora, the fishery was initially developed using traditional artisanal methods such as handline (hook and line). This gear has been demonstrated to be one of the most selective fishing gear. Local fishers target several species based on their possibilities and market demand (Yurkievich and Sánchez, 2016). The main species caught by fishers who use the handline as fishing gear in Guaymas are Yellowtail (*Seriola lalandi*), red snapper (*Lutjanus peru*), Goldspotted sand bass (*Paralabrax auroguttatus*), ocean whitefish (*Caulolatilus princeps*), and Rooster hind (*Hyporthodus acanthistius*). Commercial harvest for this group of fishes is conducted in small vessels using different fishing gears, from hook and lines with live bait (sardine and mackerel), drift gillnets, trawling and encircling gillnets in open seas and areas near the coast. The improvement project was launched in 2017 as a basic FIP and switched to Comprehensive in 2020. The main goal of the project is to generate robust biological and population information on the target species and propose management strategies, aiming to achieve the levels needed for a MSC certification of by the end of 2024.

Stakeholder Consultation & Meetings

The review team reviewed the background and material needed to understand the current status of MSC Performance Indicators (PIs) and the status of progress on the client action plans. The communications occurred through scheduled meetings. The list below provides information for participants on specific communications.

Name	Affiliation	Date and Subjects Discussed
Alesa Flores	Comunidad y Biodiversidad A.C. (COBI AC)	May 5th, 2023 ● Data collection efforts ● Barriers and efforts to mitigate ● FIP Actions ● Scope of the project
Cecilia Blasco, Enrique Hernandez, Rocio Urapiti, Alejandro Rodriguez	Smart Fish A.C.	May 2nd, 2023 ● Review of the action plan. ● Fishery interactions with market and commercial activities. ● Engagement with stakeholders.

Sr. Andres Grajeda	SCPP 29 de Agosto	May 4th, 2023 ● Fishery monitoring program ● Harvest strategy ● Collaboration and coordination
Dr. Raul Molina	INAPESCA	May 8th 2023 ● Stock assessments' methodology (approach, robustness, data source) ● Collaboration, the scope of project ● Principle indicators
Javier Van Cauwelaert	Smart Fish Inc.	May 8th 2023 ● Market participation, incentives ● Collaboration ● Support (incentives)

Summary of Findings and Recommendations

● During the stakeholders interviews, it was evident the strong commitment and involvement of most of the participants with the FIP activities. The communication among participants is effective, but could be improved.

● A wide and diverse set of stakeholders are engaged in the project, however, there has been a limited integration with management representatives (e.g., CONAPESCA). Considering the management goals included within the project, it is highly recommended to start these conversations and involvement as soon as possible.

● The project includes the participation of THREE fishing organizations with 16 vessels, the production is commercialized via preference markets through the commercial partner. The impact, however, is limited to those involved in the fishery. Several interviewees mentioned the need for the project to consider increasing the producers involved (number of participants) in order to also increased the impact of the project.

● The FIP has effectively improved several aspects related to the fishery, such as having in place a data collection program, that have allowed to draft stock evaluations as well as evaluate impacts on habitat and the ecosystem.

- Draft assessment results showed the potential status of rooster hinder that might be driving the score of PI 1.1.1 to <60 which will trigger the need to develop a rebuilding strategy for the species.

- Results on catch composition reports shown interactions with the species Pacific Angel shark (PSA) *(Squatina californica)* at the level that might trigger its inclusion as a secondary main species (a less resilient species with ~3.9% presence in the catch). According to conversations with FIP participants, interactions are not common and instead, the proportions might be driven by the fact that producers log information from fishing with gears other than handline (e.g., gillnets). It is recommended to verify this, because currently, data may suggest that PAS should be included as P2 main species.

- The current improvement for the project seems appropriate -especially when revising the progress made so far-although adopting updates on the management regime may take longer than the time suggested within the work plan.

Profile updates

1. Considering the nature of a FIP, which is a market-driven too, and in this case, it has a direct collaboration with Smart Fish Inc, it might be relevant to include this participant in the profile as an active participant.

2. The most recent update for PI 2.5.1 (Year 4 of the Ecosystem outcome) reference details about trap interactions with the Ecosystem, although the fishery is only focused on handline. This piece of information should be removed, unless the scope of the FIP expands to include this gear.

Summary of MSC Performance Indicator Scores

Principle	Component	Performance Indicator		Previous Score	Current Score	Rationale or Key Points
1	Outcome	1	Stock status			The most recent update of the status of the target species within the Mexican National Legation was conducted in the 2010 version of the National Fisheries Chart (DOF 2010). The chart included a general overview of the different finfish "escama" groups: Jureles (yellowtail), pargos (snappers), pierna (whitefish), and cabrillas (groupers). These reports considered all species groups as exploited within their maximum yield (DOF 2010). Once FIP transitioned to comprehensive, due to the lack of populations evaluations, the RBF was used to score this PI. As a result, all species reached a >80 score.

As part of the FIP action *"Develop a stock assessment for the five species and define reference points,"* implementers used the Froese et al. (2017) data-poor methodology to assess the species' status. The preliminary results indicate that all the species show some signs of being over-exploited. Figures below show the preliminary results generated by the FIP for yellowtail amberjack (a), red snapper (b), gold spotted sand bass (c), ocean whitefish (d), and rooster hind (e).
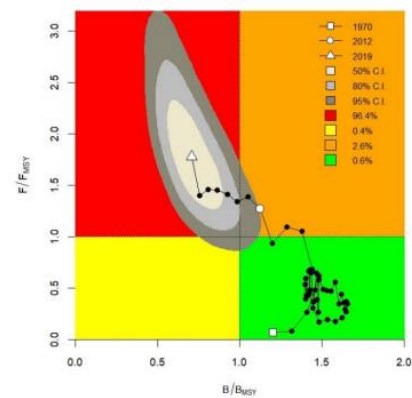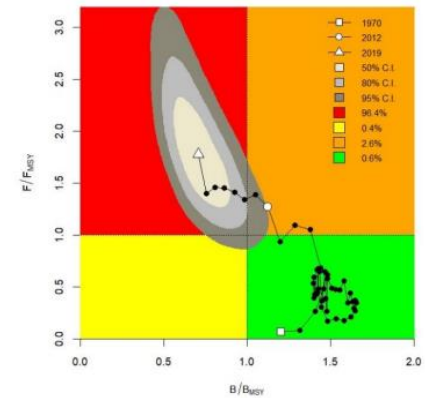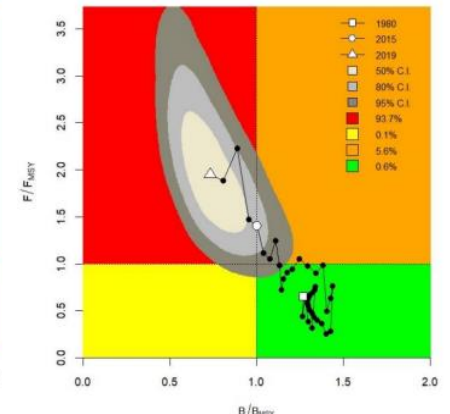

a   b |
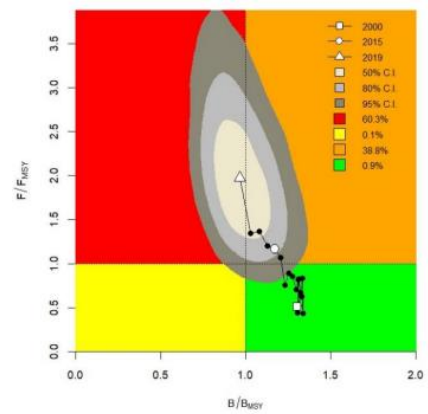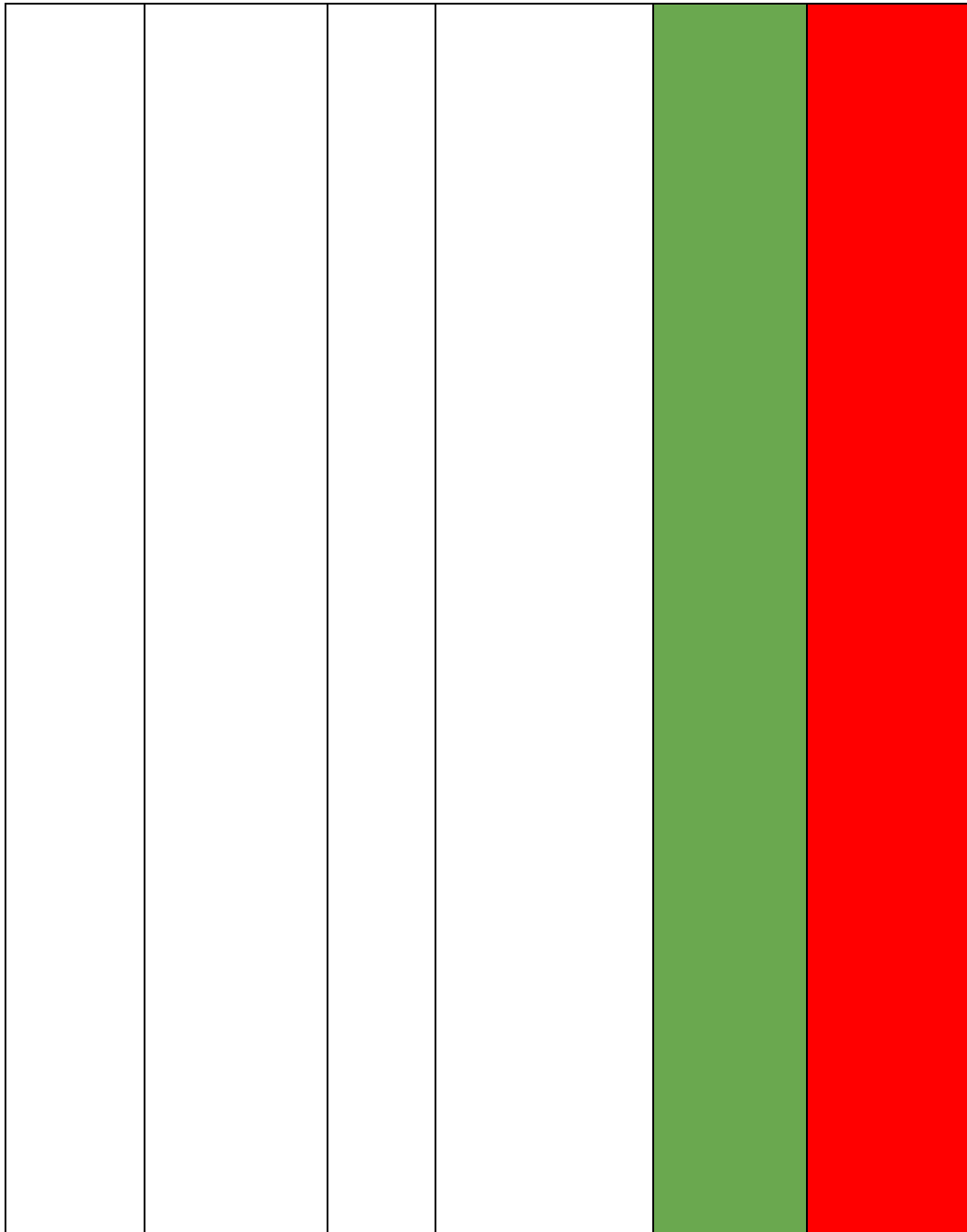
c

d
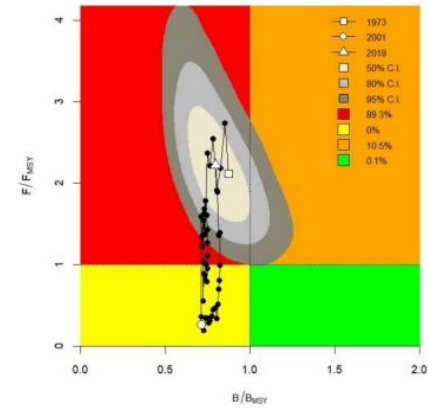
e

Based on the results, all the species, except for spotted sand bass, show that they have been below B_{MSY} in the most recent years. As pointed out in the draft report, these results should be considered cautiously. However, these represent the most recent effort to evaluate the status of the different stocks. It could be inferred that all the stocks are likely above the PRI (considering the species ecology) except for the rooster hind, which has a low resiliency to fishing pressure. If results are confirmed and used for management, this PI will likely score <60 because it will be driven by the lowest-scoring species, in this case, *Hyporthodus acanthistius*.

		1.1.2	Stock rebuilding			Currently, this PI was scored as Not applicable because P1.1.1 achieved an 80 score obtained by using the RBF during the pre-assessment. IF the results of the evaluation exercise (see PI 1.1.1) are confirmed, there might be a need for a rebuilding strategy to be in place. Currently, groupers lack a specific harvest strategy, other than some measures focused on gear restriction and production monitoring (i.e., grouper production in Sonora should be at least above the 200 metric tons a year, DOF, 2010)
	Management	1.2.1	Harvest Strategy			There are no specific harvest strategies for any of the target species. As a whole, all these are part of the "finfish" (escama) fishery, that has some controls related to access to the fishery (through a permit or license system) (DOF 201 In addition, some production "reference points" were included in the most recent profiles for the species in 2010. Managers stated to "*take proper actions*" if production in Sonora is below 100 metric tons for snappers (not per species)(to mention one).
						However, no details about how this production levels are monitored were included. All the profiles recommended the creation of a specific management plan, to restrict any increase in fishing effort and to have in place a monitoring program in coordination with INAPESCA. Overall, a robust harvest strategy, with regular monitoring, reference points, and harvest controls, is not in place for any of the species. Despite these, the partial strategy (combination of measures) might achieve certain success, considering that production remained relatively stable. However, these are not responsive to the status of the stock, nor an evaluation of the effectiveness is in place. It can be inferred that the harvest strategy is not periodically reviewed and improved as necessary, considering that the update to the profile has not occurred since 2010 (DOF 2010).
		1.2.2	Harvest control rules and tools			Improvements needed for this PI are directly related to the results of a new population evaluations that will allow the generation of new management strategies, including HCR. Based on the draft population evaluations (See 1.1.1), a baseline for an HCR has been identified. Currently, these are not part of the management, and it needs to be clear that uncertainties tied to the stock evaluation are better understood.
		1.2.3	Information and monitoring			Considering the importance of the resources, some relevant information related to stock structure, stock productivity, and fleet composition is available to support a potential harvest strategy. Stakeholders are using technological tools to facilitate this process, both NADIR (to help with traceability aspects) and PescaData (to collect data related to fishing practices) are in place and help to standardize data

							collection. Managers monitor production via landing tickets ("Avisos de arribo"). These are mandatory and should include a description of the composition of the catch. However, no verification exists when these tickets are created, and the information tends to be inaccurate (Yozell 2020).

Academic research related to the fleet composition, biology, and ecology of the species, as well as fishing methods, gears, and selectivity, has been described. Similarly, fleet composition and interactions have also been studied. Most recently, FIP participants started analyzing and collecting information about the fishery dynamic, including catch composition by gear. However, there is still the need to have a similar level of detail from other sources of fishery removal (e.g. other fleets operating in the same region and other fleets targeting the same stocks. |
| | | 1.2.4 | Assessment of stock status | | | | The recent population evaluations seem adequate based on the information available. The methodology allows estimating the stock status relative to generic reference points appropriate to the species categories. The authors estimated the biomass needed to achieve the MSY and the fishing effort in place to maintain the MSY. In addition, researchers have cleared the main sources of uncertainty. In particular, the need for more specific details on catch in terms of size structures of the production. The goal for the evaluations is to be published in a peer-reviewed publication. Currently, the draft is under review and authors expecting the results of the peer review process. Overall, considering that the best assessment methodology has been defined and this might be improved as the project increases data availability and reduce the amount of uncertainties, this PI reaches a passing score. But will be reduced from the >80 scores achieved when using the RBF approach. |
| 2 | Primary species | 2.1.1 | Outcome | | | | Based on the pre-assessment report, the nature of the fishing gear has a limited impact on non-target species. The evaluation instead considered the bait species, based on their percentage of use. According to the pre-assessment evaluation (COBI 2020), and two reports that analyzed the use of bait (Flores-Guzman 2022 and Flores-Guzman 2022b). South American pilchar (*Sardinox sagax*) and chub mackerel (*Scomber japonicus*) are the main bait species. Both are included within the Mexican Official Norm 003 (DOF 2019) and the small pelagic management plan (DOF 2012). |

According to the most recent update on the fishery profile in the National Fisheries Chart, both species are not showing signs of being overfished, nor is overfishing occurring (DOF 2022).

Diagrama de Kobe Pelágicos Menores
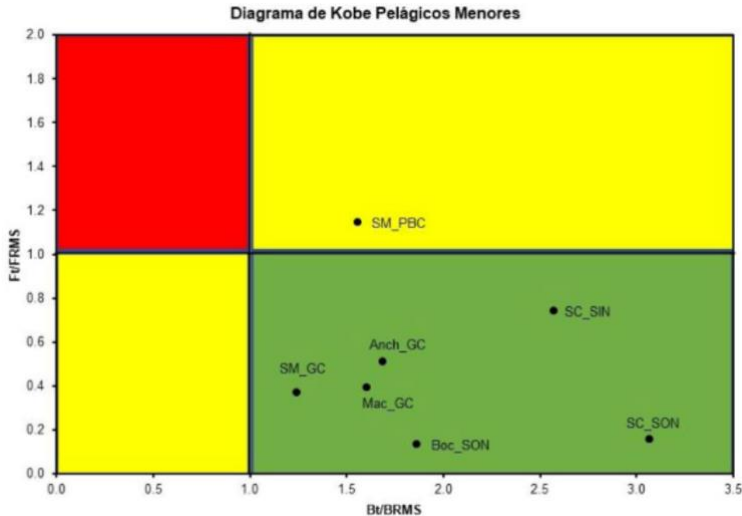
In addition, the species are part of an MSC-certified fishery in Mexico, with some conditions attached to it. The results of the fourth surveillance audit report (SCS 2023) include details on how both species are above PRI and fluctuate around a level consistent with MSY with a high degree of certainty; this PI could score as >80.

2.1.2	Management strategy				The species are managed through the NOM-003-SAG-PESC-2018, published in the Official Gazette of the Federation) and includes a new version of the fishery's Management Plan (draft), which includes INAPESCA's stock assessment, monitors fishing activities, and computes the ABC based on the stock status. The NOM establishes the volume of the fishery's total catch, minimum size limits, the monitoring system in place procedures to determine the biologically accepted catch, and the guidelines to regulate the fishery's operation when this is reached. Based on these improvements, the PI could be scored as >80.
2.1.3	Information				Some quantitative information has been generated. It is available to adequately assess the impact of the UoA on the main bait species with respect to their status and support the strategy in place. As part of its data generation process, the FIP should continue monitoring these species' use.

	Secondary species	2.2.1	Outcome	🟩	🟨	Based on the data analyzed by the FIP participants and included in the reports authored by Flores-Guzman (2022) and Cisneros-Soberanis et al. (in review), there is some uncertainty about one of the species that could be included as a secondary species based on its resiliency; the Pacific angel shark. The species represented 3.6% of the catch, according to the report that analyzed fish logbooks from January 2015 to October 2022 (Flores-Guzman 2022) and 3.9% (Cisneros-Soberanis et al. in review). If considered, this species might drive the score of this PI to 60-79, based on the IUCN report that categorizes the species as "near threatened." The assessment is based on the species life history characteristics and the potential for isolation due to patchy habitat distributions that make the species vulnerable to heavy localized fishing pressure (Cailliet et al 2020). The authors used landings data (2003-2015) from Baja California, suggesting that landings decline of >99% may occur within three generations if current trends continue. Also, since the species is targeted within the elasmobranch fisheries, landings have declined under stable fishing pressure. A suspected population decline approaching 30% over three generations might occur. These are the main reasons for the near-threatened categorization by authors.
		2.2.2	Management strategy	🟩	🟨	It is necessary to confirm the species that are part of the secondary species category. If Pacific angel shark, is confirmed, this PI might need to be re-scored. The species is included within the Mexican Official Norm 029 (DOF 2007), which has in place a partial strategy, that is expected not to hinder the species levels.
		2.2.3	Information	🟩	🟩	Based on the data collection data and reports generated in 2022, there is enough quantitative information to define bycatch for the fishery (Flores-Guzman 2022 a, b). However, there is a need for confirmation, since some species included can only be found in the Atlantic (i.e., Rubia, *Ocyurus chrysurus*) or species that tend to be caught mostly by gillnets (i.e., Pacific angelhark, *Squatina californica*). The quantitative information available is adequate to assess productivity and susceptibility attributes for the main secondary species and support the management strategy for the species.
	ETP species	2.3.1	Outcome	🟩	🟩	No ETP species were identified from the fisher's data logs. The qualitative and quantitative information allows us to know the direct effects of the UoA on the species.

		2.3.2	Management strategy			Based on the quantitative information, the UoA seems to have no significant interactions with ETP species. Some potential species that fall within this category (i.e., sharks) have in place some measures (NOM-029-PESC-2006) that are expected to control the species' status. Based on its use, there is some objective basis for confidence. Still, no evidence is available about their effectiveness, and a regular review of their effectiveness needs to be made clearer.
		2.3.3	Information			Available qualitative information was available during the pre-assessment; in addition, and as part of the FIP, monitoring through fishing logbooks has been conducted, including interactions with ETP species. The quantitative information adequately assesses UoA-related mortality and its impact on ETP species. In addition, if a monitoring program remains in place, trends might be adequate to assess the strategy. The available information on the species that might be considered within the scope is enough to support measures and set a basic strategy.
	Habitats	2.4.1	Outcome			The nature of the gear has a relatively limited impact on the bottom habitats; in addition, the FIP conducted an RBF approach to assess the impacts on the common habitats. The results of the CSA reported that the fishery commonly encounters five types of habitats, with no VME encountered (based on qualitative and some quantitative information). Based on the results, the UoA is highly unlikely to reduce the structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm. But there is the need to generate more evidence to confirm this; for these reasons, this PI is scored as passing with a condition.
		2.4.2	Management strategy			A combination of the low-impact gear, and the existence of no-take zones within the San Pedro Nolasco Island, could be considered a partial strategy in place that is expected to achieve the Habitat Outcome 80 level of performance. There is some objective basis for confidence that this partial strategy will work, although more quantitative evidence is needed to confirm that the partial strategy is effective.
		2.4.3	Information			The types and distribution of the main habitats were inferred using the CSA (Cisneros-Soberanis et al. draft report). Qualitative information was adequate to estimate the types and distribution of the main habitats and understand the main impacts the gear could generate. It is important to continue generating

				🟨	🟨	quantitative data to improve the estimated impacts and detect any increase in risk to the main habitats.
	Ecosystem	2.5.1	Outcome	🟩	🟩	The UoAs may be highly unlikely to disrupt key elements in the ecosystem structure because of the highly selective nature of the fishery (based on the catch composition) or other key ecosystem elements. Based on the data collected and the results of the study in 2022 that used the ECOPATH model indicate that the ecosystem has high resilience and productivity. The authors reported that sea bass species and red snapper play an important role in the ecosystem food web (Zetina-Rejon et al. 2022). However, the authors mentioned that the effect of their removal depends on the degree of vulnerability and the resilience of the ecosystem. Based on these results, it is highly unlikely that the UoA will disrupt the key elements underlying ecosystem structure and function to a point where serious or irreversible harm would occur. However, there is a need for more evidence to confirm this point.
		2.5.2	Management strategy	🟨	🟨	There are some measures related to protecting certain key elements of the ecosystem, such as elasmobranchs (regulated by the Official Standard NOM-029-PESC-2006 (DOF, 2007). Other controls include limits on fishing effort or the specific technical characteristics of the authorized gears. These measures can likely work on their objective. But this works independently and not as part of a partial strategy. Because a recent evaluation shows limited impacts on the Ecosystem (see 2.5.1), this PI can be considered as some evidence that measures are successful. Still, more monitoring is needed to generate evidence of this.
		2.5.3	Information	🟩	🟩	An Ecopath with Ecosym analysis was developed for the fishery to make inferences on the trophic structure alterations that the fishery may cause. The information available was enough to identify the main and key components of the system. The main impacts of the UoA on these key ecosystem elements can be inferred from existing information, and some (skypjack and red snapper) have been investigated in more detail. Some information has been collected and is available, while more data collection systems are part of the project. In the future, these data should be used to support the continued research impacts and support management strategies as needed. Overall, this PI score remains.
3	Governance and Policy	3.1.1	Legal and customary framework	🟩	🟩	The general legal and customary framework associated with fishing activities in Mexico is consistent and well-known by all parties involved. The federal management system sets governance and policy through the national fishery law. This instrument allows two bodies with management (CONAPESCA) and research activities (INAPESCA). The national legal system includes a space for

					cooperation with other parties, to deliver management outcomes consistent with Principles 1 and 2 of the MSC. The management system allows stakeholders to participate in the deliberations process; regarding management decisions, the process is open, and details are transparent. Finally, the environmental and fisheries laws and regulations recognize the dependence on fishing for food and livelihood and include clauses generally respecting these people's customary or traditional legal rights.
		3.1.2	Consultation, roles, and responsibilities		The organizations and individuals involved in the management process are well-identified. Their roles and responsibilities have been explicitly defined within the General Fisheries Law. In addition, the management system includes consulting processes that regularly seek and accept relevant information, including local knowledge. Additionally, when the regulatory update processes are in action, they must be published on the National Commission for Regulatory Improvement web page and in the DOF (Official Federation Paper). This PI remains with no change.
		3.1.3	Long-term objectives		The General Law of Fisheries and Aquaculture explicitly defines long-term objectives and is as well-defined in the CNP. This PI remains with no change
	Fishery specific management system	3.2.1	Fishery-specific objectives		None of the species within the UoA has in place specific objectives for their management. Neither is the "escama" fishery that aggregates all of them. The 2010 version of the National Fisheries Chart recommended the generation of specific Fishery Management Plans to define specific objectives and to develop an appropriate and precautionary harvest strategy for the fisheries, including reference points and harvest control rules. Current efforts by FIP participants, include the MOU signing with technical authorities (INAPESCA) which includes the generation of these elements for that target species.

			3.2.2	Decision-making processes			The fisheries' law, describes decision-making processes, where the Fisheries National fisheries' Chart (Carta Nacional Pesquera) includes *"the guidelines, strategies and other provisions for the conservation, protection", restoration and exploitation of fishing resources [...]".* The contents of the Fisheries National Chart are intended to be binding in the decision-making and adoption/implementation of management measures. The finfish fishery in the National Fisheries Chart outlines recommendations for the management, including a no increase in the fishing effort in place. These kinds of recommendations are provided to CONAPESCA via a technical opinion from INAPESCA. Thus, in theory, the decision-making processes employ a precautionary approach based on the best available information. However, there has not been an update of this recommendation since 2010, so it does not seem that the 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.
			3.2.3	Compliance and enforcement			At a federal level, the General Directorate of Inspection and Surveillance aims to preserve CONAPESCA's systems and species. There is a small task force of federal agents (~ 168 Causa Natura 2023) that collaborate via the inter-institutional coordination with other competent authorities to enforce the fishing regulatory framework. However, evidence demonstrating the ability to enforce the management measures is still lacking. Similarly, although a set of sanctions exists, evidence of these being consistently applied and thought to provide effective deterrence is not available.
			3.2.4	Management performance evaluation			There are mechanisms to evaluate some parts of the fishery-specific management system. The Carta Nacional Pesquera provides summary information about where, when, and how much fishing is allowed without altering the ecological balance and the most appropriate way to extract species susceptible to exploitation. This should be updated regularly, but the last time the species group was updated was in 2010. Some updates are in preparation but were not public during this audit process.

Environmental Workplan Results

Result	Related Action on Fishery Progress	Related MSC Performance Indicator	Explanation
Data collection program is in place and validated by managers.	Action 2. Ensure the continuity of the fishery monitoring program.	1.2.4, 1.2.2, 1.2.1, 1.2.3, 1.1.2, and 1.1.1	An updated version of fishing logbooks was designed and validated with producers and managers. The collected information complements other data sources that have helped associated actions (such as evaluating the stocks' status or the impacts on habitat and ecosystem).
Stock assessments using a more robust methodology (using data limited approach) were developed	Action 1. Develop a stock assessment for the five species and define reference points	1.2.4, 1.2.2, 1.2.3, and 1.1.1.	FIP participants and associated consultants coordinated a data mining process to develop stock evaluations using a data-limited approach. To accomplish, a combination of bibliographic research, data collection as well as data mining steps were taken. Recently a draft report was conducted with the results of the data stock assessments and generation of reference points (target biomass, catch or fishing mortality effort) for the five species. These results will be submitted for a peer-review publication and used as baseline for parallel work related to harvest strategies and management.
Ecosystem impacts of the fishery were inferred	Action 3. Assess environmental impacts of handline fishery	2.3.3, 2.3.2, 2.3.1, 2.5.3, 2.5.2, 2.5.1, 2.4.3, 2.4.2, 2.4.1, 2.1.3, 2.1.2, 2.1.1, 2.2.3, 2.2.2, 2.2.1	Effective assessment of the impacts of the fishery in habitat and ecosystem were not completely clear, the project started generating information through their monitoring system. In 2021, researchers started using bibliographic information that was complemented with the data generated by the project to develop a series of analysis that included the Productivity and Susceptibility Analysis of the species included in the bycatch, and the use of the ECOPATH with ECOSIM tool to infer the impacts of the fishery in the ecosystem. The published results indicate that the direct impacts on the functional groups, represented by Snappers, Ocean whitefish and Sea basses (all the target species) did not show many changes and the results suggest that the food web in the region is more tolerant to the loss of functional groups regardless of their role on the food web (Zetina-Rejon et al 2022)

Supporting References

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