

# Mexico Yucatan red and black grouper - longline Three-Year Audit Report

Version 1.2, September 2021

## *Purpose*

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

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

## FIP Information

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|--|---|
| Target species scientific name(s) and common name(s) | Red grouper ( <i>Epinephelus morio</i> ), and Black grouper ( <i>Mycteroperca bonaci</i> ),   |
| Fishery location                                     | Campeche Bank, Yucatan, Exclusive Economic Zone of Mexico.  |
| Gear type(s)   | Bottom longline; industrial and artisanal fleet.  |
| Estimated FIP Landings (weight in tons)              | 300 metric tons (2022)  |
| Vessel type(s) and size(s)                           | Industrial: made of wood, steel or fiberglass, dimensions are between 10 and 23 meters of length.<br>Artisanal: made of wood and/or fiberglass (preferably made of glass fiber), dimensions are between 6 and 7.5 meters of length. |
| Number of vessels                                    | 23 Large-medium vessels, 200 small-scale vessels (FIP partners)   |
| Management authority                                 | Fishery & Aquaculture National Commission/Comisión Nacional de Acuacultura y Pesca (CONAPESCA), institute depending from SADER (Agriculture & Rural Development Department).  |

|                                  |                        |
|----------------------------------|------------------------|
| Auditor name(s)                  | Antonio Gomez Gomez    |
| Auditor Organization/Affiliation | Independent Consultant |
| Date of report completion        | December 28th, 2022    |

## Stakeholder Consultation & Meetings

To better understand the current status of MSC Performance Indicators (PIs) and the status of progress on the FIP action plans we hold a series of interviews with fishery key stakeholders. The communications with stakeholders occurred through scheduled virtual meetings. The table below provides information about the meetings, including person's names, organization, date, and main topics discussed.

| Name                             | Affiliation  | Date and Subjects Discussed   |
|----------------------------------|--|---|
| <b>Minerva Alonso Aleman</b>     | Cedepesca México   | November 16 <sup>th</sup> and December 15 <sup>th</sup> 2022<br>Improvement plans, actions and tasks<br>FIP overview<br>Fishery overview          |
| <b>Phd. Silvia Salas Marquéz</b> | Center for Research and Advanced Studies of the National Polytechnic Institute (CINVESTAV) | December 15 <sup>th</sup> 2022<br>Fishery and environmental research<br>Species P2<br>Habitat and environmental impacts                           |
| <b>José Arturo Milán Alonso</b>  | Secretariat of Fisheries and Aquaculture of the Government of Yucatan                      | November 30 <sup>th</sup> 2022<br>Fishery Management<br>Enforcement and Compliance<br>Fleet overview in Yucatan<br>Grouper Committee              |
| <b>Ana Maria Frías</b>           | Fishing Cooperative La Pobre de Dios   | November 28 <sup>th</sup> 2022<br>Grouper Committee<br>Enforcement and Compliance<br>Data collection efforts<br>FIP overview, actions and impacts |
| <b>José Luis Carrillo Galaz</b>  | Mexican Confederation of Fishing and Aquaculture Cooperatives                              | December 1 <sup>st</sup> 2022<br>Grouper Committee<br>Enforcement and Compliance<br>Data collection efforts<br>FIP overview, actions and impacts  |

|   |                                      |  |
|---|--------------------------------------|--|
| <b>Phd. Alicia Virginia Poot Salazar</b><br><b>Phd. María del Carmen Monroy</b> | INAPESCA, National Fishing Institute | December 6 <sup>th</sup> 2022<br>Fishery monitoring, Data collection efforts<br>Fishery Management<br>Harvest Control Rules<br>Species in P2 |
|---|--------------------------------------|--|

## Summary of Findings and Recommendations

The present audit report was based on the Mexico Yucatan red and black grouper - longline Fishery Improvement Project Work Plan (from February 2020 to December 2022). The FIP profile will be updated in January 2023, so some updates are still missing in the FIP profile, that could include some of the recommendations presented in this report.

COVID-19 had a great impact over the fisheries, impacting the normal performance of the FIP workplan, including a delay in some of the tasks.

Since February 2020, FIP partners have been working on:

-Advocating to improve fisheries management at a national level in collaboration with other stakeholders, presenting fishery needs in the Senate and other forums, such as the Latin American Summit for fisheries and Aquaculture Sustainability. In addition, the FIP coordinator supports the development of a draft for a traceability NOM-38 for seafood at a national level.

-Attending meetings in the Committee for the Sustainable Management of the Grouper Fishery to improve the fishery's enforcement and surveillance.

-Promoting and supporting several campaigns that aim to increase awareness about IUU fishing, the importance of rules compliance, and about how other stakeholders, such as chefs and restaurants, can help support sustainable fisheries.

-Engaging in meetings that aim to explore different strategies for the fishery recovery. Establishing quotas and some modifications in the harvest control rules, such as gear modification and new limits in the minimum catch size have been analyzed. In addition to promoting new fishery refugees in the area.

-Strengthening the structure of the "grouper collaborative research network". In recent years, there has been some increase in the number of publications about fisheries and the environment in the region. These publications are directly supporting some of the FIP needs, such as the red grouper stock assessment and an update of the National fisheries chart (Carta Nacional Pesquera). In addition, there is a preliminary analysis on the impacts that the grouper fishery might have over other species.

## Recommendations

Some of the tasks performed in some cases did not affect the MSC standard. Identifying key actions and tasks would directly improve the PI scores, especially those with scores lower than 60. Including several suggestions from the last auditory, other suggestions include:

- Promote the publication of the black grouper stock assessment in a peer-reviewed journal.
- Support and promote the grouper fishery management plan update, including quantitative short and long terms goals, updating research needs, and recovery strategies, and new/modifications to the HCR considering the most updated fishery information available.
- Promote a recovery strategy to help populations recovery, including a rebuilding timeframe for stocks (black and red grouper).
- Promote studies that estimate the fishing effort from IUU fishing and other fisheries (e.g. recreational fisheries, Cuban fleet) to incorporate these estimations in the assessment models.
- Review RBF analysis performed in P2 for the secondary species, and incorporate species that are used as bait in P2.
- Promote the development of biologically based limits for secondary species, considering MSC Standard assumptions.
- Promote mechanisms that support enforcement and compliance strategies.
- Assess possible impacts over ETP species and habitat by the FIP fleet due to the concern that similar fisheries in other locations have reported some impacts over those components (specially in longline fishing).

In principle 2, some PI need better information regarding the FIP fleet performance (it is difficult to assess FIP fleet vs general fleet). We encourage FIP partners to improve their fishing monitoring effort.

Update action plan. The projected end date was December 2022, some tasks will continue. Therefore, there is a need of reschedule the activities.

Update information in Fishery Progress. When an action has several tasks, they must be updated once they are completed (e.g.: Action 3b).

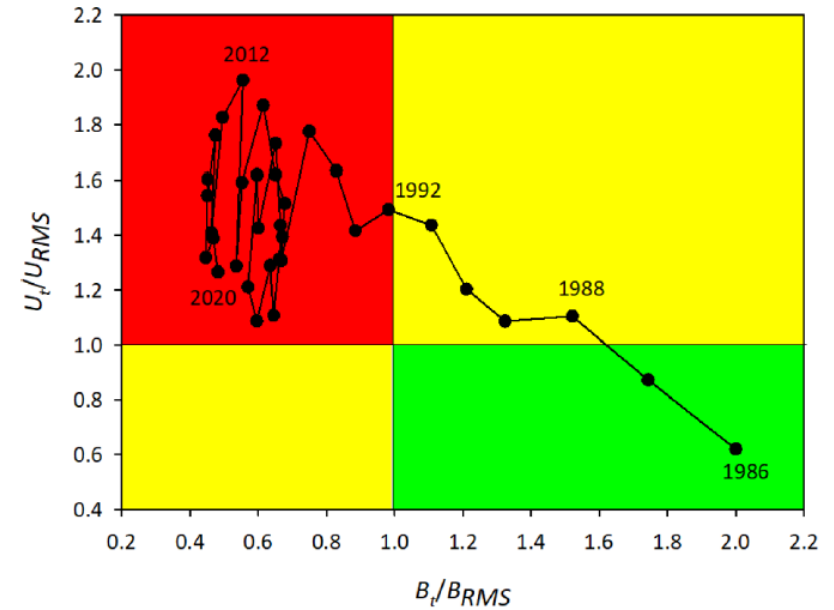
## Summary of MSC Performance Indicator Scores

| Principle | Component | Performance Indicator |              | Previous Score 2022 | Current Score 2022 | Rationale or Key Points  |
|-----------|-----------|-----------------------|--------------|---------------------|--------------------|--|
| 1         | Outcome   | 1.1.1                 | Stock status | <60                 | <60                | <p>Two species are the main target for the fishery <i>Mycteroperca bonaci</i> (Black grouper) and <i>Epinephelus morio</i> (Red grouper)</p> <p><i>Black grouper</i></p> <p>In the last stock assessment presented to the Committee for the Sustainable Management of the Grouper Fishery, it indicated that the black grouper has been fished over the MSY in recent years. Lindeman et al., (2015), classified the species as vulnerable by the IUCN Red List of Endangered Species, with a decreasing population trend.</p> |

*Red grouper*

In the last update from the National Fisheries Chart 2022 (Carta Nacional Pesquera, CNP, in Spanish) managers included an assessment, where they highlighted that the fishery is overexploited (see picture below). Since 1996, catches have shown a decrease in the biomass (DOF 2022) with no sign of recuperation.

In the study of Echazabal-Salazar et al.,(2021), they analyzed the population status and stock assessment up until 2015, where they highlighted that the biomass was below their references points (MSY) and that the fishery has transitioned from overfished-overharvested.



1.1.2 Stock rebuilding

<60

<60

Despite some efforts to advance in this matter (as Olivares-Bañuelos N.C., (2020) or Echazabal-Salazar et al.,(2021)), there is no evidence of a recovery strategy in place that could help drive the recovery of the population, neither a rebuilding timeframe is specified for the stock (for any of the target species).

|            |       |                                 |       |       |  |
|------------|-------|---------------------------------|-------|-------|--|
| Management | 1.2.1 | Harvest Strategy                | <60   | <60   | <p>There are some elements in the harvest strategy in place for the fishery: a stock assessment (red grouper), harvest control rules (HCR), a landing monitoring program and annual assessments by INAPESCA. In addition, measures such as closures (temporal and spatial), minimum size catch limits and control on fishing effort (through fishing licenses and limitations on the number of vessels) are in place.</p> <p>However, these HCR seem to not be connected with the stock status, and an update is needed. The fishery has been overexploited for years, so there is evidence that the harvest strategy is not working correctly. It is not expected to achieve management objectives reflected in the PI 1.1.1 SG80.</p>                    |
|            | 1.2.2 | Harvest control rules and tools | <60   | <60   | <p>There are HCR in place. Temporal and spatial closures, gear type, minimum size catch limits (just for red grouper), limited entry is generally understood by all stakeholders.</p> <p>In practice, there is not a real restriction that limit the entry. The fleet operating in the zone could easily be more than twice than the official data reported (2734 small vessels and 563 medium-large vessels, CNP, 2022). A recent estimation from SEPASY (Secretariat of Sustainable Fisheries and Aquaculture of Yucatan), determined that the fleet reached 9341 vessels (Olivares-Bañuelos N.C., 2020).</p> <p>Given the long period of over-fishing, there is no evidence that the HCR are appropriate and effective in controlling exploitation.</p> |
|            | 1.2.3 | Information and monitoring      | 60-79 | 60-79 | <p>INAPESCA is regularly monitoring the fishery with fishery depending data.</p> <p>There is relevant information about the stock productivities and fleet composition to support the harvest strategy (eg.; DOF 2014; Echazabal-Salazar, 2021, CNP 2022).</p> <p>Despite all this information, there is still a great degree of uncertainty about landings in relation to illegal catches. In addition, we have to consider the impact of other fisheries, such as</p>  |

|   |                 |       |                            |       |       |  |
|---|-----------------|-------|----------------------------|-------|-------|--|
|   |                 |       |                            |       |       | recreational fisheries over the target species (eg.: Lopez-Rocha, 2020) and the Cuban fleet.   |
|   |                 | 1.2.4 | Assessment of stock status | 60-79 | 60-79 | <p><i>Black grouper</i><br/>There is a specific assessment with appropriate reference points for the specie, developed by independents researchers, that have been presented to the Committee for the Sustainable Management of the Grouper Fishery (there is not yet a public report to our knowledge but there is evidence of the assessment and results have been shared with the committee).<br/>The assessment did not take uncertainty into account, such as the impacts of IUU fishing, the Cuban fleet and recreational fisheries.</p> <p>On the other hand, INAPESCA has developed an assessment for the black grouper status, although is not yet public.</p> <p><i>Red grouper</i><br/>In the last update from the National Fisheries Chart 2022 (Carta Nacional Pesquera, CNP, in Spanish), managers included an assessment until 2020. On the other hand, Echazabal-Salazar et al. (2021) published a stock assessment in a peer-reviewed journal. The assessments included appropriate reference points.<br/>Despite that the uncertainty about the data is recognized, other sources of uncertainty were not considered, such as the IUU fishing, the Cuban fleet and recreational fisheries.</p> |
| 2 | Primary species | 2.1.1 | Outcome                    | >80   | >80   | Based on the MSC Standard concept regarding Primary Species, and the criteria for its assignment/determination, such species haven't being identified. Considering that while there are species with commercial value, biological reference points for them haven't been determined. Therefore, measures are not related to achieve management objectives based on reference points. This PI remains with no change.   |
|   |                 | 2.1.2 | Management strategy        | >80   | >80   | It is considered that primary species haven't being identified for this fishery, therefore applicable scoring would be above 80. This PI remains with no change.   |
|   |                 | 2.1.3 | Information                | 60-79 | 60-79 | It is noted that, although the management system could have qualitative and quantitative data on the fishery, such information still isn't the appropriate to provide the necessary support for a  |

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|-------------------|-------|---------------------|-------|-------|--|
|                   |       |                     |       |       | partial management strategy of these species. This PI remains with no change.  |
| Secondary species | 2.2.1 | Outcome             | <60   | <60   | <p>Due to the nature of the fishery, P2 species are difficult to determine, because they change depending the landing site and season (Ramos-Miranda, 2020). The DOF, 2014 highlights that <i>Lutjanus synagris</i> and <i>Ocyurus chrysurus</i> are common within the catches (above 5% of weight of the total catch). PSA performed by CEDEPESCA, indicates that they MSC scoring guidepost are 60-79 and <math>\geq 80</math> respectively. This PSA is still a draft and further review should be done.</p> <p>Other fishery associated species have risen some concerns, especially those regarding their biologically based limits, such as <i>Hyporthodus nigrilus</i>, <i>Mycteroperca microlepis</i>, <i>Lutjanus analis</i> (SFW, 2019) and <i>Carcharhinus acronotus</i> (CEDEPESCA PSA).</p> <p>Better information is needed to assess secondary species specific outcome for the FIP partners (including bait). As some fishery associated species have some concerns, we prefer to be conservative and score below 60.</p> |
|                   | 2.2.2 | Management strategy | <60   | <60   | <p>While there are measures in place that could limit the impact of the fishery on retained species (hook size, licensing, closed seasons and closed areas), given their failure to protect the target species, it must be reasonable to conclude that the fishery may hinder their recovery and rebuilding. The fishery would not meet a scores above 60.</p>   |
|                   | 2.2.3 | Information         | 60-79 | 60-79 | <p>Although there is some adequate quantitative information to assess productivity and susceptibility attributes for main secondary species. The information available could not be adequate to support a partial strategy to manage main secondary species.</p> <p>More effort should be done by FIP partners to improve fishery data gathering in order to determine main and minor secondary species by the FIP fleet, including species use as bait.</p>   |
| ETP species       | 2.3.1 | Outcome             | 60-79 | 60-79 | <p>The Government of Mexico has taken a number of steps to protect ETP species in the area of the fishery (eg: NOM-059-SEMARNAT).</p>  |



|          |       |                     |       |       |  |
|----------|-------|---------------------|-------|-------|--|
|          |       |                     |       |       | <p>However, there is no specific evidence that the known effects of the fishery are highly likely to be within limits of national and international requirements for protection of ETP species. On the other hand, possible indirect effects of the FIP fleet on ETP are unknown. The fishery would not meet the score 80.</p> <p>Longlines interactions with ETP species have been reported in similar fisheries (SFW, 2019) in the Gulf of Mexico. The Yucatan peninsula is known as a hot spot for sea turtles (Cuevas et al., 2021). We encourage FIP partners to perform further efforts to ensure that FIP fleet has minimum interaction with ETP species (including lost gear).</p> |
|          | 2.3.2 | Management strategy | >80   | >80   | <p>There is a general strategy implemented by Mexico in regards to all the ETP species, applicable to all sectors. On the other hand, based on documentation reviewed and on conducted interviews, there is limited interaction between this fishery and any ETP species. Therefore, it complies with the score of 80. This PI remains with no change.</p>   |
|          | 2.3.3 | Information         | 60-79 | 60-79 | <p>Cuevas et al., (2018) identified that potential impacts on sea turtles by longlines in Yucatan state is low (with few medium impacts areas).</p> <p>While qualitative information is adequate to estimate the FIP fleet related mortality on ETP species, there is not quantitative data to monitor the performance of management strategies or measurements trends over time.</p>  |
| Habitats | 2.4.1 | Outcome             | 60-79 | 60-79 | <p>Some studies have evidenced that bottom longlines can have an impact over the habitat, specially over biogenic structural species like corals (e.g.:Sampaio, 2012). However, a large part of the fishery is conducted in sandy bottom substrates where adult groupers are associated (SFW, 2019).</p> <p>The FIP fleet is unlikely to reduce structure and function of the of the commonly encountered habitats and VME habitats to a point where there would be serious or irreversible harm.</p>  |

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|-----------|-------|---------------------|-------|-------|---|
|           |       |                     |       |       | We did not find any evidence that ensure that FIP fleet is not reducing the structure and function of the VME habitats.   |
|           | 2.4.2 | Management strategy | 60-79 | 60-79 | In the region, several Marine Protected Areas are in place aiming to protect vulnerable habitats and/or species that inhabited them. However, there is not a partial strategy to ensure that the fishery does not pose a risk of serious or irreversible harm to different habitats. The lack of a partial strategy means that the fishery would not meet any of the SG80.  |
|           | 2.4.3 | Information         | >80   | >80   | The diversity and distribution of the main vulnerable habitats in the Yucatan peninsula, including mangroves, coral reefs and sea grasses are broadly understood (Espinoza-Avalos, 1996; Jordán Dahlgren, E. 2002.) Information on the distribution of the effort of the FIP fleet, and the overlap with the main habitats and impacts of the gear use, are broadly understood (e.g.: Monroy et al., 2010). At a more detailed scale, the available information is not sufficient to identify the main impacts of the use of fishing gear timing and location. In a full assessment, the use of RBA is recommended, the fishery is likely to pass the SG80. |
| Ecosystem | 2.5.1 | Outcome             | 60-79 | 60-79 | There is no evidence that the fishery would disrupt the ecosystem structure or function to a point where there would be a serious or irreversible harm.<br><br>However, harvest historic information from target and associated species (P2 species) showed a decreasing trend, which could indicate some kind of impact in the ecosystem species composition. This PI remains with no change.  |
|           | 2.5.2 | Management strategy | 60-79 | 60-79 | There is no evidence of a partial management strategy established, in regard of keeping habitat structure and function; there are only measures associated to the fishery operational activities, which are expected to have a negative effect on the secondary species or habitat. This PI remains with no change.   |
|           | 2.5.3 | Information         | 60-79 | >80   | The “grouper collaborative research network” has strengthened its structure and there are several projects around the fisheries in the region that have also published their findings.<br><br>The bank of Campeche zone it is a very well-studied zone regarding habitats, ecosystems, fisheries and some of their  |

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|---|-----------------------|-------|--|-----|-----|---|
|   |                       |       |  |     |     | interactions. From the information available, the main functions are known and impacts over the key ecosystem's elements can be inferred. More data is continually collected, with ongoing research projects on the region and in collaboration with fishers.   |
| 3 | Governance and Policy | 3.1.1 | Legal and customary framework            | >80 | >80 | The general legal and customary framework associated to the fishing activity is consistent and well known by all parties. The federal management system presents an institutionalist according to the activity both at federal and at state Government, additionally; it has the needed transparency elements. However, it should be noted that, as a result of the interviewing process, there is recurrent lack of attention to rights renewal requests necessary to execute the artisanal fishing activity. This situation could generate uncertainty in surveillance, and a possible violation to the previously obtained rights (due to incorrect rights request management). This PI remains with no change.  |
|   |                       | 3.1.2 | Consultation, roles and responsibilities | >80 | >80 | The organizations and individuals involved in the management process are well identified, as well as their roles, and responsibilities have been explicitly defined. The legal framework is established within the General law of Sustainable Fisheries and Aquaculture and in the Yucatan State Fishing Law, and it is demonstrated with the active participation of the Grouper Sustainable Management Committee, as well as in the state and national fishing councils. The management system includes consulting processes which regularly seek and accept relevant information, including local knowledge. Participation in the consultation processes is observed within State and National Fisheries Councils framework, at this level, the licensees contribute with their 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's Gazette). This PI remains with no change. |
|   |                       | 3.1.3 | Long term objectives                     | >80 | >80 | General Law of Fisheries and Aquaculture defines explicitly long-term objectives and it is correctly defined in the CNP. This PI remains with no change.  |

|                                    |       |                                   |       |       |   |
|------------------------------------|-------|-----------------------------------|-------|-------|---|
| Fishery specific management system | 3.2.1 | Fishery specific objectives       | 60-79 | 60-79 | <p>The fishery management plan (DOF, 2014), has the goals of “red grouper and associated species populations recovered”. However, there is not short and long terms explicit objectives.</p> <p>In a future update, the fishery management plan should include explicit short- and long-term objectives and ideally quantifiable.</p>   |
|                                    | 3.2.2 | Decision making processes         | >80   | 60-79 | <p>There are established decision-making processes responding to serious and important issues identified in the fishery with the best information available. There are examples of some regulatory improvements that try to reduce fishing effort.</p> <p>However, due to the current status of the fishery, and given the lack of actions and failure to respond to overfishing, and/or to the recommendations from INAPESCA and other researchers, it cannot be concluded that established decision-making processes result in measures to achieve the fishery-specific objectives using a precautionary approach, based on best available information.</p> |
|                                    | 3.2.3 | Compliance and enforcement        | <60   | <60   | <p>While fisheries management measures are in place, all interviewees are concerned about the management rules, especially the high number of vessels without permits and catches under the minimum landing size in SSF.</p> <p>Despite the evidence of non-compliance sanction deals, and some improvement in the effectiveness on the matter in recent years (PD, 2021) there are still no real consequences for those who break the rules. There is some monitoring, control and surveillance mechanisms, but these are not effective based on past and present experiences.</p>   |
|                                    | 3.2.4 | Management performance evaluation | 60-79 | 60-79 | <p>There are mechanisms in place that evaluate the management system, for example, INAPESCA annually monitors and conducts the assessment of the fishery. In addition, landings are reported through “avisos de arribo”. There is a lot of information and a stock assessment conducted by managers and independently (for red grouper). The CNP provides a vehicle for the fisheries review, but it only operates occasionally.</p>  |

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|  |  |  |  |  |  | There is the need to evaluate other key parts of the fishery specific management, such as the compliance, enforcement, regulatory framework effectiveness, among others. |
|--|--|--|--|--|--|--|

## Environmental Workplan Results

*Please note, in gray are actions considered completed.*

| Result   | Related Action on Fishery Progress   | Related MSC Performance Indicator   | Explanation   |
|--|--|---|---|
| <p>-Different recovery strategies are being analyzed by Fishery stakeholders.</p> <p>-FIP stakeholders advocate for FIP needs at national level.</p> <p>-The MSC fishery standard trainings to increase knowledge within key fishery stakeholders.</p> | <p>1. Promoting the improvement of fishery management measures proposed by the FIP</p> | <p>1.2.4, 1.2.2, 1.2.1, 1.2.3, 1.1.2, 1.1.1, 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, 3.2.3, 3.1.2, 3.2.2, 3.2.1, 3.2.4</p> | <p>Due to the low demand caused by the COVID-19 pandemic, it was considered to reduce the closed season from two months to one month to increase catches and to financially recover. Thus, the Committee for the Sustainable Management of the Grouper Fishery has held several meetings that discuss the modification of the fishery closed season duration. However, the final decision was not to modify the current closed season dates. In addition, an update in the fishery management plan is expected soon, with some modifications to reduce the fishing effort. In the council meeting, some modifications on fishing gear and catch minimum size were discussed. Currently, there has not been an official statement or proposal for this initiative.</p> <p>FIP and fishery stakeholders have engaged in meetings and have considered the implementation of a quota system for the fishery that would allow it to recover. These meetings included presentations of examples from other fisheries that have implemented quota systems and have been found successful.</p> <p>CEDEPESCA held a training with INAPESCA researchers from Southeastern Mexico in order to have a better understanding of principle 1 of the MSC standard.</p> <p>FIP partners have been working with other stakeholders in Mexico to improve some fishery regulations at the National level and have acted as advocates to include FIP needs in the national agenda (Meetings in Impacto Colectivo). In addition, FIP stakeholders presented the fishery needs at the 2nd. Ed. Latin American Summit for fisheries and Aquaculture Sustainability.</p> |

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| <p>-Improve the fishery information collection method in order to successfully asses the possible impacts of the fishery on the ecosystem and the associated species to the target fishing species (retrieved from last report 3/20)</p> | <p>2. Introducing data collection practices to fishery stakeholders.</p>                                     | <p>1.2.4, 1.2.2, 1.2.3, 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, 3.2.3, 3.2.2</p> | <p>Completed 2/20</p>  |
| <p>-FIP partners comply with national, USA, and EU regulations.</p>  | <p>3. Encourage the improvement of the fishing registry and the implementation of traceability programs.</p> | <p>1.2.3, 3.2.3</p>   | <p>Completed 2/20</p>  |
| <p>-Red grouper stock assessment in a peer-review journal.<br/>-Black grouper stock assessment is in process of publication.<br/>-CNP updated.<br/>-Workshops about fishing interactions with sea turtles.</p>                           | <p>3b. Promoting the improvement of fishery research practices and processes.</p>                            | <p>1.2.4, 1.2.1, 1.1.2, 1.1.1, 2.3.3, 2.3.2, 2.3.1, 2.5.3, 2.5.2, 2.5.1, 2.1.1, 2.2.3, 2.2.2</p>  | <p>Meeting with researchers from the Regional Fisheries Research Center to present FIP needs.</p> <p>Engagement with researchers to launch a book chapter about management tools and governance bodies.</p> <p>A red grouper stock assessment was published in a peer-reviewed journal (2021). They analyzed the current species status (overharvested) and explored some options for the fishery recovery via quotas.</p> <p>A black grouper assessment is being conducted independently by researchers, through a collaboration with fishers-researchers. However, there is no public report available, although there is evidence that some work is being done by the researchers (the results have been presented to the Committee for the Sustainable Management of the Grouper Fishery). On the other hand, the INAPESCA staff, during the interview process, highlighted that they are working on a specific assessment for the black grouper (yet not public available).</p> <p>FIP partners and several fishers collaborating with the FIP participated in several workshops about how to avoid sea turtles damage when interacting</p> |

|   |  |  |   |
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|   |  |  | <p>with fishing gear in Campeche, where interactions seem to be higher (Cuevas et al., 2018). Those workshops generated information about best practices of how to release sea turtles in case of fishing gear interaction and it was shared within FIP partners (especially fishers).</p> <p>The CNP (National Fisheries Chart) was updated in July 22, updating grouper fishery information (including a red grouper assessment).</p>   |
| <p>-Engagement meetings to improve the fishery sustainability.<br/>-Promote traceability programs for seafood at the national level.<br/>-Rise awareness about IUU seafood in the region.</p> | <p>4. Promote complementary improvements in the fishery.</p>   | <p>3.2.3</p>                             | <p>Completed 2/21<br/>Several meetings among the Committee for the Sustainable Management of the Grouper Fishery have been held to discuss how to improve compliance and enforcement and explore strategies to reduce fishing efforts.</p> <p>FIP partners are in the technical group that aims to draft a NOM-38 about traceability in fisheries at a national level where they hold their 9<sup>th</sup> meeting. Now CONAPESCA is working on developing a platform for the future development of the traceability system.</p> <p>FIP partners supported several campaigns promoting the legal origin of seafood in the region and other campaigns supporting activities to decrease the fishing effort on the grouper fishery.</p> |
| <p>-Grouper collaborative research network strengthened.<br/>-Data on species associated with the main target species has been improved.</p>  | <p>5. Contribute to the understanding of the impacts of the fishery on the ecosystem.</p>                                | <p>1.1.1, 2.3.3, 2.5.3, 2.4.3, 2.2.3</p> | <p>The “grouper collaborative research network” has strengthened its structure and there are several projects and publications related to the fisheries in the region (eg: <a href="https://epomex.uacam.mx/view/paginas/14">https://epomex.uacam.mx/view/paginas/14</a>)</p> <p>A preliminary RBF analysis report performed on species associated with the grouper fishery was done.</p>   |
| <p>-Rise awareness about IUU seafood and the importance of sustainable seafood in the region.</p>   | <p>6. Raising awareness in the domestic market regarding the importance of not indulging in buying illegal products.</p> | <p>1.1.2, 1.1.1, 2.1.1, 2.2.1, 3.2.3</p> | <p>Completed 4/2020<br/>"Together for grouper" campaign was developed in the Culinaria School.</p>  |
| <p>-Coordination among stakeholders are improving surveillance efficiency.</p>  | <p>7. Strengthen the monitoring control and surveillance system</p>  | <p>3.2.3</p>                             | <p>Collaboration among stakeholders (SEPASY, CONAPESCA and Secretaría de Marina and legal fishers) seem to have improved surveillance efficiency.</p> <p>FIP stakeholders have presented the main problem to the Senate.</p>  |

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| <p>-Rise of awareness among chain value stakeholder about IUU fishing</p> |  |  | <p>Funds are been sought to continue the implementation of a new fishing refugia.</p> <p>Presentation to restaurant chefs took place to minimize the trade in fish from non-legal sources.</p> |
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## Supporting References

CNP 2022, Carta Nacional Pesquera.

<https://www.gob.mx/inapesca/documentos/carta-nacional-pesquera-2022>

Cuevas, E., Guzmán-Hernández, V., Uribe-Martínez, A., Raymundo-Sánchez, A., & Herrera-Pavon, R. (2018). Identification of potential sea turtle bycatch hotspots using a spatially explicit approach in the Yucatan Peninsula, Mexico. *Chelonian conservation and biology*, 17(1), 78-93. <https://doi.org/10.2744/CCB-1263.1>

Cuevas, E., Liceaga-Correa, M. D. L. A., Uribe-Martínez, A., Gallegos-Fernández, S. A., Moncada-Gavilán, F., González-Díaz-Mirón, R. J., ... & López, M. (2021) Marine turtle hotspots in the Gulf of Mexico and Mesoamerican Reef: Strengthening management and preparedness. *Frontiers in Marine Science*, 2387. <https://doi.org/10.3389/fmars.2022.1059678>

DOF, 2014. Diario Oficial de la Federación. Acuerdo por el que se da a conocer el Plan de Manejo Pesquero de Mero (*Epinephelus morio*) y especies asociadas en la península de Yucatán.

Echazabal-Salazar, O., Morales-Bojórquez, E., & Arreguín-Sánchez, F. (2021). Biomass dynamic model for multiple data series: An improved approach for the management of the red grouper (*Epinephelus morio*) fishery of the Campeche Bank, Mexico. *Regional Studies in Marine Science*, 47, 101962. [https://www.sciencedirect.com/science/article/pii/S2352485521003546?casa\\_token=n5kiivGM72oAAAAA:rYwOTQdj\\_yhMTKdrIkK2r0E6jGkJ77NqCas5kWmlDa\\_yq5adOfdCRAqGhhUhWVzRu8dZOOOuRqJ](https://www.sciencedirect.com/science/article/pii/S2352485521003546?casa_token=n5kiivGM72oAAAAA:rYwOTQdj_yhMTKdrIkK2r0E6jGkJ77NqCas5kWmlDa_yq5adOfdCRAqGhhUhWVzRu8dZOOOuRqJ)

Espinoza-Avalos, J. (1996). Distribution of seagrasses in the Yucatan Peninsula, Mexico. *Bulletin of marine science*, 59(2), 449-454.

Jordán-Dahlgren, E. (2002). Gorgonian distribution patterns in coral reef environments of the Gulf of Mexico: evidence of sporadic ecological connectivity?. *Coral reefs*, 21(2), 205-215.

Lindeman, K., Claro, R., Sedberry, G., Carpenter, K.E., Zapp-Sluis, M. & Cowan, J. 2015. *Mycteroperca bonaci* (Gulf of Mexico assessment). *The IUCN Red List of Threatened Species* 2015: e.T132724A70328209. Accessed on 10 December 2022.

López-Rocha, J. A., Vidal-Hernández, L., & Bravo-Calderón, A. (2020). Length-based indicators for the management of sport fishery in Yucatan, Mexico. *Latin american journal of aquatic research*, 48(4), 637-648. [https://www.scielo.cl/scielo.php?pid=S0718-560X2020000400637&script=sci\\_arttext&tIng=en](https://www.scielo.cl/scielo.php?pid=S0718-560X2020000400637&script=sci_arttext&tIng=en)

Monroy, C., Salas, S., & Bello-Pineda, J. (2010). Dynamics of fishing gear and spatial allocation of fishing effort in a multispecies fleet. *North American Journal of Fisheries Management*, 30(5), 1187-1202.

Olivares-Bañuelos N.C., 2020. Plan de recuperación de mero. Yucatán. Noviembre, 2020. Technical report.

<https://mexico.edf.org/blog/2022/03/30/plan-de-recuperacion-de-mero-en-yucatan-buscando-la-sostenibilidad-traves-del>

PD, 2021. Pescando datos, combate contra la pesca ilegal. Causa Natura. <https://pescandodatos.causanatura.org/combate-a-la-pesca-ilegal>. Accessed on 10 December 2022

Ramos-Miranda, J. M.A. Cabrera, E. Torres, D. Flores-Hernández, S. Salas, M. Sosa, S. Gallardo, M.A. Dorantes, C. Calderón, V. Alatorre, F. Gómez-Criollo, W. Printzen, R. López, V. Oviedo, V. Silveira, a. Chablé. 2020. La pesca artesanal en la península de Yucatán: composición de especies, su importancia comercial y tendencias. CINVESTAV-UNAM-EPOMEX-UAC. Mérida, Yucatán, México. 25 p

Sampaio, Í, Braga-Henriques, A., Pham, C., Ocaña, O., De Matos, V., Morato, T., & Porteiro, F. (2012). Cold-water corals landed by bottom longline fisheries in the Azores (north-eastern Atlantic). *Journal of the Marine Biological Association of the United Kingdom*, 92(7), 1547-1555. doi:10.1017/S0025315412000045.

SFW, 2019 Grouper (Mexico) set longlines, reviewed in 2019. Seafood Watch technical report.