

**Marine Stewardship Council (MSC) Pre-assessment Report**

**Marismas Nacionales artisanal finfish fishery**

**On behalf of**

**Pronatura Noroeste A.C.**

**Prepared by**

**Control Union (UK) Limited**

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**Authors:**

**Dr Lisa Borges  
Henry Ernst**

Control Union (UK) Limited  
56 High Street  
Lymington SO41 9AH  
United Kingdom

Tel: ++44 (0) 1590 613007

Email: [infofishuk@controlunion.com](mailto:infofishuk@controlunion.com)  
Web: <http://uk.controlunion.com>

## Contents

<b>CONTENTS</b>	<b>1</b>
<b>QA</b>	<b>3</b>
<b>GLOSSARY</b>	<b>4</b>
<b>1 EXECUTIVE SUMMARY</b>	<b>5</b>
<b>2 REPORT DETAILS</b>	<b>6</b>
2.1 Aims and constraints of the pre-assessment	6
2.2 Version details	6
2.3 Full Assessment Process	6
<b>3 UNIT(S) OF ASSESSMENT AND CERTIFICATION</b>	<b>9</b>
3.1 Unit(s) of Assessment (UoA)	9
<b>4 PRE-ASSESSMENT RESULTS</b>	<b>11</b>
4.1 Pre-assessment results overview	11
4.1.1 Overview	11
4.2 Summary of potential conditions by Principle	12
4.3 Summary of Performance Indicator level scores	13
<b>5 FISHERY OVERVIEW</b>	<b>21</b>
5.1.1 The Client fishery	21
5.1.2 Gear and operation of the fishery	21
5.1.3 Fishing areas and seasons	23
5.1.4 Catch profiles and data availability	23
<b>6 TRACEABILITY AND ELIGIBILITY</b>	<b>24</b>
6.1 Traceability within the fishery	24
<b>7 PRINCIPLE 1</b>	<b>25</b>
7.1.1 Biology and ecology	25
7.1.2 Catch and landings	28
7.1.3 Stock identification	29
7.1.4 Stock Status and Assessment	29
7.1.5 Stock management	33
Principle 1 Performance Indicator scores and rationales	34
Scoring table 1. PI 1.1.1 – Stock status	34
7.2 Principle 2	51
7.2.1 Designation of species under Principle 2	51
7.2.2 Primary and secondary species	51
7.2.3 ETP species	53
7.2.4 Habitats	53
7.2.5 Ecosystem	54

7.2.6	Scoring elements	55
7.2.7	Principle 2 Performance Indicator scores and rationales	56
7.3	Principle 3	98
7.3.1	Legal and customary framework, and decision making processes	98
7.3.2	Consultation, roles and responsibilities	98
7.3.3	Long term objectives	99
7.3.4	Fishery specific objectives	99
7.3.5	Decision making processes	100
7.3.6	Compliance and enforcement	100
7.3.7	Management performance evaluation	100
7.3.8	Principle 3 Performance Indicator scores and rationales –	102
<b>8</b>	<b>REFERENCES</b>	<b>117</b>
<b>9</b>	<b>APPENDICES</b>	<b>120</b>
<b>APPENDIX 1</b>	<b>ASSESSMENT INFORMATION</b>	<b>120</b>
Appendix 1.1	Small scale fisheries	120
<b>APPENDIX 2</b>	<b>EVALUATION PROCESSES AND TECHNIQUES</b>	<b>121</b>
Appendix 2.1	Site visits	121
Appendix 2.2	Recommendations for stakeholder participation in full assessment	121
Appendix 2.3	Risk-based Framework outputs	121
2.3.1	Productivity Susceptibility Analysis (PSA)	121

## QA

<b>Role</b>	<b>Signature</b>	<b>Date</b>
Originator:	H Ernst	29 <sup>th</sup> Sept 2021
Reviewer:	B O’Kane	1 <sup>st</sup> November 2021
Approver:	T Tsuzaki	29 <sup>th</sup> March 2022

## Glossary

Acronym	Definition
ACDR	Announcement Comment Draft Report
CAB	Conformity Assessment Body
CONAPESCA	Comisión Nacional de Acuacultura y Pesca
CPUE	Catch Per Unit Effort
CSA	Consequence Spatial Analysis
CU UK	Control Union United Kingdom
DOF	Diario Oficial de la Federación
ETP	Endangered Threatened Protected (species)
FCP	Fisheries Certification Process
FCR	Fisheries Certification Requirements
INAPESCA	Instituto Nacional de la Pesca
IPI	Inseparable or Practicably Inseparable
LGPAS	Ley General de Pesca y Acuacultura Sustentables
MSC	Marine Stewardship Council
MSY	Maximum Sustainable Yield
NGOs	Non-Governmental Organisations
NOM	Normas Ocificales Mexicanas
PI	Principle Indicator
PMP	Plan de Manejo Pesquero
PSA	Productivity Susceptibility Analysis
RBF	Risk-Based Framework
SAGDRPA	The Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación
SEGOB	Secretaria de Gobernacion
SI	Scoring Indicator
SEMARNAT	the Ministry of the Environment and Natural Resource
TAC	Total Allowable Catch
UoA	Unit of Assessment
UoC	Unit of Certification
VME	Vulnerable Marine Ecosystem

## 1 Executive Summary

This report outlines the Marine Stewardship Council (MSC) Pre-assessment conducted for Pronatura Noroeste on the artisanal multi-species finfish fishery in the Marismas Nacionales Bioreserve. This Pre-assessment was undertaken against the unpublished modification of the MSC Default Assessment Tree for Mixed Fisheries at the request of the client and with the permission of the MSC. The Mixed Fisheries modified tree is expected to supplement Annex SA of FCR v2.0 and is “*intended for situations where management of a suite of species is based around that of one or several Index species, for which management is in place intended to achieve management objectives reflected in target and limit reference points*”. The modified tree only includes requirements for mixed fisheries that are not included in Annex SA, therefore, all other PIs of SA apply in the assessment of these fisheries. The current guidance for the structuring of Units of Assessment (UoAs) under this new tree is currently limited, so the team based the UoAs off the following requirement for the assessment of Principle 1: “*In Principle 1, teams shall score the whole stock(s) of the index and non-index species selected for inclusion in the Unit of Assessment (UoA)*”. As a result, the UoAs are only split by gear type, with all Species suites being included in the same UoA – UoA1 includes the gillnet fishing effort, while UoA2 includes handline effort.

The index species for this pre-assessment are White snook (*Centropomus viridis*), Colorado snapper (*Lutjanus colorado*), Orangemouth weakfish (*Cynoscion xanthalmus*), all fishing activities take place in the Marismas Nacionales Bioreserve, a large coastal estuarine system.

The fishery currently fails against all three Principles of the MSC Standard. For Principle 1, the RBF was used to assess stock status for all index species, as the stocks are not managed against any reference points. Further, while it can be said that a harvest strategy is in place, there is no evidence indicating that this strategy is responsive to the state of the stock, and there is no evidence that exploitation of the index species is being limited. For Principle 2, this is linked to the fact that there is very little data available on non-target species, and this is a particular problem for the ETP species component. While the artisanal nature of the fishery most likely means that its impact on the wider ecosystem (including ETP species) is low, there is no data or information to demonstrate this. For Principle 3, the fishery only fails on 2 PIs – a marked improvement from the previous pre-assessment. A central issue with this Principle is the lack of information on the monitoring control and surveillance regime in place in the Marismas Nacionales Bioreserve. Though plans have been established for years, there is no evidence of implementation. On a wider scale, the team was not able to find any evidence of management strategy evaluation for the fishery specific management framework.

## 2 Report Details

### 2.1 Aims and constraints of the pre-assessment

A pre-assessment 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 consultations stages that are not included in a pre-assessment. A pre-assessment provides a provisional assessment based on a limited set of information provided by the client.

This pre-assessment was undertaken remotely, which may have put a constraint on information gathering. The team attempted to mitigate this by organising a call with the client group, to ask follow up questions on the data and information sent to them.

### 2.2 Version details

**Table 1. Fisheries programme documents versions**

Document	Version number
MSC Fisheries Certification Process	Version 2.2
MSC Fisheries Standard	Draft Multi-species standard
MSC General Certification Requirements	Version 2.4.1
MSC Pre-Assessment Reporting Template	Version 3.2

### 2.3 Full Assessment Process

The full MSC assessment is a multiple-step process to determine whether a fishery meets the MSC standard. CU UK and its expert assessment team would lead the process. It involves consulting with stakeholders, scoring the fishery against a set of performance indicators and scoring guideposts, identifying ways that the fishery can strengthen its performance (if needed), peer review and making a final determination about whether the fishery meets the MSC standard. This is an intensive process that calls for a high level of information to be provided by the fishery and others and also calls for a significant level of involvement by the fishery client.

Please note as of 28<sup>th</sup> September 2020 the MSC Fisheries Certification Process (FCP 2.2) comes into force. The following steps form the MSC full assessment process (as per Version 2.2 of the Fisheries Certification Process):

Confirmation of scope (determining the fishery is eligible for MSC assessment and confirming the units of assessment (UoA) and units of certification (UoC) to be put forward for assessment).

- Agreement of contract
- A client signed copy of 'Certificate Holder Forced and Child Labour Policies, Practices and Measures'.
- Return of the Client Document Checklist, as completed by the client
- Assessment team write and present to client the Announcement Comment Draft Report (ACDR).
- Client decides whether to proceed with MSC full assessment

- Announcement of Fishery Assessment. Here the fishery is announced as going forward for assessment. At the same time the CAB is required to:
  - Publish the Announcement Comment Draft Report (ACDR)
  - Provide the names and CVs of the assessment team
  - Announce the use of the default assessment tree (if to be used) and application of Risk-Based Framework (RBF), where necessary and identify inseparable or practicably inseparable catches (IPI).
  - Inform stakeholders
  - Indicative timeline of the assessment
  - Announce the date and location of the proposed site visit(s)
  - Submit to the MSC, the MSC Notification Report Form (outlining the fishery details)
  - Submit to the MSC the returned Client Document Checklist
  - Allow for a period of at least sixty (60) days before the site visit for stakeholder responses.
  - Notify the MSC Peer Review college.
  - Send Pre-assessment Report to MSC
- Site visit, to include stakeholder meetings and data confirmation.
- Scoring of the performance indicators and drafting of the Client and Peer Review Draft Report
- Selection and approval of peer reviewers from the MSC Peer Review College
- Peer Review Draft Report sent to Peer Reviewers and Client Draft Report sent to client
- Review of Client Draft Report and Peer Review Draft Report (maximum 60 calendar days) including:
  - Preparation of Client Action Plan by client, if required
- Incorporation of Peer review comments, as required, and subsequent production of Public Comment Draft Report
- Publication of Public Comment Draft Report on MSC website and its review by stakeholders and MSC (30 calendar days)
- Response to stakeholder comments; revision of report as required
- Peer Reviewers notified for additional review
- Certification determination and publication of the Final Report
- Stakeholders given opportunity to object to the certification determination (15 working days)
- Objection procedure and consultation with stakeholders, if necessary
- Certification and publication of Public Certification Report – assuming a successful certification outcome



A certificate lasts for 5 years from date of issuance, during which time it is subject to annual surveillance audits to ensure continuing compliance with all MSC Certification Requirements and to evaluate progress against any conditions of certification. These annual surveillance audits will vary between the requirement for a full on-site audit, off-site audit or review of information, dependent on the risk as assessed during the previous audit by the CAB.

When the certificate is due to expire, a reassessment against the MSC Certification Requirements is required to ensure on-going certification beyond the original certificate expiry date. This reassessment may constitute a full reassessment (same process as followed for initial certification) or a reduced reassessment. The reduced reassessment allows for fisheries which meet set criteria to have a 'reduced' audit with only one team member required to go on-site during the process and only one peer reviewer required to review the reassessment peer review report.

Prior to applying for full assessment for any of the UoAs within this assessment, the client should:

- Inform CU UK of any actions undertaken following this pre-assessment to address the conclusion of this report.
- Report on any new issues that may be a barrier to certification.
- Report on any communications that may need to take place with management agencies, environment groups, post-harvest sectors, relevant commercial and non- commercial fishing groups to explain the MSC assessment process and the implications (including costs and benefits) of certification.
- Ensure the completion of the Client Document Checklist, identifying the type and extent of data and information available for a full assessment.
- Be willing to signed a copy of 'Certificate Holder Forced and Child Labour Policies, Practices and Measures'.
- Indicate whether the client would like to receive the optional MSC training material on the fishery assessment process for clients.

### 3 Unit(s) of Assessment and Certification

#### 3.1 Unit(s) of Assessment (UoA)

CU UK confirms that the fishery under assessment is within the scope of the MSC Fisheries Standard (7.4 of the MSC Fisheries Certification Process v2.2):

- The target species is not an amphibian, reptile, bird or mammal;
- The fishery does not use poisons or explosives;
- The fishery is not conducted under a controversial unilateral exemption to an international agreement;
- The client or client group does not include an entity that has been successfully prosecuted for a forced or child labour violation in the last 2 years;
- Has the client or client group been successfully prosecuted for shark finning in the last 2 years;
- The fishery has in place a mechanism for resolving disputes, and disputes do not overwhelm the fishery;
- The fishery is not an enhanced fishery as per the MSC FCP 7.4.6; and
- The fishery is not an introduced species-based fishery as per the MSC FCP 7.4.7.

The proposed Units of Assessment (UoA) are given in Table 2 and Table 3.

**Table 2. Unit of Assessment 1 (UoA 1)**

<b>Species suite 1</b>	Index species: White snook ( <i>Centropomus viridis</i> ) Non-index species: Blackfin snook ( <i>Centropomus medius</i> ) Union snook ( <i>Centropomus nigresis</i> )
<b>Species suite 2</b>	Index species: Colorado snapper ( <i>Lutjanus colorado</i> ) Non-index species: Pacific dog snapper ( <i>Lutjanus novemfasciatus</i> )
<b>Species suite 3</b>	Index species: Orangemouth weakfish ( <i>Cynoscion xanthulus</i> ) Non-index species: Weakfish ( <i>Cynoscion reticulatus</i> )
<b>Stock</b>	See Section 7.1.3
<b>Fishing gear type(s) and if relevant, vessel type(s)</b>	Gill nets
<b>Client group</b>	Pronatura Noroeste A.C., Ensenada, Mexico, representing the fishers and fisher organizations listed in Table 4.
<b>Other eligible fishers</b>	N/A

<b>Geographical area</b>	Marismas Nacionales (FAO 77)
<b>Justification for choosing the Unit of Assessment</b>	Information base, previous pre assessment, client input

**Table 3. Unit of Assessment 2 (UoA 2)**

<b>Species suite 1</b>	Index species: White snook ( <i>Centropomus viridis</i> ) Non-index species: Blackfin snook ( <i>Centropomus medius</i> ) Union snook ( <i>Centropomus nigresis</i> )
<b>Species suite 2</b>	Index species: Colorado snapper ( <i>Lutjanus colorado</i> ) Non-index species: Pacific dog snapper ( <i>Lutjanus novemfasciatus</i> )
<b>Species suite 3</b>	Index species: Orangemouth weakfish ( <i>Cynoscion xanthulus</i> ) Non-index species: Weakfish ( <i>Cynoscion reticulatus</i> )
<b>Stock</b>	See Section 7.1.3
<b>Fishing gear type(s) and if relevant, vessel type(s)</b>	Hook and line (handline)
<b>Client group</b>	Pronatura Noroeste A.C., Ensenada, Mexico, representing the fishers and fisher organizations listed in Table 4.
<b>Other eligible fishers</b>	N/A
<b>Geographical area</b>	Marismas Nacionales (FAO 77)
<b>Justification for choosing the Unit of Assessment</b>	Information base, previous pre assessment, client input

**Table 4. Fishers and fisher organizations holding fishing permits for marine finfish that part of the Unit of Certification in the multispecies fishery of finfish in the Marismas Nacionales region of Nayarit, Mexico.**

No.	Municipio	Localidad	Permit holder	Type of permit
1	SANTIAGO IXCUINTLA	BOCA DE CAMICHIN	LILIA BARRON RENTERIA	ESCAMA MARINA
2	TECUALA	ANTONIO R. LAURELES	S.C.P.P. Y AC. IGNLOGAR, S.C. DE R.L. DE C.V.	ESCAMA MARINA
3	TUXPAN	UNIÓN DE CORRIENTE	S.C.P.P. Y AC. PESCADORES UNIDOS DE CORRIENTES, S.C. DE R.L.	ESCAMA MARINA
4	ROSAMORADA	PIMIENTILLO	S.C.P.P. Y AC. FRATERNIDAD DE PESCADORES DE PIMIENTILLO, S.C. DE R.L. DE C.V.	ESCAMA MARINA
5	SANTIAGO IXCUINTLA	MEXCALTITATAN	SOC. COOP. JOSE MARIA MORELOS, SC. DE R.L. DE C	ESCAMA MARINA

6	ROSAMORADA	PERICOS	SCP Y AC GRANJEROS DE PERICOS SC DE CV	ESCAMA MARINA
7	ROSAMORADA	ROSAMORADA	S.C.P.P. Y AC. PESCADORES DEL VALLE DE PIMIENTILLO, S.C. DE R.L. DE C.V.	ESCAMA MARINA
8	SANTIAGO IXCUINTLA	SANTIAGO DE CAMICHIN	S.C.P.P. EN GRAL. Y AC. OSTRICAMICHIN S.C. DE R. L	ESCAMA MARINA
9	TECUALA	LOS MORILLOS	S.C.P.P. Y AC. UNION DE MORILLOS, S.C. DE R.L. DE	ESCAMA MARINA
10	ROSAMORADA	ROSAMORADA	S. C. P. P. Y AC. PESCADORES DE SAN MIGUEL, S. C.	ESCAMA MARINA
11	ROSAMORADA	LLANO DEL TIGRE	S.C.P.P. Y AC .LLANO DEL TIGRE, S.C. DE R.L. DE C.	ESCAMA MARINA
12	ROSAMORADA	PIMIENTILLO	CANDELARIA DEL VILLAR AVILA	ESCAMA MARINA
13	ROSAMORADA	PIMIENTILLO	ALBERTO CASTRO CASTELLON	ESCAMA MARINA
14	SANTIAGO IXCUINTLA	Boca de Camichin	Nabor Cabuto Martinez	ESCAMA MARINA
15	Escuinapa	La Brecha	Soc. Cooperativa Pescadores de La Brecha SCL	ESCAMA MARINA

## 4 Pre-assessment results

### 4.1 Pre-assessment results overview

#### 4.1.1 Overview

Overall, the fishery fails to meet the MSC Standard across Principles 1, 2 and 3. In Principle 1, currently, there is no sufficient evidence to determine stock status for any of the species in the species suites. The results of the RBF approach suggest that the situation of these stocks is of concern given the high level of uncertainty, the level of fishing effort and the assumed vulnerability of each of the index species. Additionally, the harvest strategy is limited to restricting the number of permits, minimum size and the establishment of some no-take areas; there are no harvest control rules. For Principle 2, this is linked to the fact that there is very little data available on non-target species, and this is a particular problem for the ETP species component. While the artisanal nature of the fishery most likely means that its impact on the wider ecosystem (including ETP species) is low, there is no data or information to demonstrate this. For Principle 3, the fishery only fails on 2 PIs – a marked improvement from the previous pre-assessment. A central issue with this Principle is the lack of information on the monitoring control and surveillance regime in place in the Marismas Nacionales Bioreserve. Though management plans have been drafted for years, there is no evidence of formal approval and implementation. On a wider scale, the team was not able to find any evidence of management strategy evaluation for the fishery specific management framework.

### 4.2 Summary of potential conditions by Principle

**Table 5. Summary of potential conditions by Principle**

Principle	Number of PIs with draft scoring ranges <60
Principle 1 – Target Species	3

Principle 2 – Ecosystem Impacts	6
Principle 3 – Management System	2

### 4.3 Summary of Performance Indicator level scores

**Table 6. Summary of performance Indicator level scores.**

Performance Indicator	Draft scoring range	Data deficient?
<b>1.1.1 – Stock status</b>	<60	Yes
Rationale or key points		
RBF used to derive the score for the three index species considering a high risk CA a priori.		
<b>1.1.2 – Stock rebuilding</b>	N/A	N/A
Rationale or key points		
RBF was used to score P1.1.1		
<b>1.2.1 – Harvest Strategy</b>	<60	No
Rationale or key points		
There is a harvest strategy but it is not responsive to the state of the stock. There is only a licence scheme and gear restrictions to regulate the fishery and some data collection.		
<b>1.2.2 – Harvest control rules and tools</b>	<60	No
Rationale or key points		
There is no generally understood harvest control rule (HCR) or evidence that exploitation is being limited.		
<b>1.2.3 – Information and monitoring</b>	60 – 79	Yes

Rationale or key points		
Although there is one stock abundance index, regular monitoring of UoA removals is lacking.		
<b>1.2.4 – Assessment of stock status</b>	<b>≥80</b>	<b>Yes</b>
Rationale or key points		
Default score as RBF was used to score PI 1.1.1.		
<b>2.1.1 – Primary Outcome</b>	<b>≥80</b>	<b>No</b>
Rationale or key points		
No primary species – SG100 met.		
<b>2.1.2 – Primary Management</b>	<b>≥80</b>	<b>No</b>
Rationale or key points		
No primary species – “if necessary” triggered, minimum SG80 met.		
<b>2.1.3 – Primary Information</b>	<b>&lt;60</b>	<b>Yes</b>
Rationale or key points		
Given that too many questions remain on data representativeness and consistency, the team must allocate a precautionary score of <60 for this SI.		
<b>2.2.1 – Secondary Outcome</b>	<b>≥80</b>	<b>Yes / No</b>
Rationale or key points		

All secondary main species received an MSC score of >80 in the PSAs. Further details can be found in Appendix 2.3.1		
<b>2.2.2 – Secondary Management</b>	<b>Gillnet &lt;60</b> <b>Handline 60-79</b>	<b>No</b>
Rationale or key points		
<p>While there are currently measures in place in the UoA (mesh size and hook and line requirements set out by the fishing license), it is unclear how these may affect the non-target species. It would be reasonable to assume that these measures, set with the intention of constraining the fishing effort on the target species, would also limit the impact on secondary species. Plus, the recent efforts in data collection would allow the tracking of any trends or changes to catch profiles, which may provide an indication of UoA impact. However, at the time of writing, this is not the case, and given how unselective the gear is for the gillnet UoAs (demonstrated by the large catch profiles), the team cannot conclude that the measures can be expected to maintain or not hinder the rebuilding of main secondary species for the gillnet UoAs. SG60 not met for gillnet UoAs.</p> <p>For handline UoAs, the fact that fishing occurs only on a specified 12-day period every month, reducing fishing pressure, and the use of bait, combined with the fact that this gear is quite selective (catching mostly index and non-index P1 species), the team considers that the measures in place could be expected to maintain, or not hinder the recovery of main secondary species. SG60 is met. Though these measures are not specifically designed to manage the impact of secondary species, they do work together to reduce the impact on the UoA on secondary species. Should these measures cease to be effective, the team does not consider there to be sufficient awareness of the need to change these measures, given the historic issues in data collection for non-target species. Though this has been changing in recent years, the team does not believe that SG80 is met for the handline UoAs at the time of writing.</p>		
<b>2.2.3 – Secondary Information</b>	<b>&lt;60</b>	<b>Yes</b>
Rationale or key points		
<p>There are significant issues with information availability surrounding non-target species in this fishery. Some efforts have been made in recent years to remedy these, and identification below genus level is now tentatively possible. According to the information and available to the team, there does not appear to be adequate information to support measures to manage main secondary species. Indeed there is still no clear unequivocal indication of which species are main for this fishery. SG60 not met.</p>		
<b>2.3.1 – ETP Outcome</b>	<b>&lt;60</b>	<b>Yes</b>
Rationale or key points		



UoA effects ETP species are not known or recorded, and are considered to be non-existent, though there is no evidence to demonstrate this claim. SG60 not met.		
<b>2.3.2 – ETP Management</b>	<60	<b>No</b>
Rationale or key points		
All UoAs: there is no evidence of any review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species. SG60 not met.		
<b>2.3.3 – ETP Information</b>	<60	<b>Yes</b>
Rationale or key points		
All UoAs: no information is available on UoA interactions with ETP species. SG60 is not met.		
<b>2.4.1 – Habitats Outcome</b>	≥80	<b>No</b>
Rationale or key points		
The commonly encountered habitats (mud and fine sand) are not likely to be significantly impacted by any of the UoAs, and this is mainly due to the gears in use in the fishery, and the reduced intensity of fishing effort owing to the artisanal nature of the fleet. For the gillnet UoAs, interaction with mangroves is extremely limited. For the handline UoAs, overlap with mangroves appears to be greater based on the photographs of fishing practices sent to the team by Pronatura Noroeste. Even so, the physical abrasion or disturbance of the gear and fishing practices on these mangroves is highly unlikely to would reduce the structure and function of this habitat to a point where there would be serious or irreversible harm due to the nature of the gear, and the scale of the fishery.		
<b>2.4.2 – Habitats Management</b>	<60	<b>No</b>
Rationale or key points		

It is the team's understanding that management requirements for the protection of VMEs include closed areas and gear limitations. There is some evidence that the UoAs comply with gear restrictions (though there are no signs of inspection reports to confirm this). However, given that there is no clear indication of geographical fishing effort, the team is unable to verify if these measures are being complied with. Given the current information base, SG60 is not met.

**2.4.3 – Habitats Information**
**60 – 79**
**No**
**Rationale or key points**

The main habitat types and their distribution in the Marismas Nacionales Bioreservare all presented in the study conducted on the area to justify its designation as a protected area (SEMARNAT, 2008). In this study, several maps are available on the topography, soil types, hydrology, climate, and biological characteristics (crucially, vegetation) of the area. The photographs presented to the team by Pronatura Noroeste provide an indication on how gear is used in the fishery, and on the potential overlap with the main and VME habitats.

**2.5.1 – Ecosystems Outcome**
**≥80**
**No**
**Rationale or key points**

Given the artisanal nature of this fishery, and the highly productive and dynamic nature of the ecosystem in which it takes place, the team believes that the UoAs are highly unlikely to disrupt the key elements underlying ecosystem structure.

**2.5.2 – Ecosystems Management**
**60 – 79**
**No**
**Rationale or key points**

The gear restrictions tied to licensing requirements constitute measures that take into account the potential impacts of the UoA on key elements of the ecosystem. Indeed, hook size and type is prescribed, as is mesh size and net depth. Though not explicitly (or even intentionally) – these measures modify and restrict the fishing practices of the UoA fishermen, and in doing so, constitute measures which take into account the potential impacts of the UoA on key elements of the ecosystem (such as the target species). The measures applying to gear specifications, and indeed the fishing practices (which can be considered a measure) are likely to work in reducing the impact of the UoAs on both commonly encountered and VME habitats. Such measures include the low impact nature of the gear, combined with closed periods for the handline UoAs, and the low impact nature of the gear combined with the effort limitations imposed by licensing requirements. Further the no take zone proposal above

would likely be a measure strong enough to allow some objective basis for confidence that it would work in reducing UoA impact on the ecosystem – as demonstrated by the Pronatura Noroeste (2019) study. However given that it is not yet clear whether these no take zones have been implemented, SG80 is not met at this stage.

### 2.5.3 – Ecosystems Information

60 – 79

No

#### Rationale or key points

In order to achieve the Biological Reserve status, several ecosystem-wide studies were conducted for the Marismas Nacionales Bioreserve (SEMARNAT 2008; SEMARNAT, 2018 ; Pronatura Noroeste 2019 ; Ramirez-Zavala et al., annum unknown). These studies include descriptions of the hydrological processes, an inventory of the flora and fauna, a catalogue of the pressures and stresses on the Marismas Nacionales Bioreserve ecosystem. As such, there is more than enough information available to understand the key elements of the ecosystem. The functions of habitats, especially the VME habitats with which the fishery interacts are known (SEMARNAT 2008 ). Given the lack of understanding of the function of secondary species in their ecosystem, and the complete lack of information on ETP species, SG80 is not met.

### 3.1.1 – Legal and customary framework

≥80

No

#### Rationale or key points

Since the previous pre-assessment there have been no changes to this Performance Indicator.

### 3.1.2 – Consultation, roles and responsibilities

≥80

No

#### Rationale or key points

Formalized consultation processes are well established on the national level, and appear to be becoming more inclusive with the latest suite of modifications to the Ley General de Pesca y Acuicultura Sustentables (LGPAS). The consultation processes are set out in Article 44 of the Federal Law on Metrology and Normalization. It is clear that the approach to decision making involves many stakeholders, from government, to gear manufacturers, to academia, NGOs, and producers.

### 3.1.3 – Long term objectives

≥80

No

#### Rationale or key points

<p>The scoring and rationale of the original pre assessment still stands. The objectives set out in the LGPAS and outlined in Section 7.3.3 clearly are in line with the MSC Principles and Criteria and the precautionary approach. These objectives are explicit and meet the SG100 requirements</p>		
<b>3.2.1 – Fishery specific objectives</b>	<b>60 – 79</b>	<b>No</b>
<p>Rationale or key points</p> <p>Explicit short-term and long-term objectives exist for this fishery with regard to achieving the outcomes expressed by Principle 1 of the MSC. While it could be argued that short and long-term objectives are also in place for the outcomes of Principle 2, there are no discernible explicit short term objectives for these outcomes. As such, SG80 is only partially met (it is met for P1 fishery-specific objectives, but not for P2-fishery specific objectives)</p>		
<b>3.2.2 – Decision making processes</b>	<b>60 – 79</b>	<b>No</b>
<p>Rationale or key points</p> <p>The team believes that information on management action (such as gear specifications for example) is available upon request, as Pronatura Noroeste was able to gather information on licencing conditions to forward to the assessment team. Based on the management plan for the target species, and on the management initiatives for Marismas Nacionales Bioreserve, the team believes that the decision-making process responds 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.</p>		
<b>3.2.3 – Compliance and enforcement</b>	<b>&lt;60</b>	<b>No</b>
<p>Rationale or key points</p> <p>No change to the previous pre assessment findings.</p>		
<b>3.2.4 – Management performance evaluation</b>	<b>&lt;60</b>	<b>No</b>
<p>Rationale or key points</p> <p>No change to the previous pre assessment findings. No mechanisms to evaluate the fishery specific management system can be discerned.</p>		



## 5 Fishery Overview

### 5.1.1 The Client fishery

The client fishery is made up of vessels operated by the fishers and members of fisher organizations that are listed in Table 4. These fishers are licensed by the Direccion General de Ordenamiento Pesquero y Acuicola to fish in federal jurisdiction waters, specifically, the Laguna de Agua Brava, Canal de Cuautla, Estero Santa Maria, Estero, Hondo, Laguna El Arco, Estero Pericos, and Estero Los Gatillos (all the aforementioned bodies of water are in the State of Nayarit). The licensing is not specific to a species, but rather to a gear type – in this instance, several gear types (described below). Licenses are given to the Cooperatives as a whole, and on the license itself is a list of all the vessels, their ID, tonnage, motor make and horsepower. As a whole, the fishery under assessment is made up of 102 licence holders in Nayarit, and 15 licence holders in South Sinaloa. Though the client fishery is multi-specific, several species had to be selected as target species to be assessed against the MSC Standard. The target species for this MSC Preassessment are: White snook (*Centropomus viridis*), Colorado snapper (*Lutjanus colorado*), and Orangemouth weakfish (*Cynoscion xanthalmus*). These species have been identified as Index species (more information on the structure of the Principle 1 assessment under the Mixed Fisheries modified assessment tree in Section 7 below).



Figure 1. Vessels belonging to the UoA. (Source: Pronatura Noroeste).

### 5.1.2 Gear and operation of the fishery

It is the understanding of the assessment team that two main gear types are in use in the fishery. The first being gill nets, which must be made up of monofilament line with a mesh size of 101.6mm, and are generally 3-4 metres deep, and 100 metres long (see Figure 2). Based on photographs provided by Pronatura Noroeste, it appears that a common setting technique is to set the gill net from one channel margin to another, essentially setting the net across the channel. The second gear type used

in this fishery are handlines, which may be up to 100 metres long, using hooks that correspond to “tipo noruego #6”. The gear specifications (including hook size and make) are set out in the fishing licence. Following some photographs provided by Pronatura Noroeste, it appears the handlines are used with great precision as close to the mangrove forests as possible (see Figure 3) . Given that fishermen are limited in their ability to enter any thick mangrove forests, it appears the lines are cast near the margin of the mangrove forest and the channel. The bait used in the handline UoAs is white shrimp (further information on bait in the Principle 2 background section).



**Figure 2. A gillnet as used in the gillnet UoAs (Source: Pronatura Noroeste).**



**Figure 3. An example of how handline are used by two UoA fishermen (Source: Pronatura Noroeste).**

### 5.1.3 Fishing areas and seasons

The fishery under assessment operates in the Marismas Nacionales (see Figure 4), a large expanse of coastal wetlands comprised of saltwater and brackish channels, lagoons, and mangrove forests in Nayarit and southern Sinaloa. The fishery takes place year round, as there are no seasonal closures for the target species of the fishery under assessment. However, there are seasonal trends for landings, which are more or less consistent from year to year. For white snook, the high season appears to be autumn, with the highest catches recorded between September and December, while the low season tends to be the summer months. As for snapper and weakfish, the peak season appears to be during November and December (SEGOB, 2021).

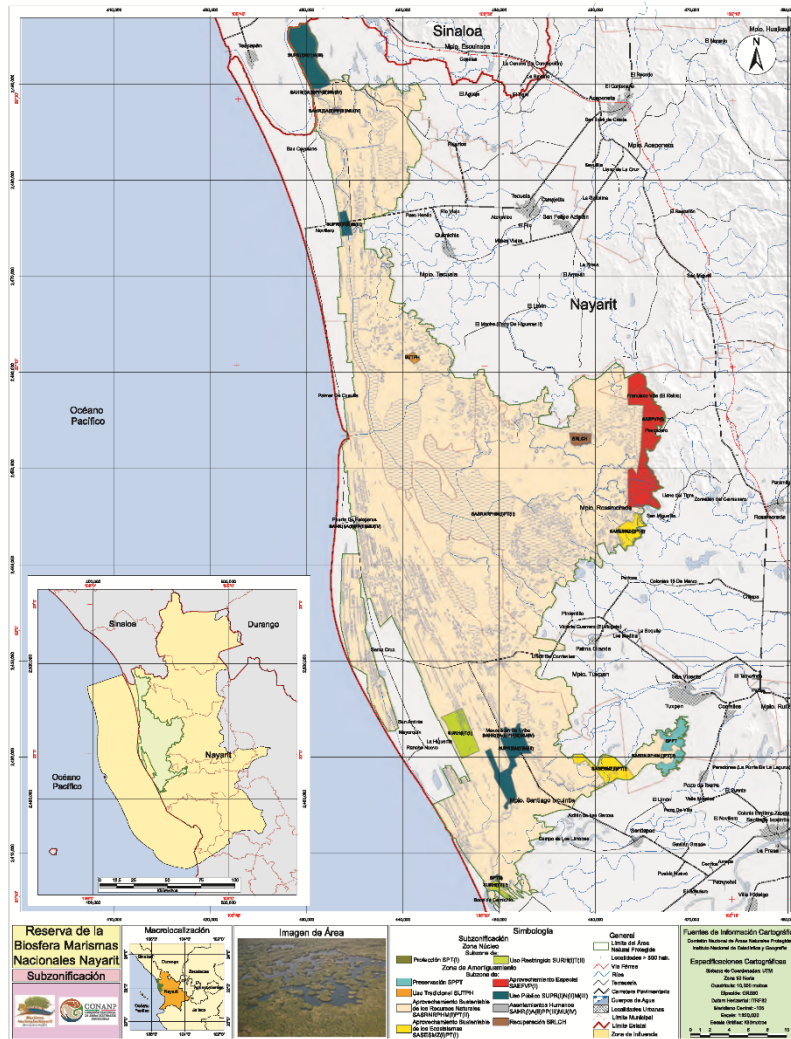


Figure 4. The Marismas Nacionales Bioserve. Reproduced from CONANP (2013).

### 5.1.4 Catch profiles and data availability

Catch data is quite sparse for the UoAs. The team have access to catch figures for the three main target species groups. The data is aggregated by group; snook, snapper, and weakfish. Very little information is available on non-target species, other than the following catch composition list provided to the team by Pronatura Noroeste. The official records for the fishery are not very reliable,



because catch data are aggregated by generic classes. As such, Pronatura Noroeste undertook some data collection initiatives as part of a FIP for this fishery. The data presented below have been collected by Pronatura Noroeste fields monitors, who incentivised collecting data at species level by paying fishers for their catch in order to sort through the haul and obtain catch compositions with greater accuracy. The data presented below is considered accurate for the landings sites used by the Cooperatives in the FIP (and so in this Pre-assessment). It is important to note that this list is specific to UoA activities; and so only includes fishing activity inside the marshlands, and with the UoA gears. Pronatura Noroeste has indicated that other species may sporadically figure in the catch, but in insignificant volumes.

**Table 7. Catch composition for the UoAs (in %), with species designation also provided (Source: Pronatura Noroeste) – catch data can currently not be split by gear type, so this catch profile represents a combination of the UoAs.**

Species		Year			Total	Principle
English	Species	2018	2019	2020		
White snook	<b>Robalo garabato</b>	27.18	36.09	33.96	<b>32.34</b>	P1 (index)
Colorado Snapper	<b>Pargo colorado</b>	36.61	11.37	19.34	<b>22.24</b>	P1 (index)
Orangemouth weakfish	<b>Curvina amarilla</b>	4.63	17.96	14.14	<b>12.27</b>	P1 (index)
Croaker	<b>Roncacho</b>	22.00	6.75	0.00	<b>11.84</b>	P2
Grunt	<b>Burro prieto</b>	2.29	16.84	18.87	<b>11.42</b>	P2
Blackfin snook	<b>Robalo paleta</b>	5.73	8.84	13.17	<b>8.18</b>	P1 (non-index)
Snapper	<b>Pargo prieto</b>	1.55	0.64	0.52	<b>0.98</b>	P1 (non-index)
Weakfish	<b>Curvina chana</b>	0.00	1.50	0.00	<b>0.73</b>	P1 (non-index)
Union snook	<b>Robalo piedra</b>	0.00	0.01	0.00	<b>0.01</b>	P1 (non-index)

A second set of catch profiles was also made available to the team – a study of secondary species in gillnet and handline fisheries targeting white snook (Villegas, 2020). This dataset is the result of a two-year sampling study, also from 2018 to 2020 where 418 trips were sampled. The two studies appear to take place over the same period, and it is unclear if there is any relation between the two – it is the teams understanding that in both cases, the catch profiles are strictly describe UoA gears, however the catch profiles include different species. Indeed there is no mention of “Roncacho” (croaker) in the Villegas (2020) study, but several species of catfish appear in the data. Catfish are

also abundant in catches by fishers in the UoA in the same fishing areas, even landed at the same time with target species. However, they are caught in different spots relative to the target species and using different gear at times where fishers are either waiting for gillnets to work in the water or are not catching the target species. Catfish in the data were therefore filtered out and not included as part of the fishery.

## **6 Traceability and eligibility**

### **6.1 Traceability within the fishery**

Traceability was not included in the scope of this MSC pre-assessment. Should the fishery progress to a full assessment, traceability considerations, such as the segregation, identification and transparent handling of UoA product would require investigation by the assessment team.

## 7 Principle 1

### 7.1.1 Biology and ecology

#### 7.1.1.1 Index species

##### White snook

White snook (*Centropomus viridis*) is distributed along the eastern central Pacific: from Baja California, Mexico and Gulf of California to Peru, including the Galapagos Islands (FishBase, 2021). Snooks are estuarine-dependent, but are also mixohaline species that migrate from salty marine environments to other water masses presenting lower salinity concentrations during their ontogenetic development (Castro-Aguirre, 1999 in Tapia Varela et al., 2020). White snook is a sequential protandric hermaphrodite, i.e. changing from male to female during its lifetime.

In the Mexican Pacific Coast, the family Centropomidae is represented by six species of the genus *Centropomus*, locally known as snook (Rivas, 1986 in Tapia Varela et al., 2020). *C. viridis* is one of the most important species economically in the Marismas Nacionales among three other species (*C. medius*, *C. armatus* and *C. nigrescens*), and the predominant species of its genus according to catch volumes (Rodríguez-Madrigal et al., 2020), accounting to around 55% (Pronatura, 2013).

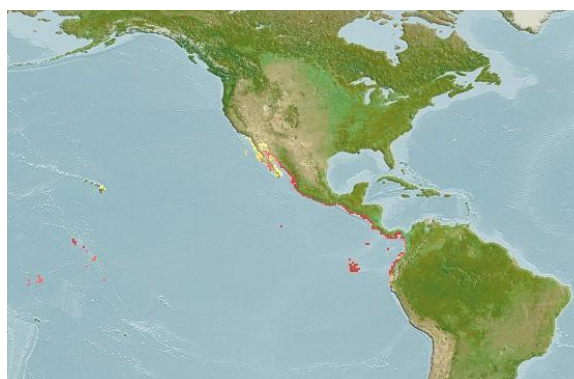


Figure 5 - Global distribution of white snook (FishBase, 2021).

Table 8. Species biological attributes for white snook (DOF 2021, Rodríguez-Madrigal et al., 2020; Tapia Varela et al., 2020; FishBase, 2021).

Species biological attributes			
Species	<i>Centropomus viridis</i>	Average age maturity	4.5-6.5 years <sup>1</sup>
Reproductive strategy		Average maximum age	8 years <sup>2</sup>
Length of larvae phase		Fecundity (No of eggs)	
Movement of adults	Reproductive migration estuaries to sea	Average size at maturity	81.9 cm females; 68.5 males
Sediment type		Average maximum size	131 cm
Depth		Trophic level	4.2

<sup>1</sup>Calculated based on von Bertalanffy curve and <sup>2</sup>maximum observed age in DOF, 2021).

##### Colorado snapper

Colorado snapper (*Lutjanus colorado*) is distributed in the Eastern Pacific: from southern California, USA to Panama; but rare north of Baja California, Mexico (FishBase, 2021).



Figure 6. Distribution of the colorado snapper in the central and north American Pacific coast. Reproduced from FishBase (2021).

Table 9. Species biological attributes for colorado snapper (Danemann et al., 2013; FishBase, 2021).

Species biological attributes			
Species	<i>Lutjanus colorado</i>	Average age maturity	1.5 – 3.5 years <sup>1</sup>
Reproductive strategy		Average maximum age	9 years <sup>2</sup>
Length of larvae phase		Fecundity (No of eggs)	
Movement of adults		Average size at maturity	59.7 cm female, 29.4 male
Sediment type		Average maximum size	91 cm
Depth		Trophic level	3.1

<sup>1</sup>Calculated based on von Bertalanffy curve and <sup>2</sup>maximum observed age in XXX (2017).

### Orangemouth weakfish

Orangemouth weakfish (*Cynoscion xanthalmus*) is distributed in the eastern Pacific in Mexico. This species was introduced into the highly saline waters of Salton Sea in southern California, USA.

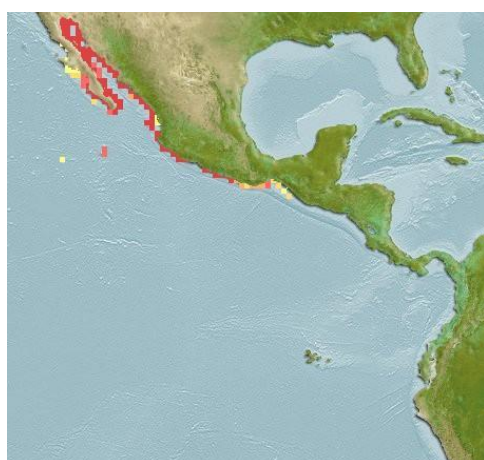


Figure 7 - Global distribution of orangemouth weakfish (FishBase, 2021).

**Table 10. Species biological attributes for orangemouth weakfish (Danemann et al., 2013; FishBase, 2021).**

Species biological attributes			
Species	<i>Cynoscion xanthulus</i>	Average age maturity	3-3.5 years <sup>1</sup>
Reproductive strategy		Average maximum age	9 years <sup>2</sup>
Length of larvae phase		Fecundity (No of eggs)	
Movement of adults		Average size at maturity	50.3 females, 40.1 males
Sediment type		Average maximum size	129 cm
Depth		Trophic level	4.1

<sup>1</sup>Calculated based on von Bertalanffy curve and <sup>2</sup>maximum observed age in XXX (2017).

#### 7.1.1.2 Non-index species

##### Robalo paleta – blackfin snook (*Centropomus medius*)

**Table 11. Species biological attributes for blackfin snook (FishBase, 2021).**

Species biological attributes			
Species	<i>Centropomus medius</i>	Average age maturity	
Reproductive strategy		Average maximum age	
Length of larvae phase		Fecundity (No of eggs)	
Movement of adults		Average size at maturity	
Sediment type		Average maximum size	65 cm
Depth		Trophic level	4.0

##### Pargo Prieto – Pacific dog snapper (*Lutjanus novemfasciatus*)

**Table 12. Species biological attributes for pacific dog snapper (Duncan et al., 2009; FishBase, 2021).**

Species biological attributes			
Species	<i>Lutjanus novemfasciatus</i>	Average age maturity	
Reproductive strategy		Average maximum age	
Length of larvae phase		Fecundity (No of eggs)	35 000 -330 000 Kg <sup>-1</sup>
Movement of adults		Average size at maturity	58 cm males; 64 cm females
Sediment type		Average maximum size	170 cm
Depth		Trophic level	4.1

##### Curvina chana - Weakfish (*Cynoscion reticulatus*)

**Table 13. Species biological attributes for weakfish (Ortiz et al., 2021; FishBase, 2021).**

Species biological attributes			
Species	<i>Cynoscion reticulatus</i>	Average age maturity	
Reproductive strategy		Average maximum age	
Length of larvae phase		Fecundity (No of eggs)	
Movement of adults		Average size at maturity	30.5 cm females, 31.3 cm males
Sediment type		Average maximum size	90 cm
Depth		Trophic level	3.9

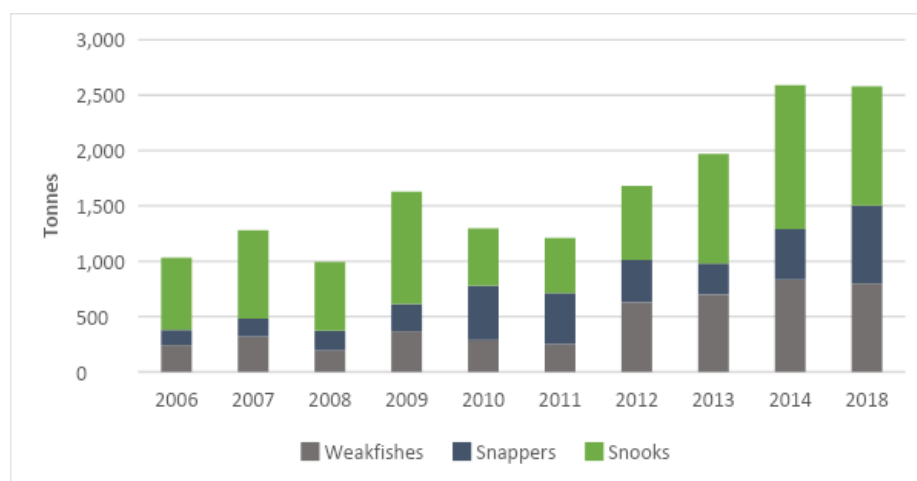
##### Robalo piedra – Black snook (*Centropomus nigrescens*)

**Table 14. Species biological attributes for black snook (Gallardo-Cabello et al., 2017; FishBase, 2021).**

Species biological attributes			
Species	<i>Centropomus nigrescens</i>	Average age maturity	
Reproductive strategy		Average maximum age	12 years
Length of larvae phase		Fecundity (No of eggs)	
Movement of adults		Average size at maturity	
Sediment type		Average maximum size	123 cm
Depth		Trophic level	4.2

### 7.1.2 Catch and landings

Total catches for all three groups of species have increased since 2006, reaching more than 2.5 thousand tonnes in 2018. However, weakfishes and snooks showed a decrease of catches in 2010/2011, while the opposite is true for snappers showing a reduction in 2013. There are no catch data reported per species, while snooks can include at least four species and weakfishes and snappers both at least three species (PNP, 2021).



**Figure 8 – Total catch in tonnes of weakfishes, snappers and snooks caught in the Marismas Nacionales (CONAPESCA, 2019).**

### 7.1.3 Stock identification

For white snook, Díaz-Jaimes et al. (2007) reported the existence of a population in the Mexican Pacific coasts, between the Sonora, Nayarit and Sinaloa areas in the north and Guerrero-Oaxaca in the south. Therefore, for the purpose of this pre-assessment, the team considers the Sonora, Nayarit and Sinaloa regions combined as the stock unit for *C. viridis*. Without any information regarding the population structure of the other index and non-index species, but considering similar geographical influences in larvae distribution and somewhat similar biology, all other species were considered at the same stock management unit. However, each species stock unit needs to be investigated further in a full assessment.

### 7.1.4 Stock Status and Assessment

There is currently no reliable information from an analytical approach to assess the stocks of the index species separately. There is however a preliminary investigation of the state of *C. viridis* in Chiapas, Mexico, by Labastida-Che et al. (2013), where the stock is considered to be fully exploited. Back in 2003, SAGARPA (2003) already stated that there was a decreasing trend in CPUE of four

Centropomidae species combined (*Centropomus viridis*, *C. medius*, *C. armatus* and *C. nigrescens*), and the disappearance of individuals of more than 70 cm total length, indicating that there was the need to limit fishing effort by region, and particularly in the Nayarit and Sinaloa coast. In 2013, Pronatura (2013) evaluated the state of the four Centropomidae species combined, using a Schaefer model adapted by Martell & Froese (2012), and determined they were fully exploited, however, results of that analysis were discarded after it was determined that the catch records were unreliable. Recently, Tapia Varela et al. (2020) state that the length at which white snook changes sex has been reduced in Nayarit, possibly to balance the population sex ratio M:F in response to fishing pressure. However, the authors concluded that while the length of sex change occurs has been reduced, the sex ratio is still extremely skewed (5.51:1), which the author suggested, amongst other hypotheses, may also be indicative of a population under significant fishing pressure.

Based on the results described above it seems that the stock of white snook, or of all four Centropomidae species combined, in the Nayarit/Sinaloa area may be fully exploited, but their actual status is unknown. Since there are no reference points estimated for any of the index species, a Risk-Based Framework Assessment was carried out to score PI 1.1.1 assuming a priori a high risk in the Consequence Analysis, and therefore moving directly to the Productivity Susceptibility Analysis. A PSA is designed to show the likely risk posed by the fishery to the population based on the biological characteristics of the stock and the likely susceptibility to capture. However, the results of this pre-assessment are provisional as in an MSC assessment PSA is a participatory analysis achieved by contributions by all stakeholders.

When undertaking a PSA in MSC Principle 1, it is important to consider the combined contributions of all fishing gears fishing the target species over the range of the stocks. The index species are caught by small-scale fisheries using gillnets and handlines in estuaries and lagoons, but also by trawlers in coastal areas. Productivity and susceptibility scores are 1 for high productivity, low risk stocks, to 3 for low productivity, high risk stocks. Different biological attributes are considered for the productivity evaluation while fishery traits and interactions with the target species are included in evaluating susceptibility.

### Index species

**Table 15. White snook PSA Productivity reasoning and scores.**

Productivity	Rationale	Score
<b>Average age at maturity</b>	4.5-6.5 years	1
<b>Average maximum age</b>	8 years	1
<b>Fecundity</b>	Assumed > 20.000 eggs/years	1
<b>Average maximum size</b>	131 cm	2
<b>Average size at maturity</b>	81.9 cm females; 68.6 males	2
<b>Reproductive strategy</b>	Broadcast spawner	1
<b>Trophic level</b>	4.2	3
<b>Total Productivity (average)</b>		1.57

**Table 16. Colorado snapper PSA Productivity reasoning and scores.**

Productivity	Rationale	Score
<b>Average age at maturity</b>	1.5-3.5 years	1
<b>Average maximum age</b>	9 years	1

<b>Fecundity</b>	Assumed > 20.000 eggs/years	1
<b>Average maximum size</b>	91 cm	1
<b>Average size at maturity</b>	59.7 cm female, 29.4 male	1
<b>Reproductive strategy</b>	Broadcast spawner	1
<b>Trophic level</b>	3.1	2
<b>Total Productivity (average)</b>		1.14

**Table 17. Orangemouth weakfish PSA Productivity reasoning and scores.**

Productivity	Rationale	Score
<b>Average age at maturity</b>	3-3.5 years	1
<b>Average maximum age</b>	9 years	1
<b>Fecundity</b>	Assumed > 20.000 eggs/years	1
<b>Average maximum size</b>	129 cm	2
<b>Average size at maturity</b>	50.3 females, 40.1 males	2
<b>Reproductive strategy</b>	Broadcast spawner	1
<b>Trophic level</b>	4.1	3
<b>Total Productivity (average)</b>		1.57

#### Non index species PSAs

**Table 18. Blackfin snook PSA Productivity reasoning and scores.**

Productivity	Rationale	Score
<b>Average age at maturity</b>	Assumed <5 years	1
<b>Average maximum age</b>	Assumed 10-25 years	2
<b>Fecundity</b>	Assumed > 20.000 eggs/years	1
<b>Average maximum size</b>	65 cm	1
<b>Average size at maturity</b>	Assumed 40-200 cm	2
<b>Reproductive strategy</b>	Broadcast spawner	1
<b>Trophic level</b>	4.0	3
<b>Total Productivity (average)</b>		1.57

**Table 19. Pacific dog snapper PSA Productivity reasoning and scores.**

Productivity	Rationale	Score
<b>Average age at maturity</b>	Assumed 5-15 years	2
<b>Average maximum age</b>	Assumed 10-25 years	2
<b>Fecundity</b>	35 000-330 000 Kg <sup>-1</sup>	1
<b>Average maximum size</b>	170 cm	2
<b>Average size at maturity</b>	58 cm males; 64 cm females	2
<b>Reproductive strategy</b>	Broadcast spawner	1
<b>Trophic level</b>	4.1	3
<b>Total Productivity (average)</b>		1.86



**Table 20. Weakfish PSA Productivity reasoning and scores.**

Productivity	Rationale	Score
<b>Average age at maturity</b>	Assumed <5 years	1
<b>Average maximum age</b>	Assumed 10-25 years	2
<b>Fecundity</b>	Assumed > 20.000 eggs/years	1
<b>Average maximum size</b>	90 cm	1
<b>Average size at maturity</b>	30.5 cm females, 31.3 cm males	1
<b>Reproductive strategy</b>	Broadcast spawner	1
<b>Trophic level</b>	3.9	3
<b>Total Productivity (average)</b>		1.43

**Table 21. Black snook PSA Productivity reasoning and scores.**

Productivity	Rationale	Score
<b>Average age at maturity</b>	Assumed <5 years	1
<b>Average maximum age</b>	12 years	2
<b>Fecundity</b>	Assumed > 20.000 eggs/years	1
<b>Average maximum size</b>	123 cm	2
<b>Average size at maturity</b>	Assumed 40-200 cm	2
<b>Reproductive strategy</b>	Broadcast spawner	1
<b>Trophic level</b>	4.2	3
<b>Total Productivity (average)</b>		1.71

The productivity scores are fixed for the species, regardless of how the species is caught. By contrast the susceptibility scores will be different for each gear type catching the species within the stock area, in this case gillnets, handlines and trawls. In scoring the susceptibility attributes for index species rationale for the area overlap was that fishing occurs in more than 30% of the stocks area. As for encounterability and post capture mortality, were evaluated considering the default score for target species. Selectivity was based on information gathered at site visit and bibliographic research that individuals smaller than average size t maturity are frequently caught and retained by all fisheries.

**Table 22. Indexes species PSA Susceptibility reasoning and scores (information gathered during call with the client)**

Susceptibility	Rationale	Score
<b>Area Overlap</b>	The gillnets, handlines and trawl fisheries operate in an area corresponding to more than 30% of the stock area.	3
<b>Encounterability</b>	High overlap with fishing gear - default score for target species.	3
<b>Selectivity</b>	Individuals < size at maturity are frequently caught and individuals < half the size at maturity are retained by gear.	3
<b>Post capture mortality</b>	Retained species default score.	3

The RBF analysis resulted in the following overall score for the PSA, with the corresponding MSC score.

**Table 23. Overall PSA and corresponding MSC scores for index and non-index species.**

Index species	PSA score	MSC Score
White snook	3.39	50
Colorado snapper	3.21	59
Orangemouth weakfish	3.39	50
Non-Index species	PSA score	MSC Score
Blackfin snooke	3.39	50
Pacific dog snapper	3.53	43
Weakfish	3.32	53
Black snooke	3.46	47

### 7.1.5 Stock management

Mexican fisheries are managed through the General Sustainable Fisheries and Aquaculture Law (Ley General de Pesca y Acuacultura Sustentables LGPAS, DOF 24-07-2007) where precautionary principles for managing fisheries and aquaculture are referred to. This general law contemplates specific management plans to be agreed and implemented in consultation with all stakeholders (art. 39).

In April 2021, the management plan for white snook, Colorado snapper and weakfishes was published (Plan de Manejo Pesquero de robalo garabato (*Centropomus viridis*), pargo colorado (*Lutjanus colorado*) y curvinas en marismas nacionales, Nayarit y Sur de Sinaloa, DOF 12/04/2021). This management plan includes several actions in each of its five components, ranging from stocks biomass & recruitment and restoring & protecting fishing areas to economic, social and markets aspects. The plan includes, for example, actions for improving catch and effort data, future selectivity studies, the possibility for closed areas and TACs to be agreed. The plan also refers to a freeze in fishing effort, but no specific measures are specified.

At the end, the fisheries operating in the Marismas Nacionales are in practice managed through a general licensing scheme that is in place and gear restrictions, but there are no species minimum sizes or fishing limits, either catch or effort quotas. In summary, there is a harvest strategy for the index species, while there are no harvest control rules for any of the index and non-index species.

## Principle 1 Performance Indicator scores and rationales

Scoring table 1. 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	<b>Stock status relative to recruitment impairment</b>			
	<b>Guide post</b>	<b>It is likely that the index species are above the point where recruitment would be impaired (PRI).</b>	<b>It is highly likely that the index species are above the PRI.</b>	There is a high degree of certainty that the index species are above the PRI
	<b>Met?</b>	<b>RBF –</b> White snook- 50 Orangemouth weakfish - 50 Colorado snapper - 59	<b>RBF</b> White snook- 50 Orangemouth weakfish - 50 Colorado snapper - 59	<b>RBF</b> White snook- 50 Orangemouth weakfish - 50 Colorado snapper - 59

### Rationale

Risk Based Framework was used to score this PI. Total score was for both white snook and orangemouth weakfish 50 and for colorado snapper 59.

		<b>Stock status in relation to achievement of Maximum Sustainable Yield (MSY)</b>	
b	<b>Guide post</b>	<b>The index species are at or fluctuating around a level consistent with MSY.</b>	<b>There is a high degree of certainty that the index species have been fluctuating around a level consistent with MSY or has been above this level over recent years.</b>
	<b>Met?</b>	<b>RBF</b>	<b>RBF</b>

### Rationale

See Sla

Stock status relative to recruitment impairment for non- index P1 species.	
<b>Guide post</b>	It is likely that the non-index P1 species are above the point where recruitment would be impaired (PRI).
<b>Met?</b>	<b>RBF –</b> <b>Blackfin snook - 50</b> <b>Pacific dog snapper - 43</b> <b>Weakfish - 53</b> <b>Black snook - 47</b>

#### Rationale

Risk Based Framework was used to score this PI. Total score for all four species was under 60.

#### 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 (S1a)	N/A	N/A	N/A
Reference point used in scoring stock relative to MSY (S1b)	N/A	N/A	N/A

#### References

List any references here, including hyperlinks to publicly-available documents.

<b>Draft scoring range</b>	<b>&lt;60</b>
<b>Information gap indicator</b>	<b>More information sought on susceptibility attributes</b>
<b>Data-deficient? (RBF needed)</b>	<b>Yes</b>

**Scoring table 2. PI 1.1.2 – Stock rebuilding**

PI 1.1.2		Where the index species are reduced, there is evidence of stock rebuilding within a specified timeframe		
Scoring Issue		SG 60	SG 80	SG 100
a	<b>Rebuilding timeframes – index species</b>			
	<b>Guide post</b>	A rebuilding timeframe is specified for the index species 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 index species.
	<b>Met?</b>	NA		NA

**Rationale**

Not applicable as RBF was used to score PI1.1.1

b	<b>Rebuilding evaluation – index species</b>			
	<b>Guide post</b>	Monitoring is in place to determine whether the rebuilding strategies are effective in rebuilding the index species within the specified timeframe.	There is evidence that the rebuilding strategies are rebuilding the index species or it is likely based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the index species within the specified timeframe.	There is strong evidence that the rebuilding strategies are rebuilding the index species, or it is highly likely based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the index species within the specified timeframe.
	<b>Met?</b>	NA	NA	NA

**Rationale**

Not applicable as RBF was used to score PI1.1.1

Rebuilding evaluation – non-index species				
c	Guide post		Monitoring is in place to determine whether the rebuilding strategies are effective in rebuilding nonindex species	There is evidence that the rebuilding strategies are rebuilding nonindex species, or it is likely based on exploitation rates or previous performance that they will be able to rebuild the suite within the specified timeframe.
	Met?		NA	NA

#### Rationale

Not applicable as RBF was used to score PI1.1.1

#### References

List any references here, including hyperlinks to publicly-available documents.

Draft scoring range	NA
Information gap indicator	

**Scoring table 3. PI 1.2.1 – Harvest strategy**

PI 1.2.1		There is a robust and precautionary harvest strategy in place for index species, with explicit consideration of the entire Principle 1 species suite.		
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 index species and the elements of the harvest strategy work together towards achieving stock management objectives reflected in PI 1.1.1 SG80 for the entire P1 suite.	The harvest strategy is responsive to the state of the index species and is designed to achieve stock management objectives reflected in PI 1.1.1 SG80 for the entire P1 suite.
	Met?	Yes	No	No

**Rationale**

Mexican fisheries are managed through the General Sustainable Fisheries and Aquaculture Law (DOF 24-07-2007) where precautionary principles for managing fisheries and aquaculture are referred to. There is also a specific management plan for white snook, Colorado snapper and weakfishes was published (DOF 12/04/2021). This management plan includes several actions in each of its five components, ranging from stocks biomass & recruitment and restoring & protecting fishing areas to economic, social and markets aspects. The plan includes, for example, actions for improving catch and effort data, future selectivity studies, the possibility for closed areas and TACs to be agreed. The plan also refers to a freeze in fishing effort. There is also a national licencing scheme, gear restrictions and data collection. Therefore there is a harvest strategy and may achieve stock management objectives and thus SG60 is reached. However the strategy is not responsive to the state of one of the index species (orange mouth weakfish) and thus **SG80 is not reached**.

b	Harvest strategy evaluation			
	Guide post	The harvest strategy is likely to work based on prior experience or plausible argument.	The harvest strategy has been fully tested, or empirical 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 the index species and the entire P1 suite at target levels.
	Met?	Yes	No	No

#### Rationale

A licencing scheme and gear restrictions can limit fishing mortality but only to a certain level. However, the measures contemplated in the management plan, such as TACs and closed areas, may work if effectively implemented and thus **SG60 is reached**. There are however indications that the index species are not at MSY levels and thus the harvest strategy is not reaching its objectives. **So SG80 is not reached**.

	<b>Harvest strategy monitoring</b>			
c	Guide post	Monitoring is in place for index species that is expected to determine whether the harvest strategy is working.	Monitoring is in place for both index species and P1 non-index monitoring species that is expected to determine whether the harvest strategy is working.	
	Met?	No	No	

#### Rationale

There is monitoring in place to collect data on catches, effort and biological data, but the sampling scheme collects data on an aggregated species level and this impedes the knowledge of whether the harvest strategy is working and thus **SG60 is not reached**.

	<b>Harvest strategy review</b>			
d	Guide post		The harvest strategy and choice of P1 index species is periodically reviewed and improved as necessary	The harvest strategy is periodically reviewed and improved as necessary.
	Met?		Yes	Yes

#### Rationale

The management plan has provisions to be reviewed and improved every 3 years. Thus, the harvest strategy is periodically reviewed and improved as necessary. **SG80 and SG100 is met**.

e	<b>Shark finning</b>			
	<b>Guide post</b>	<b>It is likely that shark finning is not taking place.</b>	<b>It is highly likely that shark finning is not taking place.</b>	<b>There is a high degree of certainty that shark finning is not taking place.</b>
	<b>Met?</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

**Rationale**

**Not applicable to this pre-assessment as shark is not a target species. Therefore, this SI is not relevant.**

f	<b>Review of alternative measures</b>			
	<b>Guide post</b>	<b>There has been a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the Principle 1 species.</b>	<b>There is a regular review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the Principle 1 species and they are implemented as appropriate.</b>	<b>There is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the Principle 1 species, and they are implemented, as appropriate.</b>
	<b>Met?</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

**Rationale**

**Discards are negligible due to the high economic value of all P1 species, and even small size specimens will be consumed by the crew. Therefore, this SI is not relevant.**

g	<b>Selection and appropriateness of index species</b>			
	<b>Guide post</b>	<b>It is likely that the index species are appropriate based on available evidence.</b>	<b>There is a scientific basis for the selection of the index species.</b>	<b>There is a robust scientific basis for the selection of the index species.</b>

Met?	Yes	Yes	No
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**Rationale**

There is sufficient catch data to determine that the choice of index species do reflect the activity of the fishery, as these are the main species target and **thus both SG60 and SG80 are reached**. However, as stated above, catch sampling has limitations and thus **SG100 is not reached**.

Selection and appropriateness of monitored non-index species			
h	Guide post	Monitored non-index species are representative of the species suite.	
	Met?	Yes	

**Rationale**

Catch data shows that non-index species are representative of the species assemblage caught, and they are caught in association with the index species. SG is met. .

**References**

LGPAS, 2007

PMP, 2021

<b>Draft scoring range</b>	<b>&lt;60</b>
<b>Information gap indicator</b>	<b>More information sought</b>

Scoring table 4. 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	<b>HCRs design and application</b>				
	<b>Guide post</b>	Well defined HCRs are in place that ensure that the exploitation rate of index species and the P1 suite 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 index species and the P1 suite 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.		
	<b>Met?</b>	No	No		

**Rationale**

Although there is a fisheries management plan for the index species, the plan does not include a HCR. Therefore, **SG60 is not reached**.

b	<b>HCRs robustness to uncertainty</b>			
	<b>Guide post</b>		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.
	<b>Met?</b>		No	No

**Rationale**

There are no generally understood HCRs. **SG80 is not met.**

HCRs evaluation				
c	Guide post	There is some evidence that tools used to implement HCRs are appropriate and effective in controlling exploitation.	Evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.	Evidence clearly shows that the tools in use are effective in achieving the exploitation levels required under the HCRs.
	Met?	No	No	No

#### Rationale

A licensing scheme and gear restriction can limit exploitation but only to a certain level. However, there is no evidence that index species catches are being limited. Therefore **SG60 is not reached.**

#### References

CONAPESCA, 2018

DOF 2021

<b>Draft scoring range</b>	<b>&lt;60</b>
<b>Information gap indicator</b>	<b>More information sought</b>

Scoring table 5. 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	<b>Range of information</b>			
	<b>Guide post</b>	Some relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy. Information is available for the index species.	Sufficient relevant information related to stock structure, stock productivity, fleet composition and other data are available to support the harvest strategy. Information is available for some of the P1 suite species	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 including estimates of the impacts of fishery harvests on the entire P1 suite.
	<b>Met?</b>	Yes	No	No

**Rationale**

There is information on catch and biological data, but catch data is collected at genus level and there is no effort data available. In addition, several aspects of the biology of the index and non-index species, for example stock structure, are not known accurately and thus **SG80 is not reached**.

b	<b>Monitoring of index species</b>			
	<b>Guide post</b>	Index species are monitored with sufficient frequency to support the harvest control rule.	Index species are regularly monitored at a level of accuracy and coverage consistent with the harvest control rule, and their status are available and monitored with sufficient frequency to support the harvest control rule.	Index species are monitored with high frequency, and there is a good understanding of inherent uncertainties in the information [data] and the robustness of assessment and management to this uncertainty.

	<b>Met?</b>	<b>No</b>	<b>No</b>	<b>No</b>
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**Rationale**

UoA removals are somewhat monitored, but not with sufficient frequency and thus **SG60 is not reached**.

<b>c</b>	<b>Comprehensiveness of information</b>			
	<b>Guide post</b>	<b>There is good information on removals of index species by the UoA</b>	<b>There is good information on removals of index species by all other fisheries</b>	
	<b>Met?</b>	<b>No</b>	<b>No</b>	

**Rationale**

UoA removals are somewhat monitored, but not with sufficient frequency and thus **SG60 is not reached**.

<b>d</b>	<b>Monitoring of non-index species</b>			
	<b>Guide post</b>	<b>Some data are collected which will likely indicate increases in risk to status of monitored non-index species</b>	<b>Adequate data are collected to which will allow detection of increases in risk to status of monitored non-index species</b>	<b>Comprehensive data are collected which will allow detection of increases in risk to status of all non-index species</b>
	<b>Met?</b>	<b>Yes</b>	<b>No</b>	<b>No</b>

**Rationale**

Non-index species are monitored to genus level, not species. Although a reduction of catches at genus level will likely indicate an increased risk of the status of all non-index species within that genus, and SG60 is reached, the data is not adequate to allow for the detection of increase risk of exploitation for non-index species and SG80 is not met.

**References**

List any references here, including hyperlinks to publicly-available documents.

Draft scoring range	<60
Information gap indicator	More information sought

Scoring table 6. PI 1.2.4 – Assessment of stock status

PI 1.2.4		There is an adequate assessment of the stock status for the index species		
Scoring Issue		SG 60	SG 80	SG 100
a	<b>Appropriateness of assessment to stock under consideration</b>			
	<b>Guide post</b>		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.
	<b>Met?</b>		RBF	RBF

**Rationale**

Default score of 80 as RBF was used to score PI1.1.1

		<b>Assessment approach</b>		
b	<b>Guide post</b>	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 index species and can be estimated.	
	<b>Met?</b>	RBF	RBF	

**Rationale**

Default score of 80 as RBF was used to score PI1.1.1



Uncertainty in the assessment				
c	Guide post	The assessment identifies major sources of uncertainty.	The assessment takes uncertainty into account including uncertainty in the selection of index species.	The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a probabilistic way.
	Met?	RBF	RBF	RBF

#### Rationale

Default score of 80 as RBF was used to score PI1.1.1

Evaluation of assessment				
d	Guide post	The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.		
	Met?	RBF		

#### Rationale

Default score of 80 as RBF was used to score PI1.1.1

Peer review of assessment				
e	Guide post	The assessment of stock status is subject to peer review.	The assessment has been internally and externally peer reviewed.	
	Met?	RBF	RBF	

#### Rationale

Default score of 80 as RBF was used to score PI1.1.1

### References

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<b>Draft scoring range</b>	<b>≥80</b>
<b>Information gap indicator</b>	<b>Information sufficient to score PI</b>

## 7.2 Principle 2

### 7.2.1 Designation of species under Principle 2

**Primary species** (MSC Component 2.1) are defined as follows:

- Species in the catch that are not covered under P1;
- Species that are within scope of the MSC program, i.e. no amphibians, reptiles, birds or mammals;
- Species where management tools and measures are in place, intended to achieve stock management objectives reflected in either limit (LRP) or target reference points (TRP). Primary species can therefore also be referred to as ‘managed species’.

**Secondary species** (MSC Component 2.2) are defined as follows:

- Species in the catch that are not covered under P1;
- Species that are not managed in accordance with limit or target reference points, i.e. do not meet the primary species criteria;
- Species that are out of scope of the programme, but where the definition of ETP species is not applicable (see below)

**ETP (Endangered, Threatened or Protected)** species (MSC Component 2.3) are assigned as follows:

- Species that are recognised by national ETP legislation
- Species listed in binding international agreements (e.g. CITES, Convention on Migratory Species (CMS), ACAP, etc.)
- Species classified as ‘out-of scope’ (amphibians, reptiles, birds and mammals) that are listed in the IUCN Redlist as vulnerable (VU), endangered (EN) or critically endangered (CE).

Both primary and secondary species are defined as ‘**main**’ if they meet the following criteria:

- The catch comprises 5% or more by weight of the total catch of all species by the UoC;
- The species is classified as ‘Less resilient’ and comprises 2% or more by weight of the total catch of all species by the UoC. Less resilient is defined here as having low to medium productivity, or species for which resilience has been lowered due to anthropogenic or natural changes to its life-history
- The species is out of scope but is not considered an ETP species (secondary species only)
- Exceptions to the rule may apply in the case of exceptionally large catches of bycatch species

### 7.2.2 Primary and secondary species

Only two non-target species appear in the catch profiles available to the team. The reduced number of Principle 2 non-ETP species is not only due to the sparsity of data representing the UoA-specific catch profile, but also the pilot Mixed-species assessment tree in use in this assessment – allowing for the designation of non-index Principle 1 species, which would usually be categorized under

Principle 2. These species are the raucous grunt (*Haemulopsis leuciscus*) and the longspine grunt (*Rhencus macracanthus*). Pronatura Noroeste also indicated that catch records for the area also include large volumes of different species of catfish which presently may be the predominant group of fish removed by fishers in the UoA. However, catfish are caught with different gear and at different times and in different spots compared to the target and secondary species, in practice, catfish not considered UoA activity. In the event of a full assessment, exclusion of these catches and activities from the UoA would only be possible if there was a robust means of differentiating the non-UoA activities, from UoA activities, by physically making the catches traceable to the specific fishing activity, and by segregating catches and ensuring they are not mixed or substituted at any point in the traceability chain. This is currently not possible with the information available to the team.

#### 7.2.2.1 Primary species

Neither of the species mentioned above are managed against reference points, and indeed cannot be considered “managed species”. As a result, there are no primary species to be considered in this Pre-assessment.

#### 7.2.2.2 Secondary species

As noted in Section 5.1.4, two sets of information are presented to the team on secondary species. The first would indicate that there are only two secondary species to consider in this preassessment: the raucous grunt (*Haemulopsis leuciscus*) and the longspine grunt (*Rhencus macracanthus*). It has been noted that other species may be caught in the UoA fishery, but in negligible quantities or belong to a different fishery.

The second set of catch profiles, disaggregated by UoA gear type (Villegas, 2020), go into more detail and include secondary minor species, but are not consistent with the catch profile presented in Table 6. Notably, there is no mention of croaker, which was an important P2 species in the aforementioned table, and several catfish species appear to make up a significant proportion of the secondary species. Chihuil appears to be a common name for catfish-like species, which is in agreement with the *Bagre* genus describing sea catfish.

While *Lutjanus colorado*, *Cynoscion xanthalmus*, and *Centropomus robalito* all also figure as Secondary “main” species in the tables below, these have since been classified as non-index Principle 1 species.

At the request of Pronatura Noroeste, much of the information provided to the team for this Pre-assessment is to be disregarded, and the only secondary species under consideration are the raucous grunt (*Haemulopsis leuciscus*) and the longspine grunt (*Rhencus macracanthus*).

In a full assessment, a full list of species caught by the each UoA would be required, but given that this is not available at this time, the team can only assess the aforementioned species. It has been noted that catch histories (time series) for the entirety of the UoAs are not obtainable due to the lack of granularity in reporting (often only to the Genus or Class) and other problems in fleet representativeness. No trends in annual catch volumes could be determined from the Villegas (2020) study.

Finally, the bait used in the handline fishery require consideration in this preassessment. According to a Pronatura Noroeste representative, the species used as bait is the pacific white shrimp (*Litopenaeus vannamei*). It is the team’s understanding that 1-1.5 kg of live white shrimp are used per trip, sourced either by the fishermen directly or purchased from the various shrimp farms nearby. The handline fishery operates ~12 days per month (during the “quarter moon”). As such, the

assessment team assume the fishery operates 144 days per year, with a precautionary estimate of 1.5 kg of white shrimp resulting in a use of 216kg of shrimp per vessel per year. This number cannot be used in conjunction of the catch profiles given to the team, as there are no UoA-specific catch profiles, and crucially, no available landings data in weights of non-target species. However if one assumes that 1.5 kg (or even 1 kg) of white shrimp were used for the 59 trips, then that would easily qualify white shrimp as “main” for those trips. Though it is unclear how representative those trips are of the entirety of UoA fishing effort, the team can only work with the data at hand, and so Pacific white shrimp will be considered as a main species on a precautionary basis in this pre assessment.

### 7.2.3 ETP species

No information on UoA interactions with ETP species was presented to the team. According to Pronatura Noroeste, the fishery does not interact with ETP species, but there is no second source of data to verify this.

A definitive list of species protected by Mexican law can be found [here](#). Given that no specific interactions have been logged, it is not possible to determine a list of ETP species to include in this assessment. It is the understanding of the assessment team that there is no habit of noting interactions with ETP species, or with non-target species in general, though there appear to have been improvements in recent years thanks to the FIP (with target species now being identified to the species level).

### 7.2.4 Habitats

This fishery takes place in the Marismas Nacionales Reserve, an expanse of marshlands dominated by mangrove forests. The extent of the interaction with mangrove forests varies by UoA.

For the handline UoA, the only evidence available to the team on fishing practices indicates that fishermen specifically fish the edge of the mangrove forest. The team also knows that the bait used is live, and so there is a distinct possibility of the line being led into the root systems of the mangroves.

As for the gillnet fishery, it appears that the nets are set across channels within the forest, which minimizes the interaction between the gear and the mangroves. Based on the available literature, the team believes that the benthos of these channels is mostly mud rich in organic material or fine sand (SEMARNAT, 2008).

Noting the above, the habitats under consideration in this assessment are fine sand/mud, and mangrove forests. Mangrove forests meet the Vulnerable Marine Ecosystem (VME) definition of GSA3.13.3.2 below (see Table 24) for their rarity, functional significance, fragility, and structural complexity. Fine sand/mud remains a commonly encountered habitat.

The MSC Fisheries Certification Requirements v2.01 requires habitats interacting with the fishery to be defined as ‘commonly-encountered’, ‘VME’ or ‘minor’, with definitions as given in Table 24.

**Table 26. Habitat definitions as per the MSC Fisheries Certification Requirements v2.01.**

FCR reference	Definition
SA3.13.3.1	A commonly encountered habitat shall be defined as a habitat that regularly comes into contact with a gear used by the UoA, considering the spatial (geographical) overlap of fishing effort with the habitat’s range within the management area(s) covered by the governance body(s) relevant to the UoA.

FCR reference	Definition
SA3.13.3.2	A Vulnerable Marine Ecosystem (VME) shall be defined as is done in paragraph 42 subparagraphs (i)-(v) of the FAO Guidelines (definition provided in GSA3.13.3.2). This definition shall be applied both inside and outside EEZs and irrespective of depth.
GSA3.13.3.2	VMEs have one or more of the following characteristic, as defined in paragraph 42 of the FAO Guidelines: Uniqueness or rarity – an area or ecosystem that is unique or that contains rare species whose loss could not be compensated for by similar areas or ecosystems Functional significance of the habitat – discrete areas or habitats that are necessary for survival, function, spawning/ reproduction, or recovery of fish stocks; for particular life-history stages (e.g., nursery grounds, rearing areas); or for ETP species Fragility – an ecosystem that is highly susceptible to degradation by anthropogenic activities Life-history traits of component species that make recovery difficult – ecosystems that are characterised by populations or assemblages of species that are slow growing, are slow maturing, have low or unpredictable recruitment, and/or are long lived Structural complexity – an ecosystem that is characterised by complex physical structures created by significant concentrations of biotic and abiotic features
N/a	Minor habitats are those that do not meet the above definitions.

#### 7.2.4.1 VME

There are several important considerations regarding the MSC’s VME habitat requirement that were clarified through the MSC Interpretations website (<https://mscportal.force.com/interpret/s/global-search/VME>):

- It is not the responsibility of an assessment team to identify habitats as VME within the fished area. Instead, VMEs need to be identified by a local, regional, national, or international management authority/governance body.
- The history of fishing and when the VME was identified is critical to establishing what the ‘unimpacted level’ is; if a VME was already impacted by any fishery/UoA prior to its identification as a VME, and fishing impacts occurred prior to 2006, then the ‘unimpacted level’ is considered to be the status at the point of designation<sup>1</sup>.

Indeed, mangrove forests are protected in Mexico by [NOM 059 SEMARNAT-2010](#), and by the variety of Ramsar sites<sup>2</sup> that have been created across the country to protect these ecosystems.

#### 7.2.5 Ecosystem

This fishery takes place in highly productive coastal estuarine wetlands – the Marismas Nacionales Reserve. The rivers Santiago and San Pedro meet the ocean via these wetlands, making for a highly dynamic, nutrient rich environment.

The mangrove forests offer a favorable nursery environment for a wide range of marine and estuarine species (Lee et al., 2014). Beyond acting as a nursery ground, mangrove forests offer a wide variety of ecosystem services, including shoreline protection, land-building and sediment stabilization, and carbon drawdown, mineralization, and export (which may have, until recently, been underestimated – Lee et al., 2014). Beyond the aforementioned study, a wide range of literature

<sup>1</sup> Note: The year 2006 was chosen because it is the date of the UNGA Resolution 61/105

<sup>2</sup> [https://www.profepa.gob.mx/innovaportal/v/5117/1/mx/mexico\\_protege\\_sus\\_manglares.html](https://www.profepa.gob.mx/innovaportal/v/5117/1/mx/mexico_protege_sus_manglares.html)

covers the value of mangrove forests as ecosystems (Whitfield, 2017; Paillon et al., 2014; Primavera, 1998; Robertson & Duke, 1987) in the life history of marine and estuarine species.

The specific ecosystem in question – the mangrove forests of the Marismas Nacionales Reserve, formed in large network of lagoons which came to be approximately 2000 years ago stemming from a combination of alluvial deposits from the surrounding rivers, and from littoral currents depositing sediments in the area (Ramirez-Zavala et al., annum unknown). These types of ecosystems, dominated by dynamic processes of sediment movement, are ephemeral on a geological timescale (Galvan et al., 1999). There is evidence that in its limited lifetime, this ecosystem has been subject to anthropogenic modifications since pre-Columbian times with the establishment of artisanal shrimp fishing sites. The practice of shrimp fishing, has persisted, but today, the greater pressure on these mangrove forests is shrimp farming. Large swaths of mangroves are cut to make room for farms, which throughout their short life span significantly impact the quality of the water in their manmade lagoon (Ramirez-Zavala et al., annum unknown). Other anthropogenic impacts include the dredging and maintenance of canals, to connect estuaries and lagoons, and the tapping and pollution of groundwater.

The target species in this assessment are all predators, which are naturally found in brackish and coastal environments. Their diet is known to be varied, and includes fish, crustaceans, and on occasion plant matter and insects. Their role in top-down control of their prey species' populations is not accurately known for the Marismas Nacionales Reserve, though given their varied diet, it is unlikely that they have a strong influence on the population of any single species in particular, though their predatory role in the ecosystem is believed to be important, namely for carbon drawdown (Atwood et al., 2015).

In this assessment, the analysis will focus on the impacts of the UoA on the Marismas Nacionales ecosystem. The impacts under assessment will be the removal of the target species on the trophic structure of the ecosystem, and the pollution and degradation of mangrove forests by the fishing practices (via gear loss or other physical disturbance).

### 7.2.6 Scoring elements

**Table 27. Principle 2 scoring elements**

Component	Scoring elements	Designation	Data-deficient
Primary species	NA	NA	NA
Secondary species	Raucous grunt	Main	Yes
	Longspine grunt	Main	Yes
	Pacific white shrimp	Main	Yes
ETP species	NA	NA	NA
Habitats	Fine sand/mud	Commonly encountered	No
	Mangrove forests	VME	No
Ecosystems	Marismas Nacionales Reserve – removal of target species and impact on mangroves	NA	No

## 7.2.7 Principle 2 Performance Indicator scores and rationales

### Scoring table 7. PI 2.1.1 – Primary species outcome – All UoAs

PI 2.1.1		The UoA aims to maintain primary species above the point where recruitment would be impaired (PRI) and does not hinder recovery of primary species if they are below the PRI		
Scoring Issue		SG 60	SG 80	SG 100
a	<b>Main primary species stock status</b>			
	<b>Guide post</b>	<p>Main primary species are likely to be above the PRI.</p> <p>OR</p> <p>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.</p>	<p>Main primary species are highly likely to be above the PRI.</p> <p>OR</p> <p>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.</p>	<p>There is a high degree of certainty that main primary species are above the PRI and are fluctuating around a level consistent with MSY.</p>
	<b>Met?</b>	Yes	Yes	Yes

#### Rationale

No primary species – SG60, SG80 and SG100 met. See SA3.2.1, and the following interpretation: <https://mscportal.force.com/interpret/s/article/Scoring-P2-species-in-absence-of-impact-2-1-PI-2-2-1527586956973>

b	<b>Minor primary species stock status</b>		
	<b>Guide post</b>	<p>Minor primary species are highly likely to be above the PRI.</p> <p>OR</p>	



	<b>Met?</b>

If below the PRI, there is evidence that the UoA does not hinder the recovery and rebuilding of minor primary species.

Yes

#### Rationale

No primary species – **SG100 met.** See SA3.2.1, and the following interpretation:  
<https://mscportal.force.com/interpret/s/article/Scoring-P2-species-in-absence-of-impact-2-1-PI-2-2-1527586956973>

#### References

<https://mscportal.force.com/interpret/s/article/Scoring-P2-species-in-absence-of-impact-2-1-PI-2-2-1527586956973>

<b>Draft scoring range</b>	<b>≥80 – All UoAs</b>
<b>Information gap indicator</b>	<b>Information sufficient to score PI</b>
<b>Data-deficient? (RBF needed)</b>	<b>No</b>

Scoring table 8. PI 2.1.2 – Primary species management strategy – All UoAs

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

In the context of this performance indicator (Source: MSC FCR v2.01; Table SA8):

- “Measures” are actions or tools in place that either explicitly manage impacts on the component or indirectly contribute to management of the component under assessment having been designed to manage impacts elsewhere.
- A “partial strategy” represents a cohesive arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome and an awareness of the need to change the measures should they cease to be effective. It may not have been designed to manage the impact on that component specifically.
- A “strategy” represents a cohesive and strategic arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome, and which should be designed to manage impact on that component specifically. A strategy needs to be appropriate to the scale, intensity and cultural context of the fishery and should contain mechanisms for the modification fishing practices in the light of the identification of unacceptable impacts.

The “if necessary” part of the Scoring Guidepost is key here. Indeed, it is not necessary to have measures or a partial strategy in place. So **SG60 and SG80 are met** by default. **SG100 is not met** as there is no “if necessary” component to the scoring guidepost, and there is currently no strategy in place to mitigate impacts of the UoA on non-target species.

Management strategy evaluation				
b	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	Yes	No

#### Rationale

While there is no mention of “if necessary” in these clauses, the following interpretation indicates that it is the MSC’s intent that **SG60 and SG80 should be met** in absence of impact to primary species. <https://mscportal.force.com/interpret/s/article/Scoring-P2-species-in-absence-of-impact-2-1-PI-2-2-1527586956973>

**SG100 is not met**, as the team is not aware of any testing being undertaken to evaluate the management of UoA impact on non-target species, and beyond this, there currently is no management strategy (following the MSC definition presented above) in place to manage UoA impact on non-target species.

Management strategy implementation				
c	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

While there is no mention of “if necessary” in these clauses, the following interpretation indicates that it is the MSC’s intent that **SG60 and SG80 should be met** in absence of impact to primary species. <https://mscportal.force.com/interpret/s/article/Scoring-P2-species-in-absence-of-impact-2-1-PI-2-2-1527586956973>

**SG100 is not met**, as there is there currently is no management strategy (which is in accordance with the MSC definition presented above) in place to manage UoA impact on non-target species. There is also no way of tracking whether a partial strategy or strategy would be implemented, such they exist.

d	<b>Shark finning</b>			
	<b>Guide post</b>	<b>It is likely that shark finning is not taking place.</b>	<b>It is highly likely that shark finning is not taking place.</b>	<b>There is a high degree of certainty that shark finning is not taking place.</b>
	<b>Met?</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

#### Rationale

There are no primary species, so this SI is N/A.

e	<b>Review of alternative measures</b>			
	<b>Guide post</b>	<b>There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species.</b>	<b>There is a regular review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species and they are implemented as appropriate.</b>	<b>There is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of all primary species, and they are implemented, as appropriate.</b>
	<b>Met?</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

#### Rationale

Not applicable as no primary species are caught by any of the UoAs.

#### References

List any references here, including hyperlinks to publicly-available documents.

<b>Draft scoring range</b>	<b>≥80 – All UoAs</b>
<b>Information gap indicator</b>	<b>Information sufficient to score PI</b>

Scoring table 9. PI 2.1.3 – Primary species information

PI 2.1.3		Information on the nature and extent of primary species is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impact on main primary species			
	Guide post	<p>Qualitative information is adequate to estimate the impact of the UoA on the main primary species with respect to status.</p> <p>OR</p> <p>If RBF is used to score PI 2.1.1 for the UoA:</p> <p>Qualitative information is adequate to estimate productivity and susceptibility attributes for main primary species.</p>	<p>Some quantitative information is available and is adequate to assess the impact of the UoA on the main primary species with respect to status.</p> <p>OR</p> <p>If RBF is used to score PI 2.1.1 for the UoA:</p> <p>Some quantitative information is adequate to assess productivity and susceptibility attributes for main primary species.</p>	<p>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.</p>
	Met?	No	No	No

#### Rationale

Unlike the management PI, this PI must be scored, even in absence of impact on Primary species – indeed, the information base on the fishery is what is assessed by this PI.

Two sets of information are available to the team to determine UoA impact on non-target species. Both datasets sample a period of three years (2018-2020), in the instance where no primary species appear in the data, the team must again refer to the following interpretations: <https://mscportal.force.com/interpret/s/article/Scoring-P2-species-in-absence-of-impact-2-1-PI-2-2-1527586956973> - and determine whether the information collected is adequate to determine with certainty that there is no impact on primary species.

While the first set of data presented by Pronatura Noroeste allows the team to identify some of the species with which the fishery interacts, there is no indication on how representative this data is of the UoAs. It is also not clear if this data has been disaggregated by metier or if it is a compilation of several gear types. It has been made clear

to the team that non-UoA gear types (that is to say gears other than gillnets and handlines) and non-UoA areas (fish caught outside the marshlands) have been excluded from this dataset. It is the team's understanding that not all landings sites frequented by UoA fishermen were sampled as part of the Pronatura programme, and that while adequate data may be available for some of the target species, this is not the case for the non-target species (Pronatura Noroeste pers. Comm.). Based on the information available to the team, it seems that non-target species have not always been included in the data collected on these fisheries. The team also learned that the data that had been collected up until the FIP could not identify catch down to species level, and so is inadequate to estimate UoA impact on non-target species.

The second dataset, a study by Villegas (2020), splits catch profiles by UoA. An indication is given of the representation of this data for the period sampled – 13% of registered trips are covered by this study between 2018 and 2020. It is not clear if the entire UoA fleet is adequately represented by this data however, as only two landing sites are mentioned – Pimientillo and Boca de Camichin. As for the gillnet data, 418 trips were covered between 2018 and 2020, and a wider range of ports were sampled. This time however, there is no indication on the coverage percentage, so the team cannot determine how representative the data is. It should also be noted that different species show up in the two different datasets, this is due to the datasets not covering the same fishing activities. It is also unclear whether these data stem from the same study, and have been presented in two different formats. Given that too many questions remain on data representativeness and consistency, the team must allocate a precautionary **score of <60 for this SI**.

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?	No

#### Rationale

No quantitative data is adequate to estimate UoA impact on minor primary species. **Therefore, SG100 is not met.**

Information adequacy for management strategy				
c	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?	No	No	No

#### Rationale

As indicated in the rationale for SI(a), the data on UoA catch is not yet complete enough to estimate UoA impact on non-target species, and so cannot be considered adequate to support measures to manage these. **SG60 is not met.**

### References

Pronatura Noroeste pers. Comm.

Villegas (2020)

<b>Draft scoring range</b>	<b>&lt;60 – all UoAs</b>
<b>Information gap indicator</b>	<b>More information sought on data representativeness, and on the relation between the data provided by Pronatura noroeste and the Villegas (2020) study.</b>

Scoring table 10. 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	<b>Main secondary species stock status</b>			
	<b>Guide post</b>	<p>Main secondary species are likely to be above biologically based limits.</p> <p>OR</p> <p>If below biologically based limits, there are measures in place expected to ensure that the UoA does not hinder recovery and rebuilding.</p>	<p>Main secondary species are highly likely to be above biologically based limits.</p> <p>OR</p> <p>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.</p> <p>AND</p> <p>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.</p>	<p>There is a high degree of certainty that main secondary species are above biologically based limits.</p>
	<b>Met?</b>	Yes	Yes	Yes

**Rationale**



See PSA results in Appendix 2.3.1.

The following MSC scores were awarded:

Raucous grunt: 93

Longspine grunt: 93

Pacific white shrimp: 96

Minor secondary species stock status		
b	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
	Met?	No

#### Rationale

Since minor species only intervene at SG100, they have not been assessed in this Pre-assessment. **SG is not met** at this stage.

#### References

See PSA references

Draft scoring range	≥80
Information gap indicator	Information sufficient to score RBF for this PI
Data-deficient? (RBF needed)	Yes

Scoring table 11. 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	<b>Management strategy in place</b>			
	<b>Guide post</b>	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.
	<b>Met?</b>	Gillnet UoAs – No Handline UoAs - Yes	All UoAs - No	No

#### Rationale

In the context of this performance indicator (Source: MSC FCR v2.01; Table SA8):

- “Measures” are actions or tools in place that either explicitly manage impacts on the component or indirectly contribute to management of the component under assessment having been designed to manage impacts elsewhere.
- A “partial strategy” represents a cohesive arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome and an awareness of the need to change the measures should they cease to be effective. It may not have been designed to manage the impact on that component specifically.
- A “strategy” represents a cohesive and strategic arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome, and which should be designed to manage impact on that component specifically. A strategy needs to be appropriate to the scale, intensity and cultural context of the fishery and should contain mechanisms for the modification fishing practices in the light of the identification of unacceptable impacts.

While there currently are measures in place in the UoA (mesh size and hook and line requirements set out by the fishing license), it is unclear how these may affect the non-target species. It would be reasonable to assume that these measures, set with the intention of constraining the fishing effort on the target species, would also limit the

impact on secondary species. Plus, the recent efforts in data collection would allow the tracking of any trends or changes to catch profiles, which may provide an indication of UoA impact. However, at the time of writing, this is not the case, and given how unselective the gear is for the gillnet UoAs (demonstrated by the large catch profiles), the team cannot conclude that the measures can be expected to maintain or not hinder the rebuilding of main secondary species for the gillnet UoAs. **SG60 not met.**

For handline UoAs, the fact that fishing occurs only on a specified 12-day period every month, reducing fishing pressure, and the use of bait, combined with the fact that this gear is quite selective (catching mostly index and non-index P1 species), the team considers that the measures in place could be expected to maintain, or not hinder the recovery of main secondary species. **SG60 is met.** Though these measures are not specifically designed to manage the impact of secondary species, they do work together to reduce the impact on the UoA on secondary species. Should these measures cease to be effective, the team does not consider there to be sufficient awareness of the need to change these measures, given the historic issues in data collection for non-target species. Though this has been changing in recent years, **the team does not believe that SG80 is met** for the handline UoAs at the time of writing.

Management strategy evaluation				
b	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?	Gillnet UoAs – No Handline UoAs - Yes	All UoAs - No	No

#### Rationale

Gillnet UoAs: there is no indication that the measures currently in place would limit UoA impact on non-target species. Indeed the gear used is not known to be selective, and this is confirmed by the wide catch profile. There are no measures other than mesh size to limit UoA impact on non-target species, and this alone cannot be considered likely to reduce UoA impact on non-target species. **SG60 not met.**

Handline UoAs: General experience would dictate that a handline fishery would be far more selective than a net fishery, because every part of the practice is geared around catching as many of the target species specifically as possible (including fishing during the quarter moon period, the bait used, the hook used, the areas fished, the way the bait is presented - live). While the nets are not designed and cast randomly across the Marismas Nacionales, there certainly is a less targeted element to that fishing practice – as evidenced in the wide catch profile. As such, **SG60 is met** for the handline UoAs. **SG80 is not met** because there is no objective basis for confidence based on information directly about the UoA or species involved that the measures in place will work.

#### Management strategy implementation

	<b>Guide post</b>	<b>There is some evidence that the measures/partial strategy is being implemented successfully.</b>	<b>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).</b>
	<b>Met?</b>	<b>Yes</b>	<b>No</b>

#### Rationale

All UoAs: Given that the measures/partial strategy are all related to the gear used and fishing practices (rather than effort limitation via TACs or seasonal closures for example by a management body), and that the gear specifications are set out in fishing licences (meaning that licences are not awarded for other gear), there is some evidence that the measures are implemented successfully. **SG80 is met. SG100 is not** because there is no monitoring or information on the non-target species stock status to indicate whether or not the measures are being implemented successfully.

<b>d</b>	<b>Shark finning</b>			
	<b>Guide post</b>	<b>It is likely that shark finning is not taking place.</b>	<b>It is highly likely that shark finning is not taking place.</b>	<b>There is a high degree of certainty that shark finning is not taking place.</b>
	<b>Met?</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

#### Rationale

None of the secondary species are sharks – NA.

<b>e</b>	<b>Review of alternative measures to minimise mortality of unwanted catch</b>		
	<b>Guide post</b>	<b>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.</b>	<b>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.</b>

	<b>Met?</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
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**Rationale**

All UoAs: It is the teams understanding that all catch is retained, and as such there is no unwanted catch.

**References**

<b>Draft scoring range</b>	<b>Gillnet: &lt;60</b> <b>Handline: 60-79</b>
<b>Information gap indicator</b>	<b>Information sufficient to score PI</b>

Scoring table 12. 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	<p>Qualitative information is adequate to estimate the impact of the UoA on the main secondary species with respect to status.</p> <p>OR</p> <p>If RBF is used to score PI 2.2.1 for the UoA:</p> <p>Qualitative information is adequate to estimate productivity and susceptibility attributes for main secondary species.</p>	<p>Some quantitative information is available and adequate to assess the impact of the UoA on main secondary species with respect to status.</p> <p>OR</p> <p>If RBF is used to score PI 2.2.1 for the UoA:</p> <p>Some quantitative information is adequate to assess productivity and susceptibility attributes for main secondary species.</p>	<p>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.</p>
	Met?	Yes	No	No

**Rationale**

All UoAs: as seen in Appendix 2.3.1 – PSAs were conducted to score PI 2.2.1, however information was not always available directly on the species based on a literature review. As a result only **SG60 is met**, as this qualitative data is still considered adequate for an estimate of UoA impact on the main secondary species.

b	Information adequacy for assessment of impacts on minor secondary species		
	Guide post	Some quantitative information is adequate to estimate the impact of the	

	<b>Met?</b>

**UoA on minor secondary species with respect to status.**

**No**

#### Rationale

Minor species could not be discerned, and were not investigated in this Preassessment. **SG100 not met.**

Information adequacy for management strategy				
c	<b>Guide post</b>	<b>Information is adequate to support measures to manage main secondary species.</b>	<b>Information is adequate to support a partial strategy to manage main secondary species.</b>	<b>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.</b>
	<b>Met?</b>	<b>No</b>	<b>No</b>	<b>No</b>

#### Rationale

All UoAs: as outlined in Section 7.2.2 there are significant issues with information availability surrounding non-target species in this fishery. Some efforts have been made in recent years to remedy these, and identification below genus level is now tentatively possible. According to the information and available to the team, there does not appear to be adequate information to support measures to manage main secondary species. Indeed there is still no clear unequivocal indication of which species are main for this fishery. **SG60 not met.**

#### References

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<b>Draft scoring range</b>	<b>&lt;60</b>
<b>Information gap indicator</b>	<b>Information sufficient to score PI but not to support measures on secondary species</b>

Scoring table 13. PI 2.3.1 – ETP species outcome

<b>PI 2.3.1</b>		<b>The UoA meets national and international requirements for the protection of ETP species</b>		
		<b>The UoA does not hinder recovery of ETP species</b>		
<b>Scoring Issue</b>	<b>SG 60</b>	<b>SG 80</b>	<b>SG 100</b>	
<b>a</b>	<b>Effects of the UoA on population/stock within national or international limits, where applicable</b>			
	<b>Guide post</b>	<b>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.</b>	<b>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.</b>	<b>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.</b>
	<b>Met?</b>	<b>No</b>	<b>No</b>	<b>No</b>

**Rationale**

UoA effects ETP species are not known or recorded, and are considered to be non-existent though there is no evidence to demonstrate this claim. **SG60 not met.**

<b>b</b>	<b>Direct effects</b>			
	<b>Guide post</b>	<b>Known direct effects of the UoA are likely to not hinder recovery of ETP species.</b>	<b>Direct effects of the UoA are highly likely to not hinder recovery of ETP species.</b>	<b>There is a high degree of confidence that there are no significant detrimental direct effects of the UoA on ETP species.</b>
	<b>Met?</b>	<b>No</b>	<b>No</b>	<b>No</b>

**Rationale**

UoA effects ETP species are not known or recorded, and are considered to be non-existent though there is no evidence to demonstrate this claim. **SG60 not met.**

<b>c</b>	<b>Indirect effects</b>			
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	<b>Guide post</b>	<b>Indirect effects have been considered for the UoA and are thought to be highly likely to not create unacceptable impacts.</b>	<b>There is a high degree of confidence that there are no significant detrimental indirect effects of the UoA on ETP species.</b>
	<b>Met?</b>	<b>No</b>	<b>No</b>

#### Rationale

Neither direct nor indirect effects have been considered for the UoA, and the impacts of these are unknown. **SG80 not met.**

#### References

List any references here, including hyperlinks to publicly-available documents.

<b>Draft scoring range</b>	<b>&lt;60</b>
<b>Information gap indicator</b>	<b>More information sought on ETP species encountered by the fishermen, and any means of logging these interactions.</b>
<b>Data-deficient? (RBF needed)</b>	<b>Yes but insufficient information to conduct RBF</b>

Scoring table 14. PI 2.3.2 – ETP species management strategy

<b>PI 2.3.2</b>		<p>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.</p> <p>Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species</p>		
<b>Scoring Issue</b>		<b>SG 60</b>	<b>SG 80</b>	<b>SG 100</b>
<b>a</b>	<b>Management strategy in place (national and international requirements)</b>			
	<b>Guide post</b>	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.
	<b>Met?</b>	Gillnet UoAs: No Handline UoAs: Yes	UoAs: No	No

**Rationale**

In the context of this performance indicator (Source: MSC FCR v2.01; Table SA8):

- “Measures” are actions or tools in place that either explicitly manage impacts on the component or indirectly contribute to management of the component under assessment having been designed to manage impacts elsewhere.
- A “partial strategy” represents a cohesive arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome and an awareness of the need to change the measures should they cease to be effective. It may not have been designed to manage the impact on that component specifically.

- A “strategy” represents a cohesive and strategic arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome, and which should be designed to manage impact on that component specifically. A strategy needs to be appropriate to the scale, intensity and cultural context of the fishery and should contain mechanisms for the modification fishing practices in the light of the identification of unacceptable impacts.

While there currently are measures in place in the UoA (mesh size and hook and line requirements set out by the fishing license), it is unclear how these may affect the UoA impact on ETP species. It would be reasonable to assume that these measures, set with the intention of constraining the fishing effort on the target species, would also limit the impact on ETP species. However, at the time of writing, there is no way for fishermen to record ETP species interactions – and indeed no other means of tracking these interaction, and given how unselective the gear is for the gillnet UoAs (demonstrated by the large catch profiles), the team cannot conclude that the measures can be expected to achieve the national requirements for the protection of ETP species for the gillnet UoAs. **SG60 not met.**

For handline UoAs, the fact that fishing occurs only on a specified 12-day period every month, reducing fishing pressure, and the use of bait, combined with the fact that this gear is quite selective (catching mostly index and non-index P1 species), the team considers that the measures in place could be expected to achieve the national requirements for the protection of ETP species. **SG60 is met.** Though these measures are not specifically designed to manage the impact of ETP species, they do work together to reduce the impact on the UoA on these species. Should these measures cease to be effective, the team does not consider there to be sufficient awareness of the need to change these measures, given the complete lack of information on UoA interactions with ETP species. The **team does not believe that SG80 is met** for the handline UoAs at the time of writing.

Management strategy in place (alternative)				
b	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?	Gillnet UoAs: No Handline UoAs: Yes	All UoAs: No	No

#### Rationale

Given that there is no indication of ETP species interaction in the fishery, it is not entirely clear which SI should be scored (the alternative management, or management in line with national and international requirements). In the absence of information on ETP interactions, the team considers the conclusions presented in the rationale above apply to this SI as well. **SG60 is not met for the Gillnet UoAs, and SG60 is met for the handline UoAs.**

Management strategy evaluation				
c				

	<b>Guide post</b>	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.
	<b>Met?</b>	Gillnet UoAs: No Handline UoAs: Yes	All UoAs: No	No

#### Rationale

Gillnet UoAs: there is no indication that the measures currently in place would limit UoA impact on ETP species. Indeed the gear used is not known to be selective, and this is confirmed by the wide catch profile. There are no measures other than mesh size to limit UoA impact on ETP species, and this alone cannot be considered likely to reduce UoA impact on ETP species. **SG60 not met.**

Handline UoAs: General experience would dictate that a handline fishery would be far more selective than a net fishery, because every part of the practice is geared around catching as many of the target species specifically as possible (including fishing during the quarter moon period, the bait used, the hook used, the areas fished, the way the bait is presented - live). While the nets are not designed and cast randomly across the Marismas Nacionales, there certainly is a less targeted dimension to that fishing practice – as demonstrated in the large catch profile. As such, **SG60 is met for the handline UoAs. SG80 is not met** because there is no objective basis for confidence based on information directly about the UoA or species involved that the measures in place will work.

	<b>Management strategy implementation</b>			
<b>d</b>	<b>Guide post</b>		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).
	<b>Met?</b>		Yes	No

#### Rationale

All UoAs: Given that the measures/partial strategy are all related to the gear used and fishing practices (rather than effort limitation via TACs or seasonal closures for example by a management body), and that the gear specifications are set out in fishing licences (meaning that licences are not awarded for other gear), there is some evidence that the measures are implemented successfully. **SG80 is met. SG100 is not** because there is no monitoring or information on the non-target species stock status to indicate whether or not the measures are being implemented successfully.

Review of alternative measures to minimize mortality of ETP species				
e	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?	No	No	No

#### Rationale

All UoAs: there is no evidence of any review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species. **SG60 not met.**

#### References

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Draft scoring range	<60
Information gap indicator	More information sought on ETP species interactions, and any efforts beyond gear limitations to limit interactions with these.

Scoring table 15. 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	<b>Information adequacy for assessment of impacts</b>			
	<b>Guide post</b>	<p>Qualitative information is adequate to estimate the UoA related mortality on ETP species.</p> <p><b>OR</b></p> <p>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.</p>	<p>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.</p> <p><b>OR</b></p> <p>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.</p>	<p>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.</p>
	<b>Met?</b>	<b>No</b>	<b>No</b>	<b>No</b>

**Rationale**

All UoAs: no information is available on UoA interactions with ETP species. **SG60 is not met.**

b		<b>Information adequacy for management strategy</b>		
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	<b>Guide post</b>	<b>Information is adequate to support measures to manage the impacts on ETP species.</b>	<b>Information is adequate to measure trends and support a strategy to manage impacts on ETP species.</b>	<b>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.</b>
	<b>Met?</b>	<b>No</b>	<b>No</b>	<b>No</b>

#### Rationale

All UoAs: since no ETP interaction have been identified, the information base cannot be considered sufficient to support measures to manage UoA impacts on ETP species. **SG60 is not met.**

#### References

List any references here, including hyperlinks to publicly-available documents.

<b>Draft scoring range</b>	<b>&lt;60</b>
<b>Information gap indicator</b>	<b>Information sufficient to score PI</b>

Scoring table 16. 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
Commonly encountered habitat status				
a	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?	All UoAs: Yes	All UoAs: Yes	All UoAs: No

#### Rationale

The commonly encountered habitats (mud and fine sand) are not likely to be significantly impacted by any of the UoAs, and this is mainly due to the gears in use in the fishery, and the reduced intensity of fishing effort owing to the artisanal nature of the fleet. The gillnets are hardly, if at all, in contact with the benthos, and given the fact that these are set vertically in the water column, and not along the channel or lagoon floor, the team believes it is highly unlikely that the gillnet UoAs reduce the structure and function of these sand and mud floors to a point where there would be serious or irreversible harm. The only issue that could cause some impact to these habitats would be gear loss, though the previous pre-assessment reports this to be quite low, and so the team does not believe that gear loss is a cause for concern in this fishery. **SG60 and SG80 are met for the gillnet UoAs. SG100 is not met** as there is no UoA specific evidence of this.

As for the handline UoAs, the nature of the gear and its use means that 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. **SG60 and SG80 are met** for these UoAs as well. **SG100 is not met** as there is no UoA specific evidence of this.

VME habitat status				
b	Guide post	The UoA is unlikely to reduce structure and function of the VME habitats to a	The UoA is highly unlikely to reduce structure and function of the VME habitats to a point	There is evidence that the UoA is highly unlikely to reduce structure and function of the VME habitats to a point



		point where there would be serious or irreversible harm.	where there would be serious or irreversible harm.	where there would be serious or irreversible harm.
	<b>Met?</b>	<b>All UoAs: Yes</b>	<b>All UoAs: Yes</b>	<b>All UoAs: No</b>

#### Rationale

For the gillnet UoAs, interaction with mangroves is extremely limited. As the net is held taught across a channel, there may be slight overlap with the bordering mangrove forest, but not in a way which would reduce the structure and function of this habitat to a point where there would be serious or irreversible harm. **SG60 and SG80 are met. SG100 is not met** as there is no UoA specific evidence or data to quantify this.

For the handline UoAs, overlap with mangroves appears to be greater based on the photographs of fishing practices sent to the team by Pronatura Noroeste. Even so, the physical abrasion or disturbance of the gear and fishing practices on these mangroves is highly unlikely to would reduce the structure and function of this habitat to a point where there would be serious or irreversible harm due to the nature of the gear, and the scale of the fishery. A secondary impact to take into account here is the bait sourcing. It was made clear to the team that at times, the fishermen will buy shrimp from the nearby shrimp farms. These shrimp farms certainly reduce the structure and function of mangrove forests, as the clearing of these forests to make room for the farm and subsequent pollution is a significant contributor to the destruction of the mangrove forests. However given the low quantities of shrimp purchased from these farms, the handline UoAs cannot be deemed to be a main contributor to the operation of shrimp farms, and so the UoA as a whole, both through direct and indirect effects, is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm. **SG60 and SG80 are met. SG100 is not met** as there is no UoA specific evidence or data to quantify this.

	Minor habitat status		
c	<b>Guide post</b>		<b>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.</b>
	<b>Met?</b>		<b>No</b>

#### Rationale

No minor habitats have been identified at this pre-assessment – **SG100 not met.**

## References

List any references here, including hyperlinks to publicly-available documents.

<b>Draft scoring range</b>	<b>≥80</b>
<b>Information gap indicator</b>	<b>More information sought on UoA footprint through a map of fishing effort</b>
<b>Data-deficient? (RBF needed)</b>	<b>No</b>

**Scoring table 17. 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	<b>Management strategy in place</b>			
	<b>Guide post</b>	<b>There are measures in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance.</b>	<b>There is a partial strategy in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.</b>	<b>There is a strategy in place for managing the impact of all MSC UoAs/non-MSC fisheries on habitats.</b>
	<b>Met?</b>	<b>All UoAs: Yes</b>	<b>All UoAs: Yes</b>	<b>No</b>

**Rationale**

There are a suite of management measures in place in the Marismas Nacionales to manage fishing effort in the Reserve. Beyond the technical measures applying to the gear and fishing practices of the UoAs, the entire Reserve benefits from protection due to the fact that it is an official Ramsar site as of 1995. Indeed, the whole area is under a management plan – the programa de Manejo Reserva de la Biosfera Marismas Nacionales Nayarit (Comision Nacional de Areas Naturales Protegidas, 2013). The aforementioned programme sets out the general approach to management to include the following components:

- (1) Encouraging inter-institutional coordination of the actors involved in the inspection and surveillance of the area;
- (2) Establishing the bases and agreements for collaboration, design, budgeting within the management plan and promote an efficient and effective of participatory inspection and surveillance, that coordinates actions between the main stakeholders and the three levels of government.
- (3) Strengthening technical and administrative capacities for monitoring, both for institutions and local organisations or groups.
- (4) Managing support for the adequate monitoring and inspection activities.
- (5) Implementing actions aimed at the conservation of biodiversity and the protection and recovery of disturbed sites, as well as core zones and fragile and sensitive areas

This wider plan also includes socio-economic provisions for the inhabitants of the region who depend on the Marismas Nacionales for their livelihood, and there is a subcomponent specifically designed to develop and strengthen the communities in the area.

Within this general plan, there are specific plans for areas of interest, including the preservation of core, fragile, and sensitive areas. In this section, mangroves are specifically mentioned. The actions set out in this plan are the following: (1) identify and designate the fragile areas within the Marismas Nacionales, (2) establish a biological monitoring program and assess the fragile areas, (3) define surveillance protocols for these areas, (4) Coordinate with the competent bodies, surveillance actions for the development of activities in core, fragile and sensitive areas, in accordance with applicable regulations, (5) Define and apply impact prevention and mitigation measures, as well as verify the adequate operation of the fishing permits granted in the Marismas Nacionales.

Another specific plan is the management of sustainable fisheries. The objectives of this plan are the conservation, restoration and sustainable exploitation of fisheries resources within the Reserve through monitoring and surveillance efforts relying on the direct participation of the fishermen of the Marismas Nacionales. The actions of this management plan are: (1) coordination of various stakeholder groups to improve the understanding of the resources in the area, as well as the development of harvest strategies and other tools for sustainable fisheries management; (2) carrying out a survey of the fishing effort within the Marismas Nacionales; (3) the establishment of management strategies for the sustainable use of fishery resources.

As such, a strategy (according to the definitions below) has been set out to protect the habitats and ecosystem of the Marismas Nacionales Bioreserve, **SG60, SG80 and SG100 are met.**

In the context of this performance indicator (Source: MSC FCR v2.01; Table SA8):

- “Measures” are actions or tools in place that either explicitly manage impacts on the component or indirectly contribute to management of the component under assessment having been designed to manage impacts elsewhere.
- A “partial strategy” represents a cohesive arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome and an awareness of the need to change the measures should they cease to be effective. It may not have been designed to manage the impact on that component specifically.
- A “strategy” represents a cohesive and strategic arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome, and which should be designed to manage impact on that component specifically. A strategy needs to be appropriate to the scale, intensity and cultural context of the fishery and should contain mechanisms for the modification fishing practices in the light of the identification of unacceptable impacts.

Management strategy evaluation			
<b>b</b>	<b>Guide post</b>	<b>The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or</b>	<b>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.</b>
			<b>Testing supports high confidence that the partial strategy/strategy will work, based on information directly about the UoA and/or habitats involved.</b>

		comparison with similar UoAs/habitats).		
	Met?	All UoAs: Yes	All UoAs: Yes	All UoAs: No

#### Rationale

While the management plans presented above does include a “management strategy evaluation” section, the team was unable to find evidence of such an evaluation being conducted. Indeed, the general directives of the management strategy evaluation set out in (Comision Nacional de Areas Naturales Protegidas, 2013) would provide ample information and data to determine whether the management strategy is functioning as it should, but the team was unable to find any outputs from such an evaluation. **SG100 is not met.**

As for SG60 – the measures applying to gear specifications, and indeed the fishing practices (which can be considered a measure) are likely to work in reducing the impact of the UoAs on both commonly encountered and VME habitats. Such measures include the low impact nature of the gear, combined with closed periods for the handline UoAs, and the low impact nature of the gear combined with the limited overlap with VME and commonly encountered habitats for the gillnet UoAs. **SG60 is met.**

For SG80 – the information available to the team pertains directly to the UoAs under assessment. Given the fact that no gear in use in this fishery is mobile/high impact, one can objectively conclude that the UoAs and the measures in place would work to limit UoA impact on the VME and commonly encountered habitats. SG80 is met.

	<b>Management strategy implementation</b>			
c	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?		No	No

#### Rationale

**SG80 is not met**, because the above management plan (Comision Nacional de Areas Naturales Protegidas, 2013) was published in 2013, and the team has been unable to find any evidence of implementation, or any written outputs of the monitoring, surveillance and protection efforts. The above plan mentions the following expected results: (1) Operate a monitoring programme for the conservation of core, fragile and sensitive areas; and (2) Maintain and/or improve the current conservation status of relevant, unique, representative areas, fragile or sensitive areas. The team is currently unable to verify whether these have been achieved. Improved identification of non-target species could be an indication that the plan is proceeding, but this is not relevant to this PI.

Compliance with management requirements and other MSC UoAs'/non-MSC fisheries' measures to protect VMEs				
d	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?	All UoAs: No	All UoAs: No	All UoAs: No

#### Rationale

It is the team's understanding that management requirements for the protection of VMEs include closed areas and gear limitations. There is some evidence that the UoAs comply with gear restrictions (though there are no signs of inspection reports to confirm this). However, given that there is no clear indication of geographical fishing effort, the team is unable to verify if these measures are being complied with. Given the current information base, **SG60 is not met.**

#### References

(Comision Nacional de Areas Naturales Protegidas, 2013)

Draft scoring range	<60
Information gap indicator	More information sought on implementation of the management plan for Marismas Nacionales. A map of areas fished would be beneficial.

**Scoring table 18. PI 2.4.3 – Habitats information**

PI 2.4.3		Information is adequate to determine the risk posed to the habitat by the UoA and the effectiveness of the strategy to manage impacts on the habitat		
Scoring Issue		SG 60	SG 80	SG 100
a	<b>Information quality</b>			
	<b>Guide post</b>	<p>The types and distribution of the main habitats are broadly understood.</p> <p>OR</p> <p>If CSA is used to score PI 2.4.1 for the UoA:</p> <p>Qualitative information is adequate to estimate the types and distribution of the main habitats.</p>	<p>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.</p> <p>OR</p> <p>If CSA is used to score PI 2.4.1 for the UoA:</p> <p>Some quantitative information is available and is adequate to estimate the types and distribution of the main habitats.</p>	<p>The distribution of all habitats is known over their range, with particular attention to the occurrence of vulnerable habitats.</p>
	<b>Met?</b>	All UoAs: Yes	All UoAs: No	All UoAs: No

**Rationale**

The main habitat types and their distribution in the Marismas Nacionales Reserve are all presented in the study conducted on the area to justify its designation as a protected area (SEMARNAT, 2008). In this study, several maps are available on the topography, soil types, hydrology, climate, and biological characteristics (crucially, vegetation) of the area. **SG60 is met.**

**SG80 is not met** because the scale and intensity of the UoAs is not accurately known across the Marismas Nacionales Reserve. While the number of vessels are known, exact trip numbers, and areas frequented for the entirety of the UoAs is still not clear. So while extensive information exists on the habitats present in the UoA area, the lack of information on the UoA's footprint means that **SG80 cannot be met.**

b	<b>Information adequacy for assessment of impacts</b>
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	<b>Guide post</b>	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.
	<b>Met?</b>	All UoAs: Yes	All UoAs: No	All UoAs: No

#### Rationale

The photographs presented to the team by Pronatura Noroeste provide an indication on how gear is used in the fishery, and on the potential overlap with the main and VME habitats. **SG60 is met. SG80 is not met** because there is insufficient information on the spatial extent of interaction and on the timing and location of use of the fishing gear. For the handline UoAs there is some indication of timing (quarter moon period – roughly 12 days per month), but the broad scale spatial footprint of these UoAs is not known (same applied to gillnet UoAs).

	<b>Monitoring</b>			
<b>c</b>	<b>Guide post</b>		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.
	<b>Met?</b>		All UoAs: No	All UoAs: No

#### Rationale



Little to no information is collected to measure any changes in risk posed by the UoAs to the habitats with which they interact. Since there is still no clear view of the scale and intensity of the UoAs, any change to these may incur an increase in risk to these habitats – however no information is collected to detect any change in risk. **SG80 not met.**

### References

(SEMARNAT, 2008)

<b>Draft scoring range</b>	<b>60-79</b>
<b>Information gap indicator</b>	<b>More information sought on scale and intensity of the UoA – including maps</b>

Scoring table 19. 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?	All UoAs: Yes	All UoAs: Yes	All UoAs: No

#### Rationale

As described in Section 7.2.5, Marismas Nacionales is an exceptionally dynamic and productive area. It is also an area that has been exploited for thousands of years by fishermen and shrimp farmers. The key drivers of largescale ecosystem change in this area are most likely largescale processes in sediment transfer and coastal erosion as well as changes to alluvial deposits – the same processes which have shaped the bathymetry, hydrology and biological assemblage of the area. Beyond this, the most significant anthropogenic impact in the area would be the clearing of mangroves to make room for shrimp farms, and the subsequent pollution of these clearings. The target species of this fishery are all predators, and do not feed specifically on one species or are the sole prey species of apex predators. Given the small scale, and artisanal nature of this fishery, and the highly productive and dynamic nature of the ecosystem in which it takes place, the team believes that the UoAs are highly unlikely to disrupt the key elements underlying ecosystem structure as the impacts of these small UoAs are minute against the larger anthropogenic impacts, and the wider ecosystem processes shaping the Marismas Nacionales. **SG60 and SG80 are met. SG100 is not met** because there is insufficient study on the UoA specifically to provide evidence that key ecosystem elements are not disrupted.

#### References

Draft scoring range	≥80
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Information gap indicator	Information sufficient to score PI
Data-deficient? (RBF needed)	No

Scoring table 20. 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?	All UoAs: Yes	All UoAs: No	All UoAs: No

#### Rationale

Following a study conducted by Pronatura Noroeste in July of 2019 (Pronatura Noroeste 2019), proposing the establishment of two no take zones (see Figure 9 below), a letter was sent to the Director of the “Ordenamiento Pesquero y Acuicola” (the government body in charge of fisheries management) to demonstrate the support of the Council of the S.C.P.P en Gral y Acuicola Ostricamichin S.C. de R.L de C.V., key stakeholders in the area. This highlights that management initiatives for the wider ecosystem are becoming more prominent in recent years. It is not clear to the team if that proposal has since been accepted, as no documentation was provided to the team demonstrating this. A no take zone such as those proposed in the aforementioned project would constitute a strong measure taking into account the potential impact of the UoA on key ecosystem elements.

The gear restrictions tied to licensing requirements constitute measures that take into account the potential impacts of the UoA on key elements of the ecosystem. Indeed, hook size and type is prescribed, as is mesh size and net depth. Though not explicitly (or even intentionally) – these measures modify and restrict the fishing practices of the UoA fishermen, and in doing so, constitute measures which take into account the potential impacts of the UoA on key elements of the ecosystem (such as the target species). **SG60 is met.** However, based on the information presented to the team, a partial strategy cannot be said to be in place to restrain UoA impacts on the ecosystem, as indeed, the ecosystem-level impacts of the UoAs do not seem to be taken into account (rightfully) as a potential driver of ecosystem-level change. While this approach is understandable - given that there are far greater threats to the Marismas Nacionales ecosystem than the UoAs, this does mean that **SG80 is not met.**

The “if necessary” part of the guidepost is not triggered here as the information on UoA impacts is limited, so the precautionary approach was applied.

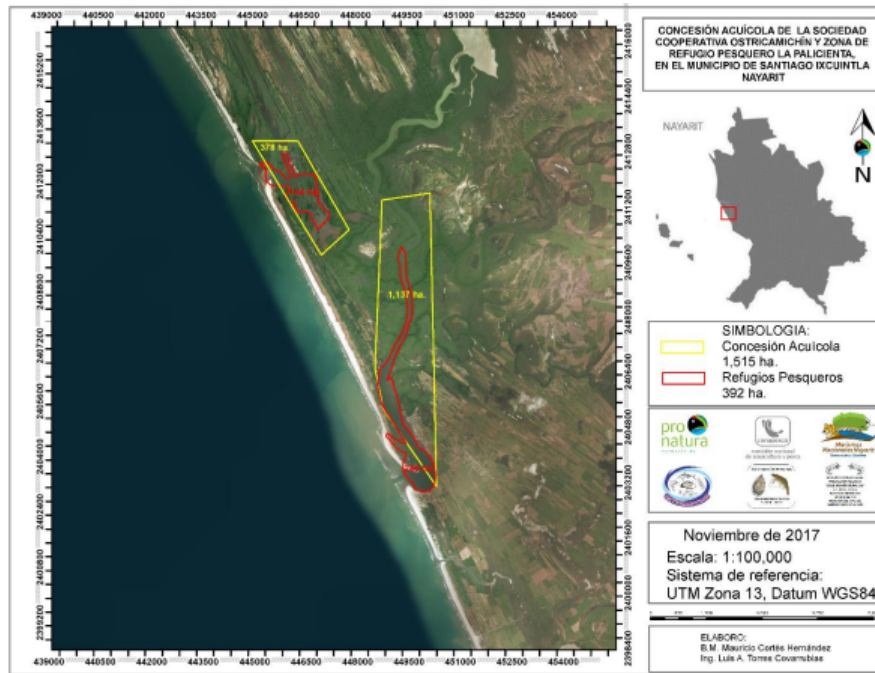


Figure 9. In red: proposed closed areas for fishing, in yellow: area which S.C. Ostricamichin may use for aquaculture.

Management strategy evaluation				
b	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?	All UoAs: Yes	All UoAs: No	All UoAs: No

Rationale

The measures applying to gear specifications, and indeed the fishing practices (which can be considered a measure) are likely to work in reducing the impact of the UoAs on both commonly encountered and VME habitats. Such measures include the low impact nature of the gear, combined with closed periods for the handline UoAs, and the low impact nature of the gear combined with the effort limitations imposed by licensing requirements. **SG60 is met.**

While the management plans presented in PI 2.4.2 do include a “management strategy evaluation” section, the team was unable to find evidence of such an evaluation being conducted. Indeed, the general directives of the management strategy evaluation set out in (Comision Nacional de Areas Naturales Protegidas, 2013) would provide ample information and data to determine whether the management strategy is functioning as it should, but the team was unable to find any outputs from such an evaluation. Further, the no take zone proposal above would likely be a measure strong enough to allow some objective basis for confidence that management to reduce UoA impact on the ecosystem would work – as demonstrated by the Pronatura Noroeste (2019) study. However given that it is not yet clear whether these no take zones have been implemented. **SG80 and SG100 are not met.**

		Management strategy implementation	
c	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?	All UoAs: Yes	All UoAs: No

#### Rationale

All UoAs: Given that the measures/partial strategy are all related to the gear used and fishing practices (rather than wider measures such as no take zones), and that the gear specifications are set out in fishing licences (meaning that licences are not awarded for other gear), there is some evidence that the measures are implemented successfully. **SG80 is met. SG100 is not** because there is no monitoring to follow up on the use of these gears and to indicate whether or not the measures are being implemented successfully.

#### References

List any references here, including hyperlinks to publicly-available documents.

Draft scoring range	60-79
Information gap indicator	More information sought on no-take zone establishment and enforcement

**Scoring table 21. 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	<b>Information quality</b>			
	<b>Guide post</b>	<b>Information is adequate to identify the key elements of the ecosystem.</b>	<b>Information is adequate to broadly understand the key elements of the ecosystem.</b>	
	<b>Met?</b>	<b>All UoAs: Yes</b>	<b>All UoAs: Yes</b>	

**Rationale**

In order to achieve the Biological Reserve status, several ecosystem-wide studies were conducted for the Marismas Nacionales (SEMARNAT 2008; SEMARNAT, 2018; Pronatura Noroeste 2019; Ramirez-Zavala et al., annum unknown). These studies include descriptions of the hydrological processes, an inventory of the flora and fauna, a catalogue of the pressures and stresses on the Marismas Nacionales ecosystem. As such, there is more than enough information available to understand the key elements of the ecosystem. **SG60 and SG80 are met.**

b	<b>Investigation of UoA impacts</b>			
	<b>Guide post</b>	<b>Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, but have not been investigated in detail.</b>	<b>Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, and some have been investigated in detail.</b>	<b>Main interactions between the UoA and these ecosystem elements can be inferred from existing information, and have been investigated in detail.</b>
	<b>Met?</b>	<b>All UoAs: Yes</b>	<b>All UoAs: No</b>	<b>All UoAs: No</b>

**Rationale**

The ecosystem impacts under consideration in this Pre-assessment are the removal of target species from the ecosystem, and the degradation and pollution of mangrove forests by the UoA. The following information is available to infer the main impacts of the UoA: the artisanal/small scale of the UoAs, combined with the multi-specific nature of the UoAs, and the fact that the target species are generalist predators (many prey species) means that the UoAs are unlikely to significantly modify the ecosystem through the removal of the target species. The second impact to consider is the degradation of mangroves through gear loss or abrasion by either of the gears and gear

hauling/setting methods of the UoAs. The limited impacts can be inferred simply based on the gears used and size of the UoA. **SG60 is therefore met. SG80 is not met** because, while impacts can be inferred, none have been specifically investigated.

Understanding of component functions			
c	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?	All UoAs: No	All UoAs: No

#### Rationale

The main functions of the target species are known – the target species are all predators. The secondary species functions are not known in detail, as there is very little literature available on these species. As for ETP species – none have been designated in this assessment. The team does not rule out the possibility that there are ETP species interactions with the UoA given the lack of data on this issue. The functions of habitats, especially the VME habitats with which the fishery interacts are known (SEMARNAT 2008). Given the lack of understanding of the function of secondary species in their ecosystem, and the complete lack of information on ETP species, **SG80 is not met.**

Information relevance			
d	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?	All UoAs: No	All UoAs: No

#### Rationale

As above, the absence of any information on ETP species prevents **SG80 from being met.** Further, the data on impacts of secondary species have their issues (See Section 7.2.2.2), which make it difficult to accurately estimate the impact on secondary species since there are still doubts on the catch profiles. Impacts on habitats can be inferred



by the gear and fishing methods, and impacts on target species can be inferred based on the catch data collected – though this data does not have much of a context since stock status is not known for any of the target species.

e	<b>Monitoring</b>		
	<b>Guide post</b>		<b>Adequate data continue to be collected to detect any increase in risk level.</b>
	<b>Met?</b>		<b>All UoAs: No</b>
			<b>Information is adequate to support the development of strategies to manage ecosystem impacts.</b>
			<b>All UoAs: No</b>

#### Rationale

Data collection is improving – this much is clear from the recent efforts in collating catch profiles. Whereas in the past data collection was limited to target species, these efforts are now expanding to the entirety of the catch. However at this stage, there is not method in place to track ETP species interactions, and the data on non-target species is not extensive enough to detect any increase in risk level posed to these species by the UoA. **SG80 is not met.**

#### References

List any references here, including hyperlinks to publicly-available documents.

<b>Draft scoring range</b>	<b>60-79</b>
<b>Information gap indicator</b>	<b>Information sufficient to score PI</b>

### 7.3 Principle 3

As outlined in the proposal accepted by Pronatura Noroeste, Principle 3 will predominantly reflect where changes have taken place since the previous pre assessment (Pronatura Noroeste, 2013). This analysis is based on the aforementioned surveillance report, client submissions, and a review of publicly available information on the management framework. Additional background sections have been completed to complement the Pronatura Noroeste (2013) pre assessment.

#### 7.3.1 Legal and customary framework, and decision making processes

This fishery takes place in the Marismas Nacionales National Reserve, and so is found entirely within the Mexican EEZ, making the highest division of management for the UoAs the Mexican National Government.

In Mexico, three agencies are in charge of the management of fisheries. The main science and research body is the Instituto Nacional de Pesca y Acuicultura (INAPESCA). It is a Sectorized Decentralized Public Body with the Secretary of Agriculture; It is in charge of directing, coordinating and guiding scientific and technological research in fisheries and aquaculture, as well as the development, innovation and technology transfer required by the fisheries and aquaculture sector. The decision-making for permits and general management of fishing effort is carried out by CONAPESCA. This body is part of the Government of Mexico, as it is nested in the Secretaria de Agricultura y Desarrollo Rural (SADER). The third key entity is the Ministry of the Environment and Natural Resources (SEMARNAT), which is the government body in charge of protecting and conserving ecosystems and natural resources. SEMARNAT is particularly important in this fishery as the UoA fishery takes place in a natural reserve.

Another key component of the legal and customary framework is the “*Normas Oficiales Mexicanas*” (NOMs) – these define the specific management measures such as fishing gear requirements, closed areas or fishing seasons. These can be modified following the process outlined in Section 7.3.2 below. Decisions are made by committees composed of stakeholders, NGOs, and other interest groups. These stakeholders are mobilized through the *Comité Consultativo Nacional de Normalizacion de Pesca Responsable*.

The next echelon of fisheries management would be the regional governments. In this case, the relevant regional government is the Nayarit State Government. The state government sets out, by decree, the laws and conditions in which fisheries must operate. A key document pertaining to this assessment is the “*Ley de pesca y acuicultura sustentables para el estado de Nayarit*”. This piece of legislation is nested within the wider “*Ley General de Pesca y Acuicultura Sustentables*” (LGPAS) of July 2007 (latest version is April 2018). The LGPAS sets out the general requirements and regulations for fisheries in the territory of Mexico, as well as the general roles and responsibilities of fisheries management in Mexico.

#### 7.3.2 Consultation, roles and responsibilities

Covered in the previous pre assessment (Pronatura Noroeste, 2013).

Addendum: laws (including the LGPAS mentioned above) may be edited or changed through the Deputies or the Senate. All draft legislation is subject to a public comment period of 60 days. Any comments are considered, and assessed before the law is set.

### 7.3.3 Long term objectives

Article 2 of the LGPAS sets out 15 objectives which include (translated from the original piece of legislation):

- Establishing and defining the framework necessary for the organization, promotion and regulation of the integrated management and sustainable use of fisheries and aquaculture, considering social, technological, productivity, biological and environmental factors;
- Lay the foundation for the management, conservation, protection, recovery and sustainable utilization of fisheries and aquaculture resources and the protection and regeneration of ecosystems in which these resources are found;
- Set rules and regulations for planning and regulating the exploitation of fishery resources and aquaculture;
- Obtain rights of access, preferential use and benefits of fishery resources and aquaculture by communities and indigenous people;
- Establish the basis and mechanisms of coordination between Federal, state and municipal authorities;
- Identify and establish the foundations for the creation, operation and functioning of mechanisms to ensure participation by fishermen;
- Support and facilitate scientific and technological research on aquaculture and fisheries;
- Establish a system of concessions and permits for fishing activities and aquaculture;
- Establish the National Information System for Fisheries and Aquaculture and the National Register Fisheries and Aquaculture;
- Establish a basis for inspection and surveillance activities, as well as mechanisms of coordination with the competent authorities;
- Establish penalties and sanctions for non-compliance or violation of provisions of the law, related regulations and the Official Mexican Standards.

### 7.3.4 Fishery specific objectives

Covered in the previous pre assessment scoring (Pronatura Noroeste, 2013). One amendment the team would make in this pre assessment would be the consideration of the *Plan de Manejo Pesquero de robalo garabato, pargo Colorado, y curvinas en Marismas Nacionales, Nayarit y Sur de Sinaloa* (Government of Mexico, 2021) as a plan setting out fishery-specific objectives for the target species. This plan was validated by the decision-making processes outlined below. Indeed, a set of objectives is set out for the year 2025 (translation from the abovementioned management plan):

“The fishery for snook (*Centropomus viridis*), red snapper (*Lutjanus colorado*) and curvinas in Marismas Nacionales, Nayarit and southern Sinaloa is sustainable and orderly; the fishery is regulated, and is competitive as it covers the needs of the national and international market, because the quality of the product is assured, and technological processes are developed that give it a high commercial value, while conserving its ecosystems by protecting buffer zones and fishing refuge areas.”

### **7.3.5 Decision making processes**

NOMs are brought up to INAPESCA, which is charged of assessing the technical merit and content of the proposed changes to legislation. If the proposal is accepted by INAPESCA, it is forwarded to CONAPESCA to further approve the proposal (ensuring legal consistency and validity). Once through these bodies, the draft law is sent to Congress for publication and final approval. For more details on the formalised consultation process for the setting of NOMs, see Article 44 of the LGPAS. In the case of fisheries, the consultation involves the *Comité Consultivo Nacional de Normalizacion de Pesca Responsable*.

The Mexican NOM (Norma Oficial Mexicana) is an important binding regulatory instrument that is very useful and regularly used in the decision-making process of fishery management in Mexico. A new or revised NOM is created in a stepwise process where a Working Technical Group first convenes to prepare a proposal, the group is led by INAPESCA and includes fishers, cooperative technicians, OCS and the academic sector. Secondly, the proposal is presented before the Fisheries Consulting Committee and corresponding Subcommittees where different sectors participate to decide if the proposals have merit to move forward in the process. These committees are also participatory and led by state and federal authorities including CONAPESCA, INAPESCA, state fisheries secretariats, Tourism, Finance, and other. Fisher organization representatives are also part of these committees and even members of the Working Technical Group may be part of the Committee. The proposal is analyzed and if not approved, it is returned to the Technical Group for improvement and revision. In the third step, if the proposal is approved by the Committee, it is sent to the National Consulting Committee led by the SADER (the federal Secretariat in charge of fisheries management and where CONAPESCA is located). Under the leadership of CONAPESCA, the proposal is analyzed by the National Consulting Committee, and if approved, the new NOM is presented to the public in an open consultation process lasting 60 days. Finally, observations and comments from the general public are sent back to the Technical Group and then back to the National Consulting Committee for approval and final revisions by CONAMER, a federal government instance in charge of determining if a new regulation is consistent and appropriate in the context of all other laws and regulations in Mexico. If everything is correct, then it is sent to Congress for publication in the Official Gazette. For more details on the formalised consultation process for the setting of NOMs, see Article 44 of the LGPAS. In the case of fisheries, the consultation involves the *Comité Consultivo Nacional de Normalizacion de Pesca Responsable*.

### **7.3.6 Compliance and enforcement**

As presented in Principle 2 and throughout Principle 2 rationales for the management PIs, the management plans for the Marismas Nacionales call for rigid enforcement and surveillance to be put in place to ensure that the plans are carried out as designed. These documents are all several years old however, and the team was not able to find any more recent evidence of such monitoring and surveillance protocols being put in place. Neither was the team able to find any evidence of controls such as inspection reports of the UoA.

### **7.3.7 Management performance evaluation**

Covered in the previous pre assessment (Pronatura Noroeste, 2013).



### 7.3.8 Principle 3 Performance Indicator scores and rationales –

**NOTE:** given that this P3 section is an update of the previous Pronatura Noroeste pre assessment, and the team is simply adding to the work of the Pronatura Noroeste team, the format of the scoring tables has been modified to match theirs for consistency.

Scoring table 22. 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
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	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

			that is appropriate to the context of the UoA.	fishery and has been tested and proven to be effective.
	Met?	Yes	Yes	No
c	<b>Respect for rights</b>			
	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

#### Overall Performance Indicator (PI) Rationale

Since the previous PA there have been no changes to this Performance Indicator. The modifications to the LGPAS are not directly relevant to this MSC Pre assessment, and they remain in line with the Principles of the MSC. Modifications include a specific provision to implement actions to mitigate the effect of climate change, the conditions in which stakeholders are eligible to meet to coordinate management efforts, a provision indicating that state-level management must be linked to national level management, articles on improving integration of producers to the *Consejo de Pesca y Acuacultura* with an aim to enhance communication channels between decision makers and producers and also improve data collection. As such, the effective national legal system described in the previous pre assessment is still in place, and has strengthened in certain areas, particularly in improving the inclusivity of the decision-making processes.

On a national level, the *Ley Federal de Procedimiento Administrativo* provides a dispute resolution process for any non-compliance with the law. Further, Mexico is a signatory to UNCLOS, which provides mechanisms for dispute resolution in an effective and transparent way.

As described in Section 7.3.3 there is an objective in Article 2 of the LGPAS which states (translated from the original piece of legislation): *Obtain rights of access, preferential use and benefits of fishery resources and aquaculture by communities and indigenous people*. This represents a formal commitment 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. **Minimum SG80 is achieved for all SIs.**

## References

List any references here, including hyperlinks to publicly-available documents.

<b>Draft scoring range</b>	<b>≥80</b>
<b>Information gap indicator</b>	<b>Information sufficient to score PI</b>



**Scoring table 23. 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		
PI 3.1.2		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	<b>Roles and responsibilities</b>			
	<b>Guide post</b>	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.
	<b>Met?</b>	Yes	Yes	Yes
b	<b>Consultation processes</b>			
	<b>Guide post</b>	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.
	<b>Met?</b>	Yes	Yes	No
c	<b>Participation</b>			

	<b>Guide post</b>	<b>The consultation process provides opportunity for all interested and affected parties to be involved.</b>	<b>The consultation process provides opportunity and encouragement for all interested and affected parties to be involved, and facilitates their effective engagement.</b>
	<b>Met?</b>	<b>Yes</b>	<b>No</b>

#### Overall Performance Indicator (PI) Rationale

As described in the background section of Principle 3 (Section 7.3), the roles and responsibilities are well understood for all areas of responsibility and interaction.

Formalized consultation processes are well established on the national level, and appear to be becoming more inclusive with the latest suite of modifications to the LGPAS. The consultation processes are set out in Article 44 of the Federal Law on Metrology and Normalization. It is clear that the approach to decision making involves many stakeholders, from government, to gear manufacturers, to academia, NGOs, and producers. On the state level, there are also defined consultation processes such as the *Consejos Estatales de Pesca y Acuicultura* which explicitly define their consultation processes, a specific strength of this piece of legislation is the consideration given to academia. It is not clear to the team if the management system (at national or state level) demonstrates consideration of the information and explains how it is used or not used. **SG60 and SG80 are met, but SG100 is not met.**

The consultation processes described in Article 44 of the LGPAS set out a framework where all interested and affected parties could participate (as described above). Further, the 60 days consultation period on any new legislation also provides ample opportunity from stakeholders who had not been involved in the decision making process up until the public consultation stage. **SG80 is met.** The team has not seen any examples of such a consultation taking place, and so cannot award SG100 at this stage.

#### References

List any references here, including hyperlinks to publicly-available documents.

<b>Draft scoring range</b>	<b>≥80</b>
<b>Information gap indicator</b>	<b>More information sought – a specific example of a consultation process would be beneficial to see how the system is applied.</b>

Scoring table 24. PI 3.1.3 – Long term objectives

<b>PI 3.1.3</b>		<b>The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Fisheries Standard, and incorporates the precautionary approach</b>		
<b>Scoring Issue</b>		<b>SG 60</b>	<b>SG 80</b>	<b>SG 100</b>
<b>a</b>	<b>Objectives</b>			
	<b>Guide post</b>	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.
	<b>Met?</b>	Yes	Yes	Yes
Overall Performance Indicator (PI) Rationale				

The scoring and rationale of the original pre assessment still stands. The objectives set out in the LGPAS and outlined in Section 7.3.3 clearly are in line with the MSC Principles and Criteria and the precautionary approach. These objectives are explicit and meet the SG100 requirements. **SG60, SG80, and SG100 are met.**

### References

List any references here, including hyperlinks to publicly-available documents.

<b>Draft scoring range</b>	<b>≥80</b>
<b>Information gap indicator</b>	<b>Information sufficient to score PI</b>

Scoring table 25. 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	<b>Objectives</b>			
	<b>Guide post</b>	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.
	<b>Met?</b>	Yes	Partial	No
Overall Performance Indicator (PI) Rationale				

The objectives below have been set for 2025 pertain specifically to the UoA fishery (source: Government of Mexico (2021)):

“The fishery for snook (*Centropomus viridis*), red snapper (*Lutjanus colorado*) and curvinas in Marismas Nacionales, Nayarit and southern Sinaloa is sustainable and orderly; the fishery is regulated, and is competitive as it covers the needs of the national and international market, because the quality of the product is assured, and technological processes are developed that give it a high commercial value, while conserving its ecosystems by protecting buffer zones and fishing refuge areas.”

Indeed, these objectives are embedded in the fishery-specific management system and are consistent with the outcomes expressed in Principle 1 and 2 of the MSC Standard. **SG60 is met.**

Within these wider objectives, specific actions have been set to achieve the long term objectives described above. In the Annex of this management plan, are specific actions (which could also be called objectives) for the next three years. These include a suite of objectives relating to deepening the understanding of the target species’ stock status and a quantification the fishing effort on this stock promoting, as well as the establishment of no take zones to protect juveniles (it could be argued that these objectives are also consistent with MSC Principle 2 outcomes). As such, explicit short-term and long-term objectives exist for this fishery with regard to achieving the outcomes expressed by Principle 1 of the MSC. While it could be argued that short and long-term objectives are also in place for the outcomes of Principle 2, there are no

discernible explicit short term objectives for these outcomes. As such, **SG80 is only partially met** (it is met for P1 fishery-specific objectives, but not for P2-fishery specific objectives).

### References

Government of Mexico (2021)

**Draft scoring range**

**60-79**

**Information gap indicator**

**Information sufficient to score PI**

**Scoring table 26. PI 3.2.2 – Decision-making processes**

<b>PI 3.2.2</b>		<b>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</b>		
<b>Scoring Issue</b>		<b>SG 60</b>	<b>SG 80</b>	<b>SG 100</b>
<b>a</b>	<b>Decision-making processes</b>			
	<b>Guide post</b>	<b>There are some decision-making processes in place that result in measures and strategies to achieve the fishery-specific objectives.</b>	<b>There are established decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.</b>	
	<b>Met?</b>	<b>Yes</b>	<b>Yes</b>	
<b>b</b>	<b>Responsiveness of decision-making processes</b>			
	<b>Guide post</b>	<b>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.</b>	<b>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.</b>	<b>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.</b>
	<b>Met?</b>	<b>Yes</b>	<b>No</b>	<b>No</b>
<b>c</b>	<b>Use of precautionary approach</b>			
	<b>Guide post</b>		<b>Decision-making processes use the precautionary approach and are based on best available information.</b>	

	Met?	No		
d	<b>Accountability and transparency of management system and decision-making process</b>			
	<b>Guide post</b>	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.
	<b>Met?</b>	Yes	No	No
e	<b>Approach to disputes</b>			
	<b>Guide post</b>	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.
	<b>Met?</b>	Yes	No	No

#### Overall Performance Indicator (PI) Rationale

The decision-making process at the national level is well established. Decision making is defined as in Section 7.3.5. Beyond this, the CONAPESCA website provides further details, notably on transparency and accountability, and on the way in which stakeholder consultation takes place through the National Advisory Committee for Responsible Fisheries. There is however no information available directly on the UoA's performance.

Based on the management plan for the target species, and on the management initiatives for Marismas Nacionales, the team believes that the decision making process responds 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. Both plans take into account the wider socio-economic impacts that they might have. Both plans also acknowledge the general lack of information/knowledge and set out objectives to cover information gaps, which will inform subsequent management initiatives. **SG60 is met. SG80 is not met** because the team has no evidence of the “other” issues being addressed (mainly relating to the lack of information surrounding P2, particularly with ETP species).

The team believes that information on management action (such as gear specifications for example) is available upon request, as Pronatura Noroeste was able to gather information on licencing conditions to forward to the assessment team. As such, SI(d) **SG60 is met.**

According to the documents and legislation presented to the team, management decisions are taken based on the precautionary approach. It is not clear if they are based on the best available information, as the team has not seen information gathering in practice.

As for the approach to disputes, there is no evidence indicating that the fishery or management authority is acting in defiance of any laws pertaining to the sustainability of the fishery. **SG60 is met.** The team is not aware of how the fishery/management authority responds to judicial decisions – further information should be sought on this. **SG80 not met.**

## References

<b>Draft scoring range</b>	<b>60-79</b>
<b>Information gap indicator</b>	<b>More information sought on the quality of information used in making management decisions and on the responsiveness of the fishery and management authority to any judicial decisions taken.</b>

### Scoring table 27. 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
ā	MCS implementation		



	<b>Guide post</b>	<b>Monitoring, control and surveillance mechanisms exist, and are implemented in the fishery and there is a reasonable expectation that they are effective.</b>	<b>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.</b>	<b>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.</b>
	<b>Met?</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Sanctions</b>				
<b>b</b>	<b>Guide post</b>	<b>Sanctions to deal with non-compliance exist and there is some evidence that they are applied.</b>	<b>Sanctions to deal with non-compliance exist, are consistently applied and thought to provide effective deterrence.</b>	<b>Sanctions to deal with non-compliance exist, are consistently applied and demonstrably provide effective deterrence.</b>
	<b>Met?</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Compliance</b>				
<b>c</b>	<b>Guide post</b>	<b>Fishers are generally thought to comply with the management system for the fishery under assessment, including, when required, providing information of importance to the effective management of the fishery.</b>	<b>Some evidence exists to demonstrate fishers comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery.</b>	<b>There is a high degree of confidence that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery.</b>
	<b>Met?</b>	<b>Yes</b>	<b>No</b>	<b>No</b>
<b>Systematic non-compliance</b>				
<b>d</b>	<b>Guide post</b>		<b>There is no evidence of systematic non-compliance.</b>	

	Met?	Yes
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#### Overall Performance Indicator (PI) Rationale

While management plans (for both the UoA fishery and the Marismas Nacionales) call for monitoring control and surveillance efforts, the team has seen no evidence of any such work in place. **SG60 not met.**

The team has also not seen any evidence that sanctions are applied in cases of non-compliance. Indeed, at the time of writing, no inspection reports or even evidence of inspections have been presented to the team. Nevertheless, fishers are still thought to comply with the measures, which currently revolve around gear specifications.

Indeed there is no evidence of systematic non-compliance, but this is in part due to the fact that there is no evidence surrounding compliance at all.

No change to the previous pre assessment findings.

#### References

<b>Draft scoring range</b>	<b>&lt;60</b>
<b>Information gap indicator</b>	<b>More information sought on inspections, their outputs and the conformity of the UoAs as a whole</b>

**Scoring table 28. 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	<b>Evaluation coverage</b>			
	<b>Guide post</b>	<b>There are mechanisms in place to evaluate some parts of the fishery-specific management system.</b>	<b>There are mechanisms in place to evaluate key parts of the fishery-specific management system.</b>	<b>There are mechanisms in place to evaluate all parts of the fishery-specific management system.</b>
	<b>Met?</b>	<b>No</b>	<b>No</b>	<b>No</b>
b	<b>Internal and/or external review</b>			
	<b>Guide post</b>	<b>The fishery-specific management system is subject to occasional internal review.</b>	<b>The fishery-specific management system is subject to regular internal and occasional external review.</b>	<b>The fishery-specific management system is subject to regular internal and external review.</b>
	<b>Met?</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Overall Performance Indicator (PI) Rationale</b>				

No change to the previous pre assessment findings. No mechanisms to evaluate the fishery specific management system can be discerned. **SG60 not met.**

### References

List any references here, including hyperlinks to publicly-available documents.

### Draft scoring range

**<60**

**Information gap indicator**

**More information sought on management plan reviews within the Marismas Nacionales (or indeed, any other fishery-specific management system)**

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## 9 Appendices

### Appendix 1 Assessment information

#### Appendix 1.1 Small scale fisheries

Table 28. Small scale UoAs

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



## Appendix 2 Evaluation processes and techniques

### Appendix 2.1 Site visits

No site visit was held for this pre assessment. A call was held with the Pronatura Noroeste team to go over certain questions the assessment team had raised after receiving the documentation and data.

### Appendix 2.2 Recommendations for stakeholder participation in full assessment

In a full assessment, it would be beneficial to speak to fishermen, buyers, the management team of Marismas Nacionales, the research bodies conducting work on the target species, a member of the control and inspection authority in the region, local and international NGOs who could provide expertise on the Marismas Nacionales, and perhaps a representative of a fisheries governance body.

### Appendix 2.3 Risk-based Framework outputs

#### 2.3.1 Productivity Susceptibility Analysis (PSA)

Due to a lack of spatial stock definition for these species, a lack of information on the UoA footprint, and a lack of information on post capture mortality, the Susceptibility scores were awarded a precautionary score of 2. The only susceptibility category to score differently is post-capture mortality, which is set at 3 given that all species are retained. It is recommended that the susceptibility component be carried out with a broad stakeholder panel (following Annex PF of the MSC Fisheries Standard).

**Table 29. PSA productivity attributes and scores – Raucous grunt**

Performance Indicator		2.2.1
Productivity		
Scoring element (species)	Raucous grunt ( <i>Haemulopsis leuciscus</i> )	
Attribute	Rationale	Score
Average age at maturity	~2 years* Osman, H.M., Saber, M.A. and El Ganainy, A.A., 2019. Population structure of the striped piggy <i>Pomadasys stridens</i> in the Gulf of Suez. The Egyptian Journal of Aquatic Research, 45(1), pp.53-58. *Data-deficient species, information based instead on striped piggy ( <i>Pomadasys stridens</i> )	1
Average maximum age	10 years* Osman, H.M., Saber, M.A. and El Ganainy, A.A., 2019. Population structure of the striped piggy <i>Pomadasys stridens</i> in the Gulf of Suez. The Egyptian Journal of Aquatic Research, 45(1), pp.53-58. *Data-deficient species, information based instead on striped piggy ( <i>Pomadasys stridens</i> )	2
Fecundity	Ranges from 11,000 – 65,000, with an average of 36,000* Adebiyi, F.A., 2013. The sex ratio, gonadosomatic index, stages of gonadal development and fecundity of Sompat grunt, <i>Pomadasys jubelini</i> (Cuvier, 1830). Pakistan Journal of Zoology, 45(1).	1

	*Data-deficient species, information based instead on sompat grunt ( <i>Pomadasys jubelini</i> )	
Average maximum size Not scored for invertebrates	45 cm <a href="https://www.fishbase.se/summary/13720">https://www.fishbase.se/summary/13720</a>	1
Average size at maturity Not scored for invertebrates	25 cm <a href="https://www.fishbase.se/summary/13720">https://www.fishbase.se/summary/13720</a>	1
Reproductive strategy	Pelagic / broadcast spawners <a href="https://www.fishbase.se/summary/13720">https://www.fishbase.se/summary/13720</a>	1
Trophic level	3.2 Based on food items <a href="https://www.fishbase.se/summary/13720">https://www.fishbase.se/summary/13720</a>	3
Density dependence Invertebrates only	N/A	N/A
Susceptibility		
Attribute	Rationale	Score
Areal Overlap		2
Encounterability		2
Selectivity of gear type		2
Post capture mortality		3

**Table 30. PSA productivity attributes and scores – Longspine grunt (*Pomadasys macracanthus*)**

Performance Indicator	2.2.1	
Productivity		
Scoring element (species)	Longspine grunt ( <i>Pomadasys macracanthus</i> )	
Attribute	Rationale	Score
Average age at maturity	~2 years* Osman, H.M., Saber, M.A. and El Ganainy, A.A., 2019. Population structure of the striped piggy <i>Pomadasys stridens</i> in the Gulf of Suez. The Egyptian Journal of Aquatic Research, 45(1), pp.53-58. *Data-deficient species, information based instead on striped piggy ( <i>Pomadasys stridens</i> )	1
Average maximum age	10 years* Osman, H.M., Saber, M.A. and El Ganainy, A.A., 2019. Population structure of the striped piggy <i>Pomadasys stridens</i> in the Gulf of Suez. The Egyptian Journal of Aquatic Research, 45(1), pp.53-58. *Data-deficient species, information based instead on striped piggy ( <i>Pomadasys stridens</i> )	2
Fecundity	Ranges from 11,000 – 65,000, with an average of 36,000*	1

	Adebiyi, F.A., 2013. The sex ratio, gonadosomatic index, stages of gonadal development and fecundity of Sompat grunt, <i>Pomadasys jubelini</i> (Cuvier, 1830). Pakistan Journal of Zoology, 45(1). *Data-deficient species, information based instead on sompat grunt ( <i>Pomadasys jubelini</i> )	
Average maximum size Not scored for invertebrates	37 cm <a href="https://www.fishbase.de/summary/Pomadasys-macracanthus.html">https://www.fishbase.de/summary/Pomadasys-macracanthus.html</a>	1
Average size at maturity Not scored for invertebrates	20 cm <a href="https://www.fishbase.de/summary/Pomadasys-macracanthus.html">https://www.fishbase.de/summary/Pomadasys-macracanthus.html</a>	1
Reproductive strategy	Oviparous / broadcast spawner <a href="https://www.fishbase.de/summary/Pomadasys-macracanthus.html">https://www.fishbase.de/summary/Pomadasys-macracanthus.html</a>	1
Trophic level	3.5 <a href="https://www.fishbase.de/summary/Pomadasys-macracanthus.html">https://www.fishbase.de/summary/Pomadasys-macracanthus.html</a>	3
Density dependence Invertebrates only	N/A	N/A
Susceptibility		
Attribute	Rationale	Score
Areal Overlap		2
Encounterability		2
Selectivity of gear type		2
Post capture mortality		3