

Indonesia Lemuru Fisheries in East Java

FMA 573

Pre-Assessment Report



Genus : *Sardinella* (source: fishbase)

Conformity Assessment Body (CAB)	MSC Technical Working Group Heri, Ledyane Ika Harlyan, Andini Kusumasari, A.Riza Baroqi
Fishery client	Ministry of Marine Affairs and Fisheries (MMAF) and Marine and Fisheries Agency of East Java and Marine Stewardship Council (MSC) Indonesia
Assessment type	Pre-assessment
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2. Glossary

CAB	Conformity Assessment Body
CoC	Chain of Custody
FIP	Fishery Improvement Program
FMP	Fishery Management Plan
FMA	Fisheries Management Area
IUU	Illegal, Unreported, Unregulated
MCS	Monitoring Control and Surveillance
MCS	Monitoring Control and Surveillance
MMAF	Ministry of Marine Affairs and Fisheries
MSC	<i>Marine Stewardship Council</i>
MSY	<i>Maximum Sustainable Yield</i>
NGO	Non-Governmental Organization
PERDA	<i>Peraturan Daerah</i> (Regional Regulation)
PERGUB	<i>Peraturan Gubernur</i> (Governor Regulation)
PI	Performance Indicator
PRI	<i>point of recruitment Impairment</i>
PSDKP	<i>Pengawasan Sumber Daya Kelautan dan Perikanan</i> (Surveillance Direktorat at MMAF)
PPP	<i>Pelabuhan Perikanan Pantai</i> (Small Landing Port)
UoA	Unit of Assesment
UU	Undang-undang (Law)
Permen	<i>Peraturan Menteri</i> (Ministrial Regulation)
SG	Scoring Guide

3. Executive summary

This pre-assessment report is part of the MSC project in Indonesia. Heri is the team leader for the project. The assessment team consists of Ledhyane Ika Harlyan (Principle 1), Andini Kusumasari (Principle 2), and A. Riza Baroqi (Principle 3).

Heri has been involved in fisheries improvement programs and ecolabeling since 2015, covering everything from development to implementation and certification in Indonesia. He has experience in fisheries product traceability and

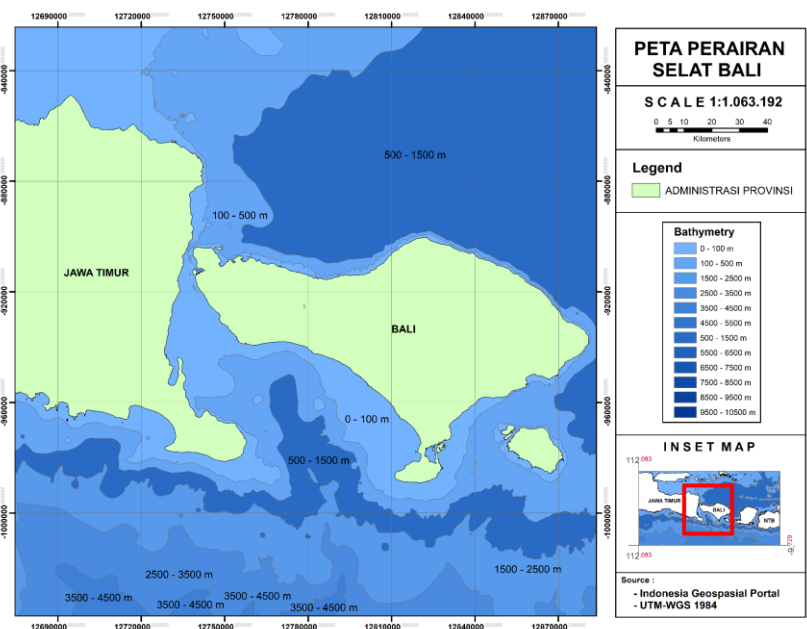
sustainability systems, supply chain analysis, fisheries gap analysis, and social risk assessment in fisheries. He also serves as the coordinator for the Asia-Pacific FIP community of practice and has been involved in Tuna Fisheries, Shrimp Fisheries, Snapper-Grouper Fisheries, Octopus Fisheries, Lemuru Fisheries, and Blue Swimming Crab Fisheries. Dr. Ledhyane Ika Harlyan, S.Pi, M.Sc, is a fisheries scientist and a lecturer at Brawijaya University. She has over 17 years of research experience in fisheries science and management, particularly in tropical multispecies fisheries and multi-gear fishing. She is often involved in the development of harvest control rules for data-limited fisheries and has participated in several projects related to sustainable fisheries, data collection, and analysis. Her involvement spans across Lemuru Fisheries, Anchovy Fisheries, Mackerel Fisheries, Tuna Fisheries, and Shrimp Fisheries.

Andini Kusumasari has extensive experience in multi-stakeholder approaches, engaging with industry, government agencies, academia, and other private sector entities. Since 2014, she has been actively involved with small-scale fisheries and fishing communities, advocating for sustainable fishing practices and empowering small-scale fisheries as key contributors to the sustainable fisheries ecosystem. She currently works at PT. Sahabat Laut Lestari and is involved in Blue Swimming Crab Fisheries, Octopus Fisheries, Lemuru Fisheries, Tuna Fisheries, and Shrimp Fisheries.

A. Riza Baroqi has been working with small-scale tuna fisheries since 2014, focusing mainly on Central and Eastern Indonesia. He has experience in sustainable fisheries, data collection, capacity building, traceability, and the governance and co-management of fisheries. Riza has also worked closely with all key tuna stakeholders, including government, private sector, traders, collectors, fishers, academics, and NGOs. He is currently employed by a local NGO in Bali, the Indonesian Community and Fisheries Foundation (MDPI), and is involved in Tuna Fisheries, Octopus Fisheries, Lemuru Fisheries, and Shrimp Fisheries.

The initial meeting for the Lemuru Fisheries Gap Analysis was conducted online in April to gain an overview of the lemuru fishery in East Java Province. Additionally, the assessment involved collecting data and information, as well as conducting interviews with relevant stakeholders, including government bodies such as the East Java Provincial Fisheries Service (DKP) and UPT PPP Muncar, academia, industry, and fishers who are the primary actors in the lemuru fishery.

The fishery is located in Muncar, East Java Province, Indonesia, within Fisheries Management Area (FMA) 573 (Figure 1). The lemuru fishery, which commonly employs the purse seine and gillnet methods to catch the target species *Sardinella lemuru*, has been selected as the Unit of Assessment (UoA). During site visits, fishers and stakeholders in the landing sites confirms both gears having similar catch and operate in adjacent waters, next to shores. More information needed for both gears, but based on landing information from port authority and cooperative unit, their catch almost similar, hence all treated similar.



Picture 1. Location of the Lemuru Fishery in FMA 573

The Lemuru Fisheries Management Plan (FMP) is regulated under the Decree of the Minister of Marine Affairs and Fisheries of the Republic of Indonesia No. 68/KEPMEN-KP/2016, which concerns the Fisheries Management Plan for Lemuru in the Fisheries Management Area of the Republic of Indonesia. According to the FMP, the production volume of lemuru fisheries by province shows that East Java Province has the highest production volume compared to other provinces. The FMP also explains that the catch composition from purse seine operations in FMA 573 is dominated by

scads. However, based on interviews with fishers, when using purse seines, the most frequently caught species is lemuru, as it has similar behaviour to other clupeids, preferring to live in large schools.

Based on field visits, interviews, and a review of available information, the assessment team believes that this lemuru fishery does not yet meet the MSC Fisheries Standard and requires a comprehensive Fisheries Improvement Project (FIP) with a suitable and time-bound action plan. The FIP needs to address various aspects of the fishery, such as catch strategy and harvest control measures, and the development of appropriate management steps to ensure the fishery becomes sustainable, maintaining healthy stock status and its ecosystem. The fishery must also consider the impact of fishing activities on other species and develop management efforts to reduce these impacts, including those on endangered, threatened, and protected (ETP) species. Additionally, strengthening operational catch data collection should be a priority for all stakeholders involved in the Lemuru Fishery in East Java. Several recommendations are outlined in Section 7.1.2.

4. Report details

4.1. Aims and constraints of the pre-assessment

This report presents the results of the MSC pre-assessment for the small pelagic purse seine and gillnet fisheries in FMA 573 (lemuru) based MSC Fisheries Standard v3.0. The purpose of this pre-assessment report is to provide an overview of the lemuru fishery in the Bali Strait. The identified gaps can serve as a guide for developing an Action Plan to further improve the fishery's condition through a Fisheries Improvement Project (FIP).

This pre-assessment report does not aim to duplicate a full assessment according to the MSC Fisheries Standard. Because a full assessment would include public consultation stages and involve a team of assessors not included in the pre-assessment. The pre-assessment provides a preliminary evaluation of the fishery against the MSC standards based on the information provided by the client and insights gathered from several site visits.

4.2. Version details

Table 1: Fisheries program documents versions

Document/Assessment Tree	Version number/Type
MSC Fisheries Certification Process	Version 3.0
MSC Fisheries Standard	Version 3.0
Assessment tree	<i>Default / Enhanced Bivalve / Salmon / Introduced species / Other</i>
MSC General Certification Requirements	Version 2.5
MSC Reporting Template	Version 2.0
MSC Pre-Assessment Reporting Template	Version 4.1

5. Unit(s) of Assessment and Unit(s) of Certification

5.1. Unit(s) of Assessment

Table 2: Unit(s) of Assessment (UoA)

UoA 1	Description
Target Stock	Lemuru (<i>Sardinella lemuru</i>)
Geographical area	FMA 573

Fishing gear type(s) and, if relevant, vessel type(s)	<i>Purse Seine</i>
Client group	Ministry of Marine Affairs and Fisheries, Marine and Fisheries Office of East Java Province, and MSC Indonesia.
Other eligible fishers	Fishers using purse seines to catch <i>Sardinella lemuru</i> . in the Bali Strait.
Justification for choosing the Unit of Assessment	Determined by the results of the Lemuru Fishery Stakeholder Meeting in East Java Province.
UoA 2	Description
Target Stock	Lemuru (<i>Sardinella lemuru</i>)
Geographical area	FMA 573
Fishing gear type(s) and, if relevant, vessel type(s)	Gillnet
Client group	Ministry of Marine Affairs and Fisheries, Marine and Fisheries Office of East Java Province, and MSC Indonesia.
Other eligible fishers	Fishers using gillnet to catch <i>Sardinella lemuru</i> . in the Bali Strait.
Justification for choosing the Unit of Assessment	Determined by the results of the Lemuru Fishery Stakeholder Meeting in East Java Province.

6. Traceability

6.1. Traceability - initial review and planning

Table 3: Traceability initial planning

The proposed point of change of ownership of product to any party not covered by the fishery assessment
Landing port Slerek vessel transporter)
The proposed point from which subsequent Chain of Custody (CoC) is required
Landing port Slerek vessel (transporter) Monitoring should begin when lemuru transshipment from the fishing vessel to the first buyer (supplier). There are two transfer points: directly at the landing port and on the Slerek vessel before it arrives at the port. Strengthening record-keeping, segregation, and labelling at the supplier stage is crucial to ensure that lemuru product traceability is maintained through to the next stage.
The plan for reviewing traceability at the initial assessment site visit
Record-keeping carried out at the first buyer level, both at the landing site and during transactions on the Slerek vessel.

6.2. Traceability within the fishery

Table 4: Traceability within the fishery

Statement on fishery's ability to track and trace to each Unit of Assessment
Systems do not allow the fishery client to track and trace any fish or fish products back to each individual UoA

<p>Movement of fish and fish product between harvest and landing</p> <p><i>An illustration of movement of product between harvest and landing. Include when any of the following happen: Harvesting, At-Sea processing, Translocation, Transshipment, Offloading, Landing.</i></p>	
<p><i>Fishing vessel → transshipment → landing</i> <i>Fishing vessel → landing</i></p>	
<p>Movement of fish and fish products between landing and the proposed start of the CoC if relevant</p> <p><i>An illustration of movement of product between landing and the proposed start of CoC. Include when any of the following is happening: Transport, Storage, Sorting/ Grading, Packing, Auction.</i></p>	
<p><i>Fishing vessel → sleek vessel (transporter)</i></p> <p><i>Small boats (awitan) sell their catch at sea to buyers using Slerek vessels. The catch is then transported to the Slerek vessel. The Slerek vessel can purchase from other small boats and store the catch from multiple small boats. The Slerek vessel transports the catch to the landing port, where it is then sold to processing companies, second buyers, or local markets.</i></p>	
<p>Description of any processing and sorting/ grading prior to change of ownership</p>	
<p><i>Sorting is not done on the fishing vessel; all the catch will be transported by the Slerek vessel.</i></p>	
<p>For the critical tracking events (i.e. where in the product flow this data needs to be transferred) of all fish and fish product handling and sale not covered by the proposed CoC describe:</p> <ul style="list-style-type: none"> - Process of segregating to each Unit of Assessment - Key data elements (i.e. the data or documents to identify the UoA such as species, catch area, gear) 	
<p><i>Traceability risks occur when the Slerek vessel buys from multiple small boats (awitan). Currently, there is no effective segregation or record-keeping. Proper record-keeping and segregation are needed to ensure fish product traceability.</i></p>	
<p>Where there are IPI stock(s) within the scope of certification, describe the verification of traceability systems</p>	
<p>N/A</p>	
<p>Other relevant information on the systems to track and trace to each UoA</p>	
<p><i>Record-keeping and segregation need to be implemented to ensure fish product traceability down to each UoA.</i></p>	
<p>Do systems allow the fishery client to trace any fish or fish products back to the individual UoA?</p> <p>If yes, describe</p>	<p>No</p>
<p>Do systems allow the fishery client to trace any fish or fish products back to the individual UoA and how do they do this?</p> <p>If yes, describe</p>	<p>No</p>
<p>Does transshipment occur within the fishery?</p>	<p>Transshipment occurs within the territorial waters of Indonesia.</p>

<p>What is the type of transshipment and what the systems to track and trace to UoA? (high seas/in port/ other)</p> <p>If yes:</p> <ul style="list-style-type: none"> • How and when does this occur? • What systems allow to track and trace to UoA? 	<p>In the open sea, within the territorial waters of Indonesia. Currently, there is no system in place to track and trace products back to the UoA.</p>
<p>For high seas transshipment are the systems to support tracking and tracing to UoA verified independent from the certificate holder?</p> <p>If yes, describe</p>	<p><i>Not relevant because it occurs within the territorial waters of Indonesia</i></p>
<p>For high seas transshipment do the systems to verify tracking and tracing to UoA cover both fishing and receiving vessels?</p> <p>If yes, describe</p>	<p><i>Not relevant because it occurs within the territorial waters of Indonesia</i></p>
<p>For high seas transshipment do the systems to track and trace to UoA apply to 100% of transshipment events?</p> <p>If yes, describe</p>	<p><i>Not relevant because it occurs within the territorial waters of Indonesia</i></p>

6.3. Traceability risks and mitigations

Table 5: Traceability risks and mitigation within the fishery

Factor	Description of the traceability risk factors and details of the risk mitigation and management <i>Include in each description:</i> <ul style="list-style-type: none"> • <i>Whether each factor occurs</i> • <i>When it occurs and how frequently (e.g. regularly, seasonally, rarely)</i> • <i>How any potential traceability risks are mitigated and any risk management</i> • <i>If covered by information provided elsewhere in the pre-assessment report, cross reference as needed.</i>
<p>Will the fishery use gears that are not part of the UoA?</p> <p>If Yes, include in the description:</p> <ul style="list-style-type: none"> • If this may occur on the same trip, on the same vessels, or during the same season; • How any risks are mitigated. 	<p>Yes</p> <p>Lemuru fishing in the Bali Strait uses mainly ring nets, although these have been modified in terms of mesh size. Some fishers still use other gear, but these fall into the handline category for catching squid and fish for daily consumption.</p> <p>Currently, there is still a risk of catch mixing, and no mitigation mechanisms are in place.</p>
<p>Will vessels in the UoA also fish outside the UoA geographic area?</p> <p>If Yes, include in the description:</p> <ul style="list-style-type: none"> • If this may occur on the same trip; 	<p>No. Fishing vessels within the UoA cannot reach too far because extended trips would affect the quality of lemuru. Therefore, it is not possible to catch fish outside the geographical boundaries of the UoA.</p>

Factor	Description of the traceability risk factors and details of the risk mitigation and management <i>Include in each description:</i> <ul style="list-style-type: none"> ● Whether each factor occurs ● When it occurs and how frequently (e.g. regularly, seasonally, rarely) ● How any potential traceability risks are mitigated and any risk management ● If covered by information provided elsewhere in the pre-assessment report, cross reference as needed.
<ul style="list-style-type: none"> ● How any risks are mitigated. 	
<p>Do client group members ever handle certified and non-certified products during any of the activities covered by the UoA?</p> <p>This refers to both at-sea activities and on-land activities and should reflect those listed in product movement in Table 4. It includes:</p> <ul style="list-style-type: none"> ● Translocation ● Transshipment ● Transport ● Storage ● Processing ● Sorting/ grading ● Packing ● Landing ● Auction <p>If yes please describe how any risks are mitigated.</p>	Never
<p>Does transshipment occur within the fishery?</p> <p>If Yes, please describe:</p> <ul style="list-style-type: none"> ● If transshipment takes place at-sea, in port, or both; ● If the transshipment vessel may handle product from outside the UoA; <p>How any risks are mitigated.</p>	<p>Yes, this occurs in the sea within the territorial waters of Indonesia. Due to the geographical range and operational strategy of lemuru fishing, the Slerek vessel (carrier) cannot handle products from outside the UoA.</p>
<p>Are there any other risks of mixing or substitution between the UoA and other non-certified product? If yes, please describe how any risks are mitigated.</p>	<p>Yes, there is a risk of mixing. Currently, there are no mitigation systems in place to address this risk.</p> <p>Record-keeping and segregation on the small boats (awitan) need to be implemented to mitigate this risk.</p>
<p>Are there any other risks of mixing between different UoAs? Please describe how any risks are mitigated.</p>	<p>Yes, for vessels that perform transshipment, from small boats (awitan) to the Slerek vessel, record-keeping and segregation on the Slerek vessel are necessary to mitigate the risk of mixing.</p> <p>For fishing vessels that directly land their catch at the port, there is no risk of mixing.</p>

7. Pre-assessment results

7.1. Pre-assessment results overview

7.1.1. Overview

Lemuru fisheries play a crucial role in both the domestic and global markets and are of significant importance to traditional fishing communities, especially in the Bali Strait. Fishermen involved in this fishery are local communities residing along the coast of the Bali Strait. East Java is the largest producer of lemuru in Indonesia, with Bali as the second largest (FMP Lemuru, 2023). Traditional fishing practices have been ongoing for decades and are a vital livelihood for these communities.

However, the current state of the fishery does not meet MSC standards. The lack of fishing strategies and catch control measures, insufficient mitigation of interactions with protected species (ETP), and low compliance among fishery stakeholders are major challenges for the lemuru fishery in Banyuwangi, East Java. It is crucial to address these issues to ensure that fishing activities do not threaten the sustainability of target fish stocks or disrupt the health of habitats and ecosystems

7.1.2. Recommendations

The assessment team recommends the following actions to ensure that the lemuru fishery becomes more sustainable and well-managed, aligning with MSC standards. These recommendations applied for both gears, purse seine and gillnet, can serve as guidelines for developing an action plan in a fisheries improvement program involving relevant stakeholders and mapping out agreed roles and responsibilities:

Recommendation 1: Implement a logbook system at the fisherman level to record total catch and species composition for lemuru fishing.

Recommendation 2: Develop fishing strategies and catch control rules for lemuru species to reduce exploitation levels as recruitment disruption points approach.

Recommendation 3: Improve the collection of data and information related to bycatch species and interactions with ETP species to better understand the impacts on bycatch stocks and ETP species.

Recommendation 4: Create strategies to mitigate the impact of the fishery on bycatch and interactions with ETP species.

Recommendation 5: Assess existing Fisheries Management Plans (FMP) to ensure they are implemented and integrated into the development of fishing strategies and control measures.

Recommendation 6: Increase monitoring and compliance efforts in the assessment area to ensure that prohibited and harmful fishing practices are not conducted, thus maintaining lemuru habitat sustainability.

Recommendation 7: Create a lemuru fisheries management forum in the Bali Strait involving the central government to enhance consultation opportunities and provide a stronger cooperation platform, especially between East Java and Bali provinces.

7.2. Summary of potential conditions by Principle

Table 6: Summary of Principle level scores

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

7.3. Summary of Performance Indicator level scores

Table 7: Summary of Performance Indicator level scores

Performance Indicator	Draft scoring range	Data deficient?
1.1.1 – Stock status	≥80	Yes
Rationale or key points		
There is variability in catch results, however the current stock levels over the past 10 years suggest that the stock of lemuru is likely above the PRI (level around MSY).		
Performance Indicator	Draft scoring range	Data deficient?
1.1.2 – Stock rebuilding	NA	Yes / No
Rationale or key points		
The Lemuru stock experiences high variability but can return above PRI. There is stock monitoring documented in the Fisheries Management Plan (FMP) of Lemuru (Kepmen KP No. 198 of 2023), which contains the latest FMP information."		
Performance Indicator	Draft scoring range	Data deficient?
1.2.1 – Harvest Strategy	<60	Yes
Rationale or key points		
No harvest strategy has been developed for managing the Lemuru fishery in Bali Strait.		
Performance Indicator	Draft scoring range	Data deficient?
1.2.2 – Harvest control rules and tools	<60	Yes
Rationale or key points		
No harvest control rules and tools have been formulated for managing the Lemuru fishery.		
Performance Indicator	Draft scoring range	Data deficient?
1.2.3 – Information and monitoring	60 – 79	Yes
Rationale or key points		
There is sufficient information regarding the monitoring of the UoA, but it has not yet been used to develop a harvest strategy. Therefore, a score of >80 can be given.		
Performance Indicator	Draft scoring range	Data deficient?
1.2.4 – Assessment of stock status	≥80	Yes
Rationale or key points		
The stock status assessment has been able to estimate the stock status, but it has not yet accounted for sources of uncertainty. An internal review has also been conducted.		
Performance Indicator	Draft scoring range	Data deficient?
2.1.1 – In-scope species outcome	60 – 79	Yes
Rationale or key points		
A research journal indicates that the catch composition from both purse seine and gillnet operations targeting Sardinella lemuru is still dominated by the target species, with some incidental bycatch. However, the volume of bycatch is not significant in comparison to lemuru. This finding is supported by interviews with fishers, who explained that lemuru form dense schools, making them the primary species caught using both gear types, with only a few non-target species captured incidentally. However, due to the absence of regular, quantitative supporting data, a precautionary score in the range of 60–79 is given		
Performance Indicator	Draft scoring range	Data deficient?
2.1.2 – In-scope species management strategy	<60	Yes / No
Rationale or key points		
There is no management strategy in place yet for the bycatch that has been obtained so far.		
Performance Indicator	Draft scoring range	Data deficient?
2.1.3 – In-scope species information	60 – 79	Yes / No

Rationale or key points		
There are several journals that can be used as secondary data to gather information on in-scope species within the lemuru fishery. However, continuously collected data is needed to inform policy decisions, hence a score of 60-79 is given.		
Performance Indicator	Draft scoring range	Data deficient?
2.2.1 – ETP/OOS species outcome	<60	Yes / No
Rationale or key points		
Based on interviews with fishers, it was reported that during lemuru fishing operations, Endangered, Threatened, and Protected (ETP) species were occasionally observed entering both purse seine and gillnet gear. However, such occurrences were considered very rare, and there is no available data confirming that ETP species were actually caught by either gear type. Due to the absence of verifiable evidence and in line with the precautionary principle, a score of less than 60 is given.		
Performance Indicator	Draft scoring range	Data deficient?
2.2.2 – ETP/OOS species management strategy	<60	Yes / No
Rationale or key points		
Based on the interview results, fishermen understand how to handle ETP species that are caught if they are still alive, a knowledge passed down through generations. However, there is no written management strategy in place, so a score of less than 60 is given.		
Performance Indicator	Draft scoring range	Data deficient?
2.2.3 – ETP/OOS species information	<60	Yes / No
Rationale or key points		
Information regarding ETP species is insufficient, and secondary data is also very limited, so a score of less than 60 was given.		
Performance Indicator	Draft scoring range	Data deficient?
2.3.1 – Habitats outcome	≥80	Yes / No
Rationale or key points		
The purse seine fishing method is used at depths ranging from 20 to 500 m above sandy or muddy substrates. Similarly, gillnets are operated in the water column at depths of approximately 5 to 30 meters. Contact with the substrate is unlikely since the fishing occurs in the middle of the water column.		
Performance Indicator	Draft scoring range	Data deficient?
2.3.2 – Habitats management strategy	60 – 79	Yes / No
Rationale or key points		
The purse seine fishing method is employed at depths ranging from 20 to 500 meters above sandy or muddy substrates. Since fishing occurs in the mid-water column, contact with the substrate is unlikely. Similarly, gillnets are operated in the water column at depths of approximately 5 to 30 meters and are typically set near purse seine operations. These gillnets also do not interact with the substrate. However, due to the absence of a formal management strategy, a precautionary score in the range of 60–79 is given		
Performance Indicator	Draft scoring range	Data deficient?
2.3.3 – Habitats information	60 – 79	Yes / No
Rationale or key points		
Information gathered through stakeholder consultations is sufficient to estimate the types, distribution, spatial extent, and potential consequences for the main habitats. The purse seine method targets species at depths ranging from 20 to 500 meters above sandy or muddy substrates, while gillnets operate in the water column at depths of approximately 5 to 30 meters. These habitats are considered to be at low risk from fishing activities. However, due to the absence of quantitative data, a precautionary score in the range of 60–79 is given		
Performance Indicator	Draft scoring range	Data deficient?
2.4.1 – Ecosystem outcome	60 – 79	Yes / No
Rationale or key points		

Lemuru is a pelagic neritic species that plays a crucial role in the food chain and in maintaining ecosystem health. Therefore, regulations are needed to manage the lemuru fishery to avoid disrupting the ecosystem. While there is a Lemuru Fishery Management Plan in place, it has not yet been fully implemented. Consequently, a score of 60-70 was given

Performance Indicator	Draft scoring range	Data deficient?
2.4.2 – Ecosystem management strategy	60 – 79	Yes / No

Rationale or key points

No management strategies have been implemented in the field. Lemuru is a pelagic neritic species that plays a critical role in the food chain and in maintaining ecosystem health. In 2020, there was a drastic decline in lemuru catches, yet no management actions were taken by stakeholders. Therefore, regulations are needed to manage the lemuru fishery to prevent disruption to the ecosystem. Although there is a Lemuru Fishery Management Plan, it has not been fully implemented, a score of 60-79 is given.

Performance Indicator	Draft scoring range	Data deficient?
2.4.3 – Ecosystem information	60 – 79	Yes / No

Rationale or key points

There is no available evidence to show that stakeholders understand the impact information of the UoA (Unit of Assessment) or that monitoring is being conducted. Therefore, a score of 60-79 is given

Performance Indicator	Draft scoring range	Data deficient?
3.1.1 – Legal and/or customary framework	60 – 79	Yes / No

Rationale or key points

- The legal umbrella for fisheries management is carried out based on several existing regulations, where management is carried out based on the division of fisheries management authority up to 12 miles by the provincial government (UU 23 of 2014).
- There is a Lemuru Fish Fisheries Management Plan regulated in Ministerial Decree number 68/2016, but it needs to be updated because the catch data and information used in this regulation is more than 5 years old.
- There is a renewal of Lemuru Fish Fishery Management regulated in Ministerial Decree number 198/2023
- There is Ministerial Decree number 77 of 2016 concerning FMP FMA 573, but the progress of monitoring, evaluation and implementation has not been carried out properly

Performance Indicator	Draft scoring range	Data deficient?
3.1.2 – Consultation, roles, and responsibilities	60 – 79	Yes / No

Rationale or key points

The organizational structure of the Central and Regional governments and their various divisions have their respective roles and functions. However, several regulations are still not implemented, indicating that functions, roles and responsibilities have not been implemented properly.

Performance Indicator	Draft scoring range	Data deficient?
3.1.3 – Long term objectives	60 – 79	Yes / No

Rationale or key points

There is a legal instrument that provides long-term guidance for fisheries management, namely Law 31/2004 which has been amended to become Law 45 of 2009 concerning fisheries. It contains how resources can be utilized in a sustainable and non-destructive manner. KP Ministerial Regulation No. 28 of 2023 concerning Implementing Regulations of Government Regulation Number 11 of 2023 concerning Measurable Fishing. It also contains how to manage fisheries based on quotas, with the same goal, namely resource sustainability. More specifically, Ministerial Decree KP 198 of 2023 concerning Lemuru FMP is also available to specifically relate to lemuru management. However, in its implementation, the monitoring and evaluation mechanism for the implementation of this legal instrument has not been optimal, and the Measured Fishing policy has even been postponed until 2025.

Performance Indicator	Draft scoring range	Data deficient?
3.2.1 – Fishery-specific objectives	60 – 79	Yes / No

Rationale or key points

Initiatives to see fisheries potential already exist, but no management efforts have been carried out consistently. There are times when stock overflows, and there are also times when stock decreases. No efforts are made to

ensure stocks are maintained, such as setting fishing seasons, number of fleets operating, regular record keeping, temporary closures, and so on. even though there is a legal instrument (Kepmen KP 198 of 2023 concerning FMP Lemuru).		
Performance Indicator	Draft scoring range	Data deficient?
3.2.2 – Decision-making processes	60 – 79	Yes / No
Rationale or key points		
There are several decision making mechanisms related to management based on consultation and discussion through several outreach and discussion activities. However, progress on follow-up and transparency is still not visible		
Performance Indicator	Draft scoring range	Data deficient?
3.2.3 – Compliance and enforcement	60 – 79	Yes / No
Rationale or key points		
There are several monitoring and control mechanisms carried out by policy makers, one of which is online monitoring by recording and licensing ships on the SIMKADA website. There is no visible process for monitoring illegal fishing. From the information obtained, there are still several vessels that do not have permits or are registered as having fishing vessel documents. Including recording catches using eLogbooks by fishermen, this has not yet been implemented.		
Performance Indicator	Draft scoring range	Data deficient?
3.2.4 – Monitoring and management performance evaluation	60 – 79	Yes / No
Rationale or key points		
Several parts of management are carried out, such as monitoring and evaluation of management performance which is carried out every year, by looking at fish production and the number of vessels registered/licensed. However, no specific evaluation has been carried out regarding sustainable and responsible management		

7.4. Principle 1

7.4.1. Principle 1 background

Distribution, Stock Structure, and Migration of Bali *Sardinella*

The target fishery is *Sardinella lemuru*, also known as Bali *Sardinella* or Lemuru, which is one of the priority small pelagic fish species for Indonesia's small pelagic fisheries. Lemuru abundance is spread across the Fisheries Management Area of the Republic of Indonesia (FMA) 573, specifically in the waters of the Bali Strait extending to East Nusa Tenggara, and includes the southern waters of East Java, such as Grajagan and Puger, as well as the Madura Strait (Wujdi et al., 2012).

Lemuru in the Bali Strait is bordered by two provinces, the Province of East Java and the Province of Bali, with landing locations spread across several sites in these two provinces, including the Muncar Fishing Port - East Java, Grajagan Fishing Port Installation - East Java, Kalimoro Fish Landing Site - East Java, Pancer Fish Landing Site - East Java, and Pengambangan Fishing Port - Bali. The Muncar fishing port in Banyuwangi is the largest lemuru landing site in Indonesia (FPIK Universitas Brawijaya, 2023). Therefore, lemuru fisheries management in Indonesia is focused on FMA 573, particularly in the Bali Strait waters (Kepmen KP, 2016; Kepmen KP, 2023).

In general, lemuru fish have a fork length size of 6.5 - 20 cm FL. The landed lemuru have size variations grouped into four size categories: (1) **Sempenit**, which is <11 cm; (2) **Protolan**, which is 11-15 cm; (3) **Lemuru**, which is 15-18 cm; and (4) **Lemuru Kucing**, which is >18 cm (Kepmen KP, 2023). The capture of lemuru fish from the Sempenit size group is still being carried out by fishermen in Muncar and Pengambangan (Wudianto and Wujdi, 2014).

As a pelagic species, the lemuru fishing grounds (FGs) are documented to spread across the Bali Strait, divided into eight areas, namely:



Figure 2. The fishing ground of Lemuru di the Bali Strait.

- **FG I:** Karang Ente, Tanjung Pasir, Ujung Angguk;
- **FG II:** Sembulungan, Anyir, Watu Layar, Sekeben, Senggrong, Klosot, Prepat, Lampu Kelip, Kapal Pecah;
- **FG III:** Teluk Pang-pang;
- **FG IV:** Blimbing Sari, Bomo;
- **FG V:** Candi Kesuma, Pengambengan, Perancak, Kayu Gede;
- **FG VI:** Bukit, Seseh, Jimbaran, Pemancar, Uluwatu;
- **FG VII:** Grajagan, Pancer, Watu Loro (Indian Ocean), Puger; and
- **FG VIII:** Prigi.

(Source: Wudianto and Wujdi, 2014; Sartimbul et al., 2023)

Although generally spread across eight FGs in the Bali Strait region, lemuru has also been confirmed to experience a shift in FG to Prigi Waters. This is suspected to be the cause of the decline in lemuru production in the Bali Strait (Sartimbul et al., 2021; 2023).

Several studies have been conducted to genetically identify this type of sardine fish. Most of the members of the Clupeidae family, especially the genus *Sardinella*, still require further study (Rohit et al., 2018). Species identification of lemuru through molecular analysis (COI DNA region) has been carried out (Hendiari et al., 2020; Winata et al., 2022). However, BLAST analysis on GenBank (www.ncbi.nlm.nih.gov) and BOLD (www.boldsystems.org) shows similarities among three different species, namely: (1) *Sardinella lemuru*, (2) *Sardinella aurita*, and (3) *Sardinella longiceps*.

Mortality

In general, Lemuru is a small pelagic fish with a fast growth rate, enabling it to withstand high fishing pressure. The total mortality rate of Lemuru is 6.39 per year, with natural mortality accounting for 2.23 per year and fishing mortality contributing 4.16 per year. This indicates an exploitation rate of 0.65, suggesting that the lemuru fishery is experiencing overfishing. Recruitment is estimated to occur twice a year, in February and July (Wudianto and Wujdi, 2014).

Reproduction

Research findings indicate that the overall sex ratio of male and female lemuru is balanced. The length at first gonad maturity (L_m) is 18.9 cm FL, while the average length of the captured population (L_c) is 14.5 cm FL, suggesting that the majority of captured lemuru have not yet reached gonad maturity. Information on the gonad maturity index (GMI) shows that lemuru reach peak gonad maturity in September, with spawning occurring in the southern part of the Bali Strait near the Bali Island shelf (Wujdi et al., 2016).

Trophic Level

Lemuru has a trophic level of 2.5, based on its diet (Whitehead, 1985). As an omnivorous planktivore, lemuru tends to consume plant material (Stergiou, 2007). This relatively low trophic level indicates that lemuru requires less energy, which in turn limits its potential for significant population growth (Almohdar et al., 2017).

Species Composition

Lemuru is the dominant small pelagic species in the Bali Strait waters, accounting for nearly 50% of the total landed catch. This is followed by other species such as scads (*Decapterus* spp.), bullet tuna (*Auxis rochei*), and other pelagic species (Harlyan et al., 2022). According to data from the Center for Data and Information of the Ministry of Marine Affairs and Fisheries (Pusdatin MMAF, 2022), lemuru caught using single- and double-vessel purse seines in Fisheries Management Area 573 (FMA 573) constitutes approximately 12% of the total landed catch (Kepmen KP, 2023).

7.4.2. Catch profiles

Several types of fishing gear are used to catch lemuru, including purse seines (comprising small pelagic purse seines and purse seines without purse lines).

The types of fishing gear used to catch lemuru across all Fisheries Management Areas of Indonesia (FMA) are grouped into purse seines (small pelagic purse seines and purse seines without purse lines), seines (payang nets), lift nets (boat-operated or floating lift nets), and gillnets (drift gillnets). According to Ministry of Marine Affairs and Fisheries Regulation Number 18 of 2021, the fishing gear used to catch lemuru falls within the permissible gear types, with specific selectivity and capacity requirements as outlined in the regulation. Based on its selectivity, the status of the gear used to catch lemuru is categorized as permissible. Nationally, the dominant gear for catching lemuru is the small pelagic purse seine operated by a single vessel, accounting for 42% of the catch. In FMA 573, lemuru is predominantly caught using small pelagic purse seines with a single vessel, accounting for 53% of the catch, and with two vessels, accounting for 15%.

7.4.3. Total Allowable Catch (TAC) and catch data

Table 8: Total Allowable Catch (TAC) and catch data

TAC / Catch Data	Year	Amount
TAC	2022	26,250 ton/year
UoA share of TAC		
Total catch by UoA (most recent year)	2023	7,634.5 ton
Total catch by UoA (second most recent year)	2022	4,688 ton

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

PI 1.1.1 – Stock status

PI 1.1.1		The stock is at a level that maintains high productivity and has a low probability of recruitment overfishing		
Scoring issue		SG 60	SG 80	SG 100
a	Stock status relative to recruitment impairment			
	Guidepost	It is likely that the stock is above the point of recruitment impairment (PRI).	It is highly likely that the stock is above the PRI.	There is a high degree of certainty that the stock is above the PRI.
	Met?	Yes	Yes	No
Rationale		Recent studies (based on lemuru production data from 2011 to 2020) indicate that the stock may be above the Limit Reference Point (LRP) (Harlyan et al., 2022). However, during the previous period (1976–2006), there was relatively high variability in catch yields and high fishing pressure. Increases in catch were observed in 1984, 1992, 1999, and 2003, while decreases occurred in 1986, 1997, and 2001 (Setyohadi, 2009).		
b	Stock status in relation to achievement of maximum sustainable yield (MSY)			
	Guidepost		The stock is at or fluctuating around a level consistent with MSY.	There is a high degree of certainty that the stock has been fluctuating around a level consistent with MSY or has been above this level over recent years.
	Met?		Yes	No
Rationale		Stock fluctuates around levels close to Maximum Sustainable Yield (MSY) (Harlyan et al., 2022).		

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)	<i>Insert type of reference point e.g. B_{LOSS}.</i>	<i>Include value specifying units e.g. 50,000t total stock biomass.</i>	<i>Include current stock status in the same units as the reference point e.g. $90,000/B_{LOSS} = 1.8$.</i>
Reference point used in scoring stock relative to MSY (S1b)	<i>Insert type of reference point e.g. B_{MSY}.</i>	<i>Include value specifying units e.g. 100,000t total stock biomass.</i>	<i>Include current stock status in the same units as the reference point e.g. $90,000/B_{MSY} = 0.9$.</i>

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

PI 1.1.2 – Stock rebuilding

PI 1.1.2		Where the stock is reduced, there is evidence of stock rebuilding within a specified timeframe		
Scoring issue		SG 60	SG 80	SG 100
a	Rebuilding timeframes			
	Guide post	A rebuilding timeframe is specified for the stock that is the shorter of 20 years or 2 times its generation time . For cases where 2 generations is less than 5 years, the rebuilding timeframe is up to 5 years.		The shortest practicable rebuilding timeframe is specified that does not exceed 1 generation time for the stock.
	Met?	NA		NA
Rationale		This PI could not be applicable to be scored due to PI 1.1.1 having a score >80.		
b	Rebuilding evaluation			
	Guide post	Monitoring is in place to determine whether the rebuilding strategies are effective in rebuilding the stock within the specified timeframe.	There is evidence that the rebuilding strategies are rebuilding stocks, or it is likely based on simulation modelling, exploitation rates, or previous performance that they will be able to rebuild the stock within the specified timeframe .	There is strong evidence that the rebuilding strategies are rebuilding stocks, or it is highly likely based on simulation modelling, exploitation rates, or previous performance that they will be able to rebuild the stock within the specified timeframe .
	Met?	NA	NA	NA
Rationale		This PI could not be applicable to be scored due to PI 1.1.1 having a score >80.		

Draft scoring range	NA
Information gap indicator	Information sufficient to score PI
Data-deficient? (Risk-Based Framework needed)	No

PI 1.2.1 – Harvest strategy

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
Scoring issue	SG 60	SG 80	SG 100	
a	Harvest strategy design			
	Guide post	The harvest strategy is expected to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A SG80.	The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy work together towards achieving stock management objectives reflected in PI 1.1.1/PI 1.1.1A SG80.	The harvest strategy is responsive to the state of the stock and is designed to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A SG80.
	Met?	No	No	No
Rationale	There is already a management plan for lemuru fisheries addressing the status of lemuru stocks, as outlined in Ministerial Decree No. 198 of 2023 concerning the Lemuru Fisheries Management Plan. However, a solid and cautious harvest strategy has yet to be established.			
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 tested and is expected to meet the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80 or there is evidence that the harvest strategy is achieving its objectives reflected in PI 1.1.1/ PI 1.1.1A SG80.	The performance of the harvest strategy has been evaluated and evidence exists to show that it is achieving the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80, including being clearly able to maintain stocks at target levels.
	Met?	No	No	No
Rationale	The Lemuru Fisheries Management Plan (FMP) outlined in Ministerial Decree No. 68 of 2016 has been reviewed and subsequently replaced by Ministerial Decree No. 198 of 2023. However, the FMP does not yet include specific harvest strategy and/or its evaluation.			
c	Harvest strategy monitoring			
	Guide post	Monitoring is in place that is expected to determine whether the harvest strategy is working.		
	Met?	No		
Rationale	No harvest strategy is in place.			
d	Harvest strategy review			
	Guide post			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			No
Rationale	No harvest strategy is in place.			
e	Shark finning			
	Guide post	There is a high degree of certainty that shark finning is not taking place.		
	Met?	Yes		
Rationale	Sharks are neither a primary nor bycatch species for single-vessel or double-vessel purse seines and gillnets. Therefore, there is a high level of certainty regarding the absence of shark finning activities.			

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
f	Review of alternative measures			
	Guide post	There has been a review of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock.	There is a review every 5 years of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock and they are implemented as appropriate.	There is a review that happens every 2 years of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock, and they are implemented, as appropriate.
	Met?	No	No	No
Rationale		No harvest strategy is in place.		

Draft scoring range	<60
Information gap indicator	Information sufficient to score PI

PI 1.2.2 – Harvest control rules and tools

PI 1.2.2		There are well-defined and effective HCRs in place		
Scoring issue		SG 60	SG 80	SG 100
a	HCRs design and application			
	Guide post	Generally understood HCRs are in place that are expected to reduce the exploitation rate as the PRI is approached.	Well-defined HCRs are in place that ensure the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock fluctuating around a target level consistent with (or above) MSY, or for key LTL species at levels consistent with ecosystem needs.	The HCRs are expected to keep the stock fluctuating at or above a target level consistent with MSY, or another more appropriate level most of the time, taking into account the ecological role of the stock.
	Met?	No	No	No
Rationale		No harvest control rule is in place.		
b	The robustness of HCRs to uncertainty			
	Guide post		The HCRs are likely to be robust to the main uncertainties.	The HCRs take account of a wide range of uncertainties including the ecological role of the stock, and there is evidence that the HCRs are robust to the main uncertainties.
	Met?		No	No
Rationale		No harvest control rule is in place.		
c	Evaluation of HCRs			
	Guide post	There is some evidence that tools used or available to implement HCRs are appropriate and effective in controlling exploitation.	Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.	Evidence clearly shows that the tools in use are effective in achieving the exploitation levels required under the HCRs.
	Met?	No	No	No
Rationale		There is no evidence that mechanisms have been implemented to apply harvest control rules (HCRs) that are appropriate and effective in regulating exploitation.		

Draft scoring range	<60
Information gap indicator	Information sufficient to score PI

PI 1.2.3 – Information and monitoring

PI 1.2.3		Relevant information is collected to support the harvest strategy		
Scoring issue		SG 60	SG 80	SG 100
a	Range of information			
	Guide post	Some relevant information related to stock structure, stock productivity, and fleet composition is available to support the harvest strategy.	Sufficient relevant information related to stock structure, stock productivity, fleet composition, and other data are available to support the harvest strategy.	A comprehensive range of information (on stock structure, stock productivity, fleet composition, stock abundance, UoA removals, and other information such as environmental information), including some that may not be directly related to the current harvest strategy, is available.
	Met?	Yes	Yes	No
Rationale		Although adequate information is available, it has not yet been employed in the formulation of a harvest strategy.		
b	Monitoring			
	Guide post	Stock abundance and UoA removals are monitored and at least 1 indicator is available and monitored with sufficient frequency to support the harvest strategy.	Stock abundance and UoA removals are regularly monitored at a level of accuracy and coverage consistent with the harvest strategy , and 1 or more indicators are available and monitored with sufficient frequency to support the harvest strategy.	All information required by the harvest strategy is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent uncertainties in the information (data) and the robustness of assessment and management in dealing with this uncertainty.
	Met?	Yes	No	No
Rationale		Stock monitoring is conducted through multiple indicators, including catch data and fleet activity.		
c	Comprehensiveness of information			
	Guide post		There is good information on all other fishery removals from the stock.	
	Met?		Yes	
Rationale		There is information available concerning the exploitation of other fisheries within the stock.		

Draft scoring range	60-79
Information gap indicator	Information sufficient to score PI

PI 1.2.4 – Assessment of stock status

PI 1.2.4		There is an assessment of the stock status		
Scoring issue		SG 60	SG 80	SG 100
a	Appropriateness of assessment to stock under consideration			
	Guide post		The assessment is appropriate for the stock and for the harvest strategy.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.
	Met?		Yes	Yes
Rationale		The assessment has considered the principal features that are potentially pertinent to the biology and characteristics of the UoA.		
b	Assessment approach			
	Guide post	The assessment estimates stock status relative to generic reference points appropriate to the species category.	The assessment estimates stock status relative to reference points that are appropriate to the stock and can be estimated.	
	Met?	Yes	Yes	
Rationale		The assessment estimates the stock status in relation to general reference points and is likely to provide a quantifiable assessment.		
c	Uncertainty in the assessment			
	Guide post	The assessment identifies major sources of uncertainty.	The assessment takes uncertainty into account.	The assessment evaluates stock status relative to reference points in a probabilistic way.
	Met?	Yes	No	No
Rationale		The stock assessment has identified sources of uncertainty, but these have not yet been accounted in the assessment.		
d	Evaluation of assessment			
	Guide post			The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.
	Met?			Yes
Rationale		The robustness of the assessment has been evaluated.		
e	Peer review of assessment			
	Guide post		The assessment of stock status is subject to peer review.	The assessment has been internally and externally peer reviewed.
	Met?		Yes	No
Rationale		The peer review has been carried out internally, but has yet to undergo externally.		

Draft scoring range	≥80
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Information gap indicator	Information sufficient to score PI
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7.5. Principle 2

7.5.1. Principle 2 background

Lemuru is a small pelagic fish from the Clupeidae family that acts as a filter feeder, with phytoplankton and zooplankton as its main food sources (Carpenter and Niem, 1999). Research conducted by Burhanuddin et al. (1984) showed that zooplankton is the primary food component for lemuru, with around 90% consisting of Copepoda, both during the day and at night. Lemuru tends to live in schools in shallow marine waters, often seen schooling in coastal areas at depths of less than 60 m, and frequently migrates to lagoons, bays, or river estuaries. The distribution of lemuru fish in the Bali Strait includes the entire western coast of Bali and the eastern coast of Banyuwangi.

The lemuru fishery in the Bali Strait uses purse seine fishing gear, also known as ring nets or encircling nets. The types of fish typically caught using purse seines in the Bali Strait include lemuru (*Sardinella lemuru*), mackerel scad (*Decapterus mackarellus*), and frigate tuna (*Euthynnus affinis*). According to the Lemuru Fishery Management Plan (FMP Lemuru), the catch composition from purse seines in FMA 573 is dominated by mackerel scad. According to Harlyan et al., 2022, field surveys conducted from January to May 2021 revealed that the catch composition is as shown in figure 4 below.

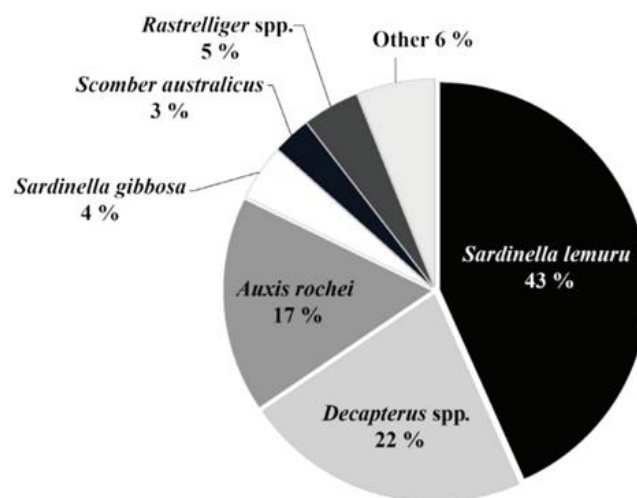


Figure 4. Purse Seine Catch Composition in the Bali Strait (Harlyan et al., 2022).

Supported by interviews with fishermen, it is known that when using purse seine nets, the most commonly caught species is lemuru because, like most species in the Clupeidae family, lemuru tends to live in large schools.

The purse seine gear is rectangular, with floats on the top and weights and iron rings at the bottom. When operated, the vessel carrying the gear encircles a school of fish that has been gathered using fish aggregating devices (rumpon) and lights. Once the circle is complete, the drawstring at the bottom is pulled through the iron rings, causing the net to close and form a bowl shape, trapping the fish inside. The entire net is then hauled to the side of the vessel, and the trapped fish are automatically collected in the net's pocket. The purse seines operating in the Bali Strait are approximately 1,300 meters long and 75 meters wide, and are considered low-selectivity gear due to the 1 cm mesh size used. In 1995, the FAO issued the Code of Conduct for Responsible Fisheries (CCRF), which includes guidelines for responsible fishing practices, one of which is the selectivity of fishing gear. According to the FAO (1995), selective fishing gear is defined as gear that catches fewer than three species.

It is not uncommon for purse seines to interact with ETP species. However, based on discussions with fishermen, if an ETP species is caught, the fishermen immediately release it. Although they have not received formal training on handling ETP species, fishermen possess traditional knowledge passed down through generations on how to release these protected animals. Additionally, the government has conducted outreach on protected species, so nearly all fishermen are aware of these species.

7.5.2. Principle 2 Performance Indicator scores and rationales

PI 2.1.1 – In-scope species outcome

PI 2.1.1		The UoA aims to maintain in-scope species above the PRI and does not hinder recovery of in-scope species if they are below the PRI													
Scoring issue		SG 60		SG 80		SG 100									
a	Main in-scope species stock status														
	Guide post	Main in-scope species are likely to be above the PRI. or If the species is below the PRI, it is likely that the UoA does not hinder recovery and rebuilding.		Main in-scope species are highly likely to be above the PRI. or If the species is below the PRI, there is evidence of recovery, or it is highly likely that the UoA does not hinder recovery and rebuilding.		There is a high degree of certainty that main in-scope species are fluctuating around a level consistent with MSY.									
	Met?	Yes		No		No									
Rationale		<i>The Team may wish to use the following table when there is more than 1 scoring element.</i> Table 10: Scoring in-scope species													
		<table border="1"> <thead> <tr> <th>Scoring element</th> <th>Designation</th> <th>Score</th> <th>Rationale</th> </tr> </thead> <tbody> <tr> <td><i>E.g. species or stock (SA 3.1.1.1)</i></td> <td><i>Main / Minor</i></td> <td><i>E.g. 60, 80, 100</i></td> <td><i>Rationale to support the team's conclusion for each Scoring Guidepost (SG).</i></td> </tr> </tbody> </table>						Scoring element	Designation	Score	Rationale	<i>E.g. species or stock (SA 3.1.1.1)</i>	<i>Main / Minor</i>	<i>E.g. 60, 80, 100</i>	<i>Rationale to support the team's conclusion for each Scoring Guidepost (SG).</i>
Scoring element	Designation	Score	Rationale												
<i>E.g. species or stock (SA 3.1.1.1)</i>	<i>Main / Minor</i>	<i>E.g. 60, 80, 100</i>	<i>Rationale to support the team's conclusion for each Scoring Guidepost (SG).</i>												
b	Minor in-scope species stock status														
	Guide post					Minor in-scope species are highly likely to be above the PRI. or If below the PRI, there is evidence that the UoA does not hinder the recovery and rebuilding of minor in-scope species.									
	Met?					Yes									
Rationale		The minor in-scope species caught include <i>Scomber australicus</i> and <i>Sardinella gibbosa</i> , but the data used comes from a study with a duration of only five months. Therefore, periodic data collection is needed to demonstrate that the UoA (Unit of Assessment) does not hinder the recovery and rebuilding of these minor in-scope species.													

Draft scoring range	60-79
Information gap indicator	More information sought to score PI
Data-deficient? (Risk-Based Framework needed)	Yes

PI 2.1.2 – In-scope species management strategy

PI 2.1.2		There is a strategy in place that is designed to maintain or to not hinder rebuilding of in-scope species		
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 in-scope species at/to the in-scope species outcome SG60 level.	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 in-scope species at/to the in-scope species outcome SG80 level. or Where in-scope species outcome fails to meet the SG80, a demonstrably effective strategy is in place between all MSC UoAs that categorise this species as main in-scope to ensure that they collectively do not hinder recovery and rebuilding.	There is a strategy in place for the UoA for managing main and minor in-scope species at the in-scope species outcome SG80 level.
	Met?	No	No	No
Rationale		There are no strategies in place to manage the in-scope species, and the available information is insufficient to support management efforts. Catch numbers are recorded in logbooks, but their accuracy can sometimes be questioned when comparing catch composition data with fish landing data.		
b	Management strategy effectiveness			
	Guide post	The measures, if necessary , are considered likely to work for the main in-scope species, based on plausible argument.	There is some evidence that the measures/partial strategy, if necessary , is achieving the objectives for main in-scope species set out in scoring issue (a), based on some information directly about the UoA and/or species involved.	There is evidence that the partial strategy/strategy is achieving the objectives set out in scoring issue (a), based on information directly about the UoA and/or species involved.
	Met?	No	No	No
Rationale		There are no strategies implemented to manage the in-scope species, and the available information is insufficient to support management. Catch numbers are recorded in logbooks, but their accuracy can sometimes be questionable when comparing catch composition data with fish landing data.		
c	Review of alternative measures			
	Guide post	There is a review of alternative measures to minimise UoA-related mortality of unwanted catch of main in-scope species	There is a review at least once every 5 years of alternative measures to minimise UoA-related mortality of unwanted catch of main in-scope species and they are implemented, as appropriate .	There is a review that happens every 2 years of alternative measures to minimise UoA-related mortality of unwanted catch of all in-scope species, and they are implemented, as appropriate .
	Met?	No	No	No
Rationale		There are no alternative measures implemented to manage the in-scope species, and the available information is insufficient to support management. Catch numbers are recorded in logbooks, but their accuracy can sometimes be questioned when comparing catch composition data with fish landing data.		

PI 2.1.2		There is a strategy in place that is designed to maintain or to not hinder rebuilding of in-scope species		
d	Shark finning			
	Guide post	There is a high degree of certainty that shark finning is not taking place.		
	Met?	NA		
Rationale		Based on discussions with stakeholders, there is no shark finning activity within lemuru fishing operations. However, there is no data to support this claim. As for the assessment, it does not need to be conducted if there are no in-scope shark species, including those that have been released.		
e	Ghost gear management strategy			
	Guide post	There are measures in place for the UoA, if necessary , that are expected to minimise ghost gear and its impact on all in-scope species.	There is a partial strategy in place for the UoA, if necessary , that is expected to minimise ghost gear and its impact on all in-scope species.	There is a strategy in place for the UoA, if necessary , that is expected to minimise ghost gear and its impact on all in-scope species.
	Met?	Yes	Yes	No
Rationale		Based on discussions with stakeholders, purse seine and gillnet gear that are no longer in use are repurposed by being sold on land for agricultural needs. This reflects a local wisdom in managing unused fishing gear. <i>The Scoring Issue is only scored when the equivalent ghost gear SI within ETP/OOS is not scored.</i>		

Draft scoring range	<60
Information gap indicator	More information sought to score PI

PI 2.1.3 – In-scope species information

PI 2.1.3		Information is adequate to determine the impact of the UoA on in-scope species and the effectiveness of management measures or strategies in place		
Scoring issue		SG 60	SG 80	SG 100
Information adequacy for assessment of impact on main in-scope species				
a	Guide post	Information is adequate to broadly understand the impact of the UoA on the stock status of main in-scope species.	Information is adequate to estimate the impact of the UoA on the stock status of main in-scope species with a high degree of accuracy .	Information is adequate to estimate the impact of the UoA on the stock status of main in-scope species with a very high degree of accuracy .
	Met?	Yes	NA	NA
Rationale		There is some information from various journals that can be used as secondary data to gather information related to in-scope species in the lemuru fishery. However, continuous data is needed for future policy-making, which is why a score of 60-79 is given.		
Information adequacy for assessment of impact on minor in-scope species				
b	Guide post			Information is adequate to estimate the impact of the UoA on the stock status of minor in-scope species with a high degree of accuracy .
	Met?			No
Rationale		There is insufficient information to adequately estimate the impact of the UoA on the stock status of the species, which results in a score of 60-79 is given.		
Information adequacy for management strategy				
c	Guide post	Information is adequate to support measures to manage main in-scope species.	Information is adequate to support a partial strategy to manage main in-scope species.	Information is adequate to support a strategy to manage all in-scope species and evaluate with a high degree of certainty whether the strategy is achieving its objective.
	Met?	Yes	No	No
Rationale		There is some information from various references that can be used as secondary data to gather information related to in-scope species in the lemuru fishery. However, continuous data is needed for future policy-making, resulting in a score of 60-79 is given.		

Draft scoring range	60-79
Information gap indicator	More information sought to score PI

PI 2.2.1 – ETP/OOS species outcome

PI 2.2.1		The direct effects of the UoA do not hinder recovery of the ETP/OOS unit to favourable conservation status		
Scoring issue		SG 60	SG 80	SG 100
a	Direct effects			
	Guide post	The direct effects of the UoA are unlikely to hinder recovery of the ETP/OOS unit to favourable conservation status.	The direct effects of the UoA are highly unlikely to hinder recovery of the ETP/OOS unit to favourable conservation status.	There is a high degree of certainty that the direct effects of the UoA do not hinder recovery of the ETP/OOS unit to favourable conservation status.
	Met?	No	No	No
Rationale		There is no information regarding the direct effects of the UoA that would hinder the recovery of ETP species to a better conservation status. Without additional data, SG 60 will not be achieved		

Draft scoring range	<60
Information gap indicator	More information sought to score PI
Data-deficient? (Risk-Based Framework needed)	Yes

PI 2.2.2 – ETP/OOS species management strategy

PI 2.2.2		The UoA has precautionary management strategies in place designed to: <ul style="list-style-type: none"> • Ensure that incidental catches of the ETP/OOS unit are minimised and where possible eliminated • Ensure that the UoA does not hinder recovery to Favourable Conservation Status. 		
Scoring issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are measures in place, if necessary , that are expected to minimise the UoA-related mortality of the ETP/OOS unit and achieve the ETP/OOS outcome SG80 level of performance.	There is a strategy in place, if necessary , that is expected to minimise the UoA-related mortality of the ETP/OOS unit and achieve the ETP/OOS outcome SG80 level of performance.	There is a comprehensive strategy in place that is expected to minimise the UoA-related mortality of the ETP/OOS unit and achieve the ETP outcome SG80 level of performance.
	Met?	No	No	No
Rationale		From consultations with stakeholders, it was found that some fishers have implemented measures to reduce interactions with ETP species. Globally, purse seine fisheries are known to catch ETP species such as sharks and rays, dolphins, and whales. Within the UoA, ETP species like turtles are released alive, and dolphins, if alive, are also released due to the belief that they bring bad luck. However, the mortality status of sharks and rays remains unclear. Without additional information, achieving SG80 is unlikely.		
b	Management strategy effectiveness			
	Guide post		Evidence indicates that the measures, strategy or comprehensive strategy have reduced or minimised the mortality of the ETP/OOS unit.	
	Met?		No	
Rationale		From consultations with stakeholders, it was found that some fishers have implemented measures to reduce interactions with ETP species. Globally, purse seine fisheries are known to catch ETP species such as sharks and rays, dolphins, and whales. Within the UoA, ETP species like turtles are released alive, and dolphins, if still alive, are also released due to the belief that they bring bad luck. However, the mortality status of sharks and rays remains unclear. Without additional information, achieving SG80 is unlikely.		
c	Review of alternative measures to minimise mortality of the ETP/OOS unit			
	Guide post		There is a review at least once every 5 years of the alternative measures to minimise UoA-related mortality of the ETP/OOS unit and they are implemented as appropriate for the ETP/OOS unit.	There is a review that happens every 2 years of the alternative measures to minimise UoA- related mortality of the ETP/OOS unit, and they are implemented, as appropriate for the ETP/OOS unit.
	Met?		No	No
Rationale		Ministerial Regulation of Marine Affairs and Fisheries Number 12/MEN/2012 on 'Fishing Operations in the High Seas' requires that if ETP species are caught, they must be released alive and reported to the fisheries port, and if landed, they must be intact. Although these measures have been implemented, there are no specific actions, enforcement, or reviews conducted to minimize mortality related to the UoA for ETP species		
d	Shark finning			
	Guide post	There is a high degree of certainty that shark finning is not taking place.		
	Met?	NA		

PI 2.2.2	<p>The UoA has precautionary management strategies in place designed to:</p> <ul style="list-style-type: none"> • Ensure that incidental catches of the ETP/OOS unit are minimised and where possible eliminated • Ensure that the UoA does not hinder recovery to Favourable Conservation Status. 			
Rationale	<p>Shark finning activities have not been identified. Therefore, shark finning can be disregarded. <i>Scoring Issue need not be scored if there are no in-scope shark species, including those that are released.</i></p>			
e	Ghost gear management strategy			
	Guide post	There are measures in place, if necessary , for the UoA that are expected to minimise ghost gear and its impact on the ETP/OOS unit.	There is a partial strategy in place for the UoA, if necessary , that is expected to minimise ghost gear and its impact on the ETP/OOS unit.	There is a strategy in place for the UoA, if necessary , that is expected to minimise ghost gear and its impact on the ETP/OOS unit.
	Met?	Yes	No	No
Rationale	<p>Based on discussions with stakeholders, damaged purse seines and gillnets are sold and repurposed on land, which helps minimize the impact of ghost gear on the unit. <i>This SI shall only be scored when there are ETP/OOS scoring elements (SA3.9.5.b).</i></p>			

Draft scoring range	<60
Information gap indicator	More information sought to score PI

PI 2.2.3 – ETP/OOS species information

PI 2.2.3		Information is adequate to determine the impact of the UoA on the ETP/OOS unit and the effectiveness of management measures or strategies in place		
Scoring issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts			
	Guide post	Information is adequate to broadly understand the impact of the UoA on the ETP/OOS unit.	Information is adequate to estimate the impact of the UoA on the ETP/OOS unit, and to estimate whether the UoA may be a threat to its recovery, with a high degree of accuracy .	Information is adequate to estimate the impact of the UoA on the ETP/OOS unit, and to estimate whether the UoA may be a threat to its recovery, with a very high degree of accuracy .
	Met?	No	No	No
Rationale		The information is insufficient to support management measures for impacts on ETP species. Without additional information, the likelihood of passing SG60 is very small.		
b	Information adequacy for management strategy			
	Guide post	Information is adequate to support measures to manage impacts on the ETP/OOS unit.	Information is adequate to support a strategy to manage impacts on the ETP/OOS unit, and to measure trends to evaluate the effectiveness of the measures to minimise mortality.	Information is adequate to support a comprehensive strategy to manage impacts on the ETP/OOS unit, and to evaluate the effectiveness of the measures to minimise mortality with a high degree of certainty .
	Met?	No	No	No
Rationale		The information is insufficient to support management measures for impacts on ETP species. Without additional information, the likelihood of achieving an SG60 score is very low.		

Draft scoring range	<60
Information gap indicator	More information sought to score PI

PI 2.3.1 – Habitats outcome

PI 2.3.1		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(ies) responsible for fisheries management in the area(s) where the UoA operates		
Scoring issue		SG 60	SG 80	SG 100
a	Less sensitive habitats			
	Guide post	The UoA is unlikely to reduce structure and function of less sensitive habitats to a point where there would be serious or irreversible harm .	The UoA is highly unlikely to reduce structure and function of less sensitive 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 less sensitive habitats to a point where there would be serious or irreversible harm .
	Met?	Yes	Yes	No
Rationale		The purse seine method is used to target species at depths of 20-500 meters above sandy/muddy substrates. Similarly, gillnets are operated in the water column at depths of approximately 5 to 30 meters hence no contact with substrate in general. There is minimal likelihood of contact with the substrate, given that the fishing methods operates in the mid-water column.		
b	More sensitive habitats			
	Guide post	The UoA is unlikely to reduce structure and function of more sensitive habitats to a point where there would be serious or irreversible harm .	The UoA is highly unlikely to reduce structure and function of more sensitive 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 more sensitive habitats to a point where there would be serious or irreversible harm .
	Met?	NA	NA	NA
Rationale		For the assessment, it does not need to be conducted if there are no 'more sensitive habitats' present <i>The Scoring issue need not be scored if there are no "more sensitive habitats".</i>		

Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI <i>If more information is sought, include a description of what the information gap is and what is information is sought</i>
Data-deficient? (Risk-Based Framework needed)	Yes

PI 2.3.2 – Habitats management strategy

PI 2.3.2		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
Management strategy in place				
a	Guide post	There are measures in place, if necessary , that are expected to achieve the habitat outcome SG80 level.	There is a partial strategy in place, if necessary , that is expected to achieve the habitat outcome SG80 level or above.	There is a strategy in place for managing the impact of all MSC UoAs/non-MSC fisheries on habitats.
	Met?	Yes	Yes	No
Rationale		There are no strategies in place. The purse seine method is used to target species at depths of 20-60 meters above sandy/muddy substrates. Similarly with gillnets just different depth, more on the surface water, approximately 5 to 30 meters. Based on consultations with stakeholders and knowledge of purse seine fishing operations, there is minimal likelihood of contact with the substrate, given that the fishing method operates in the mid-water column.		
Management strategy effectiveness				
b	Guide post	The measures, if necessary , are considered likely to work, based on plausible argument .	There is some evidence that the measures/partial strategy, if necessary , is achieving the objectives set out in SI (a), based on information directly about the UoA and/or habitats involved.	There is evidence that the partial strategy/strategy is achieving the objectives set out in SI (a), based on information directly about the UoA and/or habitats involved.
	Met?	Yes	Yes	No
Rationale		There are no strategies in place. The purse seine method is used to target species at depths of 20-60 meters above sandy/muddy substrates. Similarly with gillnets just different depth, more on the surface water, approximately 5 to 30 meters. Based on consultations with stakeholders and knowledge of purse seine fishing operations, there is minimal likelihood of contact with the substrate, as the fishing method operates in the mid-water column.		
Compliance with management requirements and other MSC UoAs'/non-MSC fisheries' measures to protect more sensitive habitats				
c	Guide post	Information is adequate to broadly understand compliance in the UoA with management requirements to protect more sensitive habitats.	Information is adequate to determine , with a high degree of accuracy , compliance in the UoA with both its management requirements and protection measures afforded to more sensitive habitats by other MSC UoAs/non-MSC fisheries, where relevant .	Information is adequate to determine , with a very high degree of accuracy , compliance in the UoA with both its management requirements and with protection measures afforded to more sensitive habitats by other MSC UoAs/ non-MSC fisheries, where relevant .
	Met?	NA	NA	NA
Rationale		Not assessed because there are no more sensitive habitats present (SA 3.113).		
Ghost gear management strategy				
d	Guide post	There are measures in place, if necessary , for the UoA that are expected to minimise ghost gear and its impact on all habitats.	There is a partial strategy in place for the UoA, if necessary , that is expected to minimise ghost gear and its impact on all habitats.	There is a strategy in place for the UoA, if necessary , that is expected to minimise ghost gear and its impact on all habitats.
	Met?	Yes	Yes	No
Rationale		The purse seine and gillnet methods are used to target species at water column, with depths of 20-60 meters above sandy/muddy substrates. Based on consultations with stakeholders and knowledge of purse seine fishing operations, there is minimal likelihood of contact with the substrate, as the fishing method operates in the mid-water column. Additionally, when the fishing gear is damaged, it is sold and repurposed for land-based activities.		

Draft scoring range	60-79
Information gap indicator	More information sought to score PI

PI 2.3.3 – Habitats information

PI 2.3.3		Information is adequate to determine the impact of the UoA on habitats, including changes in the risk posed by the UoA over time		
Scoring issue		SG 60	SG 80	SG 100
a	Information quality			
	Guide post	The types and distribution of habitats are broadly understood .	The nature, distribution, and vulnerability of habitats in the UoA area are known at a level of detail relevant to the scale and intensity of the UoA.	The distribution of habitats is known over their range, with particular attention given to the occurrence of vulnerable habitats. habitats is known over their range, with particular attention to the occurrence of vulnerable habitats.
	Met?	Yes	No	No
Rationale		The purse seine method is used to target species at depths of 20-60 m above sandy/muddy substrates. Similarly with gillnets just different depth, more on the surface water, approximately 5 to 30 meters. Based on consultations with stakeholders and knowledge of purse seine fishing operations, there is minimal likelihood of contact with the substrate, as the fishing method operates in the mid-water column.		
b	Information adequacy for assessment of impacts			
	Guide post	Information is adequate to broadly understand the impacts of gear use on habitats.	Information is adequate to estimate the impacts of the UoA on habitats with a high degree of accuracy .	Information is adequate to estimate the impacts of the UoA on habitats with a very high degree of accuracy .
	Met?	Yes	No	No
Rationale		Qualitative information (obtained from discussions with stakeholders) is sufficient to estimate the consequences and spatial attributes of key habitats. Both gears are used to target species at depths of 20-60m above sandy/muddy substrates and 5-30m from the water surface.		
c	Monitoring			
	Guide post		Adequate information continues to be collected to detect any increase in risk to habitats.	Changes in habitat distributions over time are measured.
	Met?		No	No
Rationale		There is no monitoring or information gathering related to habitat impacts or habitat types. Without additional information, the likelihood of achieving SG80 is very low.		

Draft scoring range	60-79
Information gap indicator	More information sought to score PI

PI 2.4.1 – Ecosystem outcome

PI 2.4.1		The UoA does not cause serious or irreversible harm to the key elements underlying 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 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 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 serious or irreversible harm.
	Met?	Yes	No	No
Rationale		Lemuru is a neritic pelagic species that plays a crucial role in the food chain and in maintaining ecosystem health. Therefore, regulations are needed to manage the lemuru fishery to avoid disrupting the ecosystem. While there is a Lemuru Fisheries Management Plan in place, it has not been fully implemented, score of 60-79 is given <i>List/detail what "key ecosystem elements" are being assessed (SA3.14.3-SA3.14.4, GSA3.14.4).</i>		

Draft scoring range	60-79
Information gap indicator	More information sought to score PI
Data-deficient? (Risk-Based Framework needed)	Yes

PI 2.4.2 – Ecosystem management strategy

PI 2.4.2		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 considers the potential impacts of the UoA on the key elements underlying ecosystem structure and function.	There is a partial strategy in place, if necessary , that is expected to achieve the Ecosystem outcome SG80 level.	There is a strategy in place for managing the impact of the UoA on the key elements underlying ecosystem structure and function.
	Met?	No	No	No
Rationale		Lemuru is a neritic pelagic species that plays a crucial role in the food chain and in maintaining ecosystem health. Therefore, regulations are necessary to manage the lemuru fishery to avoid disrupting the ecosystem. While there is a Lemuru Fisheries Management Plan in place, no management strategies are implemented when lemuru experiences a drastic decline.		
b	Management strategy effectiveness			
	Guide post	The measures, if necessary , are considered likely to work, based on plausible argument.	There is some evidence that the measures/partial strategy, if necessary , is achieving the objectives set out in scoring issue (a), based on some information directly about the UoA and/or the ecosystem involved.	There is evidence that the partial strategy/strategy is achieving the objectives set out in scoring issue (a) based on information directly about the UoA and/or ecosystem involved.
	Met?	No	No	No
Rationale		Lemuru is a neritic pelagic species that plays a vital role in the food chain and in maintaining ecosystem health. Therefore, regulations are necessary to manage the lemuru fishery to prevent disrupting the ecosystem. Although there is a Lemuru Fisheries Management Plan, no management strategies are implemented when lemuru experiences a drastic decline.		

Draft scoring range	<60
Information gap indicator	More information sought to score PI

PI 2.4.3 – Ecosystem information

PI 2.4.3		There is adequate knowledge of the ecosystem and the main impacts of the UoA on key ecosystem elements		
Scoring issue		SG 60	SG 80	SG 100
a	Information quality			
	Guide post	Information is adequate to identify the key elements of the ecosystem.	Information is adequate to broadly understand the key elements of the ecosystem.	
	Met?	Yes	No	
Rationale		Some literature studies can indicate the distribution of lemuru based on the UoA, providing an overview that lemuru fishing is unlikely to damage a single ecosystem. When lemuru numbers begin to decline in one location, fishers will move to a different fishing area, allowing time for the ecosystem to recover		
b	Investigation of UoA impacts			
	Guide post	Main impacts of the UoA on the key ecosystem elements can be inferred from existing information	Main impacts of the UoA on the key elements of the ecosystem have been investigated in detail.	Main interactions between the UoA and the key ecosystem elements have been investigated in detail.
	Met?	Yes	No	No
Rationale		There is no information available regarding the direct impacts of the UoA in question.		
c	Understanding of component functions			
	Guide post		The main functions of the components in the ecosystem are known.	The impacts of the UoA on the components are identified and the main functions of these components in the ecosystem are understood.
	Met?		Yes	No
Rationale		There is no evidence available to demonstrate an understanding of the impacts of the UoA.		
d	Monitoring			
	Guide post		Adequate data continue to be collected to detect any increase in risk level.	Information is adequate to support the development of strategies to manage ecosystem impacts.
	Met?		No	No
Rationale		There is no evidence available showing that data is being collected to detect impacts or changes in those impacts		

Draft scoring range	60-79
Information gap indicator	More information sought to score PI

7.6. Principle 3

7.6.1. Principle 3 background

Legislation and Management Framework

In managing fisheries, Indonesia has issued Law (UU) on Fisheries number 31 of 2004 which has been amended to Law number 45 of 2009 on Fisheries as a major legal umbrella for implementing fisheries management in Indonesia, which mandates that fisheries management in Indonesia is controlled by the state and utilized as much as possible for the prosperity and welfare of the Indonesian people. Thus, fisheries resources in Indonesia need to be managed properly, in order to create sustainability of its resources. One of the key components that is the basis for fisheries management is fisheries data. Fisheries data is the basis for the government in making policies, both in relation to the number and size of catches, the number of fleets, protection of ETP (Endangered, Threatened and Protected) animal species, fishing areas, and so on. Article 7 of Law No. 45/2009 grants the Minister of Marine Affairs and Fisheries the right to carry out management actions to control fishing activities. These actions include: (i) fisheries management plan; (ii) SDI potential; (iii) the amount of catch allowed; (iv) number and size of fishing gear (v) rehabilitation of resources and their habitat (vi) minimum size or weight that may be caught. This Law also includes a prohibition on the use of illegal fishing methods and tools that pollute and damage fisheries and ecosystems in Articles 8-14 of Law No. 31/2004.

Law Number 5 of 1990 concerning Conservation of Biological Natural Resources and Ecosystems mandates that in its implementation, it is carried out by (i) protecting life support (ii) maintaining the integrity of nature reserve areas so that they remain in their original state and (iii) sustainable use of biological natural resources and their ecosystems.

Law Number 1 of 2014 concerning Amendments to Law Number 27 of 2007 concerning Management of Coastal Areas and Small Islands regulates conservation activities to ensure the sustainability of coastal and small island ecosystems, protect fish migration routes and other marine biodiversity, protect marine biota habitats, and protect traditional cultural sites. The law regulates the utilization of resource zoning plans and marine areas. Law Number 32 of 2009 concerning Environmental Protection and Management is a comprehensive law on environmental management in Indonesia. This law adopts a holistic approach based on the archipelagic concept of the essential unity of Indonesian society, which includes land, air, and seas that are within Indonesian sovereignty. Regulation Number 20 of 2018 regulates the protection of several plant and animal species. Ministerial Regulation Number 18 of 2013 regulates the protection of whale sharks. Law on Regional Government No. 23/2014 which was amended by Law No. 9/2015, provides regional autonomy to provincial governments. The scope of authority and responsibility of the provincial government includes management, conservation, development, protection, and utilization of fish resources in its management area.

Ministerial Decree of Maritime Affairs and Fisheries Number 198 of 2023 concerning the Lemuru Fisheries Management Plan, which specifically describes the management of lemuru fisheries, both related to the process of cooperation between regions in lemuru management, the process of licensing fishing vessels, central and regional management mechanisms, and so on.

Roles and Responsibilities, Consultation and Stakeholders

At the national level, key stakeholders include the MMAF, the National Committee for Fish Stock Assessment (KOMNASKAJISKAN), the Fisheries Research Center of the National Research and Innovation Agency (Pusriskan BRIN) and several NGOs, such as the WWF Indonesia Foundation and the Sustainable Fisheries Partnership (SFP). The organizational structure, roles and responsibilities of the MMAF are documented in Presidential Regulation Number 63 of 2015 and Ministerial Regulation Number 7 of 2018 which consist of several divisions each with a Directorate General, the most relevant for the purpose of this assessment being the Directorate General of Capture Fisheries (DGCF). The National Commission for the Assessment of Fish Resources (Komnas Kajiskan) together with Pusriskan BRIN is tasked with providing input and/or recommendations to the Minister of Maritime Affairs and Fisheries through data collection and research/assessment (stock) of fish resources from various sources, including available scientific evidence, in determining the potential and amount of catch permitted in the Fisheries Management Area (FMA).

Regulation 16/2012 mandates the function of this Commission and its members which include independent fisheries experts, scientists from various universities and members of various fisheries associations. Other related

ministries/institutions that can determine the effectiveness of achieving fisheries management objectives include the Ministry of Transportation (fishing vessel documents such as Pas Besar/Pas Kecil), Ministry of Trade (trade provisions), Ministry of Foreign Affairs (fisheries cooperation with other countries), Indonesian Police and Indonesian Navy (Fishery Law Enforcement).

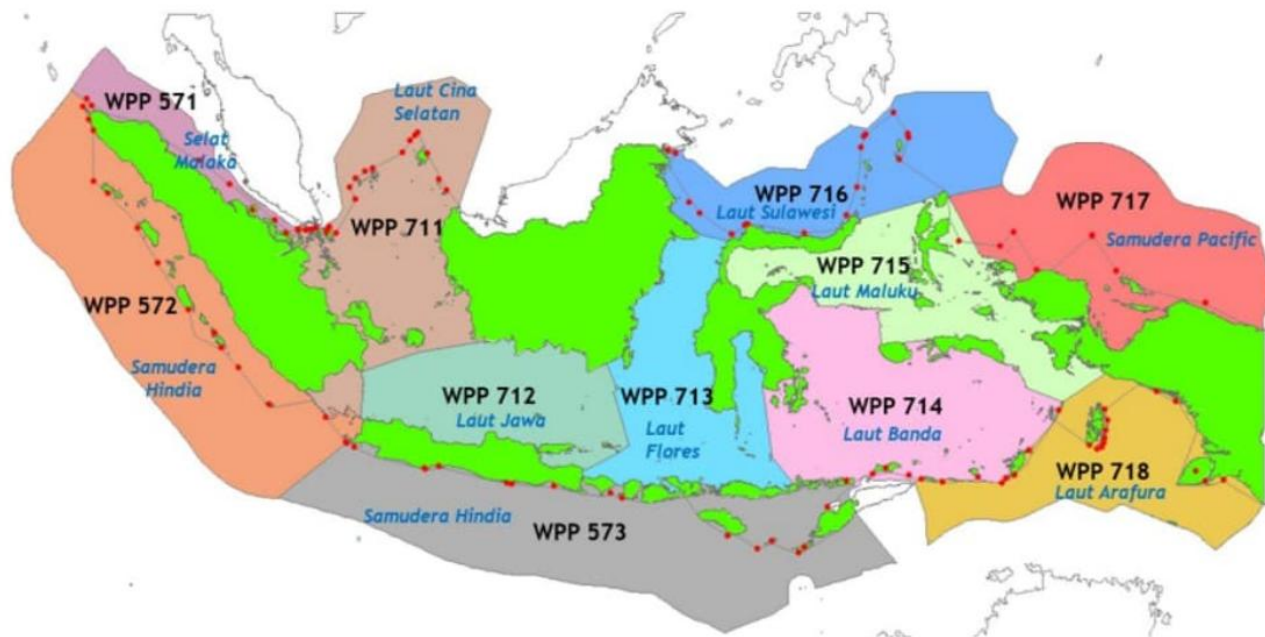


Figure 8. Republic of Indonesia Fisheries Management Area (FMANRI)

To facilitate management based on regional characteristics, the Ministry of Marine Affairs and Fisheries (MMAF) issued Ministerial Regulation (Permen) of Marine Affairs and Fisheries Number 33 of 2019 concerning the operationalization of FMC FMANRI, where management is carried out based on the division of FMA. Decree of the Minister of Marine Affairs and Fisheries Number 80 of 2016 and Decree of the Minister of Marine Affairs and Fisheries Number 77 of 2016 also generally regulate the Fisheries Management Plan in FMA 713 and FMA 573. To help facilitate coordination and collaboration in fisheries management at the provincial level, the government issued Law Number 23 of 2014 which regulates the authority to manage fisheries up to 12 miles by the provincial government and >12 miles managed by the central government. As an effort to maintain the sustainability of the aquatic ecosystem including fish resources in East Java Province, the regional government has issued Regional Regulation (Perda) of East Java Province Number 3 of 2016 concerning the Protection and Empowerment of Fishermen. This regulation is made to ensure access to fish resources, a healthy environment, facilities and infrastructure, business certainty, capital, and information technology.

As a forum for stakeholder consultation, the Fisheries Management Unit FMA was formed by the Ministry of Marine Affairs and Fisheries (Permen KP 33/2019) which is expected to accommodate input, information, agreements, and various other things in achieving management action objectives, as well as providing recommendations for the preparation of sustainable fisheries management policies in the FMANRI. In the Fisheries Management Unit FMA structure, there are several divisions that have their respective duties and functions.

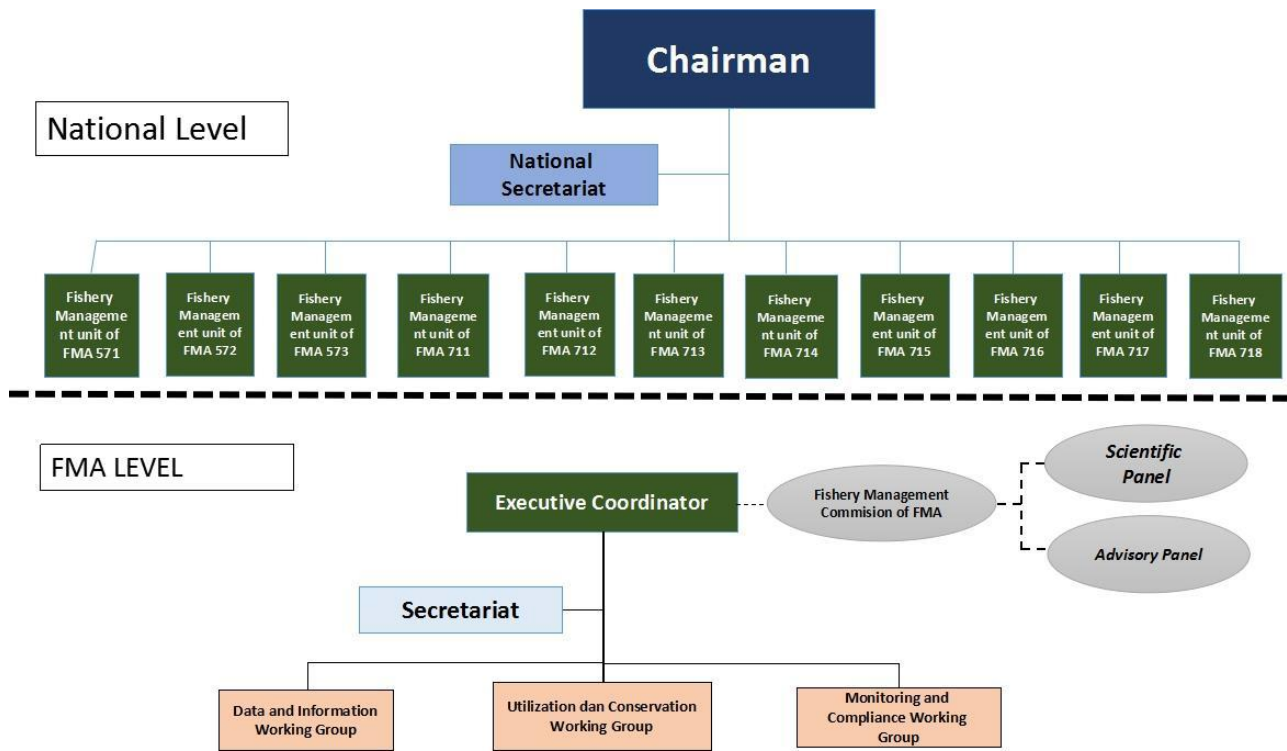


Figure 9. Organizational Structure of Fisheries Management Unit in FMANRI (Ministerial Regulation of Maritime Affairs and Fisheries 33/2019)

At the provincial level, the provincial government has the authority to manage its fisheries up to 12 nautical miles (Law 23/2014). At this level, of course, the role of other stakeholders to mutually support fisheries management at the regional level is needed in accordance with the principles of fisheries management, namely the principles of partnership, openness, transparency and sustainable development (Law 31/2004).

In order to optimize the management of lemuru fisheries, the Ministry of Marine Affairs and Fisheries together with various stakeholders have held a Workshop on the preparation of the Lemuru RPP on September 16-17, 2023 in Bogor. This was done as an effort to address stock, environmental, socio-economic and governance issues. The management agreement made by lemuru fishermen is carried out based on deliberation, consensus, and democracy by providing space for fishermen to speak up at meetings with stakeholders. Basically, legal rights are made based on the aim of preserving resources so that they can be sustainable. Currently, there is no formal commitment and legally recognized written rules regarding the lemuru management system in the UoA. At the regional level, the East Java Provincial Government issued Regional Regulation 3 of 2016 concerning the Protection and Empowerment of Fishermen. This regulation aims to protect and empower fishermen in East Java by ensuring access to fish resources, a healthy environment, facilities and infrastructure, business certainty, capital, and information technology.

Decision-Making Process

Decisions on fisheries management policies, government priorities, levels of exploitation (or potential utilization of fish resources) and formalization of management plans are the decisions of the Minister of Marine Affairs and Fisheries. In making decisions, the central government generally involves various stakeholders in the preparation of the draft Fisheries Management Plan, public consultation, and policy socialization.

At the regional level, in the management of fish resources, the East Java provincial government together with the Bali Provincial Government have made a cooperation agreement (PKS) in the marine and fisheries sector. The document was signed on September 2, 2021, with the aim of optimizing the development and utilization of marine and fisheries resources in the East Java and Bali Provinces effectively and efficiently, in order to improve community welfare. So that various fisheries management efforts that have implications for the two regions are carried out together.

At the local level, the community in East Java Province, especially those who utilize the Bali Strait, precisely where the lemuru is caught, the management of lemuru resources is carried out jointly by several local fishermen's groups/cooperatives. Meetings are usually held at the Muncar Fisheries Port office to discuss and share information related to the management and utilization of lemuru fisheries. Discussions are facilitated by the Muncar Fisheries Port and fisheries extension workers.

Monitoring, Control and Supervision

Supervision and enforcement of fisheries regulations are carried out by the Directorate General of Marine and Fisheries Resources Supervision, MMAF and these efforts are mostly focused on waters above 12 nautical miles, limited to vessels above 29 GT and vessels >5GT operating >12 nautical miles. In the context of lemuru fisheries in the Bali Strait, enforcement of fisheries regulations is carried out by the East Java Provincial Marine and Fisheries Service (DKP). This is because the location/waters where lemuru live/catch locations are no more than 12 nautical miles, with a maximum vessel size of up to 5 GT. The main compliance in this area is the prohibition on the use of fishing gear that damages the environment and the prohibition on fishing activities in conservation areas.

7.6.2. Principle 3 Performance Indicator scores and rationales

PI 3.1.1 – Legal and/or customary framework

PI 3.1.1		The management system exists within an appropriate and effective legal and/or customary framework which ensures that it:		
		<ul style="list-style-type: none"> • 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 that deliver management outcomes consistent with MSC Principles 1 and 2.
	Met?	Yes	No	No
Rationale		<p>Indonesia has several legal umbrellas regarding the management of Marine and Fisheries Resources, as well as the environment. Fisheries management is mandated in Law no. 31/2004 concerning Fisheries and amended in Law no. 45/2009 which regulates all matters relating to fisheries at the national level and is managed by the Ministry of Maritime Affairs and Fisheries.</p> <p>UU no. 5/1990 concerning Conservation of Living Natural Resources is managed by the Ministry of Environment and Forestry (KLHK) which is responsible for managing and preserving the environment, state forests, plants and animals, including regulations regarding ETP animals and collaborating with the MMAF, however, it does not it is clear whether this collaboration has been effective to date.</p> <p>Regional Regulation No. 3 of 2016 concerning Protection and Empowerment of Fishermen. This regulation aims to protect and empower fishermen in East Java by ensuring access to fish resources, a healthy environment, facilities and infrastructure, business certainty, capital and information technology.</p> <p>Minister of Maritime Affairs and Fisheries Regulation number 33 of 2019 concerning the Organization and Work Procedures of Fisheries Management Institutions in the Fisheries Management Areas of the Republic of Indonesia, was also formed by the MMAF with the aim of facilitating coordination and communication of fisheries stakeholders which are divided into 11 Fisheries Management Units. However, this has not gone well</p>		

PI 3.1.1	<p>The management system exists within an appropriate and effective legal and/or customary framework which ensures that it:</p> <ul style="list-style-type: none"> • 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 			
	<p>The latest regulation 33 of 2019 concerning the establishment of a Fisheries Management Council will operate FMA activities, and assist coordination between provinces, but this has not yet been implemented.</p> <p>Although there are some frameworks (SG60 is met), they do not demonstrate cooperation or do not appear to be effective in some circumstances.</p> <p>The Lemuru Fish Fisheries Management Plan (FMP) is regulated in Ministerial Decree number 68/2016, but needs to be updated because the catch data and information used in this regulation is more than 5 years old. There is Ministerial Decree Number 77 of 2016 concerning FMP FMA 573, However, progress monitoring, evaluation and implementation have not been carried out well and need updating (SG80 is not fulfilled).</p>			
b	Resolution of disputes			
	Guide post	The management system incorporates or is subject by law to a mechanism for the resolution of legal disputes arising within the system.	The management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes which is considered to be effective in dealing with most issues and that is appropriate to the context of the UoA.	The management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes, which is appropriate to the context of the fishery and has been tested and proven to be effective .
	Met?	Yes	No	No
Rationale	<p>Indonesia has a mechanism to decide every legal dispute, including fisheries law, through the Constitutional Court. Individuals or groups can challenge the interpretation of legal articles of any law in Indonesia. For example, there is a material test for Law Number 27 of 2007 jo No. 1 of 2014 concerning Management of Coastal Areas and Small Islands (UU PWP3K) which is registered in case Number: 35/PUU-XXI/2023, submitted by the Wowonii community. Where in this case the law allows mining activities on small islands, while small islands function as Critical Natural Capital. Article 35 letter k provides room for mining activities because it contains a conditional prohibition. Therefore, in order to be in line with Article 28H, Article 33 paragraph (4) of the 1945 Constitution, Article 3 and Article 4 of the PWP3K Law, the Environmental Law, Article 35 letter k must be interpreted to mean that the management of Small Islands is not permitted for mining activities (SG 60 can be achieved).</p> <p>This shows that in Indonesia this mechanism has been tested.</p> <p>In general, Indonesia has a mechanism for resolving criminal and civil law in every sector, including the Maritime and Fisheries sectors. Everything is regulated in the Law, Ministerial Regulations, Ministerial Decrees, and several other related regulations. From the information obtained at the pre-assessment location, in general disputes can be resolved at the fishermen level, there has never been a dispute involving village/legal officials and there is no resolution mechanism (if it occurs) that is carried out transparently and is considered effective. (SG80 has not been met).</p>			
c	Respect for rights			
	Guide post	The management system has a mechanism to generally respect the legal rights created explicitly or established by custom of	The management system has a mechanism to observe the legal rights created explicitly or established by custom of people dependent on fishing	The management system has a mechanism to formally commit to the legal rights created explicitly or established by custom of

PI 3.1.1		The management system exists within an appropriate and effective legal and/or customary framework which ensures that it:		
		<ul style="list-style-type: none"> • 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 		
		people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.
	Met?	Yes	No	No
Rationale		<p>The Indonesian government recognizes the customary rights of traditional communities and local communities as stated in the Basic Constitution of the Republic of Indonesia, Article 18B: "The State recognizes and respects traditional communities along with their customary rights as long as they still exist and are in accordance with community development and principles The Unitary State of the Republic of Indonesia, and will be regulated by law.</p> <p>UU no. 1/2014 and amendments to Law no. 27/2007, concerning Management of Coastal and Small Islands, recognizes and respects indigenous peoples with their traditional rights in accordance with the principles of the Republic of Indonesia and also recognizes and respects local and traditional communities living in coastal areas and islands. small island.</p> <p>UU no. 7/2016 concerning the protection and empowerment of fishermen, fisheries and salt farmers and Minister of Maritime Affairs and Fisheries Regulation Number 3/2017 concerning the Protection of Local and Customary Law Community Management Areas in the Utilization of Marine Resources, recognizing and defining traditional fishermen and local communities as those who catch fish as a right, in traditional fisheries that have been widely used in accordance with local culture and wisdom. This law requires the rights of traditional fishermen to be considered during marine planning (including determining fishing zones/areas) and the provision of support (e.g. in the form of subsidies) at all levels of Government in recognition of their long-term interests. Article 25 clearly states that the government, when implementing national marine spatial planning, must ensure access and provide livelihood opportunities for small-scale and traditional fishermen.</p> <p>So, in general, Indonesia has special regulations regarding local communities and indigenous peoples as stated in the explanation above. In terms of lemuru fisheries management in East Java, no fisheries management is carried out according to customary law, but rather it is carried out according to the culture/habits of the fishing community which has been formed from generation to generation, SG60 is fulfilled. SG80 is not fulfilled because the legal rights that have been established do not refer to the procedures for obtaining fish in accordance with MSC P1 and P2 objectives.</p>		

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

PI 3.1.2 – Consultation, roles, and responsibilities

PI 3.1.2		The management system has effective consultation processes that are open to interested and affected parties. The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties		
Scoring issue		SG 60	SG 80	SG 100
a	Roles and responsibilities			
	Guide post	Organisations and individuals involved in the management process have been identified. Functions, roles, and responsibilities are generally understood .	Organisations and individuals involved in the management process have been identified. Functions, roles, and responsibilities are explicitly defined and well understood for key areas of responsibility and interaction.	Organisations and individuals involved in the management process have been identified. Functions, roles, and responsibilities are explicitly defined and well understood for all areas of responsibility and interaction.
	Met?	Yes	No	No
Rationale		<p>The organizational structure, roles and responsibilities of the MMAF are documented in Presidential Regulation Number 63 of 2015 and Minister of Maritime Affairs and Fisheries Regulation number 7 of 2018 which consists of several divisions, each of which has a Directorate General responsible for fisheries management.</p> <p>The National Commission for the Study of Fish Resources (Komnas Kajiskan) together with Pusriskan BRIN is tasked with providing input and/or recommendations to the Minister of Maritime Affairs and Fisheries through data collection and research studies/assessments (stocks) of fish resources from various sources, including available scientific evidence, in determining the potential and number of catches permitted in Fisheries Management Areas (FMA). Regulation 16/2012 mandates the functions of this Commission and its members which include independent fisheries experts, scientists from various universities and members of various fisheries associations.</p> <p>Maritime and Fisheries Organizations at the central level are clearly documented in accordance with Minister of Maritime Affairs and Fisheries Regulation number 5 of 2024, including the general duties and functions of each division. In addition, there are regulations that stipulate related to the FMA Fisheries Management Plan 573 and 712 , which includes regional governments as part of the FMA UPP which is regulated in Minister of Maritime Affairs and Fisheries Regulation number 33 of 2019 concerning the operationalization of the FMA FMC, where management is carried out based on the division of the FMA, which includes representatives from each stakeholder.</p> <p>At the regional level, the government has a legal umbrella for fisheries management up to 12 miles long. Likewise at the FMA level, the waters of the Bali Strait have been regulated in Ministerial Decree KP 77/2016 concerning FMA RI 573. Organizations and individuals involved in the management process have been identified and their roles and responsibilities are generally understood (SG 60 is fulfilled). There are various stakeholders involved in lemuru management in the Bali Strait such as the Ministry of Transportation, Ministry of Transportation, NGOs, Academics, Entrepreneurs and fishermen. However, it is still unclear about the role and operationalization of each of these institutions to understand in the management of lemuru fisheries. Both the ship licensing process, the obligation to record catches and report them, etc. SG80 has not been met</p>		
b	Consultation processes			
	Guide post	The management system includes consultation processes that obtain relevant information from the main affected parties, including local knowledge , to	The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge . The management	The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge . The management

PI 3.1.2		The management system has effective consultation processes that are open to interested and affected parties. The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties		
		inform the management system.	system demonstrates consideration of the information obtained.	system demonstrates consideration of the information and explains how it is used or not used.
	Met?	Yes	No	No
Rationale		<p>There are several collaborative management platforms/containers that have been formed in Indonesia. Such as the FMA FMC at the central level, the Sustainable Grouper Snapper Fisheries Management Committee (KP2K2B) and the Tuna Joint Fisheries Management Committee (FCMC) in several provinces in Indonesia which were formed in different years. This platform was formed as an effort to provide a forum for stakeholders in the fisheries management policy consultation process. Elements of the Committee/Working Group consist of central and regional governments, academics, industry, NGOs and fishermen who each have roles that can complement each other. The consultation process is usually carried out at regular/routine annual meetings, and preparatory meetings for implementing action plans. Minister of Maritime Affairs and Fisheries Regulation number 33 of 2019 concerning the operationalization of the FMA FMC, is contained in its structure, namely a consultative panel. Every year, each UPP holds meetings both online and offline. However, this is limited to invitations to members, so it does not accommodate all parties. Currently, the consultation process is being carried out with fishermen and several other stakeholders in informal and formal situations on certain agendas (uncertain schedules) for SG 60 to be fulfilled. However, it is not clear whether the information obtained is used to support the management system. Therefore, SG80 is not met.</p>		
		Participation		
c	Guide post		The consultation process provides opportunity for all interested and affected parties to be involved.	The consultation process provides opportunity and encouragement for all interested and affected parties to be involved, and facilitates their effective engagement.
	Met?		Yes	No
Rationale		<p>There are no specific regulations regarding fisheries joint management in Indonesia. However, in Law number 31 of 2004 which has been amended into Law 45 of 2009 in article 2, it is stated that fisheries management is carried out based on the principles of benefit, justice, togetherness, partnership, independence, equality, integration, openness, efficiency, sustainability and sustainable development. , which conveys the implied message that fisheries management needs to be carried out in a participatory manner. Apart from that, the central government has also created a fisheries joint management platform with the name FMC FMA, where each FMA is managed by Fisheries Management Unit FMA under the legal umbrella of Minister of Maritime Affairs and Fisheries Regulation number 33/2019 and Minister of Maritime Affairs and Fisheries Regulation number 22 of 2021 concerning Preparation of FMP and FMC in Management Areas Republic of Indonesia State Fisheries. This platform functions as a forum for coordinating fisheries management. However, the implementation of lemuru fisheries management in East Java has not shown a reflection of the implementation of several legal bases and involving stakeholders effectively (SG 100 has not been fulfilled).</p>		

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

PI 3.1.3 – Long term objectives

PI 3.1.3		The management policy has clear long-term objectives to guide decision-making that are consistent with the MSC Fisheries Standard, and incorporates the precautionary approach		
Scoring issue		SG 60	SG 80	SG 100
a	Objectives			
	Guide post	Long-term objectives to guide decision-making, consistent with the MSC Fisheries Standard and the precautionary approach , are implicit within management policy .	Clear long-term objectives that guide decision-making, consistent with the MSC Fisheries Standard and the precautionary approach , are explicit within management policy .	Clear long-term objectives that guide decision-making, consistent with the MSC Fisheries Standard and the precautionary approach , are explicit within and required by management policy.
	Met?	Yes	No	No
Rationale		<p>Law Number 31 of 2004 concerning Fisheries which has been amended by Law Number 45 of 2009 aims to maximize the utilization of fish resources for the prosperity and welfare of the people, while still paying attention to the health of the aquatic environment/ecosystem and the sustainability of fish resources.</p> <p>Law Number 32 of 2009 concerning Environmental Protection and Management, one of which has the aim of regulating the preservation of marine ecosystems</p> <p>Government Regulation Number 60 of 2007 concerning Conservation of Fish Resources aims to make efforts to conserve ecosystems, types and genetics of fish so that they remain sustainable in addition to utilization.</p> <p>Marine and Fisheries Ministerial Decree number 80 of 2016 and Marine and Fisheries Ministerial Decree number 79 of 2016 also generally regulate the Fisheries Management Plan in FMA 712 and FMA 573, establishing management plans for each FMA 712 and 573 and all fish resources within them. This regulation sets out fisheries management objectives in FMA which include fish resources and their habitats; social and economic; and, governance components. There is an action plan that includes who is responsible and the time frame required to meet the objectives, however, the plan is intended as a guide and therefore, may not be required by management policy. The plan refers to the FAO Code of Conduct for Responsible Fisheries (which Indonesia has endorsed) and this code includes a precautionary approach, so it is implicit in the management policy.</p> <p>Marine and Fisheries Ministerial Regulation No. 28 of 2023 concerning Implementing Regulations of Government Regulation Number 11 of 2023 concerning Measurable Fishing. It also contains how to manage fisheries based on quotas, with the same goal, namely resource sustainability, but its implementation is not evenly distributed</p> <p>There are clear long-term goals in several laws and regulations and explicit references to the precautionary principle for fish species in general (SG60 is met), but there is no specific/unclear long-term management of the lemuru fishery. At the site level, there are stakeholder initiatives to maintain sustainable resources which are carried out through deliberation and consensus, but have not been explicitly stated in a legal document for the long term (SG80 is not fulfilled).</p>		

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

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 Principles 1 and 2		
Scoring issue		SG 60	SG 80	SG 100
a	Objectives			
	Guide post	Objectives , which are broadly consistent with achieving the outcomes expressed by MSC 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 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 Principles 1 and 2, are explicit within the fishery-specific management system.
	Met?	Yes	No	No
Rationale		Ministerial Decree Marine and Fisheries number 19/2022 determines the JTB for small pelagics in FMA 573 is 437,056 tons and in FMA 712 is 247,937 tons which can be considered as a goal designed to achieve principle 1 results in the lemuru fishery. Ministerial Decree KP 198 of 2023 concerning the Lemuru FMP is also available for more specifically related to lemuru management (SG 60 is fulfilled). However, in its implementation, the monitoring and evaluation mechanism for the implementation of this legal instrument is not yet optimal (SG 80 is not fulfilled).		

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

PI 3.2.2 – Decision-making processes

PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery		
Scoring issue		SG 60	SG 80	SG 100
a	Decision-making processes			
	Guide post	There are some decision-making processes in place that result in measures and strategies to achieve the fishery-specific objectives.	There are established decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.	
	Met?	Yes	No	
Rationale		<p>Decision making related to capture fisheries management rests with the authorities Directorate General of Capture Fisheries (DGCF). DGCF also plays a role in introducing most of the national fisheries management measures. Apart from DGCF, fisheries management relies heavily on the scientific role of the Fisheries Research Center (Pusriskan) - National Research and Innovation Agency (BRIN) and KOMNASKAJISKAN, as well as the supervisory and enforcement role of the Directorate of Marine Resources and Fisheries Monitoring (PSDKP).</p> <p>There are several procedures outlined to calculate the resource allocation per FMA used to determine the JTB of small pelagic fish as stated in Ministerial Decree number 19/2022 (not yet specific to the lemuru fishery). There is currently no example of a decision-making process as to how catch can be reduced if the resource is fully exploited and the JTB is exceeded. It is anticipated that implementation of the FMA UPP for FMA 573 will provide some decision-making processes. SG60 is met because there are several decision-making processes such as setting JTB for FMA which can be considered as a broad objective. SG80 was not met because the decision-making process was unclear and could not be considered to have been made, and was not specific to the lemuru fishery.</p>		
b	Responsiveness of decision-making processes			
	Guide post	Decision-making processes respond to serious issues identified in relevant research, monitoring, evaluation, and consultation, in a transparent, timely and adaptive manner, and take some account of the wider implications of decisions.	Decision-making processes respond to serious and other important issues identified in relevant research, monitoring, evaluation, and consultation, in a transparent, timely, and adaptive manner, and take account of the wider implications of decisions.	Decision-making processes respond to all issues identified in relevant research, monitoring, evaluation, and consultation, in a transparent, timely, and adaptive manner, and take account of the wider implications of decisions.
	Met?	No	No	No
Rationale		<p>There is no information that there is a decision or decision-making process that addresses the problems in this fishery.</p> <p>In one of the research results published in 2023, there are several recommendations. Some of them are; implementation of the open/close season for lemuru fishing and restrictions on lemuru catches and restrictions on the mesh size of fishing gear nets. The aim of this recommendation is for the sustainability of lemuru fisheries resources, which is based on information from fishermen, catches are decreasing, and fishing locations are getting farther away. These two recommendations were not adopted by policy makers (SG60 not met)</p>		
c	Use of precautionary approach			
	Guide post		Decision-making processes use the precautionary approach and are based on best available information.	
	Met?		No	

PI 3.2.2	The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery			
Rationale	There is no information in this fishery regarding decisions or decision-making processes carried out using a precautionary approach. Additional information; Data from the DKP of East Java Province shows a decrease in lemuru catches from 2021-2023 compared to production in 2020. However, no management action has been taken to overcome this issue.			
d	Accountability and transparency of management system and decision-making process			
	Guide post	Some information on the fishery's performance and management action is generally available on request to stakeholders.	Information on the fishery's performance and management action is available on request , and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation, and review activity.	Formal reporting to all interested stakeholders provides comprehensive information on the fishery's performance and management actions and describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation, and review activity.
	Met?	Yes	No	No
Rationale	There is a lack of information about this fishery. The Ministry of Maritime Affairs and Fisheries periodically publishes regulations that estimate potential catches (MSY) and annual production targets (JTB) for each resource in each FMA, but these are very broad. These regulations are publicly available. Apart from that, Lemuru fishery stakeholders have access to obtain information, both related to data and other information from the government, according to their needs, one example is in terms of information related to the licensing process, where the East Java provincial government through the Muncar Fishing Port provides an information and service center fishing vessel licensing. Some facilities at the port can also be used by fishermen to gather and exchange information (SG60 is met), but are not specific to the lemuru fishery type. There is no evidence of fishery-specific information on compliance access or management decisions. not yet at the stage of providing an explanation of the actions taken based on research, monitoring, evaluation and review recommendations (SG 80 has not been fulfilled).			
e	Approach to disputes			
	Guide post	Although the management authority or fishery may be subject to continuing court challenges, it is not indicating a disrespect or defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability of the fishery.	The management system or UoA is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges.	The management system or UoA acts proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges.
	Met?	Yes	Yes	No
Rationale	There is no evidence of legal challenges or court decisions taken in relation to the lemuru fishery. In general, findings in the field show that management authorities and fishing communities comply with the law. Where they really avoid disputes, so that until now there has been no punishment for those who break the law. They resolve disputes/problems in a family and personal manner, and can be resolved without taking it to a higher level (the authorities), but this is implicit (there is no joint document on the dispute resolution mechanism)			

Draft scoring range	60-79
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Information gap indicator	More information sought / Information sufficient to score PI <i>If more information is sought, include a description of what the information gap is and what information is sought</i>
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PI 3.2.3 – Compliance and enforcement

PI 3.2.3		Monitoring, control, and surveillance (MCS) mechanisms ensure the management measures in the UoA are enforced and complied with		
Scoring issue		SG 60	SG 80	SG 100
a	MCS system			
	Guide post	MCS mechanisms exist within the UoA.	An MCS system exists within the UoA.	A comprehensive MCS system is well-established within the UoA.
	Met?	Yes	No	No
Rationale		Compliance with fisheries regulations has been regulated in several legal instruments, where vessels measuring 1 to 29 GT operating in areas up to 12 miles from the outermost land, are regulated by the Provincial Government. Meanwhile, ships measuring > 5GT operating over 12 miles are under the supervisory authority of the Ministry of Maritime Affairs and Fisheries. This is regulated in Law number 23 of 2014 concerning Regional Government, Presidential Regulation number 38 of 2023 concerning the Ministry of Maritime Affairs and Fisheries (article 24) and Minister of Maritime Affairs and Fisheries Regulation Number 37/Permen-KP/2017 concerning Standard Operational Procedures for Law Enforcement Task Forces Eradication of Illegal Fishing (SG 60 fulfilled). The authority's enforcement system for this fishery is unknown (SG 80 is not met).		
b	Sanctions			
	Guide post	Sanctions to address non-compliance exist within the UoA.	Sanctions to deal with non-compliance exist, that are appropriate to the UoA, and are applied.	Comprehensive sanctions to address non-compliance exist, that are appropriate to the UoA, and are consistently applied.
	Met?	Yes	No	No
Rationale		Furthermore, sanctions related to taking action against non-compliance are regulated in Minister of Maritime Affairs and Fisheries Regulation number 37 of 2017 (Chapter V) (SG 60 is fulfilled). However, there are several cases where the ship does not have documents. From the results of visits and information from several sources, there was no evidence that there were cases of compliance violations that were subject to sanctions. So SG 80 has not been met.		
c	Compliance (information)			
	Guide post	Information is adequate to broadly understand compliance in the UoA.	Information is adequate to estimate compliance in the UoA with a high degree of accuracy .	Information is adequate to estimate compliance in the UoA with a very high degree of accuracy .
	Met?	Yes	No	No
Rationale		There are several aspects where fishermen fulfill legal fishing requirements, namely by having fishing vessel documents. although there are some fishermen who do not have boat documents. The government, in this case the Muncar fishing port, has provided special fishing vessel licensing services. The government is also known to have carried out several outreach activities regarding the Regulation of the Minister of Maritime Affairs and Fisheries of the Republic of Indonesia number 5/permen-kp/2019 concerning Amendments to the Regulation of the Minister of Maritime Affairs and Fisheries number 23/permen-kp/2013 concerning Registration and Marking of Fishing Vessels (SG 60 is fulfilled) . Apart from that, recording of catches has not been carried out by fishermen in accordance with the mandate of Minister of Maritime Affairs and Fisheries Regulation number 33 of 2021 concerning Fishing Log Books, Monitoring on Board Fishing Vessels and Fish Transporting Vessels, Inspection, Testing and Marking of Fishing Vessels, as well as Management of Fishing Vessel Manning. SG 80 is not met.		
d	Compliance (outcome)			
	Guide post	Systematic non-compliance of regulations specific to governing sustainable fishing	Majority of regulations, including all regulations specific to governing	Majority of regulations, including all regulations specific to governing

PI 3.2.3		Monitoring, control, and surveillance (MCS) mechanisms ensure the management measures in the UoA are enforced and complied with		
		practices on the water is not evident within the UoA.	sustainable fishing practices on the water, are likely to be complied with.	sustainable fishing practices on the water, are consistently complied with.
	Met?	No	No	No
Rationale	<p>As previously stated, there are several systematic examples of non-compliance by fishermen, namely that there are still vessels that do not have documents, and there is no recording of catches made by fishermen, plus there is no fishing vessel monitoring system installed in accordance with the mandate of the Minister of Maritime Affairs and Fisheries Regulation. Republic of Indonesia number 5/permen-kp/2019 concerning Amendments to Regulation of the Minister of Maritime Affairs and Fisheries number 23/permen-kp/2013 concerning Registration and Marking of Fishing Vessels and Regulation of the Minister of Maritime Affairs and Fisheries number 33 of 2021 concerning Fishing Log Book, Monitoring in On Fishing Vessels and Fish Transporting Vessels, Inspection, Testing and Marking of Fishing Vessels, as well as Management of Fishing Vessel Manning.</p>			

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

PI 3.2.4 – Monitoring and management performance evaluation

PI 3.2.4		There is a system for monitoring and evaluating the performance of the fishery-specific management system against its objectives. There is effective and timely review of the fishery-specific management system		
Scoring issue		SG 60	SG 80	SG 100
a	Evaluation coverage			
	Guide post	There are mechanisms in place to evaluate some parts of the fishery-specific management system.	There are mechanisms in place to evaluate key parts of the fishery-specific management system.	There are mechanisms in place to evaluate all parts of the fishery-specific management system.
	Met?	Yes	No	No
Rationale		There are several mechanisms carried out periodically by the government through fisheries instructors. Where fisheries instructors provide assistance to several groups of fishermen who sometimes hold group meetings according to their needs (SG 60 is fulfilled), but this cannot be done optimally. This can be seen from the number of fisheries instructors in one sub-district which is disproportionate to the number of assisted communities, both fishermen, cultivators, and processor and marketer groups. Apart from that, fisheries instructors do not have the authority to make policies. In this case, the East Java Province DKP does not yet have a mechanism for monitoring and evaluating the performance of lemuru fisheries management specifically to evaluate key parts of the fisheries management system specifically (SG 80 is not fulfilled).		
b	Internal and/or external review			
	Guide post	The fishery-specific management system is subject to occasional internal review.	The fishery-specific management system is subject to regular internal and occasional external review.	The fishery-specific management system is subject to regular internal and external review.
	Met?	No	No	No
Rationale		An internal review from government partners/academics from the province of Bali was carried out through research on the condition of lemuru fisheries in the Bali Strait in a journal published in 2023 (SG 60 fulfilled). The results show that management is necessary to ensure resource sustainability. This is both by setting net mesh sizes, limiting catch sizes, and catching seasons.		

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

8. Appendices

8.1. Assessment Team – biographies/summaries of CVs (optional)

P1 Assessor - Ledhyane Ika Harlyan

- She is a fisheries scientist and is a lecturer at Brawijaya University
- She has more than 17 years of research experience in fisheries science and management, particularly for tropical multi-species and multi-gear fisheries.
- Ledhyane is frequently involved in the development of fishing control rules for data-limited fisheries, as well as in several projects related to sustainable fisheries, data collection and analysis.
- Ledhyane is involved in Lemuru Fisheries, Anchovy Fisheries, Mackerel Fisheries, Tongkol Fisheries, Tuna Fisheries, and Shrimp Fisheries

P2 Assessor – Andini Kusumasari

- She has been actively involved with small-scale fisheries and fishing communities since 2014
- She has experience with multi-stakeholder approaches, involving industry, government agencies, academia and other private sectors
- Andini is active in fighting for sustainable fisheries practices, including empowering small-scale fisheries as the main contributors to a sustainable fisheries ecosystem.
- Andini is involved in Crab Fisheries, Octopus Fisheries, Lemuru Fisheries, Tuna Fisheries, and Shrimp Fisheries

P3 Appraiser - A Riza Baroqi

- He has experience working with small-scale tuna fisheries since 2014 and has worked extensively in Central and Eastern Indonesia.
- Currently working at a local NGO in Bali, Indonesian Community and Fisheries Foundation (MDPI)
- He has experience working with all elements of tuna stakeholders, such as government, private sector, traders and collectors, fishermen, academics and NGOs.
- Riza has experience in sustainable fisheries, data collection, capacity building, traceability, Governance and Co-Management of fisheries
- Riza is involved in Tuna Fisheries, Octopus Fisheries, Lemuru Fisheries and Shrimp Fisheries

Assessment Team Leader – Heri

- He has worked on fisheries improvement and ecolabel programs since 2015, from development to implementation and certification in Indonesia
- He has experience in fishery product traceability and sustainability systems, supply chain analysis and fishery gap analysis
- Heri also acts as coordinator of the FIP practitioner community at the Asia Pacific level
- Heri is involved in Tuna Fisheries, Shrimp Fisheries, Snapper Grouper Fisheries, Octopus Fisheries, Lemuru Fisheries, and Crab Fisheries

8.2. References (Bibliography)

- Almohdar, E., & Souisa, F. N. (2017). Species Composition and Trophic Level Of Lift Net Catch in Ohoililir Village Water, Southeast Maluku Regency. *Jurnal Sumberdaya Akuatik Indopasifik*, 1(2), 165–173.
- Fakultas Perikanan dan Ilmu Kelautan Universitas Brawijaya. (2023). Analisis Rantai Pasok Perikanan Lemuru di Indonesia. Marine Stewardship Council Indonesia.
- Harlyan, L. I., Rahma, F. M., Kusuma, D. W., Sambah, A. B., Matsuishi, T. F., & Pattarapongpan, S. (2022). Spatial Diversity of Small Pelagic Species Caught in Bali Strait and Adjacent Indonesian Waters. *Journal of Fisheries and Environment*, 46(3), 198–209. <https://li01.tci-thaijo.org/index.php/JFE/article/view/257507>
- Hendiari, I., Sartimbul, A., Arthana, I., & Kartika, gde raka. (2020). Keragaman genetik ikan lemuru (*Sardinella lemuru*) di wilayah perairan Indonesia. *Acta Aquatica: Aquatic Sciences Journal*, 7, 28. DOI: 10.29103/aa.v7i1.2405
- Kementerian Perikanan dan Kelautan. (2016). Keputusan Menteri Perikanan dan Kelautan Republik Indonesia Nomor 68 Tahun 2016.
- Kementerian Perikanan dan Kelautan. (2023). Keputusan Menteri Perikanan dan Kelautan Republik Indonesia Nomor 198 Tahun 2023.
- Rohit, P., Sivadas, M., Abdussamad, E. M., Margaret Muthu Rathinam, A., Koya, K. P., Ganga, U., Ghosh, S., Rajesh, K. M., Mohammed Koya, K., & Chellappan, A. (2018). Enigmatic Indian oil sardine: An insight (Issue 130). ICAR-Central Marine Fisheries Research Institute.
- Sartimbul, A, Nakata, H., Herawati, E. Y., Rohadi, E., Yona, D., Harlyan, L. I., Putri, A. D. R., Winata, V. A., Khasanah, R. I., Arifin, Z., Susanto, R. D., & Lauro, F. M. (2023). Monsoonal variation and its impact on the feeding habit of Bali *Sardinella* (*S. lemuru* Bleeker, 1853) in Bali Strait. *Deep Sea Research Part II: Topical Studies in Oceanography*, 105317. DOI: 10.1016/j.dsr2.2023.105317
- Sartimbul, Aida, Thrisnayana, E., Rohadi, E., Muslihah, N., Luthfi, O., Iranawati, F., Harlyan, L. I., Wulandari, E., & Sambah, A. B. (2021). Plankton's abundance and its implications for *Sardinella lemuru* catch in Prigi waters. *IOP Conf. Series: Earth and Environmental Science*, 763(012049), 1–9. DOI: 10.1088/1755-1315/763/1/012049
- Stergiou, K.I., Moutopoulos, D.K., , Casal, H.J.A., Erzini, K. (2007). Trophic Signatures of Small-Scale Fishing Gears Implications for Conservation and Management. *Marine Ecology Progress Series*. No. 333: 117-128
- <https://oceanjusticeinitiative.org/2024/02/02/ahli-hukum-lingkungan-pulau-pulau-kecil-perlu-dilindungi-dari-aktivitas-pertambangan/>
- <https://www.kompas.id/baca/ekonomi/2023/12/05/penangkapan-ikan-terukur-berbasis-kuota-ditunda>.
- <https://money.kompas.com/read/2024/04/29/161000826/MMAF-mulai-uji-coba-penangkapan-ikan-terukur-ini-lokasinya>.
- Tanjov, Y.E. 2023. Sustainability Status of The Ecological Dimension in The Fisheries Management of Bali Sardine (*Sardinella lemuru* Bleeker 1853) in The Bali Strait. *Jurnal Biologi Tropis*.
- Whitehead, P.J.P. (1985). *FAO Species Catalogue*. Vol. 7. Clupeoid fishes of the world (suborder Clupeoidei). An annotated and illustrated catalogue of the herrings, sardines, pilchards, sprats, shads, anchovies and wolf-herrings. *FAO Fish. Synop.* 125(7/1):1-303. Rome: FAO.

- Winata, V. A., Kasitowati, R. D., Iranawati, F., Pranowo, W. S., & Sartimbul, A. (2022). Molecular and phylogenetic analysis of *Sardinella lemuru* Bleeker 1835 at fishing ground Canggus-Bali inferred D-loop mutations of mtDNA. *IOP Conference Series: Earth and Environmental Science*, 1036(1), 12065.
- Wudianto, W., & Wujdi, A. (2014). Variasi Ukuran Ikan Lemuru (*Sardinella lemuru* Bleeker, 1853) Secara Temporal Dan Spasial Di Perairan Selat Bali Size Variation Of Bali *Sardinella* (*Sardinella lemuru* Bleeker, 1853) Based On Temporal And Spatial In Bali Strait Waters. *Jurnal Penelitian Perikanan Indonesia*, 20, 9–17. DOI: 10.15578/jppi.20.1.2014.9-17
- Wujdi, A., Mas, S., & Wudianto, W. (2012). Parameter Populasi Ikan Lemuru (*Sardinella lemuru* Bleeker, 1853) di Perairan Selat Bali Population Parameters Of Bali *Sardinella* (*Sardinella lemuru* Bleeker, 1853) in Bali Strait Waters. *BAWAL Widya Riset Perikanan Tangkap*, 4, 177–184. DOI: 10.15578/bawal.4.3.2012.177-184
- Wujdi, A., Suwarso, S., & Wudianto, W. (2016). Biology reproduction and spawning season of Bali *Sardinella* (*Sardinella lemuru* Bleeker 1853) in Bali Strait waters. *BAWAL Widya Riset Perikanan Tangkap*, 5(1), 49–57. DOI: 10.15578/bawal.5.1.2013.49-57

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The CAB should delete the table below:

Table 27: Template version control

Version	Date of publication	Description of amendment
1.0	15 August 2011	Date of first release
1.1	31 October 2013	Updated in line with changes to CR v1.3
2.0	08 October 2014	Confirmed background sections (Section 3) as optional (use of 'may' statements) Modified Table 6.3 to create a simplified scoring sheet to be completed in place of full evaluation tables Made amendments to PIs based on Fishery Standard Review changes (e.g. removed original PIs 1.1.2, 3.1.4 and 3.2.4).
2.1	9 October 2017	Inclusion of optional full evaluation tables
3.0	17 December 2018	Release alongside Fisheries Certification Process v2.1
3.1	29 March 2019	Minor document changes for usability
3.2	25 March 2020	Release alongside Fisheries Certification Process v2.2
4.0	26 October 2022	Release alongside Fisheries Certification Process v3.0
4.1	01 May 2023	Added optional vessel lists section 5.2, minor correction to RBF PI 1.2.3

A controlled document list of MSC program documents is available on the MSC website (<https://www.msc.org/for-business/certification-bodies/supporting-documents>).

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