East Kalimantan
Blue Swimming Crab Fishery FMA 713

Benchmark Monitoring Tools (BMT) Updates Report

Assessor/Reviewer	Faridz Rizal Fachri
Fisheries Improvement Project (FIP)	East Kalimantan Blue Swimming Crab Fishery
FIP Implementor	Aruna - WWF Indonesia
Assessment Type	BMT annual updates
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Introduction

This report consists of a synthesis of BSC fishing practices by using traps (bubu) and gill nets that operate around the Balikpapan Bay, Balikpapan, East Kalimantan. This evaluation activity was carried out as part of the Fisheries Improvement Program (FIP) under the unit of Aruna together with WWF Indonesia through the Seafood Savers platform.

The process of this evaluation was undertaken through several desk study processes, interviews with relevant stakeholders, i.e. the company staff team of Aruna; WWF Indonesia; DKP of East Kalimantan Province; PSDKP, and other related actors in the period of May 2024. The recorded data and information are used as a basis for tracking progress by referring to Benchmark and Monitoring Tools (BMT) and the Marine Stewardship Council (MSC) standard version 2.01.

This report also contains updated information about fisheries, as well as other issues that might be echoing. Furthermore this report serves as a basis and reference for relevant stakeholders in order to monitor the progress of the implementation of the FIP which previously launched, towards sustainable use of BSC fisheries in the Balikpapan Bay, Balikpapan, East Kalimantan, FMA 713.

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1. Report Overview

The Blue Swimming Crab (BSC) fishery in Balikpapan Bay is dominated with small-scale fishing practice by using <5 GT fishing fleet, using traditional gear i.e. trap and gill net. The main target for this improvement involves the fishing community which is the supply chain for Aruna's activities within the UoC. The initiation of FIP implementation began in 2023 by considering basic FIP. The progress of implementing one year of improvements still has not shown significant improvements. Several initiatives have been carried out by establishing communication and collaboration with BRIN in carrying out data collection and biological studies of BSC in the UoC. In addition, communication with the East Kalimantan Fisheries Agency (DKP) team is also ongoing in encouraging the existence of a sustainable fisheries management forum in East Kalimantan. This communication was also built together with the PSDKP team to conduct POKMASWAS training operating in the East Kalimantan region.

In general, the condition of the BSC stock status in the UoA is unidentified clearly, where the it condition is strongly indicated to be in an over-exploited condition as is also expressed to (MMAF Decree No. 19/ 2022). The updated research revealed that the BSC will tend to form separated stock populations according to the distance in every distribution area within FMA. Local management is suggested to be appropriate in addressing fisheries management issues. The impact of the BSC fishery on primary and secondary species is not complemented by robust data, exceedingly other crab species: *Portunus sanguinolentus* (three-spot swimming crab)*; Charybdis feriata* (Crucifix crab)*; Podophthalmus vigil* (Sentinel crab) were already added as focus of the management under BSC fishery management plan (MMAF Decree No. 83/ 2022) together with *Scylla spp* (MMAF Decree No.16/2022), thus it to be reflected as primary species. The impact of the fishery to habitat is highly-likely minimal due to sand and mud dominating the substrate form. However, how this fishing activity does not disturb the ecosystem is still unclear.

The existence of BSC fishery management which has been reviewed shows that this fisheries sector is monitored regularly, but how it is implemented is something that is of concern. The issue of overlapping fishing gear in the Balikpapan area is also an issue that needs to be responded to by the management, through effective consultation forums and effective compliance.

1.1 Recommendations

1. **Recommendation 1:**
   Conduct robust catch and effort data collection for main target species within UoAs that complement with all retained and/or discarded catches by agreed log book with the community/ supply chain.
2. **Recommendation 2:**
   Establishing high-degree stock assessment by complementing with proxy data to minimize the uncertainty within the BSC fishery, including genetic assessment if possible.
3. **Recommendation 3:**
   Harvest Control Rules (HCR) development as the main basis to ensure that the Harvest Strategy (HS) is well-developed and in place for BSC in Balikpapan Bay, FMA 713 to make sure the rebuilding could maintain the stock fluctuates or above the Bmsy.

4. **Recommendation 4:**
   Ensuring the under size and egg barrier females are unretained by the fishers under the supply chain.
5. **Recommendation 5:**
   Encouraging catch composition data record and monitoring as a basis for the primary and secondary species status analysis as recommendation for its management actions and measures.
6. **Recommendation 6:**
   Establish rapid assessment for the potential ETP species that are caught by the fishers to discover the profile (i.e. catches, production, species, ETP status etc) and make sure that the BSC fishing activities are not hindering the ETP recovery.
7. **Recommendation 7:**
   Conducting initial ecosystem impact analysis.
8. **Recommendation 8:**
   Contributing to the development and implementation of fishery management forums at the provincial level as an effective and inclusive consultation platform.
9. **Recommendation 9:**
   Encouraging the implementation of the BSC Management Plan (MMAF Decree No.123/ 2021) is on track and well-implemented, to support the improvement of demersal fishery practices, especially in Balikpapan Bay, FMA 713.
10. **Recommendation 10:**
    Conducting a risk assessment for the infringement and compliance of fishing vessels under UoA (overlapping fishing gears), and further clear evidence collected to make sure MCS is executed effectively, including strengthening the enforcement procedure and mechanism.
11. **Recommendation 11:**
    Ensuring the fisheries specific management performance within UoA is reviewed and evaluated internally and occasionally externally as the responsiveness of the management measure.

Note:
According to the FIP implementation of BSC in Balikpapan Bay is considered as FIP Basic at the moment, categorization or prioritizing the indicators is important to decide focus or issue to be addressed onward.

1.2 Performance Indicators Evaluation Summaries

The 1st year progres of the BSC FIP in Balikpapan Bay, FMA 713 is represented through the composite BMT score is 0.46 which consist of 10 Performance Indicators (PIs) <60 SG (red); 9 PIs 60-79 SG (yellow); 8 PIs ≥80 (green) and 1 PI (NA), detailed BMT progress shown in **Figure 1** below. Several improvements were carried out by complementing the information about the habitat condition and several updates about the fishery specific objectives.

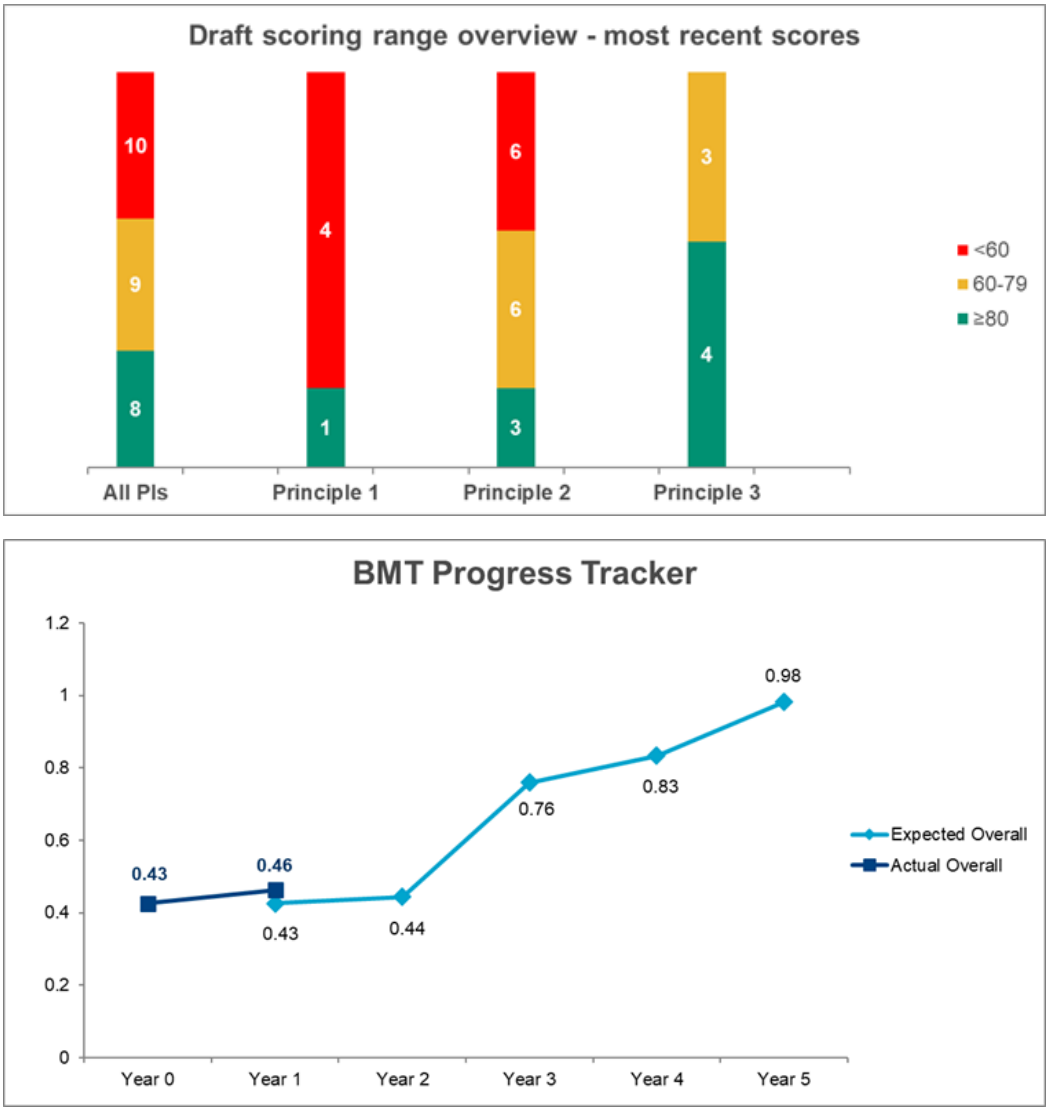


Figure 1. The detailed progress of the BSC Fishery- FIP implementation of traps and gill net during Y0 to Y1 indicating changes as response of some findings.

1. Unit of Assessment (UoA) - 1

UoA	Description
Species	Blue swimming crab (*Portunus pelagicus*)
Stock	Blue swimming crab in Makassar Strait
Geographical Area	Coastal waters near Jenebora and Tanjung Jumlai, East Kalimantan, FMA 713, Indonesia (FAO Major Fishing Area 71)
Harvest Method/ Gear	Baited collapsed trap (bubu)
Fleet Description (Number of Vessels and Types)	Vessels < 5GT (20 fishermen)

Client Group	Aruna - WWF Indonesia
Other Eligible Fishers	All operated vessel fishing for blue swimming crab using baited traps in Balikpapan Bay

Unit of Assessment (UoA) - 2

UoA	Description
Species	Blue swimming crab (*Portunus pelagicus*)
Stock	Blue swimming crab in Makassar Strait
Geographical Area	Coastal waters near Jenebora and Tanjung Jumlai, East Kalimantan, FMA 713, Indonesia (FAO Major Fishing Area 71)
Harvest Method/ Gear	Gill net
Fleet Description (Number of Vessels and Types)	Vessels < 5GT (20 fishermen)
Client Group	Aruna - WWF Indonesia
Other Eligible Fishers	All operated vessel fishing for blue swimming crab using baited traps in Balikpapan Bay

3.1 Key Updates or Changes in the Fishery

3.1.1 Principle 1: Sustainable of the Stock

The Blue Swimming Crab (BSC) fishery in the Balikpapan Bay as part of the Makassar Strait, FMA 713, shows an impact on small-scale fishers in the area. The previous pre-assessment report (Bio Inspecta, 2023[1]) mentioned that the stock status of the crabs is full of uncertainty, and indicates any changes in spatial distribution, egg-barier female reduction, thus further data collection is needed to prove the health of the stock. Reflected to the MMAF Decree No. 19/ 2022[2] The utilization status of the BSC in FMA 713 is 1.5 categorized as over-exploited with potential stock and allowable catch in a row: 9.253; 4.627 tonnes. Specific adequate BSC-data monitoring in Balikpapan Bay is unavailable whether the initiative collaboration has been running between the PRP-BRIN and FIP implementer in order to support data collection and monitoring development, including SPR analysis. Several progress led by Aruna has been applying minimum size refer to MMAF Decree No.16/ 2022 (<60 gram) and avoid egg-barier female. Observation results show that several egg-barrier females are still caught and processed to be raw-cook materials by the supply chain (Figure 1). The bigger size of the BSC is mostly caught by the gill net due to its operation in farther waters than bubu.

[1] *Bio-Inspecta. 2023. East Kalimantan Blue Swimming Crab: Pre Assessment Report.*

[2] *Keputusan Menteri Kelautan dan Perikanan No.19. 2022. Estimasi potensi sumber daya ikan di WPPNRI.*

Figure 2. The representation of BSC landing in Jenebora both fresh and raw cook indicating several egg-barrier females and under size BSC, exist even though the exact number of their percentage along the catch is unidentified.

Interestingly, the BSC within Balikpapan Bay indecisively as a part of the Makassar Strait stock, or they build another sub-population where it is fairly isolated with wider FMA 713. According to Madduppa *et al.,* (2021)[3] It is sufficient to provide information on several FMAs in Indonesia, namely; 571; 711; 712; 713; 714 and 715, where they formed a distinct population. The spatial DNA connectivity relationship weakens in every population with a distance of at least 60 km. This study suggests that BSC populations in Indonesia likely have several stock units, and preferably different fisheries management plans and actions across the region thoroughly and simultaneously. This would be effective for management and their sustainable conservation (Figure 2).

The existence of this unavailable data has been implicated to the uncertainty of the stock rebuilding, and coherent with the absence of harvest strategy implementation and harvest control rules and tools indicators within the UoA. Besides, the BSC harvest strategy is currently available only for FMA 712 (as per Directorate General of Capture Fisheries Degree No.6/2020[4]), however indefinite information on how this harvest strategy can be executed and implemented well on the ground. Whereas, it could be a good reference for BSC harvest strategy implementation in other FMA areas, including FMA 713. The only data available is a recapitulation of production data (raw cook/meat) from Aruna's fishers supply chain, but it cannot yet be used as a reference to find out whether this fishery is confidently above or around the PRI, in addition it might be considered a precautionary approach for the stock assessment.

[3] *Madduppa, H., R. Martaulina, Z. Zairion, R.M.Renjani, M. Kawaroe, N.P. Anggraini, B. Subhan, I. Verawati, & L.M.I. Sani. 2021. Genetic population subdivision of the blue swimming crab (Portunus pelagicus) across Indonesia inferred from mitochondrial DNA: Implication to sustainable fishery. PLoS One. 2021 Feb 4;16(2):e0240951. doi: 10.1371/journal.pone.0240951. eCollection 2021.*

[4] *Surat Keputusan Direktorat Jenderal Perikanan Tangkap No.06. 2020. Strategi Pemanfaatan Perikanan Rajungan di WPP Negara RI 712*

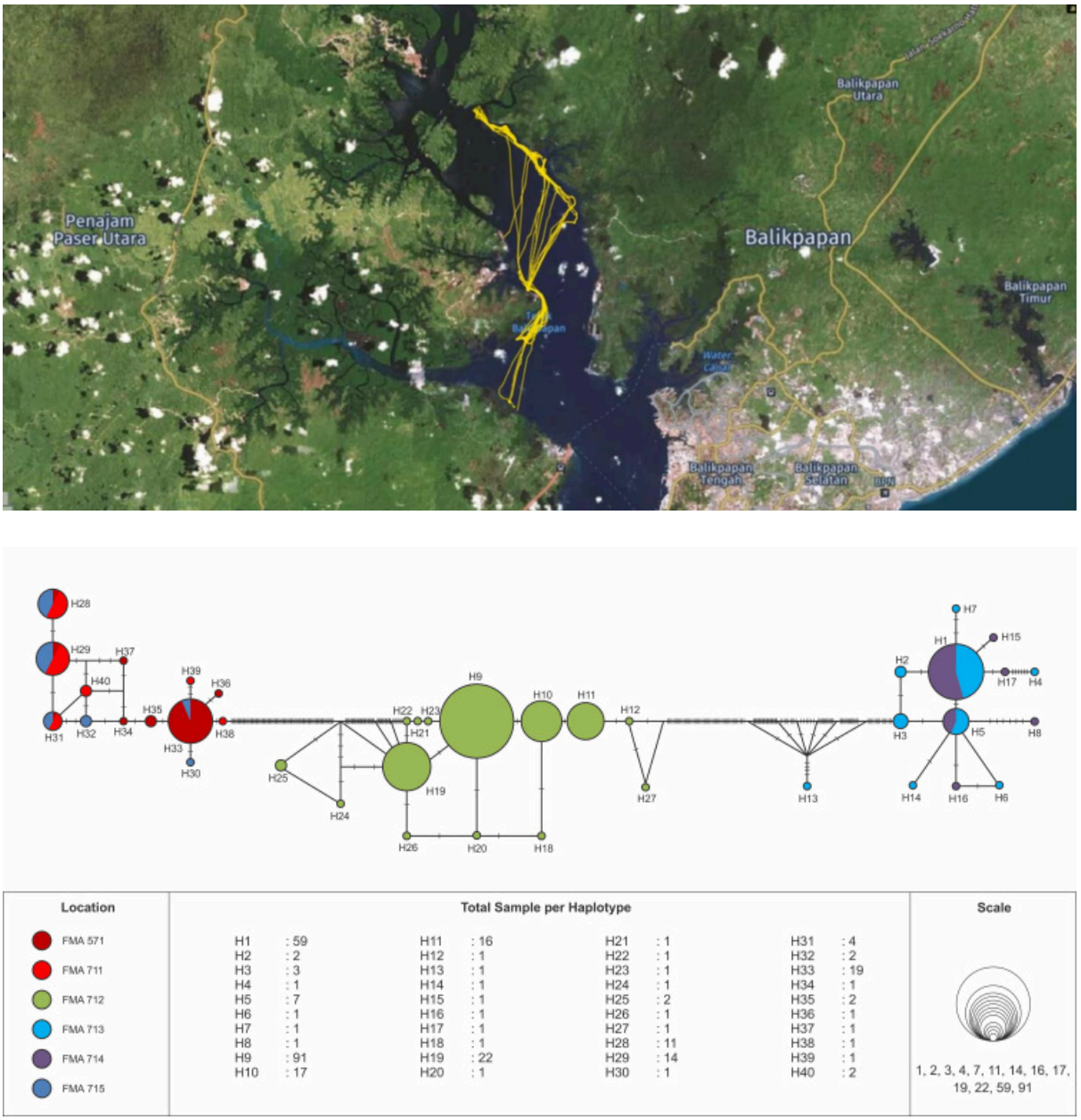


Figure 3. The connectivity of BSC in Indonesia waters (FMA 571, 711, 712, 713, 714, 715) which are forming different sub-population indicated through DNA connectivity relationship weakens in every population with a distance of at least 60 km (Madduppa *et al.,* 2021)

3.1.2 Principle 2: Minimising Environmental Impacts

The progress of FIP implementation in the 1st year certainly has not shown significant actions or achievements to minimize risk for the environment. Previous assessment mentioned that the operation of trap (bubu) and gill net within BSC fishing has a low impact on the environment (Bio-Inspecta, 2023). As to the impact on primary and secondary species to be above the biologically based limits, however, definite evidence to describe the selectivity of the fishing gears are not yet available to support measures to manage main primary and secondary species. The field observation (anecdotal data)

indicates any species used to be caught by the gears (as mentioned in pre-assessment document) and it is necessary to be provided with adequate data collection or assessment, as follows: *Scylla spp.*, *Lutjanus spp., Muraenidae spp., Scombridae spp.,* and others types of crab as well, i.e. *Portunus sanguinolentus* (three-spot swimming crab)*; Charybdis feriata* (Crucifix crab)*; Podophthalmus vigil* (Sentinel crab). The availability of landed-mud crabs, it seems to be considered as primary minor, has been reflected in MMAF Decree No.16/2022, whereas it is equivalent with other crabs as mentioned previously since they were included as priority in the newest BSC Fishery Management Plan (Figure 4, MMAF Decree No. 83/ 2022[5]).

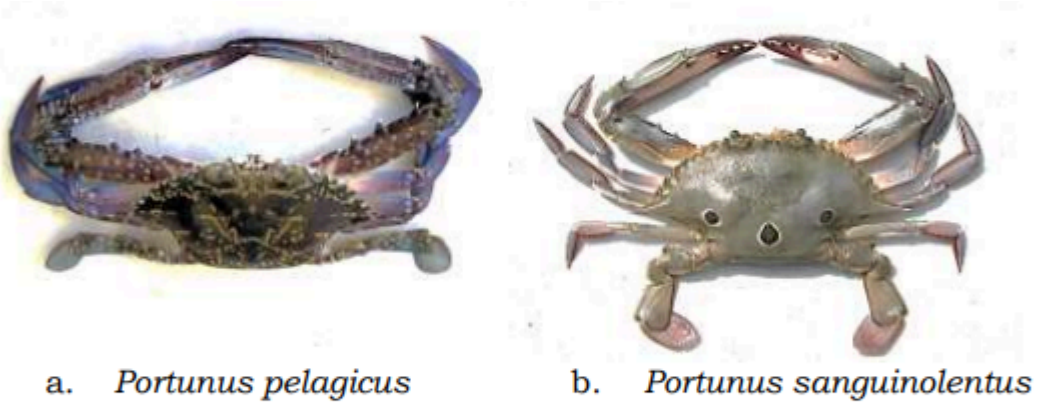
Figure 4. The catch of mud crabs from bubu operation in Jenebora waters

The catch composition of gill nets is highly likely more varied and abundant than the bubu as shown in the pre-assessment document (Bio-Inspecta, 2023). Apparently its technical operation affects the species variety as used to be set in more distant and open waters. It makes sense how the measurement is significant to figure out ETP interaction, such as: the turtles, horseshoe crab, sea otter, Irrawaddy etc. However, data records are unavailable to understand that the fishery is not hindering ETP recovery.

Figure 5. The target of crabs under BSC Fishery Management Plan (MMAF Decree No. 83/ 2022)

Filum	: Arthropoda;
Sub Filum	: Crustacea;
Kelas	: Malacostraca;
Sub-kelas	: Eumalacostraca
Super Ordo	: Eucaridae;
Ordo	: Decapoda;
Infra-ordo	: Brachyura
Famili	: Portunidae (Swimming Crabs);
Genus	: *Portunus*
Species 1	: *Portunus pelagicus (Blue swimming crab/ Flower crab)*
Species 2	: *Portunus sanguinolentus (Three-spot swimming crab)*
Genus	: *Phodopthalmus*
Spesies	: *Phodoptalmus vigil (Sentinel crab)*
Genus	: *Charybdis*
Spesies	: *Charybdis feriata (Crucifix crab)*

[5] *Keputusan Menteri Kelautan dan Perikanan No. 83. 2022. Rencana Pengelolaan Perikanan Rajungan.*

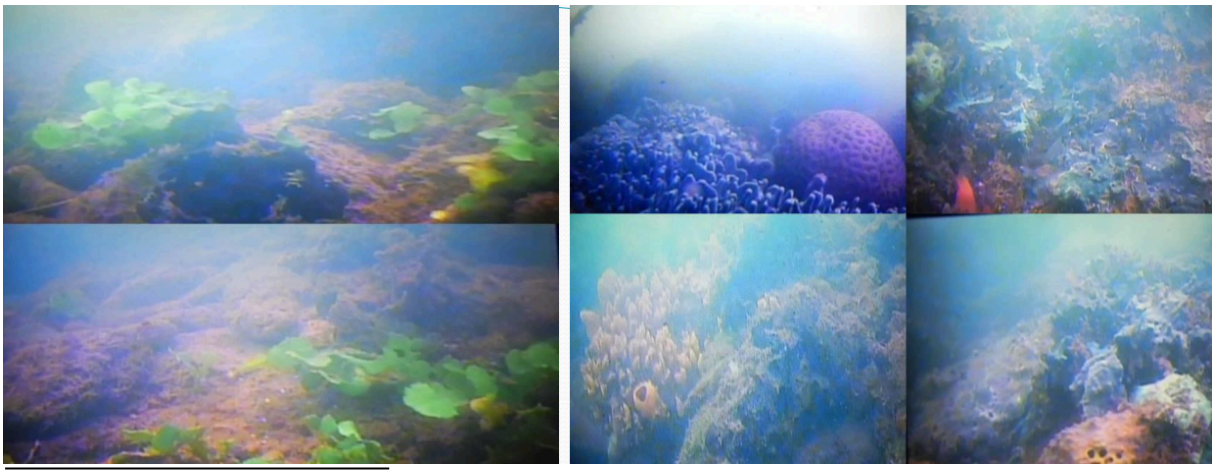


a. *Portunus pelagicus* b. *Portunus sanguinolentus*

c. *Phodoptalmus vigil* d. *Charybdis feriata*

Sumber: *Sealifebase.org*, 2021.

In addition, The BSC lives in sandy substrates mixed with mud close to mangroves and seagrass beds, but away from coral reefs. In accordance with report carried out by the East Kalimantan - Fisheries Agency (DKP, 2021) as stated trough RZP3K (Perda No.02/2021[6]) that the Balikpapan Bay is included as a general use area (Kawasan Pemanfaatan Umum/KPU), minimum coral reef colonies found, tending to be dominated by mud and algae with high turbidity (Figure 5). There are several colonies scattered in small groups, which come from the genera: *Porites, Montipora, Favia, Favites, Symphyllia, Goniopora, Fungia and Turbinaria*. Most of them were observed to have growth as solid blocks or massive lifeforms.



[6] *Peraturan Daerah Provinsi Kalimantan Timur Nomor 2 Tahun 2021 Tentang Rencana Zonasi Wilayah Pesisir dan Pulau-Pulau Kecil Provinsi Kalimantan Timur Tahun 2021-2041*

Figure 6. Scattered coral colonies found in Balikpapan Bay
(DKP of East Kalimantan, 2021)

Interesting issue that may arise is the overlapped-fishing ground between the mini-trawls which are operating in this area. Even though BSC fishing operations have no impact on the habitat, yet the threats potentially occur within the UoA and surely, affecting the condition of the tropical level within the ecosystem as well. The Balikpapan Bay facing any threats due to high intensity of activities exist within the area, integrated management for the ecosystem needs to be in place to prohibit serious or irreversible harm. This certainly needs to be paid attention in order to minimize the risks as linked to the action plan in principle 3 regarding compliance and enforcement and monitoring-evaluation.

3.1.3 Principle 3: Effective Management

The BSC fishery management in Indonesia is reflected through the BSC fishery management plan that is expressed by MMAF Decree No.7/ 2016. The main purpose of BSC fishery management is to provide direction and guideline for the government, including provincial government and other related stakeholders for the implementation of the BSC fishery management within the FMAs of Indonesia to support fishers wealth and sustainability of the fishery through specific actions and timeline during (2016-2021), which are focused on: a) Actualization the sustainable resources of BSC and habitat; b) Improvement on the economic benefit for the fishers; c) Improvement on the participatory of the stakeholders toward responsible BSC fishery management

This BSC fishery management represents short and long term objectives that are consistent with achieving the outcomes expressed by MSC's principles 1 and 2, and explicitly endorsed within the fishery-specific management system. The newest BSC Fishery Management Plan was updated through MMAF Decree No.83/ 2022 with several objectives changes after review and evaluation already addressed, by focusing on the sustainability of the BSC resources and ecosystem; the prosperity for the fishers and community; and increasing the effectiveness of the fisheries management both province and FMAs level toward responsible BSC management in Indonesia. The specific targets, and indicators are clearly expressed within the 5 years-action plan (2022-2027).

The availability of this management plan is a main basis for the local BSC management in the East Kalimantan Province, especially in Balikpapan Bay. The strategy to localize the action plan into specific action within the UoA is kind of interesting to address by emphasizing local platforms that consist of key stakeholders for BSC management in Balikpapan Bay. Several local issues identified in the operation of the BSC fishery are happening in the coastal zone in Balikpapan Bay, which is involved within the territorial zone (<12 nm) by using small-scale fishing vessels (<5 GT). Likewise the Balikpapan Bay was certainly dominated by small-scale fishing activities, with crowded movement within the bay used to overlap with the shipping channels in the estuary/ front area. Potential conflict arises within the fishers regarding spatial issues and rights for fishing as their fishing ground, i.e. operational mini-trawl with gill net fishers.

The availability of the consultation platform is needed to provide an inclusive mechanism for fishery management development within UoA. Thus, the efficiency of the platform to seek and accept relevant information, including local knowledge, and local issues to be considered for the local management level (according to the BSC stock tends to form a separate subpopulation within about 60 km, the consultation process could be localized). The consultation platform is also to make sure the decision-making process can solve serious and other important issues identified through consultation in an approach of transparency, timely and adaptive manner and take account of the wider implications of decisions.

Regarding surveillance and enforcement, collaboration has been initiated by the DKP Province of East Kalimantan through PSDKP; PSDKP-MMAF; and several POKMASWAS group in East Kalimantan, to build monitoring mechanism that any violation and conflict on the ground could be recorded by the POKMASWAS then used to deliver to the PSDKP for the further enforcement. The process of monitoring, control and surveillance demonstrated under clear corridors and regulation as the main basis by the enforcers which is expressed by the MMAF through Decree No.31/2021[7] regarding imposition of administrative sanctions in the maritime and fisheries sector.

4. Annual Progress at Performance Indicator Level

4.1 Principle 1

Principle 1 - Performance Indicator Level Score Changes and Rationals		
1.1.1 - Stock Status	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	<60	The assessment of the BSC under P1 must consider the status of the UoA rather than the UoC i.e. All BSC in Makassar Strait rather than Balikpapan Bay in isolation. The available stock assessment is conducted at the FMA level which is appropriate for the stock. However this is based on limited data and of unknown accuracy. Consequently a risk based framework was used to evaluate the stock status. Fishers reported a range of impacts on the stock including changes in the spatial distribution, reduction in abundance, reduced size and a reduction in the number of berried females. There was limited evidence available to assess the extent of these impacts. Combined with the overlap of all fisheries with BSC this resulted in the RBF failing to meet SG60.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	<60	The BSC fishery in FMA 713 based on the Ministerial Decree of KP No.19/2022 are in an over-exploited condition. Meanwhile, the data presenting the crab stock in UoA is not yet known, the data is not available. The

[7] *Peraturan Menteri Kelautan dan Perikanan No.31. 2021. Pengenaan Sanksi Administratif Di Bidang Kelautan Dan Perikanan*

		pre-assessment results using RBF are in a high risk condition. SG 60 is not met.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track
1.1.2 - Stock Rebuilding	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	NA	The RBF was used to score PI 1.1.1, so PI 1.1.2 is not scored despite PI 1.1.1 scoring <80.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	NA	The strategy and information that indicate the success in BSC fishery rebuilding in UoA is unavailable. In addition, the previous analysis used RBF as a tool to score then PI 1.1.1 is NA.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track
1.2.1 - Harvest Strategy	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	<60	A harvest strategy has not been developed or documented. Many management aspects that are required to form the basis of a harvest strategy are not in place.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	<60	The utilization strategy of BSC fishery in UoA is unavailable, The existing HS is only available in FMA 712. Thus, SG 60 is not met.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track
1.2.2 - Harvest Control Rules and Tools	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	<60	A harvest control rule has not been developed and no mechanism is in place to control catches or reduce exploitation rates as the PRI is approached.

	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	<60	The HCR to support management of BSC utilization in UoA is unavailable. SG 60 is not met.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track
1.2.3 - Information and Monitoring	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	<60	Catch monitoring from the UoA has only recently commenced but does not cover all retention of BSC. It is unclear which fishers are part of the UoC. Daily logbooks are not used. No other indicators of stock abundance are available.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	<60	The supporting information for BSC fishery through data collection under the UoA that provides stock indicators is unavailable. SG 60 is not met.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track
1.2.4 - Assessment of Stock Status	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	≥80	An RBF was used to score PI 1.1.1, consequently a default score of 80 is given to PI 1.2.4
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	≥80	Previous assessment using RBF and presenting SG 80 was met. (However, there has been no recent development related to the results of stock conditions based on using robust primary data)
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track

4.2 Principle 2

Principle 2 - Performance Indicator Level Score Changes and Rationals		
2.1.1 - Primary Outcome	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	≥80	There are no primary species. Default score is 100.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	60-79	Indicated changes that impacted to the classification of primary and secondary species which several new species were covered under the newest regulations (RPP for crabs and some newest regulations on mangrove crabs, lobsters and crabs management), reflected some species can be categorized and considered as primary, i.e.: *Panulirus spp; Scylla spp; P. sanguinolentus, P. vigil, C. feriata*. Their stock status can be referred to the Decree of the Minister of Marine Affairs and Fisheries No. 19/2022, where Mangrove Crabs (0.7, fully-exploited); Lobster (1.3, over-exploited), while for other crab species it is still unknown. SG 80 is not met.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	Behind
2.1.2 - Primary Management	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	≥80	In accordance with MSC interpretation dated 29 Aug 2018, this scoring issue at least meets SG 80 as the fishery does not need to have measures or a partial strategy in place because there is no impact on primary species.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	60-79	The action plan for the BSC Fisheries Management Plan/ RPP (Ministerial Decree of KP No. 19/2022) explicitly has clear targets, objectives, and time frames. Including several strategies to maintain abundance conditions (stocks), and several strategies that are quite convincing can be implemented to support the management of primary species in UoA. Also relevant to the existence of the Ministerial Decree of KP 16/2022. However, how the plan executed is highly likely ineffective yet. Thus SG 80 is not met.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study

		(secondary information); field observation and depth-interview)
	Progress	Behind
2.1.3 - Primary Information	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	<60	Even though there are no primary species in the fishery, the information is not adequate to support any measures to manage these species should they become primary. There is some qualitative information from the fishers on what species are caught but no quantitative information to assess the impact of the UoA on primary species and whether they are main or minor species. The qualitative information was provided for both UoAs: bubu and gillnet.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	<60	The specific information and data related to primary species in the UoA are not available. SG 60-79 are not met.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track
2.2.1 - Secondary Outcome	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	<60	Secondary species were assessed using the RBF methodology. Two scoring elements (species), the three spot crab for UoA 1 and the sea catfish for UoA 2 received MSC score of < 60 and are considered high risk.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	<60	The status of the presence of secondary species included in the UoA is unavailable. SG 60 is not met.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track
2.2.2 - Secondary Management	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	<60	RBF discussions confirmed there is a range of secondary species caught in the fishery using both gear types. For crab and lobsters, Reg. 16/2022 has

		measures in place concerning the prohibition of catching undersized and berried lobster (*Panulirus spp*.) and crab (*Scylla spp*.) and blue swimmer crab *(Portunus spp.*). Therefore, measures are in place to protect crab (and lobster) species such as Scylla serrata and *Portunus sanguinolentus.* There are no management measures available for some of the main secondary species (other crab species like the Crucifix crab or stone crab) caught in the BSC bubu fishery. Similarly, the team is unaware of any measures in place for species caught in the gillnets such as common stingrays and sea catfish.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	<60	The management strategy for secondary species under the UoA is unavailable. SG 60 is not met.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track
2.2.3 - Secondary Information	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	<60	Qualitative information from fishers was provided during the RBF discussion to support the RBF scores. There is no quantitative information available. In many cases, the identification of the main species has not been confirmed and there is no quantity, size or trend data to inform management options.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	<60	The specific information and data related to secondary species in the UoA are unavailable. SG 60-79 not met.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track
2.3.1 - ETP Outcome	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	60-79	Records on interactions with ETP species in the fishery are not collected. Fishers indicated during interviews that turtles are observed bumping into gillnets and swimming away with one entanglement noted. Otter species are considered a pest to fishers with regular interactions. Direct effects of otters interacting with bubus is unknown. Nonetheless, the RBF scored turtles and otters at low risk with a score of 84 and 82 respectively. For these scoring elements, it would be

		considered highly likely that the fishery does not hinder recovery. However, although horseshoe crabs are released alive there is no information about post capture/unobserved mortality on these protected species and the RBF scored this scoring element at 68 with a medium risk.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	60-79	Several types of ETP species have been identified that are potentially disrupted in BSC fishery practices in Balikpapan Bay. The availability of horseshoe crab; sea otter; irrawaddy dolphin; hawksbill sea turtle. Unfortunately, there is no definite information about this, but it likely indicates that crab fisheries practices do not disrupt the population recovery process of ETP species. SG 80 is not met.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track
2.3.2 - ETP Management	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	<60	Regulation for the Protection of Plants and Animals (The Minister of Environment and Forestry of the Republic of Indonesia Reg 20, 2018) includes the horseshoe crab and hawksbill turtle. However, to our knowledge there are no specific measures in place to minimise the capture and mortality of the species. There is no evidence of any measures that consider sea otters even though they are an ETP under the MSC definition. The RBF considered the horseshoe crab at medium risk which indicates that measures may be required. There is no evidence of a review of alternative measures to minimise mortality of ETP species. For example, unobserved mortality of horseshoe crabs may occur due to the common capture of this species. A review of gear specifications and placement to reduce interactions with this species has not occurred.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	<60	The regulations of protected ETP species in Indonesia are reflected through MoEF Decree No.20/2018. However, there has been no proper monitoring of BSC fishing activities within Balikpapan Bay. Some information related to Irrawaddy dolphins is partially available (but it is indicated that their interaction with nets is also minimal), while for ETP species caught rate through specific monitoring in this BSC fishery (especially nets) is unavailable. SG 60-79 are not met.

	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track
2.3.3 - ETP Information	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	60-79	There is adequate qualitative information to assess productivity and susceptibility for ETP species in an RBF context. During the site visit fishers indicated that interactions with horseshoe crabs and berang berang (sea otters) is a regular occurrence with gillnets and bubus respectively and more information is required.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	60-79	Anecdotal information regarding potential ETP catches is available from fishermen, but definitive data to ensure that no ETP affected is absent. SG 80 not met.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track
2.4.1 - Habitat Outcome	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	≥80	The nature, distribution, and vulnerability of main habitat types in the fisheries area is not documented and very limited. According to La Sara et al. (2016) the BSC is found in sandy substrates mixed with mud close to mangroves and seagrass beds, but away from coral reefs. Apriliyanto et al. 2014 also found that crabs are found in mostly muddy substrate in Central Java. Fishers confirmed this at the site visit. The habitats of the blue swimmer crab are muddy/sandy areas only. The impacts on habitats are not known but can be inferred given the relatively passive nature of the gears used. The RBF was used to score this indicator and also indicate that habitats are at low risk (see Appendix 8.3) with scores of 97 and 95 for both gear types. From interviews with fishermen we know that fishing gear is sometimes lost but is usually retrieved at some stage. There are no VMEs identified within the fishing grounds although this would need to be confirmed during a full MSC assessment given the capture of some species such as moray eels and grouper which are often reef dwelling fish.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-

Current Year (2024)	≥80	The operation of traps (bubu) and gillnets are highly likely to have minimal risk to the habitat, considering the habitat conditions are dominated by muddy sand. SG 100 is met.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track
2.4.2 - Habitat Management	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	≥80	As the risk assessment using the MSC RBF methodology indicates that habitats are at low risk measures may not be necessary and a default score of 80 is likely.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	≥80	Automatically SG 100 is achieved.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track
2.4.3 - Habitat Information	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	60-79	A CSA was used to score this 2.4.1 using information from fishers who had been fishing on the fishing grounds for many years. The information is purely qualitative. Fishers confirmed that the habitat was all a sandy/muddy bottom close to the coastline. They confirmed that they had not seen any habitat type organisms (e.g. seagrass, sponges or coral) that would suggest there are VMEs in the fishing grounds. Fishers advised there were no in water observations of habitat due to the presence of saltwater crocodiles which is a safety risk. There is no information on distribution of habitats. Habitat surveys are not being conducted. With the introduction of GPS on fishing vessels, the fishing area and footprint information will be available and changes to the fishing area will be detected. It is unclear as to whether this information will be used to detect any increased risk to habitats.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	≥80	No high risk for the habitat. Automatically SG 100 is achieved.

	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track
2.5.1 - Ecosystem Outcome	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	60-79	The largest impact is considered to be the removal (harvest) of the target species and other retained species due to high fishing effort in a fairly localised area and some concerns about the status of the BSC stock. BSC prey upon molluscs and crustaceans which are also found in traps during fishing activities. BSC are prey to fish, turtles, rays and otters in some areas of the Indo-Pacific. The high fishing effort of the BSC trap and gillnet fisheries may affect the trophic structure and/or species composition of the ecosystem but unlikely to a point where there would be serious or irreversible harm. Given the limited information available, this PI was assessed using the MSC's RBF and the SICA was conducted, resulting in an MSC score of 60.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	60-79	The condition of the ecosystem as an impact on BSC fishery is still unknown, it is predicted that the impact of crab fisheries will not change the balance of the ecosystem (tropical cascades), but there is no definite data or information to cover this PI. SG 80 is not met.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track
2.5.2 - Ecosystem Management	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	60-79	There are some management measures in place (e.g. minimum size limits and protection of berried females for blue swimmer crabs and lobsters, prohibition of use of trawl gear) to ensure the fishery does not pose a risk of serious or irreversible harm to the ecosystem. These measures are considered likely to work based on general theory, but there is no evidence the measures are being implemented successfully since undersized crabs are still caught and sold locally.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	60-79	Specific strategies for ecosystem management are not

		yet available comprehensively. Other partial strategies that can contribute to ecosystem management are reflected in the BSC RPP, as well as several other related regulations through the planning zone of East Kalimantan (RZ) and MMAF Decree No. 16/2022. Then how this planning and regulation executed through monitoring is unclear and overlapped. SG 60-79 are met.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track
2.5.3 - Ecosystem Information	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	<60	The industry is aware of trophic relationships in the area. For example, species that prey on blue swimmer crabs include octopus, parrotfish, otters and moray eels. Fishers noted that the BSC feed mainly on small fish. However, the level of information on impacts from the UoAs on components such as catch of non-target species, biological data and impact on trophic structures of the ecosystem is not adequate. Apart from GPS monitoring and some data on the catch of BSC there is no other monitoring which would allow detection of an increase in risk to the ecosystem.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	<60	There is no convincing information available regarding the impact of BSCfishery in order to maintain ecosystem balance within the UoA. SG 60 is not met.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track

4.3 Principle 3

Principle 3 - Performance Indicator Level Score Changes and Rationals		
3.1.1 - Legal and Customary Framework	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	60-79	The Indonesian government already has an effective national legal system and a framework for cooperation with other parties necessary to deliver management outcomes consistent with MSC Principles 1 and 2 which meets SG60. However, the cooperation among parties is not yet well-organized or effective. For example, the

		stakeholder consultative platform (namely the Fisheries Management Unit or often known as Fisheries Management Council) is not yet optimally functioning to accommodate active participation of stakeholders to support fisheries management.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	60-79	The legal basis for implementing sustainable fisheries management and supporting community welfare is represented through the 1945 Constitution; Fisheries Law 45/2009: an organized fisheries management system and cooperation between various relevant institutions in the transparency of fisheries management in Indonesia, including in resolving disputes and protecting human rights. SG 80 is not met.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track
3.1.2 - Consultation, Roles, and Responsibilities	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	60-79	Functions and roles such as how fishing license locations are formulated and/or calculated, consulted and decided especially by the responsible unit (agency) within the provincial government for the fisheries within their area of jurisdictions, are not always clear nor well-defined. It is not clear how the information obtained during the consultation process has been informed and/or being considered within the management system, especially that at the fishery-specific (BSC fishery) management system level in the East Kalimantan province.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	≥80	The Indonesian government has a clear structure, role, authority, and area of responsibility in accordance with their respective duties and functions as well as other existing laws or derivatives in supporting fisheries management, including providing opportunity (consultation) for all relevant parties. SG 100 is met.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track

3.1.3 - Long Term Objectives	Draft Scoring Range	Rationale or Key Points
The Latest BMT Score	≥80	The long-term objectives for the Indonesian fisheries management are described in Article 3 of the Fisheries Law. In addition, the BSC fisheries management objectives are stated within the Ministerial Decision No.83/2022 concerning Blue Swimming Crabs (BSCs) Fisheries Management Plan. These objectives are consistent with the MSC Fisheries Standard.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	≥80	The main objective of fisheries management in Indonesia is reflected in the 1945 Constitution; Fisheries Law 45/2009 towards sustainable fisheries management and community welfare. SG 100 is met.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track
3.2.1 - Fishery Specific Objectives	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	≥80	The BSC fishery management objectives that are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the management system. While the short-term objectives in the Harvest Strategy align with outcomes expressed in MSC's Principle 1.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	≥80	Specific fisheries objectives are available through the updated BSC RPP (MMAF No. 83/2022) where the objectives to be achieved are in line with P1 & P2 MSC, supplemented by several references related to HS. SG 80 is met.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track
3.2.2 - Decision Making Processes	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	<60	Although the decision-making process to produce specific measures and strategies within the fishery-specific management system is in place, the management system does not respond to serious issues, e.g., the newly recommended minimum legal

		size of crabs which is larger than that currently applied, that could ensure the stock reproductive potential, identified in relevant research (scientific publication) in a transparent manner. Also, there is no indication of regulation that could directly limit/reduce the already currently highly utilized BSC fishery. Similarly, there is no clear indication stated in the BSC Fishery Management Plan, on things like efforts limitations and/or reductions that could directly address the high level of utilization mentioned above.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	60-79	The decision-making process involves various relevant parties in management. Public consultation in formulating regulations, such as: the development of the BSC RPP regarding measured fisheries, etc. Information on fisheries status and the RPP action plan is updated regularly (5 years). However, there is no evidence to show that the decision-making process using the precautionary approach. SG 80 has not met.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track
3.2.3 - Compliance and Enforcement	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	<60	The fisheries MCS mechanisms are in place, but only very rarely implemented therefore no expectation that the activities would be effective. There is no regular data collection in place which means fishers do not provide information important for the BSC effective management. The compliance tools are not effective in eliminating systematic non-compliance and the lack of compliance, as fishers are still continuously catching and retaining undersized and berried females. Although enforcement effort has been raised as a priority issue in the BSC Management Plan and action plans, still no record of surveillance and enforcement activities taken place within this fishery, so the actual non-compliance and/or violations detections are absent. Also, not all small-scale BSC fishing boats have obtained valid proofs of registration (Tanda Daftar Kapal Perikanan/TDKP).
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	60-79	Several issues were found related to overlapping fishing areas between net operations and bottom trawls in surrounding Balikpapan Bay (as per the rules of fishing gear routes and operations). Several efforts to resolve the issue have been made but have not been effective

		and there is no evidence that overlapping incidents can be minimized/resolved. On the other hand, how the fleet can be registered is still unavailable. SG 80 is not met.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track
3.2.4 - Management Performance Evaluation	**Draft Scoring Range**	**Rationale or Key Points**
The Latest BMT Score	≥80	There is a mechanism and requirement in place to periodically evaluate and review the BSC fishery stock status and BSC Fishery Management Plan. Evaluation activities are coordinated by the DGCF involving relevant government units at both central and provincial governments level. The Management Plan is evaluated annually and reviewed (renewed) every five years. The implementation of fisheries management plans and action plans by the fishery managers (in this regard, the Directorate for Fish Resources Management of the Directorate General for Capture Fisheries of MMAF and the Fisheries Agency/DKP at provincial government level) are also periodically evaluated by both internal and external auditors.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023
	Progress	-
Current Year (2024)	≥80	The review and evaluation process of BSC RPP was carried out at least once or twice a year, and a comprehensive review of management is carried out in a 5-year period. The existence of the current crab RPP (Kepmen KP No.83/2022) as the result of an update of the previous RPP by adapting several reflections from the previous RPP.
	Reference	Pre-Assessment Report. Bio-Inspecta. 2023; Desk study (secondary information); field observation and depth-interview)
	Progress	On Track