



Supporting aquaculture development to boost fisheries productivities

## FAO promotes aquaculture in pilot sites in Indonesia and Timor-Leste to enhance small farmers' productivities and livelihood.

ISLME November 2022: In the second semester of 2022, the Indonesian Seas Large Marine Ecosystem (ISLME) kicked start aquaculture projects in Indonesia and Timor-Leste, both are part of the ISLME area.

In Indonesia, the ISLME project piloted in end of September 2022 the integrated multi trophic aquaculture (IMTA) in two villages, namely Pemokong and Gerupuk both in the West Nusa Tenggara province. Both sites, managed by the Mataram University (UNRAM), have shown some encouraging progress. The pilot site in Pemokong village has recorded its first seaweed cultivation harvest on 2 November 2022, totaling around 1 400 kg. The harvest was then divided into 1 300 kg for new seeds and 100 kg for dried seaweed.

The IMTA is an approach where several species are grown at the same time and at the same facility. In this approach, the waste from one commodity is used as feed or fertilizer for other species and thereby reducing the environmental impacts from the system. The approach increases fisheries productivities and small-scale farmers' wellbeing. For this IMTA approach, fisheries commodities being grown are lobster, abalone, silver pomfret and seaweed.

"We closely observe the current IMTA implementation through monitoring and evaluation activities. Among other lessons we noted is the need to use weights to ensure that the bamboo raft for the seaweed can stay submerged to ensure proper growth," said Dr. Nurliah Ocha from Mataram University (UNRAM).

There are 12 bamboo rafts being used in Pemokong village each sized 10 metre X 10 metre. The harvest was from three of the 12 rafts. While in the Gerupuk village, 15 bamboo rafts of the same size are used of which four are specifically designated for seaweed seeds and are managed by community groups.

West Nusa Tenggara has a huge potential for the selected commodities: seaweed, lobster, abalone and silver pomfret. The combination of the species also allows local farmers to have continuous earnings since the seaweed can be harvested in cycles. Seaweed is ready to harvest

every 30-45 days, silver pomfret after eight months and lobster for around five to eight years, while abalone which feed on seaweed and kelp can be harvested after six years. This activity is a follow up of an ecosystem approach to aquaculture assessment for seaweed conducted in October 2021 by WWF with FAO and MMAF support.

In Timor-Leste, ISLME project partners with the Ministry of Agriculture and Fisheries initiated a small-scale sea cucumber culture in Metinaro. The initiatives involve a group of ten people, with various backgrounds including aquaculture, capture fisheries and processing, to manage a 4 m x 6 m cage with around 270 sea cucumber seeds. Teofilus Filipus Guzman, an aquaculture practitioner involved in the initiative said that sea cucumber culture is very feasible. The seeds are relatively easy to catch, the site has huge potential, the feed is cheap and widely available. "Demands for the commodity is also promising and growing, especially around Chinese holidays and New Year. The market prefers both dried and fresh sea cucumber," said Teofilus.



Farmers prepare sea cucumber feed mix

Both the project in Indonesia and Timor-Leste are pilot initiatives which will be replicated for wider adoption at the community level. The people involved in the project will share the knowledge and skills to improve the success rate.

## MMAF and FAO agree for ISLME project no cost extension

BOGOR, West Java, 23-24 November 2022: In a two-day meeting, FAO and the Ministry of Marine Affairs and Fisheries (MMAF) agreed to the Indonesian Seas Large Marine Ecosystem (ISLME) project's one-year period of no cost extension. Both meet to finalize the Implementing Agreement, to design concrete workplan and budget allocation until January 2024, highlighting some pending priority activities.

ISLME National Project Coordinator and MMAF Director for Fish Resources Management Mr. Ridwan Mulyana said that the no-cost project extension was agreed by Indonesia,

Timor-Leste and FAO with MMAF as executing partners and FAO as the implementing agency. The ISLME covers 98 percent of Indonesian waters and 2 percent of Timor-Leste waters.

"With the extension, we hope ISLME project can be conducted in a manner that is accountable, on-time and with good quality results. We need to evaluate the current implementation to better inform 2023 activities in order to accelerate achievement of targets in the remaining time," said Mr. Ridwan. The key priorities for 2023 are among others the completion of the Transboundary Diagnostic Analysis (TDA), highlighting the transboundary threats in ISLME area and the Strategic Action Plan (SAP), focusing on activities to address the threats. Both are to be completed in close collaboration with the National Scientific Advisory Group (NSAG) and a pool of fisheries and marine experts and with the guidance of an international expert. "We aim to complete the TDA-SAP documents so that these documents can be implemented in the next phase of ISLME project. There are some valuable findings to follow up," said Dr. Fery Sutiyawan, MMAF Coordinator for Marine, Territorial and Archipelagic Waters with the Dir. Gen. of Capture Fisheries.

In addition, emphasis was also given to complete the remaining national activities, which have been postponed due to COVID19 and to allow rooms for new, strategic initiatives such as socialization of Harvest Strategy for 713 and for the development of Harvest Strategy for 573. The project extension was initially agreed at the Regional Project Steering Committee in Bali, 23 August 2022, attended by representatives of FAO Indonesia, the MMAF of the Republic of Indonesia and the MAF of Timor-Leste.



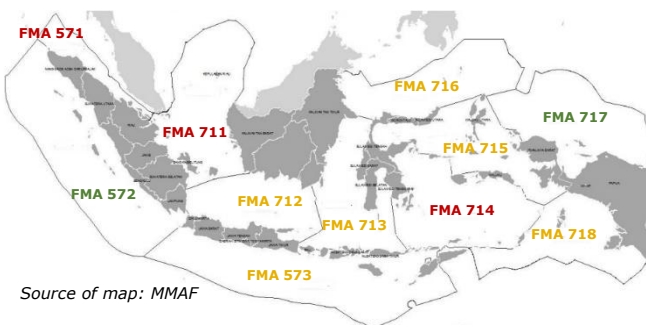
FAO Representative Mr. Rajendra Aryal (holding a mic), Mr. Lorenc Amaral from MAF of Timor-Leste (middle) and Mr. Ridwan Mulyana from MMAF (right) of Indonesia at the transfer of chairpersonship of ISLME Regional Project Steering Committee (RPSC). The next RPSC is to be held in Timor-Leste.

At the meeting, all parties agreed to facilitate knowledge sharing to facilitate adoption of best practices and lessons learned, especially from activities related to ending IUU fishing, supporting small scale fisheries, monitoring-control-surveillance, boat and fishing gear registration, among others, obtained during project implementation for improved sustainability of the ISLME area.

## MMAF, FAO step up efforts for mud crab sustainability

BANJAR BARU, South Kalimantan, 31 August 2022: Protecting mud crab (*Scylla* spp.) sustainability is a fisheries sector's priority to secure long-term livelihood, food source, economic potential and wellbeing, especially for farmers/fishers and coastal communities who rely on this high value commodity. The Ministry of Marine Affairs and Fisheries (MMAF) and the Food and Agriculture Organization of the United Nations (FAO) partner to step up efforts and foster stronger participation through the development of mud crab fisheries management plan (FMP) from drafting and later for its enforcement phases.

Mud crab stock and resources conditions are closely related with the condition of local mangrove ecosystem. Land conversion and unregulated human activities and infrastructure development in and around mangrove areas directly affect mud crab natural habitat which will in turn decrease its population and production. This is compounded by the increasing market demands, including for export. Following years of increasing harvesting, mud crab utilization status in Indonesian waters is described as follow:



Source of map: MMAF

### Map information:

- moderate exploitation (in green): FMAs 572 and 717
- full exploitation (in yellow): FMAs 573, 712, 713, 715, 716 and 718
- over exploitation (in red): FMAs 571, 711 and 714

During an initial stakeholder consultation, it was stressed that mud crab fisheries needs to be managed using responsible farming and strictly regulate wild crab fishing/catching, while at the same time, intensifying the restoration of mangrove forests and ecosystem to create a favourable natural habitat for the species to spawn, grow and repopulate.

The GEF/FAO ISLME-supported consultation is one of a series of activities for the country's first Mud crab Fisheries Management Plan (FMP) development. The activity is commissioned to local Lambung Mangkurat University (UNLAM). The consultation was attended by academia, policy makers, NGOs, representatives of private sectors, mud crab fishers and farmers to gather inputs and observations. The FMP will cover fisheries resource,

environmental, social-economic and governance aspects; identify mudcrab indicators (current, benchmark and target to achieve in a five-year period), describe management plans by relevant authorities and evaluation after a two-year and a five-year implementation. Once finalized, the mud crab FMP will be implemented throughout the 11 fisheries management areas (FMAs) in Indonesia and to be reviewed every five years.

The MMAF regulation no.17/2021 on the Management of Lobster (*Panulirus* spp.), Crab (*Scylla* spp.) and Blue Swimming Crab (*Portunus* spp.) Fisheries in Indonesia states rules for catching of mud crabs for consumption, specifically banning the capture of berried crabs, or crabs with a carapace width of less than 12 centimetres or weigh less than 150 grams per crab; and it requires the use of environmentally safe, passive gears. While capturing mud crabs for farming purposes is allowed in adherence to regulations and authority recommendations, or crabs having a minimum weight of 60 grams per crab, done using environmentally safe gears and by registered crab farmers.

Prof. Yushinta Fujaya from UNLAM stressed the need to continuously monitor and control the capture and smuggling of berried crabs, which she admitted is difficult to do due to lack of monitoring and control officers; and due to the poor awareness on crab lifecycle and regulations among farmers and fishers that lead to irresponsible utilization practices.

Farming and capture, she said, should be regulated. Regulation to control utilization of wild crabs is needed and should be done in parallel with intensifying stock enhancement program, including promoting hatchery, farming and crab ponds developments and quality feed production. "This is again not an easy task but should be done as a priority otherwise mud crab stock will continue to decline," said Prof. Yushinta, citing an experience from the US where catching has been regulated in the last 10 years but crab stock continues to drop.

She pointed out the prevailing misconception among fishers/farmers about mud crab farming. Farming, she explained, is about growing crabs from eggs (hatchery) to adult crabs, ready for consumption. "Farming is not the same with capturing small crabs in the nature and raise them in the farming facilities until they are ready to market. It's a widely held misconception since it still relies on wild caught crabs," she explained.

FAO Bangkok-based senior fisheries officer Simon Funge-Smith explained separately that crab fattening uses wild caught seed and it is only sustainable if the seed used are hatchery crablets or large post mature animals that have had the potential to spawn at least once.

In a follow up meeting to share activity progress on 30 November 2022, UNLAM proposed action plan that include

protecting the mangrove forest cover and mud crab ecosystem for mud crab breeding, feeding and spawning grounds, promote mud crab farming, mitigate climate change, create a market system that is beneficial for the key stakeholder and for mud crab sustainability, empower and promote the role of community-based watch and fishers/farmers group in mud crab fisheries, address marine litter and expand conservation zones.

“There has been a declining mangrove forest due to land conversion for other economic purposes. Substantial land conversion should be prevented and in the future, it should be carefully planned and managed with good involvement of inter-sectoral stakeholders and the fisheries and marine resources sustainability. This is not an issue to be handled by MMAF alone. The mangrove reforestation should be designed not only to increase mangrove cover and density but also to specifically create favourable condition for mud crab restocking,” said Muhammad Syahdan from UNILAM Learning Center for EAFM.

## Indonesia initiates review of ecosystem-approach to Lobster fisheries and formulation of Lobster Fisheries Management Plan (FMP)

JAKARTA, Indonesia, 6 July 2022: Indonesia’s lobster (*Panulirus* spp.) fishery has a huge production and economic potentials with high export-oriented market. It is considered a luxury commodity, which is much sought after, especially during special celebrations, such as the Chinese New Year. In 2019, Indonesia exported around 1.633 tonnes with a value of USD 33 million. The Ministry of Marine Affairs and Fisheries (MMAF)’s 2022 data showed that lobster utilization in seven out of Indonesia’s 11 Fisheries Management Areas, have reached over exploited level and have been fully exploited in the remaining four FMAs. Indeed, for decades, lobster fisheries

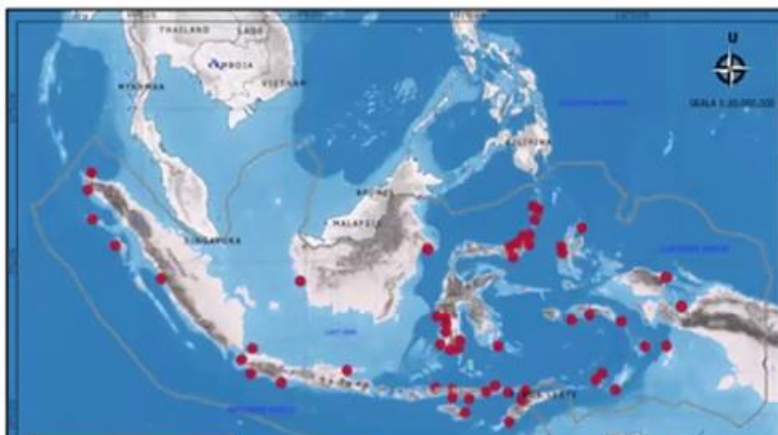
and marine resources were poorly regulated until around 2016 when the government through the MMAF issued policies to ban the capture of lobster seeds (except for aquaculture purposes) and to set limits for wild-caught adult lobsters. In recent years, the MMAF doubles down on efforts to ensure responsible and sustainable management of lobster fishery for its long-term potential.

In close partnership with FAO, MMAF initiated (a.) the review of Lobster fisheries management and (b.) the formulation of the Fisheries Management Plan (FMP). Both processes, commissioned to a fisheries NGO Yayasan Mitra Laut Sejahtera, include forming a team of experts, data and information collection, developing initial draft FMP, expert/technical stakeholder consultation, finalization of the FMP document, slated for completion in end of October 2022. The FMP will then be officially launched for implementation. This is done under the GEF/FAO-supported the Indonesian Seas Large Marine Ecosystem (ISLME) project.

The review of Lobster fisheries activity starts with a kick-off meeting held today. The review process looked at the current status of lobster fisheries from the ecosystem-based fisheries management (EAFM), covering fish resources (estimated potential, total allowable catch and level of lobster utilization), the environment, social and economic and governance aspects. For the development of FMP, the steps included scoping study, identification of priority issues and formulation of the objectives, the targets and proposed action plans. In line with the MMAF Regulation No.22/2021, the implementation of action plans and its achievements will be monitored every year, while the review of FMP will be carried out after five-year implementation.

“The technical stakeholder consultation should involve provincial and district-level Offices of Marine Affairs and Fisheries. It needs to be optimally utilized to identify: real,

### Lobster Fishing Areas in Indonesia



Source: MMAF

**SUMATERA:** Simeuleu waters, We island, Meulaboh, from Nias island to Mentawai island, Bengkulu

**JAVA:** South Java (Binuangun, Pelabuhanratu, Pangandaran, Cilacap, Kebumen, Gunung Kidul, Pacitan, Prigi), North Java (Seribu island, Karimunjawa, Madura)

**KALIMANTAN:** Singkawang waters, Karimata island, Bontang-Sangkulirang, Tj redep.

**SULAWESI:** Spermonde island, Bulukumba, Sinjai, Teluk Bone, Takabonerate island, Wakatobi island, islands in North Sulawesi

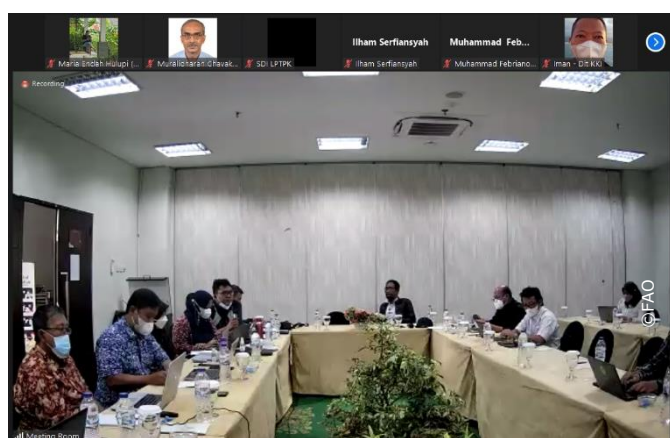
**BALI, WEST and EAST NUSA TENGGARA:** south of Bali, south of Lombok, north and south of Flores island, Timor and Rote islands.

**MALUKU:** Ternate, Ambon island, Seram, Kei island, south west Maluku

**PAPUA:** Biak, Cendrawasih Bay, Aru

concrete actions, the organizations in charge (OIC) and sufficient funding allocation so that the proposed action plan can be properly implemented to achieve the set targets. Stakeholder assessment should be done to ensure the organizations involved (as OIC for certain actions) really work in the lobster fisheries, have adequate funding and the capacity to deliver,” explained Dr. Fery Sutiyawan, MMAF Coordinator for Fish Resource Management of Marine, Territorial and Archipelagic Waters, Directorate General of Capture Fisheries (DGCF).

He presented the state process for policy development, the regulatory basis for the review and the expected outcomes. He added that lobster experts from across Indonesia will be involved for scientific inputs to the process.



ISLME NPO Dr. M. Lukman said the meeting is aimed to collect inputs to improve the methodology before conducting the field activities for data collection and stakeholder meetings. GEF/FAO ISLME project provides support to MMAF to ensure evidence-based policy analysis and formulation. It is a close partnership to ensure efficient development process. “The process is not strict but is adaptive to better respond to latest, real field condition. Currently, there are different data on lobster-related fisheries and the data collected in this review process will be analysed and validated for accuracy as a sound basis to inform policies and activities,” he explained.

A lobster researcher Dr. Bayu Priambodo stressed the urgency properly managing the country’s lobster fisheries. “Indonesia’s lobster and lobster seed potentials are high with high economic value. However, without proper management, it will not bring prosperity to farmers and fishers,” he said. He added that governance reform, improved human resources and conservation effort are priority. Involvement of academia and strong research for innovation are key investment. Different species have different biological characteristics: in terms of gonad maturity and carapace size, etc. “For example, pearl lobster bears egg after they reach around 700 gram-1 Kg. So if the regulation set the legal catch size of 200 gram, the species will go extinct,” Bayu explained.

Fery said from the FMP will focus on regulating wild caught adult lobsters, banning the catch of berried lobsters to ensure opportunities for breeding and spawning for restocking; and from the FMP document, MMAF will develop specific Lobster Harvest Strategy for each FMA to guide utilization at the field level.

### Addressing smuggling issues

Hedhi Kuncoro of DGCF Directorate of Fisheries Surveillance (DFS) said that his office is ready to support with relevant surveillance data, such as ship worthiness certificate (SLO) and other data from surveillance operation. He also highlighted the continued smuggling issues in some areas and often with the involvement of fisheries actors. Smuggling is still a challenge that is difficult to address as it is driven by high value of lobster and lobster seeds and the high demand abroad.

“DGCF DFS unit has anti-smuggling operations in smuggling-prone areas, such as Batam, with speed boats to prevent lobster seeds from leaving the Indonesian waters. The stakeholder meeting needs to involve law enforcement apparatus so that efforts to optimally curb this illegal practice is built on sound regulatory basis and strong participation of all stakeholders, including lobster farmers and fishers,” he said.

### FAO empowers small-scale fishers to boost their roles in measurable fisheries



Discussion with representatives of fisheries community groups during a recent FAO, MMAF joint field visit to East Kalimantan.

JAKARTA, Indonesia, 23 August 2022: Indonesian seas have huge fisheries and marine resources and potentials. The Ministry of Marine Affairs and Fisheries (MMAF) 2020 data said Indonesia fisheries potentials has a maximum sustainable yield of around 62 million tonnes per year, of which 10.2 million tonnes per year from capture fisheries and 56.8 million tonnes per year from aquaculture: both salt and freshwater farming. Ensuring sustainable fisheries resources, utilization and growth require meaningful involvement of fisheries actors in all aspects.

Through its interventions, conducted closely with MMAF, the Food and Agriculture Organization of the United Nations (FAO) emphasizes on small-scale fishers (SSF) empowerment, designed to inform, empower and engage SSF in responsible fishing practices and in strengthening the role of elements of fisheries communities. The latter include fisher groups, community watchers, extension officers and women's groups for their engagement in sharing their observations: challenges, ideas and initiatives to continuously improve the existing fisheries management and policies as well as to help shape future ones.

“Their role is crucial, including in MMAF’s measurable fisheries program effectiveness. Indonesian fishers’ characteristic is predominantly small-scale fishers, comprising traditional, subsistence fishers and those with fishing boats under 5 Gross Tonnes. Empowering them is not only key to support fisheries resources sustainability but also SSF’s long-term productivity, wellbeing and active involvement in decisions and policy makings,” explain Mr. Rajendra Aryal, FAO Representative.

A 2021 data from the Ministry of Marine Affairs and Fisheries (MMAF) shows that there are around 5.2 million fishers in 2020, including 2.36 million fishers in capture fisheries and 287,732 people in marine aquaculture.

Through the Indonesian Seas Large Marine Ecosystem (ISLME) project, funded by the Global Environment Facility (the GEF) and conducted in close partnership with MMAF, one-stop services are held at project sites to facilitate SSF to obtain necessary permits and certificates, do boat and fishing gear registrations, use e-logbook and vessels monitoring aids (VMA) (in selected sites in West Java) to promote accurate, real-time reporting.

Public information campaigns were also organized to raise their awareness and promote their compliance to fisheries regulations for responsible fishing. The latter includes catch reporting, the use of non-harmful fishing gears, adherence to fishing quota and on safety at sea, among others.

“When equipped with reliable information and skills, SSF can get involved in safeguarding fisheries, marine and coastal resources, in restoring coastal areas, ending illegal, unreported and unregistered (IUU) fishing, and to act as food hero at family, community level and help strengthen national food resilience,” Mr. Rajendra said.

He added that the focus on SSF is in line with FAO’s SSF Guidelines: a tool to guide dialogue, policy processes, and action at all levels to foster SSF’s contributions to sustainable fisheries. The guidelines promote human rights, gender equality, decent work, consultation and participation and social-economic-environmental sustainability, among others.

The role of SSF and community-based groups is accommodated in all project aspects: from design, implementation and monitoring to strengthen capacity for ecosystem-approach to fisheries management (EAFM). EAFM is a holistic approach that look at the interconnection of existing fish stock and environmental, human, social wellbeing and governance factors for improved measures.

Among the key activities conducted include formulation of Harvest Strategy with Harvest Control Rules (detailing science-based management procedures for sustainable utilization), Fisheries Management Plans (or FMPs, detailing the relevant authorities, sea fish stock, indicators for monitoring, etc) and FMP reviews for selected fisheries commodities in ISLME-supported areas.

“Throughout the process community-based stakeholders, including representatives of fishers and coastal women’s groups are consulted because their insights are valuable for well-targeted policies. The trained extension officers also do community outreach to raise SSF’s awareness on policies and regulations, gather their concerns and ideas and foster their resourcefulness so SSF can be part of effective policy and program design and implementation,” Lukman said.

## FAO provided 60 Vessel Monitoring Aids to support digital literacy among small fishers in underserved areas and digital transformation in fisheries sector in West Java provinces.



JAKARTA, Indonesia, 18 October 2022: FAO provides 60 Vessel Monitoring Aids (VMAs) for small fishers in Banten and West Java provinces under the facilitating digital transformation pilot project among small fishers. Together with the Ministry of Marine Affairs and Fisheries (MMAF), FAO to jointly organize trainings on the proper use of VMA and empower fishers with skills and knowledge on safety at sea, catch reporting and compliance to regulations. This activity is conducted under the GEF/FAO supported the Indonesian Seas Large Marine Ecosystem (ISLME) project.

MMAF procured in mid 2021, 200 units of VMA distributed to small fishers in Banten and West Java provinces where

VMA transmission stations have been built and in operation. The additional 60 VMAs are to be distributed to three underserved pilot sites in the two provinces, such as Ciasem, Gabang Mekar dan Karangsong, selected based on criteria such as accessibility, availability of transmission towers and local needs. The VMAs are developed by and procured from PT Unggul Cipta Teknologi, while the training and assessment will be carried out by Faculty of Fisheries and Marine Science, Padjajaran University.

VMA has been recognized as a tool to support measurable capture fisheries among small scale fishers <10 Gross Tonnes. In Indonesia, according to MMAF data there are at least 400 000 vessels <10 GT. The device is used in fisheries management to track and monitor fishing vessels activities and to facilitate fisheries surveillance. Its key features include e-logbook, GPS, vessel tracking, fish finding, weather forecast information and SOS for prompt assistance in times of emergency. The device transmits real time vessel identification, fishing location, date, time, course and speed; and enables fishers to efficiently locate closer fishing sites with abundant fishes which help save fuel, ensure better catch per trip and allow fishers to report catch directly. On the other hand, the device facilitates fisheries policy makers and academia/researchers to access and analyse reported data for improved policies for sustainable fisheries management and protection of fishers' livelihood.

MMAF Dir. Gen. Capture Fisheries (DGCF) Director of Fish Resources Management Mr. Ridwan Mulyana emphasised the need to promote the use of VMA as it is in line with MMAF's traceable and measurable fisheries concept. MMAF also aims to facilitate the integration of VMA and DGCF e-logbook application. "To ensure optimal use of VMA and its features, specifically for catch reporting, we will immediately initiate the VMA-e-logbook integration with involvement of experts and IT." Effort is also underway to connect it with data from provincial/district fishing boats information system (SIMKADA).

MMAF is also currently assessing the on-going VMA utilization from the 200 users/beneficiaries and the findings will be useful to better inform future implementation and protect small scale fishers while they are at sea and their livelihood.

NPO for ISLME Dr. M. Lukman said the provision of VMAs is a strategic step in line with FAO's mission to support digital transformation in the fisheries sector. "FAO is committed to helping strengthen Indonesia's food resilience with strategic roles and initiatives in the future, including to promote digital literacy among small fishers in an effort to further cement digital transformation in the fisheries sector."

For the assessment, Dr. Yudi Nurul Ihsan from Padjajaran University pointed out that his team will work closely with

fishers and make good use of existing academic resources in preparing the assessment paper highlighting on the progress and challenges of VMA utilization as well as recommendations for future improvements.

## FAO, MMAF carry out finalization of the draft Fisheries Management Plans (FMP) for four ISLME-supported Fisheries Management Areas (FMAs) and for Blue Swimming Crab (BSC) fisheries

BOGOR, West Java, 4 October 2022: The Ministry of Marine Affairs and Fisheries (MMAF) and FAO are organizing a four-day meeting, until 7 October 2022 to finalize the draft Fisheries Management Plans (FMPs) for Fisheries Management Areas (FMAs) 712, 713, 714, 573 and for Blue Swimming Crab fisheries (BSC). Once finalized and endorsed, the FMPs will guide provincial administrations in the management of their respective FMAs and steer the national BSC fisheries management towards sustainability.

The FMP finalization process involves updating the draft FMPs with data and information to reflect latest fisheries conditions pertaining to stock status, distribution, utilization, social-economic aspects and the governance as well as with action plans. The activity is conducted under the GEF/FAO-supported the Indonesian Seas Large Marine Ecosystem (ISLME) project.



Blue Swimming Crab (BSC) working group members carefully inspect the content of the draft FMP for BSC fisheries to update and finalize it.

MMAF Director for Fish Resources Management Mr. Ridwan Mulyana highlighted the key challenges facing measurable fisheries in Indonesia include over fishing, degradation of fisheries resources and social-economic aspects. "Such challenges need to be captured and addressed through the FMP. Therefore, the FMP finalization process should integrate scientific evidence and latest condition to allow adaptive fisheries management, while at the same time promote the wellbeing of small-scale fishers," he said in his opening remarks.

MMAF Coordinator for fish resource management of Marine, Territorial and Archipelagic waters Dr. Fery Sutyawan explained that the FMP with its action plans should carefully balance the need for sustainable policies and regulations with the wellbeing of small fishers so that sustainable utilization, fishers' wellbeing and growth of the fisheries sector can all be achieved.

"The participants are from different expertise and are divided into groups based on their focus area to finalize the FMPs relevant with their domain. The meeting is part of a series of activities including kick-off meetings for coordination and ecosystem-based reviews of the FMAs. The final draft FMPs from this meeting will be shared with the stakeholder in a technical consultation for their feedbacks," said ISLME National Project Officer Dr. M. Lukman.

The final FMP documents, he added, will be signed and disseminated as official regulations for implementation by provincial and district administrations in each FMAs and for nationwide implementation for BSC fisheries.

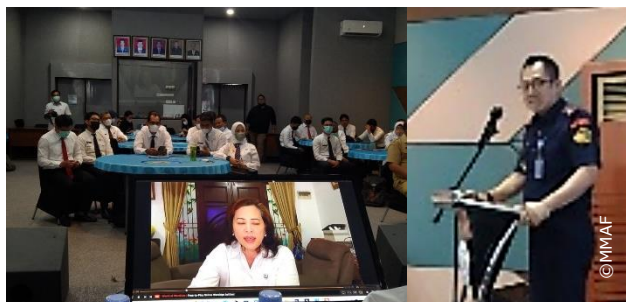
## MMAF, FAO promote improved surveillance to combat IUU fishing and protect marine and fisheries resources sustainability

The Indonesian seas have huge fisheries potentials to support national food security and eradicate poverty. However, there are pressing challenges that jeopardize the country's fisheries and marine sustainability, among others the illegal, unreported and unregulated (IUU) fishing, smuggling of fisheries commodities and marine litter. All these require improved surveillance and human resources capacity especially at the subnational level.

The Ministry of Marine Affairs and Fisheries (MMAF) and the Food and Agriculture Organization of the United Nations (FAO) conduct a six-day training from 26 Sept-1 Oct 2022 for 30 fisheries inspectors from the Fisheries Management Areas (FMAs) 712, 713 and 573. The participants represent authorities from 13 provinces: Lampung, DKI Jakarta, Banten, West Java, Central Java, D.I. Yogyakarta, East Java, Bali, West Nusa Tenggara, East Nusa Tenggara, East Kalimantan, Central Kalimantan and South Kalimantan.

The training is part of the transboundary cooperation for the sustainable management of the Indonesian Seas Large Marine Ecosystem (ISLME), an area of 2.16 million km<sup>2</sup>, covering the territorial waters of Indonesia (97 percent) and Timor-Leste (2 percent). The ISLME project is implemented with funded support from the Global Environment Facility (the GEF).

"The training equips the provincial fisheries inspectors with competencies to ensure more effective and efficient surveillance capacity in safeguarding Indonesia's fisheries and marine resources and to enable smooth technological adoption in the future," explained Dr. Drama Panca Putra, S.Pi, M.Si, MMAF Director of Surveillance for Fisheries Resources.



Dr. Drama Panca Putra, S.Pi, M.Si, MMAF Director of Surveillance for Fisheries Resources (left) gave his opening remarks.

"IUU fishing and other fisheries and marine challenges have huge social, economic and environmental impacts that should be addressed not only for the sustainability of ISLME resources but also for the wellbeing of Indonesians, especially small fishers," said ISLME National Project Officer Dr. Muhammad Lukman.

A MMAF 2016 data estimated that the economic loss due to IUU fishing in Indonesian waters is about US\$20 billion per year and in Timor-Leste around US\$40 million per year. In addition, IUU fishing also triggers conflicts among fishers, damages the ecosystem and habitat, puts in danger fisheries resources and productivity, livelihood and wellbeing of small fishers and coastal communities.

The training participants will gain skills and knowledge on supervision of marine and fishery resources management policies at the national and regional level as well as on international instruments to combat IUU fishing namely the National Plan of Action (NPOA) and Port State Measures Agreement (PSMA); the scope of supervision in marine resources management; supervision for business compliance in (a.) fishery products: processing and distribution, (b.) fisheries aquaculture, (c.) fishing vessels operational activities to combat IUU fishing; introduction to the use of Vessel Monitoring System (VMS) for supervision and Monitoring, Control and Surveillance (MCS), community-based surveillance; and the standard procedures for handling marine and fishery crimes.

The training is part of a series of improving MCS capacity to combat IUU fishing within the ISLME area. Other activities include training for members of community-based fisheries watch (pokmaswas), combating IUU fishing campaign and bilateral meeting between Indonesia and Timor-Leste, which are all scheduled for 2022.



## FAO supports MMAF to establish 13 integrated advanced fishers' villages (Kalaju)

JAKARTA, Indonesia, 11 October 2022: FAO supports the establishment of 13 integrated advanced fisher villages (KALAJU) in the ISLME arear to facilitate efficiency and productivity. The initiative began with a capacity need assessment and gap analysis, commissioned to Rekam Jejak Nusantara Foundation.

The findings highlighted the need for improved access, availability of public services and infrastructure (such as hospital or health clinic), waste management and recycling and governance. Priority will be given to address gaps that directly contribute to sustainable fisheries management in these villages and therefore concrete recommendations should be designed with this consideration in mind.

Dr. Fery Sutyanwan MMAF Coordinator for Marine, Archipelagic and Territorial waters said that this ISLME's activity has helped identify various gaps and recommendations for improved Kalaju, which is useful for decision making. However, due to the huge funding required to follow up, his office will determine priorities among the recommendations and link the gaps with other project initiatives.

ISLME NPO Dr. Muhammad Lukman urged to factor in the human rights aspects in the integrated Kalaju initiative, not only just to ensure the fishers' rights to basic needs. "For example, when land clearance is required to realize some of the recommendations, it is important to protect local community's rights to their own land and give the appropriate compensation," he explained.

## Fisheries and marine authorities in fisheries management areas (FMAs) 573 and 713 discuss preparatory steps for quota-based fisheries to ensure sustainability

LOMBOK, West Nusa Tenggara, 16-17 November 2022: Around 43 official members of Fisheries Management Council (FMC) consisting of members of Fisheries Management Unit (FMU) from eight provinces in FMA 571 and FMU members from ten provinces in FMA 713 discuss current challenges, potentials and recommendations as preparatory step for the implementation of quota-based fisheries in both FMAs.

Quota-based fisheries is an approach to control fisheries resources utilization to ensure the sustainability of fish resources and protect the habitat, to ensure long-term business security in the fisheries sector and at the same

continuously protect and improve fishers' welfare. Despite having the regulations however quota-based fisheries have not yet been optimally implemented in an integrated manner.

The government divided the 11 Indonesian FMAs into zones, namely fishing industry zone, local fishers' fishing zone and for spawning and nursery grounds. The allowable fishing techniques are the ones using environmentally fishing gears or at least the ones that do not threaten the sustainability of biota, do not cause damages to habitat and do not cause harm to other users. The quota-based system is determined in consultation with key stakeholders including academia to set quotas (in tonne) for three fishing zones: fishing industry (above 12 nautical miles), local fisher's zone and for spawning and nursery ground.

Quota for local fishers' zone below 12 nautical miles is set based on production data of key fishery commodities in the last five years, analysis of catch data log-book in each province, findings of review of Fisheries Management Plan (FMP) implementation and FMU as well as data on conservation areas in each province.

The FMU members represent officials from MMAF and its provincial offices, port authorities with academia as members of scientific panel.

Members of FMU from FMA 713 identified the following challenges:

- The operational and legality of FMC 713 structure is not yet optimal (as an institution, its human resources, budget and IT)
- Allocation of fisheries resources utilization between the central government and local administration is not yet integrated, including on data information
- Lack of community involvement in sustainable management of fisheries resources
- Weak surveillance and law enforcement in fisheries resources management and permit issuance for fishing vessels.
- Illegal fishing using illegal fishing gear still continues
- Lack of management and inspection of the use of fish aggregating devices in FMA 713
- There are institutions and non-governmental organizations doing research/studies, however, they do not share the findings.

Members of FMC from FMA 573 identified the following challenges:

- a. Fisheries resources and habitat
  - Stock degradation for flying fish, lemuru, mackerel, kuwe (giant trevally), snapper and squid.

- Degradation of ecosystem in several locations: mangrove, seagrass and coral reef as fish resource habitat.
  - Lack of data on status of lobster seeds stock in nature as the basis to manage its utilization
- b. Social economy
- Conflict among fishers, regarding migrating fishers, fishing ground and the use of FAD
  - Not all fishing ports have adequate infrastructure: electricity, ice and cold storage.
  - Fuel subsidy for fisheries in terms of quantify, price and recommendations.
- c. Governance
- The role and function of the FMC in FMA 573 is not yet optimal and effective
  - Lack of availability of updated, valid data to support capture fisheries sustainability
  - Illegal, destructive and unreported fishing are still practiced
  - Allocated fishing vessel permit is not yet based on fisheries resources allocation.
  - Lack of public awareness on licence and regulation related to fishing vessels

Both FMUs for FMAs 573 and 713 proposed similar recommended action plan, with specific emphasis on

- Institutional strengthening of the FMUs, including the FMU structure, regulatory basis, human resources capacity, budget, infrastructure and IT. This aspect includes to update the scientific panel and to form consultative panel; seek supports from central, subnational governments and other stakeholder especially on human resources development, improved functions/roles and funding.
- Resources management strengthening in each area (specifically to set the fishing ground areas, monitor the type of fishing gears to use and set clear criteria for fish to catch). This aspect should be based on collecting fisheries data and information, analysing current fisheries management and challenges which will form the basis for FMA 713 and 573 review.
- Social-economy-cultural strengthening strategy based on good understanding on local population: size, socio-economic and cultural characteristics, initiatives to improve fishers' welfare, respect for local wisdom, among others.



Fisheries and marine authorities from FMAs 573 and 713 discuss quota-based fisheries in their respected areas

## Marine plastic debris, sedimentation and poor habitat condition are increasing threats to marine sustainability in the north coast of Timor-Leste, findings of FAO-supported review revealed

DILI, Timor-Leste: 27 October 2022: A recent FAO-supported ecosystem review of the north coast of Timor-Leste found that marine plastic debris and increasing sedimentation as growing threats to sustainability and proposed the establishment of new marine protected areas (MPAs) to address the poor habitat condition

Those are some of the key findings of the FAO-supported review to assist the Ministry of Agriculture and Fisheries of the Republic of Timor-Leste in assessing the implementation of the current marine habitat management in the country's north coast region. The review also called for the need to develop a transboundary marine spatial planning (MSP) highlighting the zoning of marine resources and the sustainable plan for ecological & socio-economic development with integrated land and sea planning for transboundary watershed management.

The north coast has a total of ±532.77 hectares of mangrove area, 3 021.02 hectares of coral reefs, 1 757.67 hectares of seagrass. It has 29 fish landing sites, 75 tourism locations and industrial sites. The latter two have huge potentials for future growth, therefore good planning is required to protect marine sustainability.

The five-month initiative, ending in December 2022 was commissioned to a Bali-based environmental organization Coral Triangle Center (CTC). In his initial finding presentation, Dr. Marthen Welly from CTC said that Timor-Leste has significant marine and coastal biodiversity resources with over 600 000 coastal community members relying their livelihood on marine and fisheries resources. "However, there have been observable direct and indirect coastal threats, impacting its biodiversity resources and even causing habitat losses to some marine species."

The review, he added, is useful to shade light on the challenges and help identify recommended actions to address the threats and conflicting uses of marine resources, thanks to close stakeholder consultations and FGDs with community-level actors.



Some photo documentations from the review activities

The review activities include:

- Identify sampling point coordinates through Purposive Random Sampling (PRS) to collect data and information related to water quality sampling, habitat identification and its condition
- Land and sea (snorkelling) observations
- Participatory Mapping, including focus group discussions with relevant community members to identify socio-economic-cultural aspects.
- Satellite mapping (Sentinel-2 & Google Earth Engine)

The review managed to collect 21 thematic survey maps with 62 sampling coordinates for coastal and marine habitat features. Knowledge transfer related to the use of Global Positioning System (GPS), data recording sampling, and water quality measurements, especially to the governmental partners. Marthen added that further scientific research assessment should be taken for deeper look at these findings to ensure better decision-making process. "It is also recommended to foster good community involvement in an effort to ensure marine and coastal sustainability," he said.

C M Muralidharan ISLME project Regional Coordinator emphasized that the study should cover the current policies on marine habitat management and how the existing MPAs are functioning.

## FAO, YKAN support MMAF with the formulation of Harvest Strategies for snapper and grouper in Fisheries Management Area 713

JAKARTA, Indonesia, 9 November 2022: Snapper and Grouper are key fisheries commodities with high demands

for domestic and export-oriented markets. To protect these species, MMAF sets Limit Reference Point (LRP) for snapper and grouper at SPR 20 percent and Target Reference Point (TRP) for snapper at SPR >20 percent, while for grouper is listed in the table on grouper below. To ensure sustainable utilizations, FAO supports MMAF with the formulation of Harvest Strategies (HS) for snapper and grouper. The HS is a regulation that sets out **(i) the input control** (regulate the types and number of legal fishing gear and allowable fishing permits; regulates the fishing zone and the conservation areas in FMA 713); and **(ii) the output control** (limit the current fishing operation days to 25 percent or four days per month and to impose allowable minimum legal size (MLS) to catch. The latter is aimed to ensure that the species has reached maturity level and has an opportunity to spawn at least once.

For snapper, the HS focuses on three priority species: Malabar red snapper (*Lutjanus malabaricus*), goldbanded jobfish (*Pristipomoides multidens*) and rusty jobfish (*Aphareus rutilans*). The table on snapper below shows the spawning potential ratio of snapper from 2016 to 2020.

No.	Species	SPR (%)				
		2016	2017	2018	2019	2020
1	Bambangan/kapak merah, malabar red snapper, ( <i>Lutjanus malabaricus</i> )	39 (33-45)	36 (31-41)	20 (18-22)	35 (33-36)	36 (35-37)
2	Kakap anggoli, goldbanded jobfish ( <i>Pristipomoides multidens</i> )	44 (42-46)	46 (43-50)	30 (28-31)	43 (37-45)	61 (57-64)
3	Kurisi perak, rusty jobfish, ( <i>Aphareus rutilans</i> )	NA	19 (5-33)	31 (28-34)	44 (36-52)	56 (53-60)

For grouper, the four priority species are orange spotted grouper (*Epinephelus coioides*), spotted grouper (*Epinephelus areolatus*), white-edged lyretail (*Variola albimarginata*) and leopard coral grouper (*Plectropomus leopardus*). The table on grouper below describes the SPR and the TFR of key grouper species in 2016-2020 period.

No.	Species	SPR (%)					TFR (SPR%)
		2016	2017	2018	2019	2020	
1	Kerapu Lumpur, orange spotted grouper, ( <i>Epinephelus coioides</i> )	NA	47 (32-61)	58 (51-65)	39 (34-44)	27 (25-29)	>30%
2	Kerapu Ekor Putih, spotted grouper, ( <i>Epinephelus areolatus</i> )	19 (18-20)	18 (17-18)	11 (10-11)	12 (12-12)	17 (16-17)	>20%
3	Kerapu Ekor Gunting, white-edged lyretail, ( <i>Variola albimarginata</i> )	20 (17-22)	35 (30-40)	29 (24-33)	30 (24-37)	44 (39-49)	>40%
4	Kerapu Sunu, leopard coral grouper ( <i>Plectropomus leopardus</i> )	10 (8-11)	14 (12-16)	9 (8-10)	11 (10-11)	11 (8-13)	>20%

The monitoring mechanism for HS include continuous biological and catch data collection and reporting of the above target snapper and grouper species to the existing reporting system. Monitoring-evaluation will be conducted by the central and provincial administration with stakeholder involvement, especially academia, research centres and fisheries actors within FMA 713.

The above information was presented in the fourth public consultation meeting to finalize the two HS documents. The meeting was attended by staff of MMAF and Marine Affairs and Fisheries Offices in FMA 713 and by representatives of private sector, fishermen, academia/universities, researchers and Yayasan Konservasi Alam Nusantara (YKAN).

It was discussed that fishers in FMA 713 voiced their concerns over the fact that catching the leopard coral grouper has been getting more difficult and evidence indeed showed that the SPR of the species is alarmingly low at 11 percent. The draft HS stated that for species with SPR below the 20 percent limit reference point (LRP), stricter measures will be applied including limiting the number of fishing vessels (no additional permit for vessel), banning the catching of fishes below the legal minimum sizes, applying close season during spawning period and reducing the fishing operation to eight days per month.

“There will be public dissemination campaign to educate the public, especially the fishers on the need to adhere to the regulation so that we can protect this species through responsible fishing practice,” said Dr. Fery Sutiyawan MMAF Coordinator for Marine, Territorial and Archipelagic Waters said.

## Seaweed product diversification training to support livelihood of coastal community members in Timor-Leste

DILI, Timor-Leste, 27 October 2022: The GEF/FAO-supported ISLME project organized a separate four-day seaweed product diversification training in Metinaro and Baucau, Timor-Leste. The training, attended by around 30 participants in each location, provided skills to do business start-ups financial analysis and to make some popular snacks, such as sticky treat *dodol*, candied snacks, *pilus-pilus* crackers and brownies using sustainably sourced seaweed, locally grown by local community members.

The training team leader Ms. Alda da Rosa explained that the training was designed to make good use of seaweed which is easily available in the areas.



Training participants represent coastal community members and women's groups.

“Seaweed as the main ingredient is grown in mariculture projects in Metinaro and Baucau, so it’s easy to find and quite versatile to be used to make different snacks. The skills are also applicable to support the participants’ livelihood. We also specifically target women’s group to participate in this training, because some of them are also involved in seaweed culture or processing,” she explained.

One of the participants Sylvia Soares expressed her thanks for the opportunity to join the training. “In the past, many of us thought that seaweed was only sold as fresh or dried products, which now we know it is not true. I love baking and always wanted to start my own small baking business. I didn’t know how to do it but now, I have obtained the necessary information understand start-up finance, the cooking/baking skills and how to handle food safely. I think it’s (starting a small business) doable,” she said.

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