

# EO 4 Ecosystem Accounting 2022



## Ocean Accounts of Gili Meno, Ayer, Trawangan (Gili Matra) of Indonesia

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# Introduction

- Ocean Accounts plays an important role in ocean management as indicators of the balance between economic growth and marine resources sustainability.
- The implementation of Ocean Accounts in Marine Protected Areas (MPA) as pilot site, Gili Matra has been selected as a pilot site for 2021 Ocean Accounts implementation in Indonesia.
- Four accounts have been prioritized to be developed, namely: ecosystem extend, flows to the economy, flows to the environment, and ocean governance.
- Implementing agencies involved for 2021 Ocean Accounts in Indonesia: BPS-Statistics Indonesia, Ministry of Marine Affairs and Fisheries (MMAF), BIG-Geospatial Agency, and Ministry of Finance (MoF). Rekam Foundation, IPB University, and GOAP also helped in assisting the project.



Ecosystem type	Ecosystem Extend (hectare)		
	Opening Stock 2015	Addition/Reduction	Closing Stock 2021
Coral reefs	183,34	<b>-18,16</b>	165,08
Sea grass	56,50	<b>+8,43</b>	64,93
Mangrove	13,53	<b>-7,38</b>	6,15

- In the period of 2015-2021, the area of coral reefs and mangrove ecosystem assets has decreased by 18.16 hectares and 7.38 hectares, respectively.
- Meanwhile, in the same period, the seagrass ecosystem experienced an increase in area of 8.43 hectares.



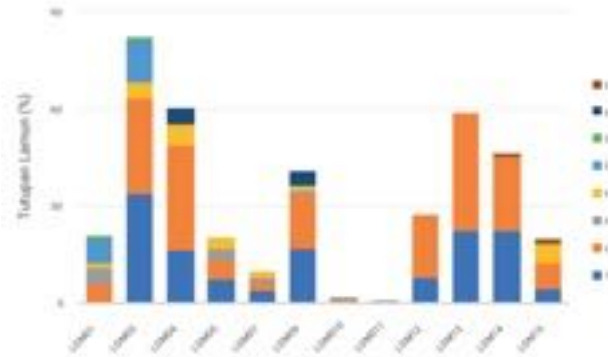
Source: BIG (2020), validated 2021

# Ecosystem Condition Account, MPA Gili Matra (1)

## Coral reefs

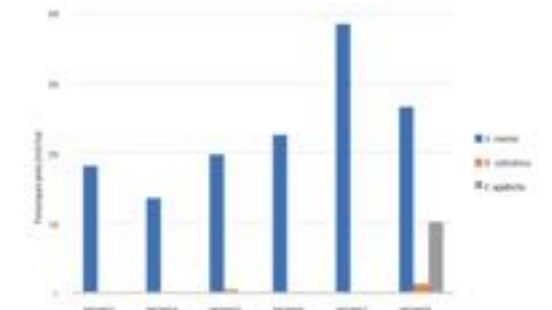


## Sea grass

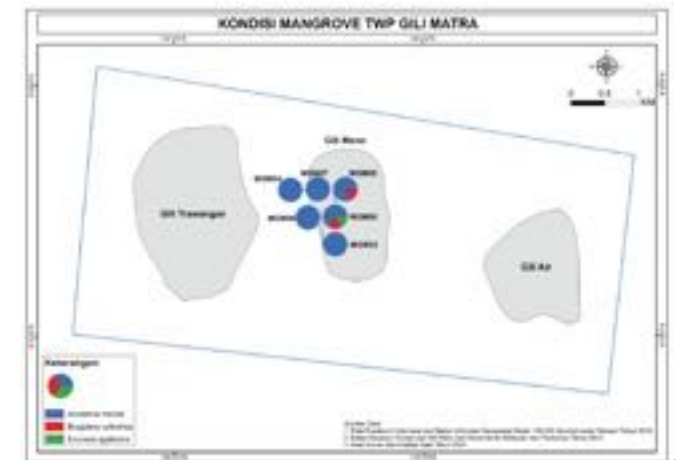
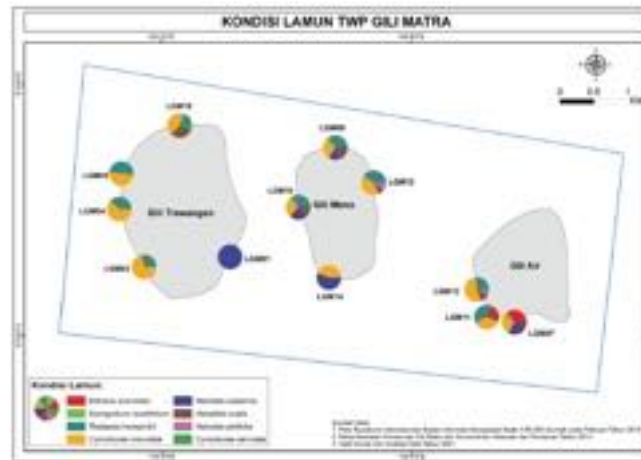
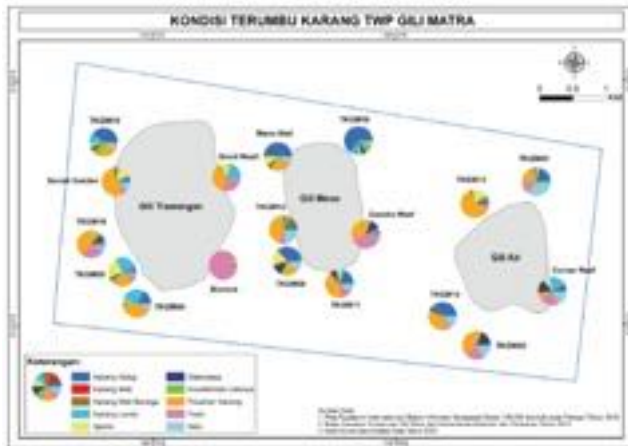


Gambar 20. Distribusi tutupan lamun berdasarkan jenis (%) tahun 2021

## Mangrove



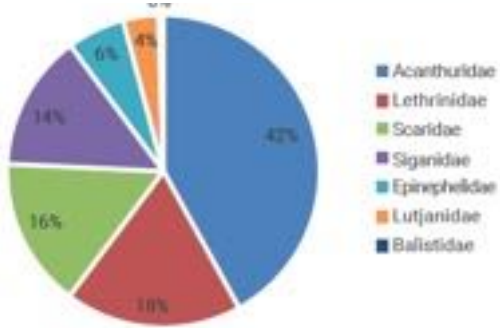
Gambar 23. Kondisi jenis mangrove berdasarkan observasi pengamatan 2021



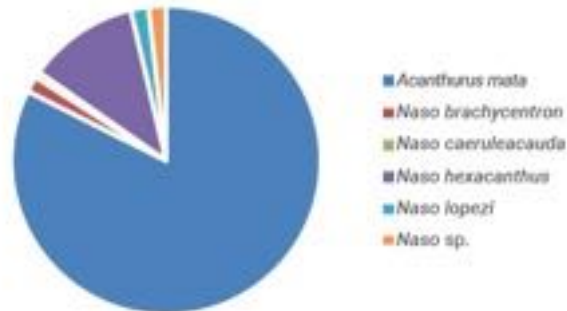
# Ecosystem Condition Account, MPA Gili Matra (2)

## Fish Resources

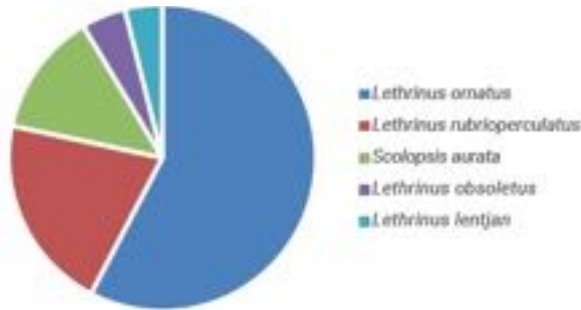
Fish by Familiae



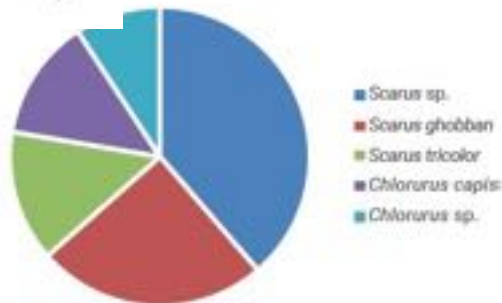
Acanthuridae species



Lethrinidae species

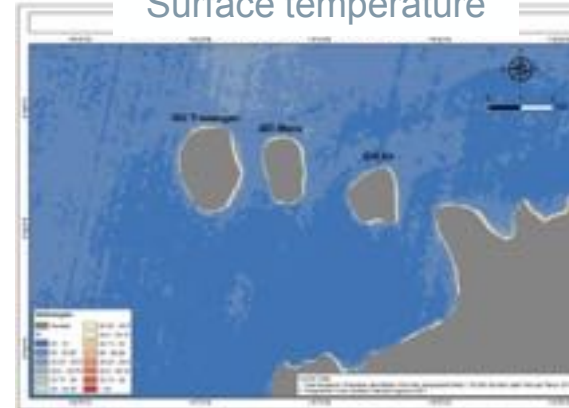


Scaridae species

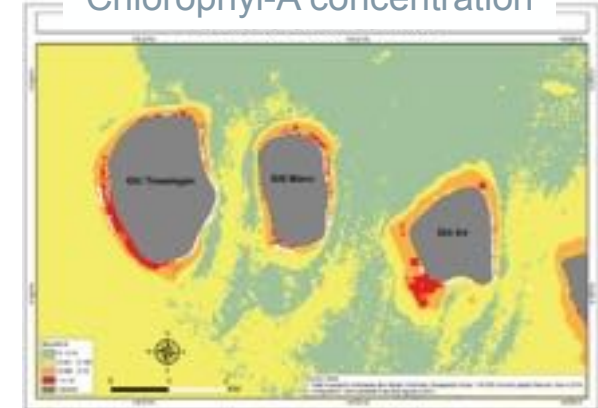


## Aquatic Biophysical Conditions

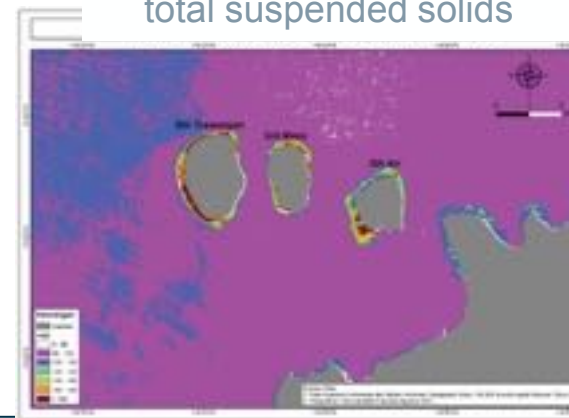
Surface temperature



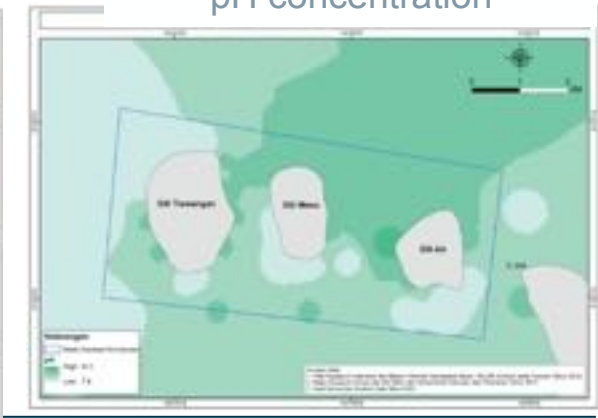
Chlorophyll-A concentration



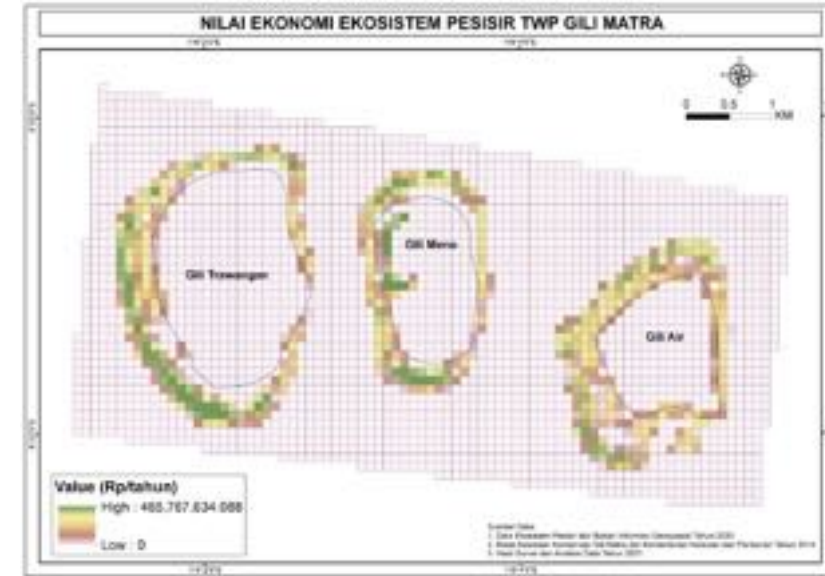
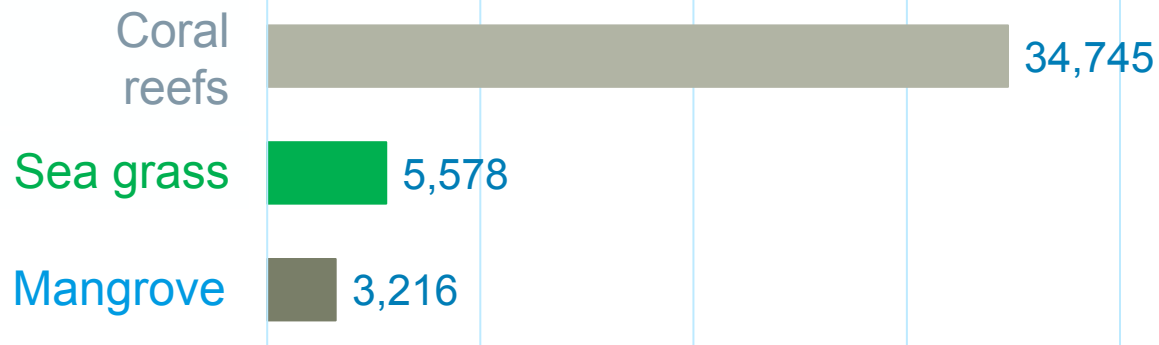
total suspended solids



pH concentration



(Million IDR Rupiah), 2021

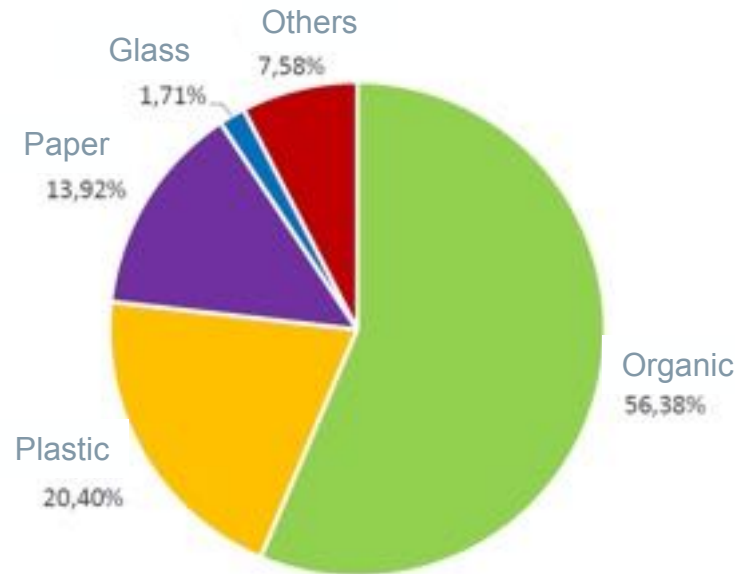


- Ecosystem economic values for the three important ecosystems in MPA Gili Matra (coral reefs, sea grasses and mangroves) were also analyzed spatially to identify areas with high resource value.
- Areas of high resource value are scattered along the southwest coast of Gili Trawangan; the south coast, northwest and mangrove area of Gili Meno; and the southwest coast of Gili Ayer

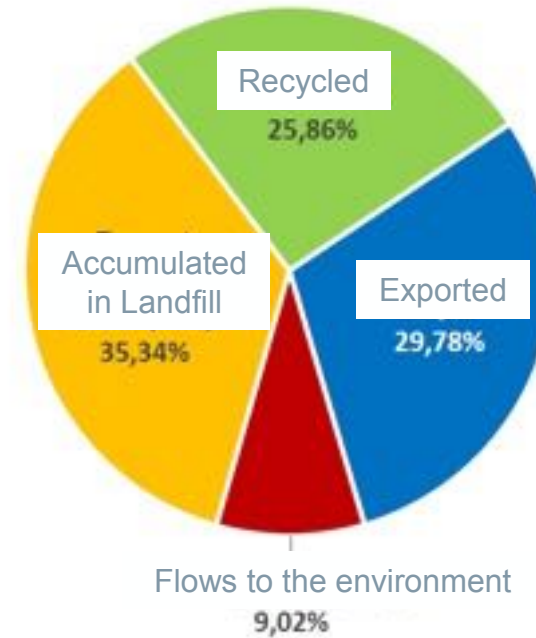


# Flows to Environment Account, MPA Gili Matra

Solid waste by types



Treatment of solid waste



- In 2021, the amount of solid waste generated at MPA Gili Matra was 4.45 thousand tonnes, 56,38% consisted of organic waste.
- Most of the solid waste generated at MPA Gili Matra was treated by the sewerage, waste management and remediation activities to be recycled back into products which are then reused in the economy (25,86%), while the rest is accumulated in the landfill (35,34%).



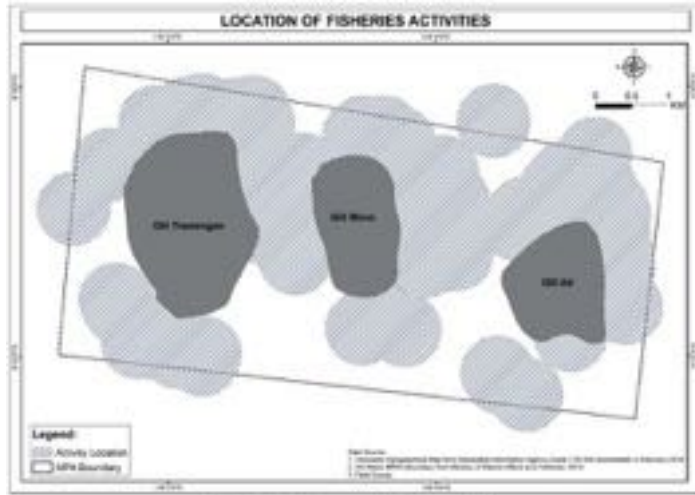


Figure 33. Fishing grounds in Gili Matra MPA

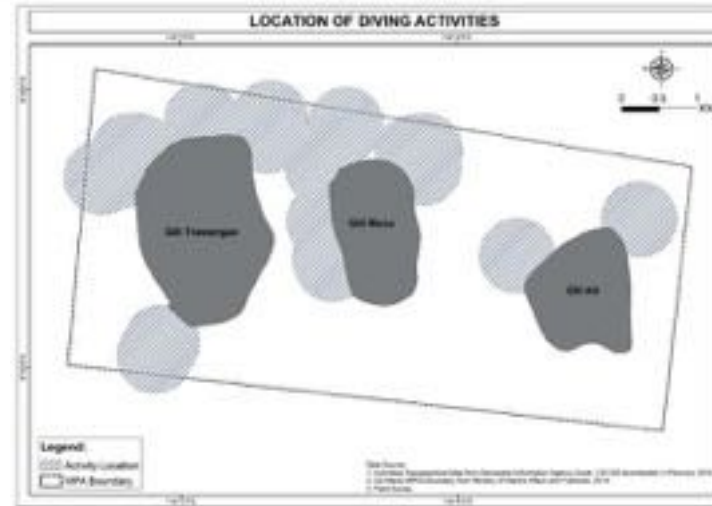


Figure 34. Diving area in MPA Gili Matra

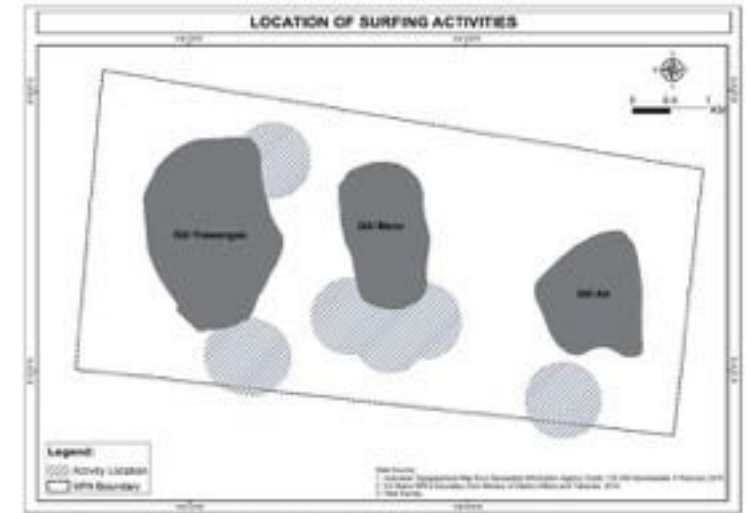


Figure 35. Surfline area in Gili Matra MPA

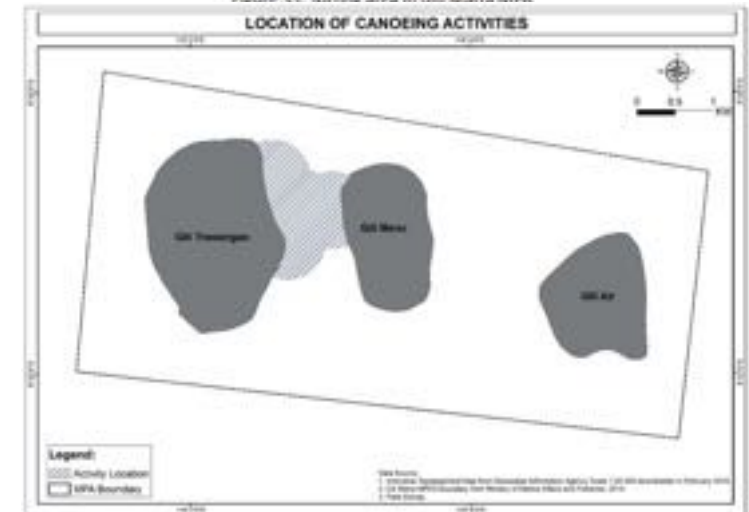


Figure 36. Canoeing area in MPA Gili Matra

Regulation regarding capture fishing in the MPA is applied based on fishing gear as follows:

Handlines can be used in all zones except the core zone; Spearguns and longlines are allowed in the sustainable fisheries zone; Net fishing is allowed in the sustainable fisheries zone outside the sustainable coral fisheries sub-zone; Fish aggregating devices (FADs) may only be used in the sustainable fisheries zone outside the sustainable coral fisheries sub-zone; Destructive fishing in any forms is prohibited in all zones.

Arrangements for marine tourism activities include:

- Diving is allowed except in core zone and port zone
- Snorkeling and swimming are allowed in the sustainable coral fisheries zone, utilization zone, protection zone, and rehabilitation zone
- Surfing and canoeing are allowed in the sustainable fishing zone and utilization zone
- The use of anchors in tourism activities is not allowed in all zones except in port zone



1

## Scale up

Implementing ocean account for the total Indonesia marine area

2

## Data availability

Strong collaboration in data interoperability among stakeholders

3

## Ocean Ecosystem valuation

Standard valuation methods not yet implemented by relevant stakeholder

4

## Policy use

Ocean Accounting for policies formulation

5

## International support

International assistance and country-to-country knowledge share



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