



Food and Agriculture  
Organization of the  
United Nations

# The role of aquaculture in the implementation of the KMGBF

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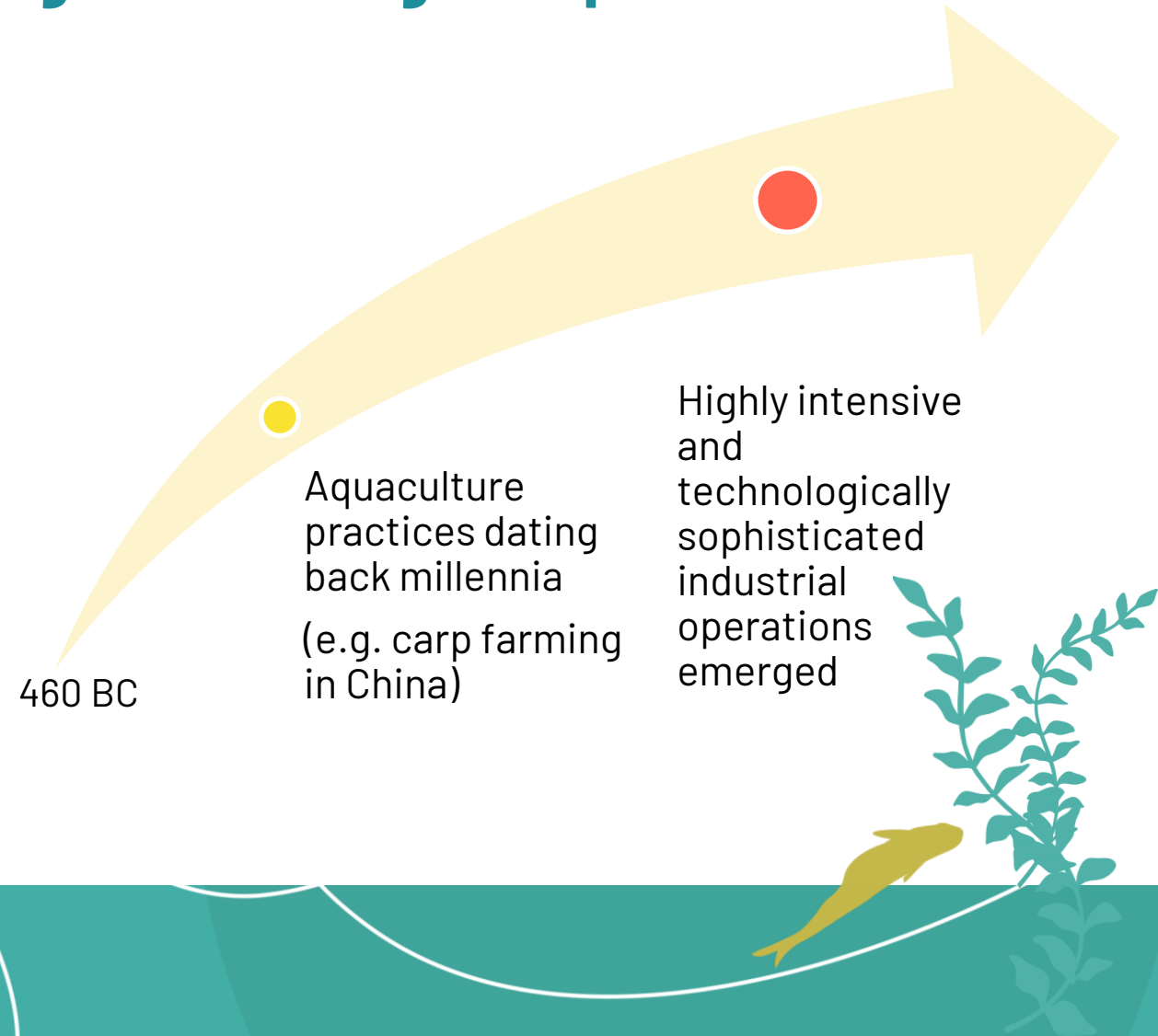
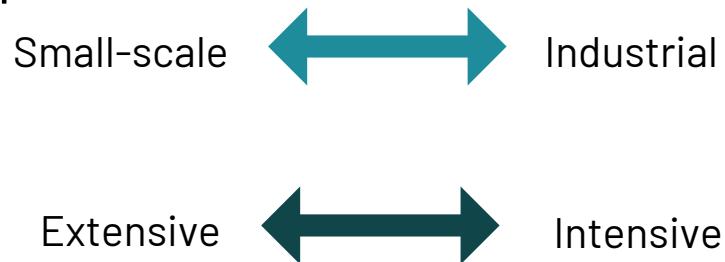


# What is aquaculture?

Aquaculture is the **controlled breeding and rearing of aquatic species**

Commonly characterized by:

- Species
- System type
- Scale of operation
- Intensity



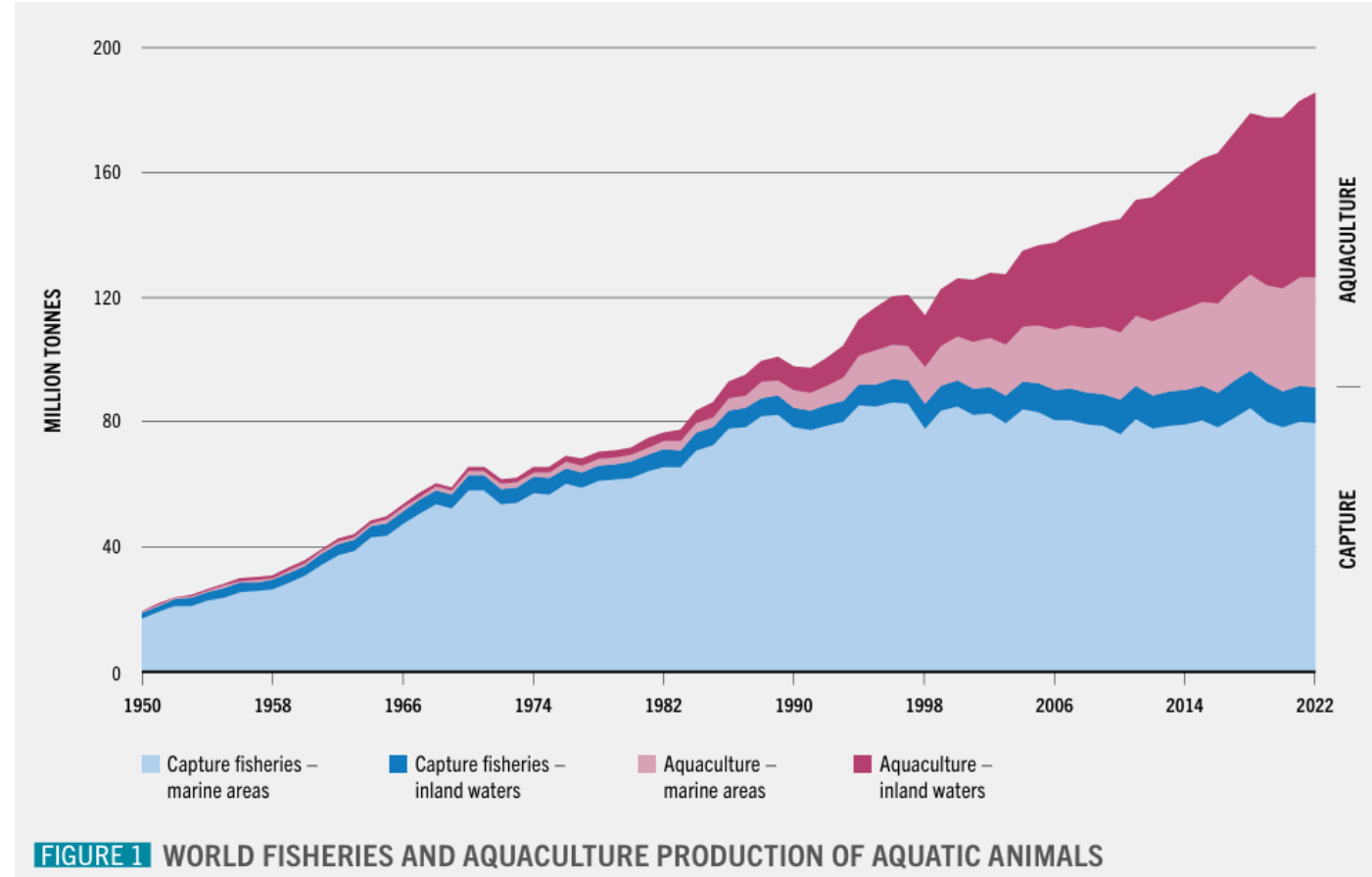


# Global importance of aquaculture



1. 2022 → production of aquatic animals (51%) surpassed capture fisheries output
2. World population expected to reach 9.7 billion by 2050
3. 2023 → an estimated 28.9 percent of the global population – 2.33 billion people – were moderately or severely food insecure, meaning they did not have regular access to adequate food

**= rapid growth and expansion of the aquaculture sector**



How the sector grows matters for biodiversity and the environment



# The relationship between aquaculture and biodiversity

The extent to which aquaculture affects biodiversity is **complex and varied** due to the diversity of systems and practices within the sector

## Risks to biodiversity and the environment:

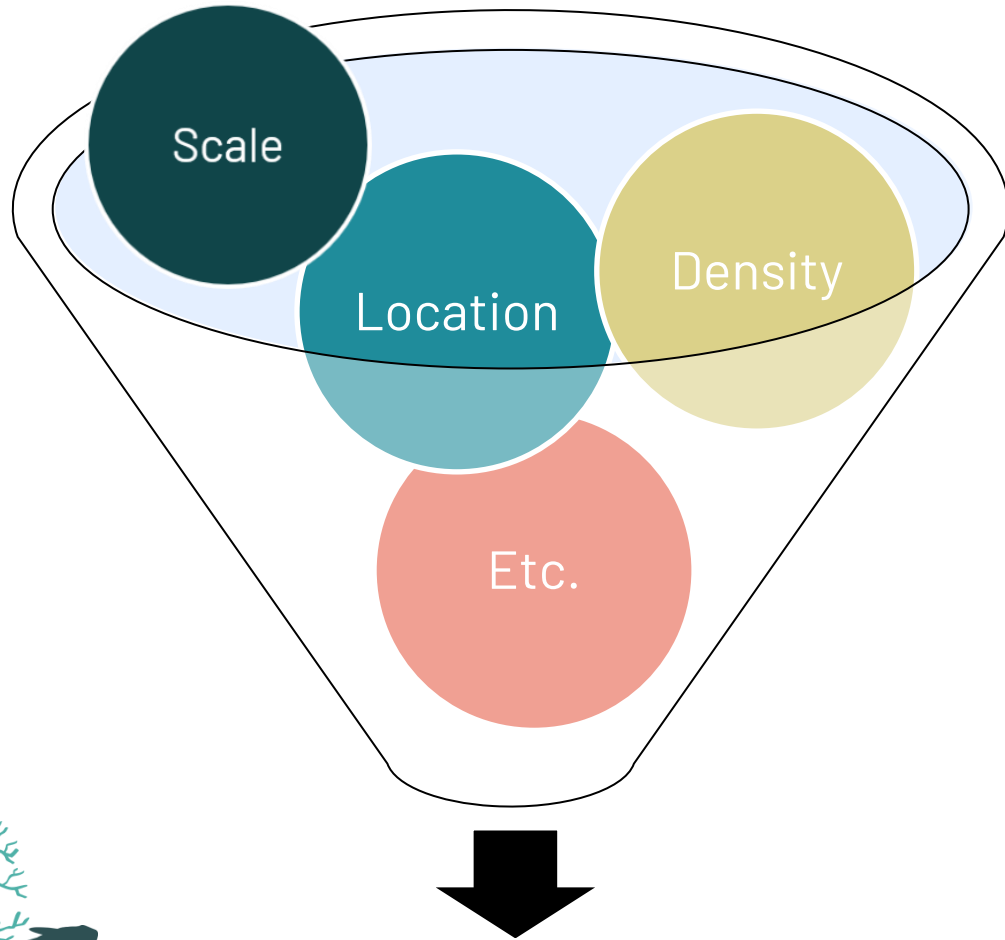
- Waste and pollution
- Irresponsible feed ingredient sourcing
- Escapement
- Habitat and ecosystem disturbance

## Positive effects on biodiversity and the environment:

- Supporting wild populations
- Improvement of ecosystem services
- Habitat restoration
- Improvement of water use efficiency

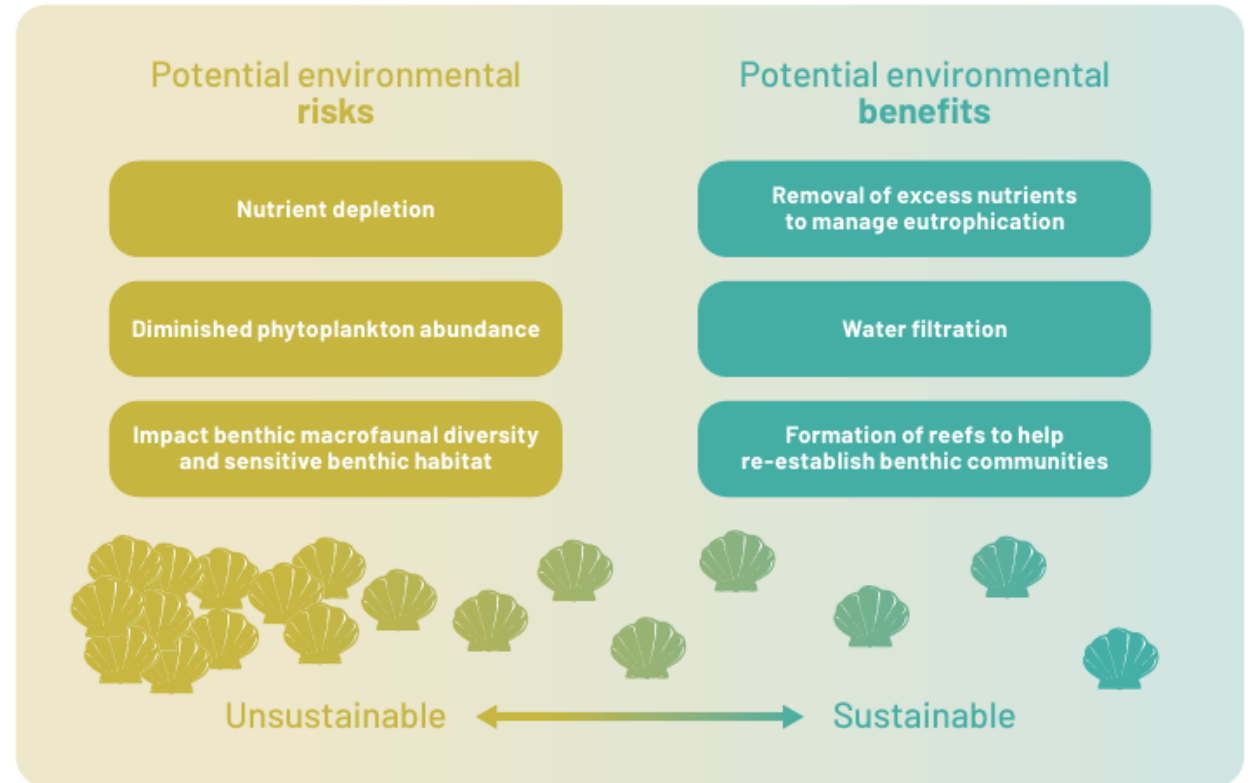


# The relationship between aquaculture and biodiversity

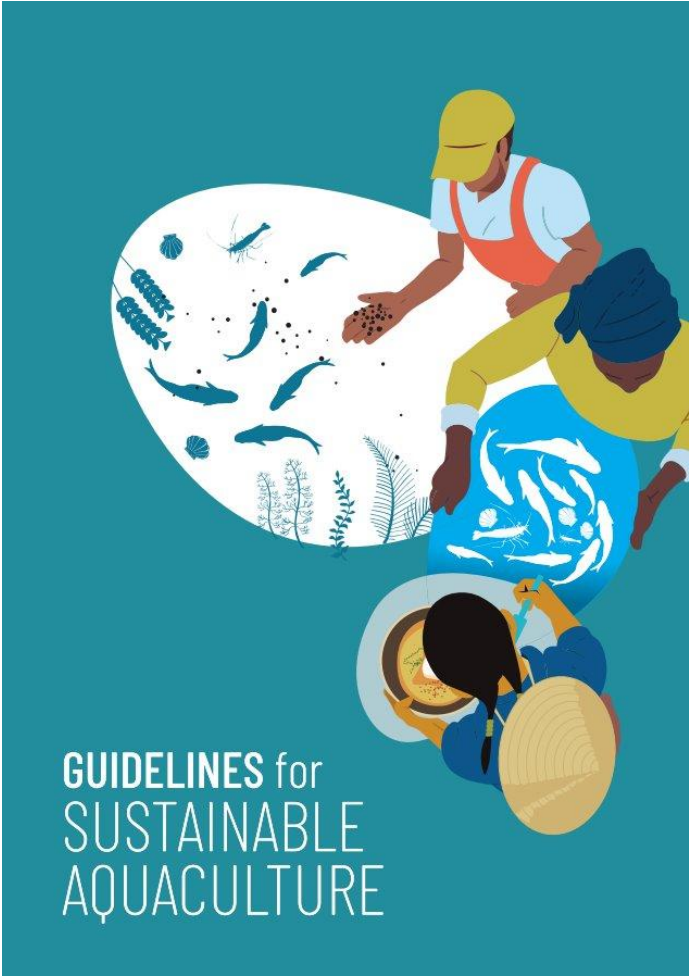


Overall effect on biodiversity  
and the environment

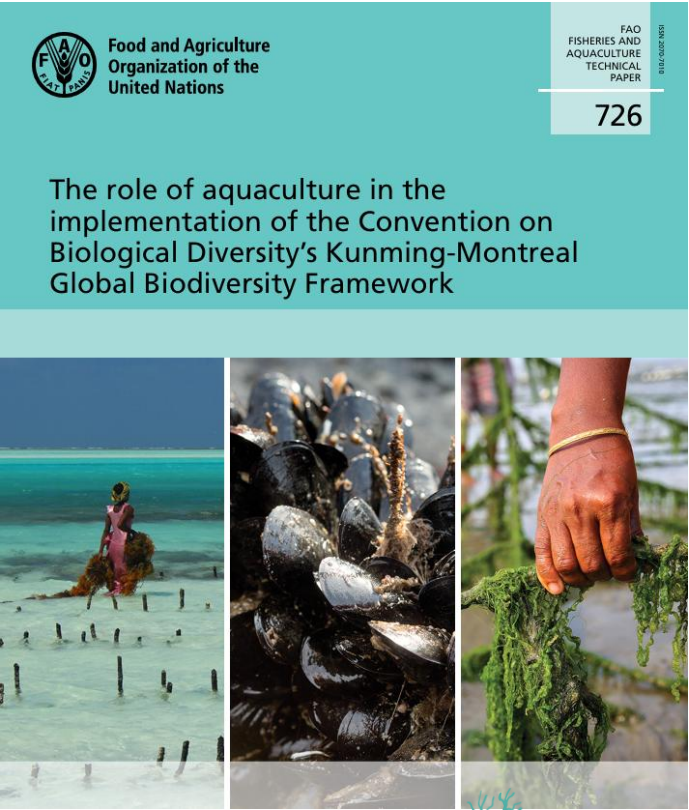
## Bivalve farms



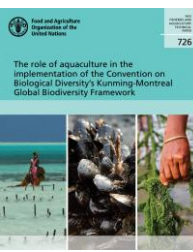
# Mainstreaming biodiversity in aquaculture



## Kunming-Montreal GLOBAL BIODIVERSITY FRAMEWORK



# Aquaculture and the targets of the KMGBF



## Restore 30% of all degraded ecosystems

Aquaculture developed according to local aquatic ecosystems, with attention to species selection, ecological function, and ecosystem services, can contribute to the restoration of degraded ecosystems.



## Enhance biodiversity and sustainability in agriculture, aquaculture, fisheries, and forestry

Aquaculture can directly enhance biodiversity through habitat provision and the improvement of ecosystem services.

The implementation of the GSA can promote the enhancement of biodiversity and sustainability in aquaculture.



## Restore and enhance nature's contribution to people

Aquaculture contributes significantly to food security and the livelihoods of people reliant on open waterbodies. Maintaining a balance within aquatic ecosystems so they continue to provide cultural identities and livelihoods to local communities while supporting biodiversity and resilient ecosystems can help enhance nature's contribution to people.



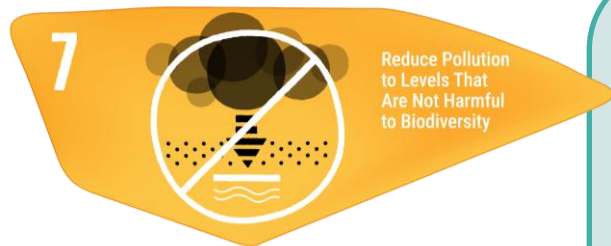
# Aquaculture and the targets of the KMGBF



## Reduce the introduction and impact of invasive alien species

Following national policy recommendations and regulations on the introduction of alien species for aquaculture can help reduce the risk of the introduction and impact of invasive alien species.

Aquaculture management efforts and actions to help regulate and monitor the risk of invasive species introduction can help ensure coherence with the relevant policy recommendations and regulations.



## Reduce pollution to levels that are not harmful to biodiversity

Establishing effluent discharge at the farm level, adopting on-farm recirculation for water use, incorporating effluent treatment facilities, and ensuring proper monitoring and management can help reduce pollution generated by aquaculture production.

Certain aquaculture systems such as integrated multitrophic aquaculture systems, integrated agro-aquaculture systems, etc. can help reduce waste (nutrient and biological pollution) by cultivating multiple species together.



# Opportunities and challenges for the sector

There are sustainable practices in aquaculture happening now!



Risks to biodiversity from poor aquaculture practices and management



Positive effects on biodiversity from sustainable practices and management



# Final message

- Aquaculture is relevant to all targets of the KMGBF in one way or the other → sustainability within the sector can support implementation
- Discussions on KMGBF need to include aquaculture not only on the ways that poor practices in aquaculture can detract from implementation but how they can be managed and how sustainable practices can further it

*“The best way to deliver biodiversity wins is to work with the people and industries that depend on biodiversity”* – Mark Dickey-Collas, Fisheries

Expert Group of the IUCN Commission on Ecosystem Management (IUCN/CEM/FEG)





# Thank you!

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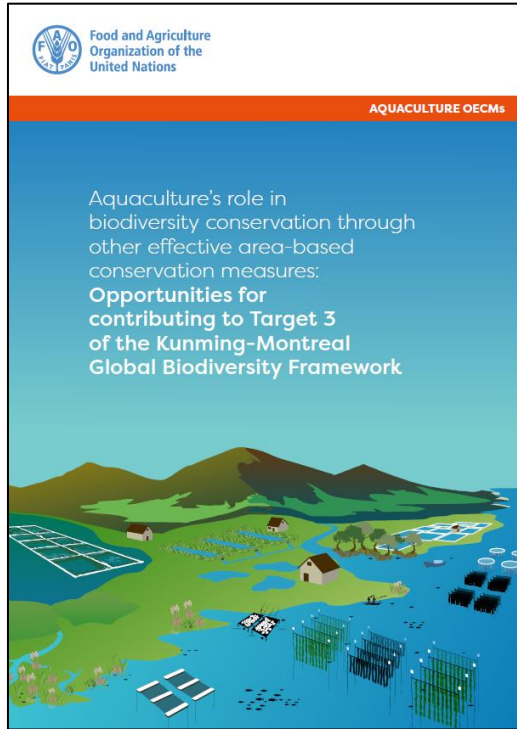
# Key takeaways

- Aquaculture is a business that occurs *in-situ*
- It's important to make the case for how aquaculture can support biodiversity across the whole aquaculture value chain – clear, succinct messages help get the point across
- Wide range of aquaculture types exist
  - Examples of regenerative/restorative aquaculture, integrated systems, restocking threatened species, local feed sourcing
- Key challenges include communication and messaging, interlinkages (e.g. science, economics), incoherent policies and regulatory frameworks, lack of enabling environments, lack of integration of aquaculture with other sectors, incentives for farmers to adopt technologies and practices to support biodiversity
- How to recognize and promote biodiversity-positive efforts in aquaculture
  - Document how aquaculture can provide ecological benefits – measurable indicators & transparent and available results
  - Focus on the farmer
    - Capacity building is key → education on how to make their practices more sustainable
    - Incentives for the farmers
  - Partnerships and collaboration (in many different aspects of aquaculture)
  - Communication

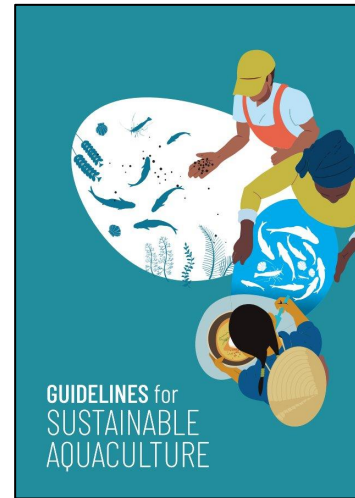


# Current and future work

## 1 Aquaculture OECMs



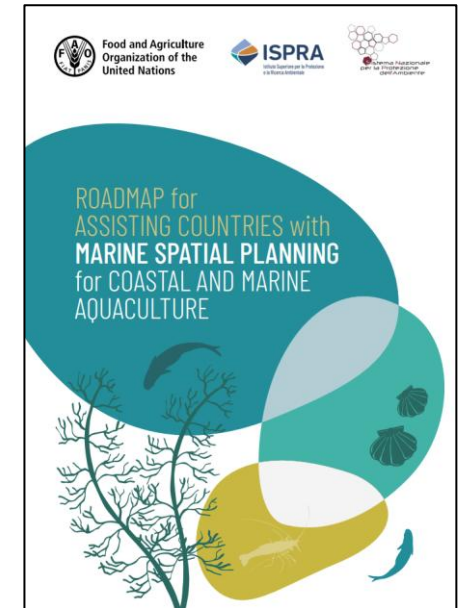
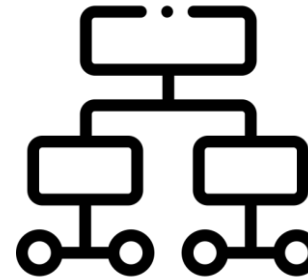
## 2 Monitoring, evaluation, and learning framework for the GSA



Output → Outcome → Impact

## 3 Spatial planning

Decision support resources



+ roadmap for inland aquaculture

## 4 General tools for implementing the GSA

