#### Report of Marine discussion

Yamakita

Shirayama, Yamano, Vergara, Nakaoka, Shakya

Things to be discussed in plenary

- -Who do Mangrove research
- -Where is the boundary of geographical region
- Load Map
- Organization
- -Potential member of steering committee
- -Potential secretariat

Groupe of topic and write fundraising and **listed potential funds** 

-Potential to review recent topics about BD conservation and research necessity in AP region using annual questioners.

Discussion with TG4:

-Importance of in-situ monitoring even for the oceanographic monitoring

-Potential use of recent satellite for ecosystem monitoring as a proxy of biodiversity

-necessity of 3d data of environment variables

 Learned ...feasibility to evaluate plankton diversity and frequent monitoring of Chl-a and SST using such as Himawari-8

	1.NO POVERTY	2
	2.ZERO HUNGER	1+
	3. GOOD HEALTH AND WELL-BEING	1-
	4.QUALITY EDUCATION	1-
	5.GENDER EQUALITY	1-
	6.CLEAN WATER AND SANITATION	1-
	7.AFFORDABLE AND CLEAN ENERGY	1.
	8.DECENT WORK AND ECONOMIC GROUTH	
bGs	9.INDUSTRY, INNOVATION AND INFRASTRUCTURE	01
	10.REDUCED INEQUALITIES	0+
	11.SUSTAINABLE CITIES AND COMMUNITIES	2
	12.RESPONSIBLE CONSUMPTION AND PRODUCTION	1+
	13.CLIMATE ACTION	3
	14.LIFE BELOW WATER	3



**UN Decade of Ocean Science for Sustainable** Development (2021 - 2030)





United Nations Educational, Scientific and · Oceanographic Cultural Organization . Commission

Intergovernmental

United Nations Decade 2021 of Ocean Science 2030 for Sustainable Development



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Mapping AOGE	OSS Initiativ	re TG Act	ivities wit	h GEO Pri	iorities		
GEO Priorities	Cross-Cutting Areas	Example	TG1 TG2 TG	3 TG4/8 TG5	TG6 TG7	TG9 TG10 TG	11 TG
1.NO POVERTY		0	2	ſ			
2.ZERO HUNGER		1	1+	Z			
3. GOOD HEALTH AND WELL-BEING		0	1-	⊥+ 1			
4.QUALITY EDUCATION		0	1-	1- 1_			
5.GENDER EQUALITY		0	1-	1- 1_			
6.CLEAN WATER AND SANITATION		3	1-	1- 1-			
7.AFFORDABLE AND CLEAN ENERGY		2	1.0	1			
8.DECENT WORK AND ECONOMIC GROUTH		0	1+	1+			
9.INDUSTRY, INNOVATION AND INFRASTRUCTURE		0	0+	<u>0</u> +			
10.REDUCED INEQUALITIES		0	0+	0.			
11.SUSTAINABLE CITIES AND COMMUNITIES		0	2007	0+			
12.RESPONSIBLE CONSUMPTION AND PRODUCTION		0	1+	2 1+			
13.CLIMATE ACTION		2	20				
14.LIFE BELOW WATER		3	3	3			
15.LIFE ON LAND		0	5	3			
16.PEACE, JUSTICE AND STRONG INSTITUTIONS		0	Î+	2			
17.PARTNERSHIP FOR THE GOALS		2	3	1+			
Adaptation		0	2+	3			
Loss & Damage		0	2+	2+			
Capacity Development/Technology Transfer		0	2+	<u>2</u> +			
National Reporting/Global Stocktake		0	24	2+			
Mitigation		0	2+	∠+ 2⊥			
Understanding disaster risk		0	2+	∠+ 2⊥			
Strengthening disaster risk governance to manage disaster risk		0	2+	2+			
Investing in disaster risk reduction for resilience		0	2+	_			
Enhancing disaster preparedness for effective response, and to "Build Back Better" in recovery,		0	2+	2+			
Prehabilitation and reconstruction				2+			
	Bata Sharing Infrastructure	0	3	3			
	User Engagement		2	5			
	and Communication	0	2	3			
	Total:	13 0	0 0	-	0 0	0 0	0

\*Scoring: 0=Do nothing, 1=less active, 2=active ,3=very active

## Feasibility of large scale analysis and potential networking as AP-MBON

T Yamakita



Chaudhary 2016 TREE

Trends in Ecology & Evolution



https://www.researchgate.net/publication/281749735\_Integrating\_regional\_conservation\_priorities\_for\_multiple\_objectives\_in\_national\_policy/figures?lo=1

- Networking networks and revive past activities to observe spatial-temporal patterns
- Facilitate broad scale researches and production of infrastructure
- Facilitate gathering the information of recent topics
- Outreaching and increase communication of people

O. Organizing ARMBON storms 12019 2020, 281. - Lous por curry, and 1. Networking 2. Platform building Patabase updating -OBIS - UNEP-WOME 3. Roseman - Long-term change in Asian Marks Biodiscosty Usig Legrey Deta = Pavelopment of NEW TECHIGES For effective Marine Biodiurey observice 4. Synthesis = WS Drons - Remajorgensity - e DNA -ARMS sinds Hassians Belmoht Jacial - Erological System Study Toward sustainable use of coastal resources

#### **Project 3: Coastal biodiversity assessment**

## Revive past activities to observe temporal changes

## Over 10 years since CoML...

-temporal change?-improve of the technique (such as DNA & Camera)

Use of the information such as

- -ecosystem services
- -EBSA
- -indicator of the threat

Location of the past study sites INFORMATION SYSTE CENSUS OF MARINE (2017)Proposed FBSA Policy ສ using e E existing & amakita literature Varine extracted data Complementary analysis 10% of marine area

#### **Project 3: Coastal biodiversity assessment**

### researches and production of

Present data...

-Some are still not good enough

Grayscale

Airphoto

-Some need temporal data

Ways to improve -image recognition

- -eDNA
- -survey using drone
- -literature
- ... etc
  - Update the maps of seagrasses, algae and coral reefs & build GIS database

Coral reef habitat data in AP region using ALOS/AVNIR2 (National Institute for Environment Studies (NIES) and Asia Air Survey Co., Itd)



More accurate classification of seagrass Yamakita et al. under review



# Statement to establish AP-MBON

#### • SUMMARY

Marine activities in AP-BON have begun. During two 2018 AP-BON workshops, several marine scientists, including the Co-Chair of the global Marine Biodiversity Observation Network (MBON), met and discussed how to develop an AP-marine BON. AP BON is separate from GEO BON (Box 1) in funding, administration and governance, and has its own independent identity and profile. The founding members (Table 1) agreed that the marine group would be called "AP MBON". In this report, we note particular activities that are underway and make the case for a more substantive AP MBON in the future. A first priority to take this forward will be an AP MBON secretariat to lead and coordinate activities.

- INTRODUCTION
- Why does society need an AP MBON?
- There is an urgent need to know what is happening to marine biodiversity in the Asia-Pacific region due to increasing human activities causing pollution and over-fishing, the need for marine food security to support human health, plus the effects of climate change and natural disasters (e.g., tsunami), and how this effects interact.
- The AP MBON will provide the scientific expertise, data and knowledge to (1) determine the facts about the state of marine life and ecosystems, and (2) predict how this will change in the future. This knowledge will enable scientists to (3) provide evidence based advice to governments and society on how to restore fisheries and health of ecosystems, and sustainably use the oceans for the long-term

- A comparison of elements of biodiversity, and related environmental conditions, along a latitudinal gradient, could be compared with the findings of the "Pole to Pole" (P2P) MBON in the Americas (Table 2). These could be achieved by bring together existing data and new data available from AP MBON members. Analyses could thus be both specific to the AP region, but by comparison with P2P America's, be placed in a more global context. Data could include:
- species richness,
- biogenic habitat cover (forest, seagrass, kelp, mangrove, coral),
- species endemicity,
- key species abundance,
- debris, plastics,
- contaminants (TBT, PCB, etc.)
- nutrient pollution,
- invasive species,
- carbonate sensitive species,
- freshwater discharges
- threatened species (IUCN listed)
- fisheries trends and status
- Results may indicate areas where ecosystem restoration is most urgent, where impacts need to be better managed, where new Marine Protected Areas would be best located, and provide new understanding about marine

Other projects could be narrower in scope and focus on particular habitats and species guilds. They may focus on **coastal**, **deep-sea**, **pelagic or benthic**, **and particular taxa such as fish**, **mollusc**, **crustaceans**, **echinoderms**, **or tunicates**.

Workshops could focus on (1) developing new field and laboratory methods, including image analysis techniques, and (2) data synthesis and analysis. Such workshops should publish their results, such as new methods, best practices, and discoveries from data analyses.

To progress these activities, AP MBON should find one or more researchers, such as post-doc' fellows, with the time and skills to synthesise data from GBIF, OBIS, and members to lead a co-authored publication. This process would have multiple benefits in building personal and institutional relationships, identifying data gaps, and demonstrate proof-of-concept that AP MBON can deliver useful results. It would also give AP MBON visibility within the scientific community, and results may have important implications for regional and national policies regarding the oceans. The outcomes of the above will stimulate and advise on future priorities for AP MBON.

- The top priority for AP MBON is to find an institute to host a Secretariat to act as its contact point and coordinate activities.
- Secretariat activities would include contacting and encouraging scientists to collaborate, fostering development of standardised methods and co-authored publications, organising workshops, and helping AP MBON members secure funding for these activities. In other words, the Secretariat would act as broker for linking experts to each other and to wider international activities. It could formally endorse activities that contribute to the AP BON mission, and write letters of support to funding applications by members. It would also report on progress by its members, such as new publications, media releases, databases, and meetings.
- It is recommended that
- AP BON form an AP MBON Steering Committee, including Chair and Secretary,
- AP MBON invite its members to offer to host a secretariat, and/or take on roles coordinating particular MBON activities (e.g., monitoring seagrass, coral reefs, plankton).
- AP BON contacts its members and others to nominate people to join AP MBON. This could use various social media to communicate activities – LinkedIn, websites, Facebook, Twitter, etc.
- AP MBON finds one or more researchers to lead data synthesis

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