

28-30 September 2022



# 15th AOGEO SYMPOSIUM

## AOGEO Task Group 2:

# Asia-Pacific Biodiversity Observation Network (APBON)

### Co-chairs

Hiroyuki Muraoka (Gifu University; NIES, Japan)

Runi Sylvester Pungga (Forest Department Sarawak, Malaysia)

Yongyut Trisurat (Kasetsart University, Thailand)



Hiroyuki Muraoka  
Gifu University, National Institute for Environmental Studies



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Kasetsart University, Faculty of Forestry

APBON is supported by the Ministry of the Environment Japan; the Ministry of Education, Culture, Sports, Science and Technology (MEXT) Japan; National Institute for Environmental Studies (NIES), and all other voluntary contributions.

<http://www.esabii.biodic.go.jp/ap-bon/index.html>



**APBON**  
Asia Pacific Biodiversity Observation Network  
*For biodiversity conservation & sound decision making*

**APBON Strategic Plan 2030**  
H. Muraoka (Gifu Univ. & National Institute for Environmental Studies, Japan), Y. Takeuchi (National Institute for Environmental Studies, Japan), T. Yamakita (Japan Agency for Marine-Earth Science and Technology, Japan), Y. Kano (Kyusyu Univ., Japan), S. Nagai (Japan Agency for Marine-Earth Science and Technology, Japan), M. Nakaoka (Hokkaido Univ., Japan), Y. Trisurat (Kasetsart Univ., Thailand) and R.S. Pungga (Forest Department Sarawak, Malaysia)

APBON responds to local, regional and global needs by: [1] Developing national BONs and networking them in the region to contribute to CBD Aichi Biodiversity Targets and post 2020 Global Biodiversity Framework, [2] Filling observational and knowledge gaps for biodiversity status and trends to contribute to IPBES assessments, [3] Producing data and knowledge to address the issues particularly related to biodiversity and ecosystem sustainability by coordinated activities with GEO and AOGEO, [4] Contributing to achievements of SDGs by providing adequate and defensible biodiversity data that help developing policy for conservation and sustainable use of biodiversity, and [5] Learning the challenges of biodiversity issues under COVID-19 pandemic and on-going climate change.

**Our achievements from 2009 to 2020**

- 100 plots in 10 countries** have been monitored for biodiversity & ecosystems
- Publications** for data and knowledge sharing:
  - Books
  - Original papers
  - Data papers
- Participants from 18 countries/areas**:
  - AOGEO Symposium
  - APBON Workshops
  - Webinars

**Our activities toward 2030**

Biodiversity observations	Networking observations and users	Capacity building
<p><b>Measures</b></p> <ul style="list-style-type: none"> <li>Identification of biodiversity and present gaps</li> <li>Development of national biodiversity observation and knowledge gaps</li> <li>Establishing a central knowledge for biodiversity observation and knowledge gaps</li> <li>Establishing data sharing and data management system</li> <li>Establishing a central knowledge for biodiversity observation and knowledge gaps</li> <li>Establishing a central knowledge for biodiversity observation and knowledge gaps</li> </ul> <p><b>Key activities</b></p> <ul style="list-style-type: none"> <li>Developing research and monitoring systems</li> <li>Developing research and monitoring systems</li> <li>Developing research and monitoring systems</li> <li>Developing research and monitoring systems</li> <li>Developing research and monitoring systems</li> </ul>	<p>✓ Coordination of a regional network of biodiversity observation institutions</p> <p>Network users: National, Regional, Local</p> <p>Partners: AO-APBON, GEO, ISE, IUCN, etc.</p>	<p>✓ Sharing knowledge and skill of biodiversity survey through workshops</p> <p>✓ Training courses for taxonomic capacity building</p> <p><b>Our partner</b></p> <p>ESABII: East and Southeast Asia Biodiversity Observation Institute</p>

**APBON's monitoring sites**

**Publications**

- A local picture guide (2012)
- Biodiversity Observation in the Asia-Pacific Region (2012)
- International Biodiversity Observation and Assessment (2014)
- Asia Biodiversity Observation and Assessment (2016)

**APBON session at the 12<sup>th</sup> AOGEO Symposium, 2019**

**Our activities toward 2030**

Takeuchi et al. (2021) Ecological Research 36, 232-257 <https://doi.org/10.1111/1346-1708.12212>

**AO-APBON**

Please visit our website! <http://www.esabii.biodic.go.jp/ap-bon/index.html>

APBON Secretariat: Biodiversity Center of Japan Nature Conservation Bureau, Ministry of the Environment 3597-1, Keioanbashi, Kamiyoshida, Fujiyoshida City, Yamanashi Prefecture 403-0005, JAPAN  
E-mail: [biodic\\_webmaster@env.go.jp](mailto:biodic_webmaster@env.go.jp)

# APBON established in 2009

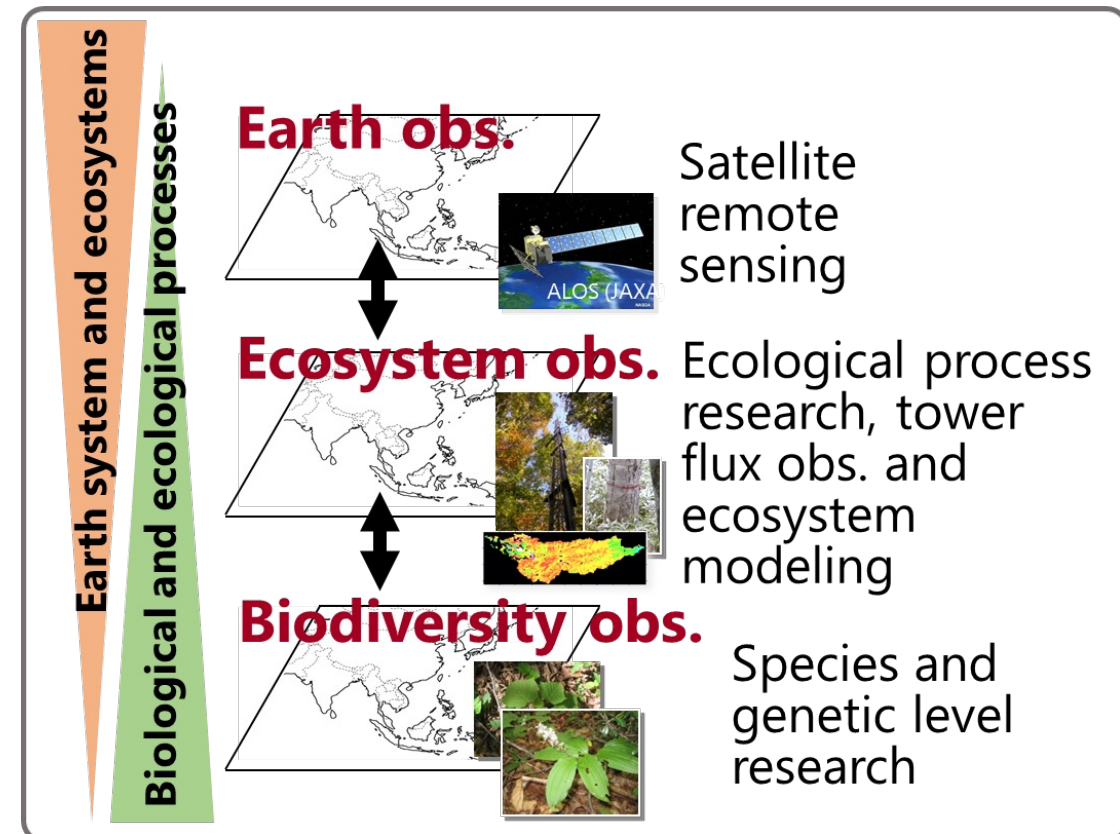


## Mission

1. Contribution to sound decision making related to biodiversity conservation based on scientific information
2. Facilitation of the utilization of existing biodiversity data
3. Coordination of a regional network

## Activities

1. Monitoring changes of biodiversity
  - ✓ Biodiversity mapping
  - ✓ Identification of key drivers
    - Land use change, Climate change
2. Networking of the observation networks
  - ✓ Sharing information through the networks
3. Capacity building



(Muraoka et al. 2012 in APBON book)

**GEO BON**

Home About BONs EBVs EBV Portal BON in a Box Documents Search

**Ecosystem Services**

In the past 20 years, work on ecosystem services has focused primarily on recognizing the multiple types of services that exist, in trying to quantify their temporal and spatial variations, and recognizing the numerous trade-offs that emerge when considering more than one service.

[Read more](#)

Events

No events [All events >>](#)

Biodiversity Observation Networks

Asia Pacific BON

[Criteria for BON endorsement](#)

**GEO BON 2020**

OPEN SCIENCE CONFERENCE & ALL HANDS MEETING

BIODIVERSITY MONITORING FOR POST-2020

[conf2020.geobon.org](http://conf2020.geobon.org)

News

**WEBINARS ON SUPPORTING IMPLEMENTATION OF POST-2020 GLOBAL BIODIVERSITY FRAMEWORK INDICATORS**

**AP-BON**

Asia-Pacific BON

The Asia-Pacific BON has been working on the identification of threats to biodiversity, in particular, drivers of biodiversity loss, mangrove loss, wetland loss, and anthropogenic actions that hamper the achievement of Sustainable Development Goals.

**Artificial Intelligence (AI) for Biodiversity Monitoring**

July 12, 2020

The GEO BON is currently working on updating the temporal resolution of its data. Microsoft's AI for Biodiversity Monitoring (AIM) is a new tool that can help with this.

**GEO BON Webinars on Supporting Implementation of the Post-2020 Global Biodiversity Framework**

July 9, 2020

Background

**Asia-Pacific BON**

The Asia Pacific BON, or AP-BON, was organized by the participants of the International Workshop for Networking Biodiversity Observation Activities in Asia Pacific Region held from July 21-22 2009, in Nagoya University, Japan. It was established as a regional network related to GEO BON, covering most countries of the Asia-Pacific region and covering all levels of biodiversity and ecosystems. As of 2017, some BONs are already operational at the national and sub-regional levels but there remains a need to organize more National BONs and organize their network, with the support of the GEO BON Secretariat and BON Development Working Group. Training courses were organized and are available through GBIF as funded by BIFA. There is however still a need to expand to other areas and parts of Asia and Pacific.

The AP BON has been working on the identification of threats to biodiversity, in particular, drivers of biodiversity loss, mangrove loss, wetland loss, and anthropogenic actions that hamper the achievement of Sustainable Development Goals. The AP BON makes the use of various technology for biodiversity monitoring at high resolution and providing large coverage such as Forest Crane, Drones and LIDAR that facilitate assessments in various ecosystems. Biodiversity databases have been established through various accessible platforms such as GBIF, ABCDNET, National Clearing House Mechanisms and the ASEAN Clearing House Mechanisms. In addition, related databases specific to certain taxa have been established.

More information can be found on the AP-BON website: <http://www.esabil.biodic.go.jp/ap-bon/index.html>

**Co-Leads**

Hiroyuki Muraoka  
Gifu University, National Institute for Environmental Studies

Runi Sylvester Pungga  
International Affairs Division, Forest Department Sarawak

Yongyut Trisurat  
Kasetsart University, Faculty of Forestry

# GEO BON, APBON and AP-MBON



## APBON

Platform for regional cooperation and collaboration  
Regional contribution to global actions

**MBON and AP-MBON**

MBON - Marine Biodiversity Observation Network

MBON is a "coalition of the willing" who agree to share knowledge and know-how to evaluate changes of biodiversity in the ocean, including data, products, protocols and methods, data systems and software. The MBON seeks to establish a process for sustained, operational measurements of biodiversity around the globe. These observations should be collected in standardized ways, and the information shared, in order to understand how biodiversity is changing. The ultimate objective is to understand how and why life in the ocean is changing, how local changes relate to changes taking place over larger regions, and to provide information to help define options for government and intergovernmental policies relevant to the conservation and sustainable use of marine biodiversity.

**Co-Leads**

Frank Muller-Karger  
University of South Florida

Isabel Sousa-Pinto  
University of Porto

Masahiro Nakaoka  
Hokkaido University

[See all BON Members](#) [Register](#) Interested to join? Click the Register button.



# 13<sup>th</sup> APBON Web Seminar

## September 13, 2022

### Objectives

1. to review the recent research/engagement outcomes (2020-2022) and discuss activity plan (2023-2025)
2. to discuss what and how do we strengthen the biodiversity observation in our region
3. to discuss the engagement of broader community

### Goals of this meeting

- ❑ Sharing the collected ideas and information with the APBON to seek further collaborative studies, outreach activities, etc.
- ❑ Planning collaborative publication (APBON book, Policy brief, etc.)
- ❑ Prepare inputs to the 15th AOGEO Symposium (28-30 September)



### Program (Time in JST)

- 15:00**      **Welcome / Opening remarks**  
APBON Secretariat - Biodiversity Center of Japan  
APBON Co-chairs
- 15:05**      **Outline of the meeting**  
Hiroyuki Muraoka
- 15:10**      **Session 1: Review the recent research/engagement outcomes (2020-2022) and discuss activity plan (2023-2025)**
- 16:30**      **Session 2: Discuss what and how do we strengthen the biodiversity observation in our region**
- Collaborative research
  - Integrative analysis of existing data/knowledge
  - Essential Biodiversity Variables
  - Link with satellite remote sensing
- 17:00**      **Session 3: discuss the engagement of broader community (academia, data-users, governments, etc.)**
- 17:20**      **Wrap-up: Way forward**  
(Moderator: Hiroyuki Muraoka)  
15th AOGEO Symposium  
APBON Workshop  
APBON Web seminar
- 17:30**      **Closing**  
APBON Co-chairs

# APBON Work Plan update toward 2030

## APBON's missions

- ❑ Promoting interdisciplinary research and problem-solving approaches with filling the observational and knowledge gaps,
- ❑ Promoting data sharing and data accessibility through/by networks of the observation networks,
- ❑ Delivering our information and knowledge to stakeholders and global platforms

## Strategy

### 1. Biodiversity research and monitoring

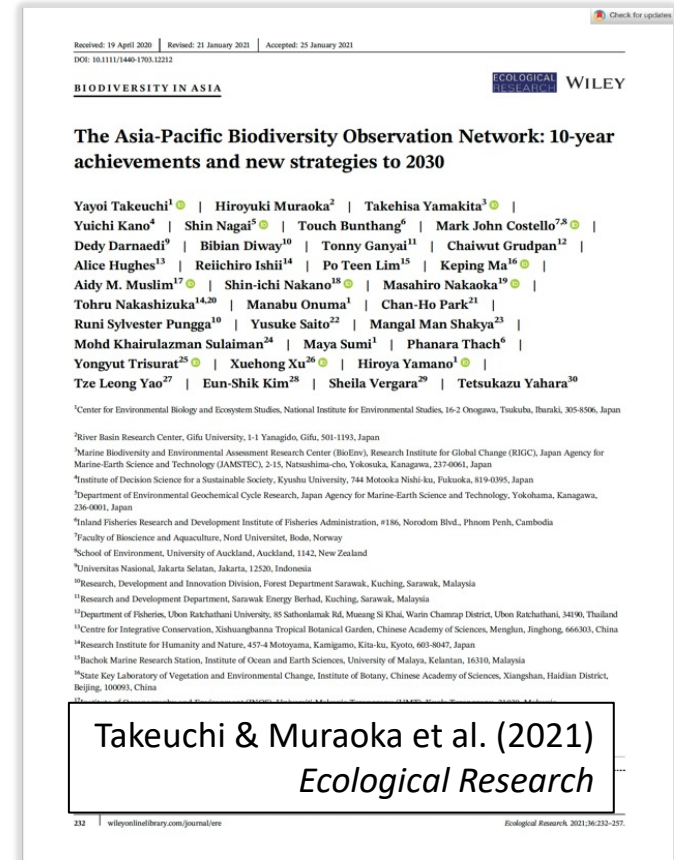
- a. Monitoring states and changes of biodiversity
- b. Filling gaps in data availability
- c. Increasing access to data (GBIF, ABCDNet, Data paper, OBIS)
- d. Improving knowledge by using cutting-edge technologies

### 2. Networking of networks

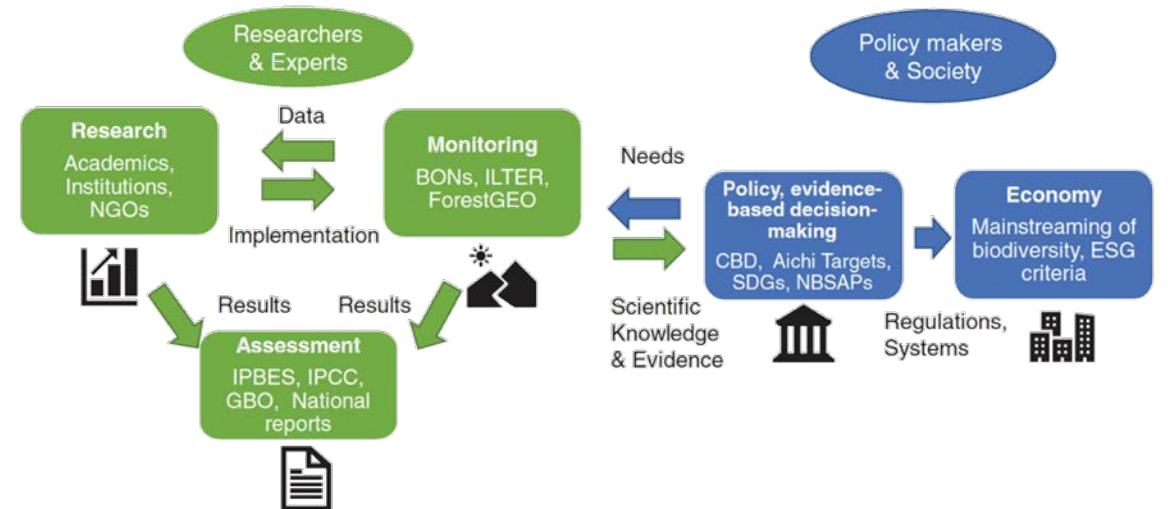
- a. Networking of in-situ biodiversity/ecosystem monitoring networks
- b. Science-policy and science-society networks

### 3. Capacity building

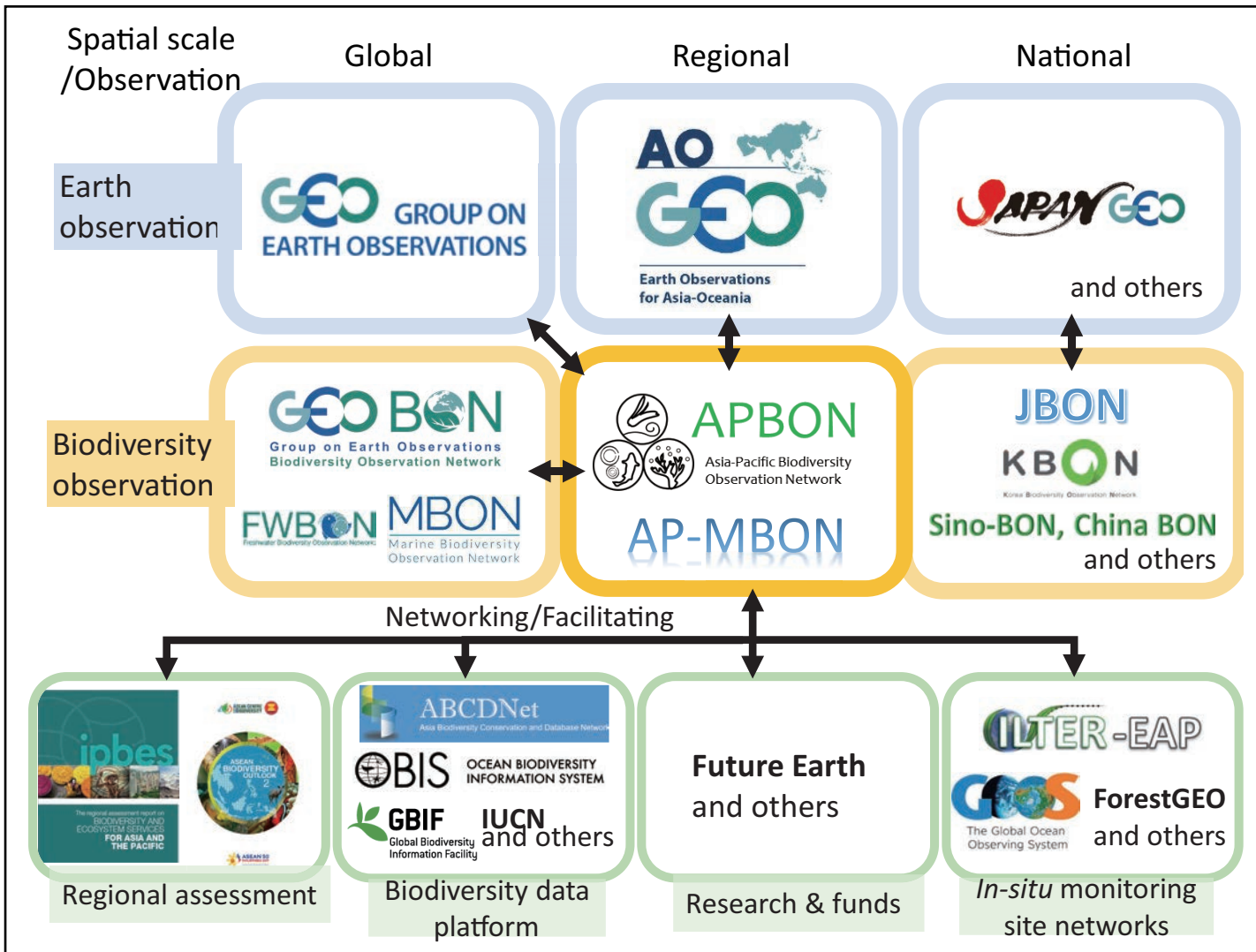
- a. Training workshops (students, scientists, users)



Takeuchi & Muraoka et al. (2021)  
*Ecological Research*



# Networking with observation and user communities



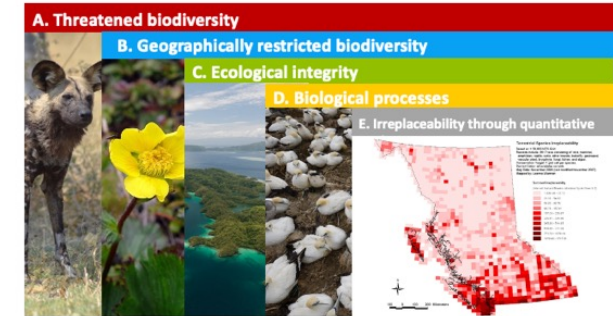
## KBAs are defined as:

*“sites contributing significantly to the global persistence of biodiversity”*

### KBA Criteria

KBA criteria are designed to capture biodiversity at genetic, species and ecosystem levels

Collectively, the criteria aim to capture the various ways in which a site can be important for the global persistence of biodiversity



## KBAs and APBON

- ✓ Biodiversity data generated by AP-BON can be used to identify KBAs
- ✓ Provision of more accurate range and Suitable Habitat Maps for species to help identify KBAs
- ✓ KBAs provides a means of turning biodiversity data into concrete conservation results at a national level
- ✓ AP-BON efforts can help monitor KBAs and their trigger elements
- ✓ Professor Y. Trisurat (APBON co-chair) – KBA Community Representative for Asia

# APBON Activity Highlights 2020-2022

**Key outcome: APBON New Strategy Toward 2030** (published in *Ecological Research*, Jan. 2021)

## Terrestrial

- **Phenology** research on forests in East and Southeast Asia
- **Satellite remote sensing of biodiversity**
  - Tropical forests and tree flowering
  - Himawari AHI satellite is useful for phenology observation
  - Mapping forest fragmentation / connectivity by satellite imagery for assessing integrity of forested landscape in Himalayan region in India
- **Impact assessment of climate change** on biodiversity, species distribution
- **Knowledge for biodiversity conservation** in cityscape and region
- SATREPS project for biodiversity conservation in Sarawak, Malaysia
- **Mapping protected areas** in the Hindu Kuch Himalaya
- Collections of herbarium specimens (flora, fauna) in Sarawak.
- **Systematic observation, data center and platform** in SinoBON
- **EBV mapping project** is under planning with EuropaBON
- **'Master site' concept** to connect in-situ and satellite obs. for biodiversity and ecosystem functions (e.g., carbon cycle)

## Freshwater

- **3D-model of various organisms** for online electronic specimen database (ffishAsia/floraZia)
- "Mekong integrated water resources management Phase III project" – **Improved community fishery governance in Cambodia**; Illegal fishing and threats to the resource; Socioeconomic and food security benefits; Resource management; Gender and ethnic minorities

## Coast & Marine

- Online symposium on healthy oceans as **UN Decade of Marine Science**.
- Review and case study paper on genetic analysis of **marine important areas (EBSAs)** for corals around Japan
- **Species level mapping of seagrass bed using UAV and deep learning** technique

## Capacity development

- **APBON web seminar series (13 times) and workshop**
- Monthly or bi-weekly seminars in China, ACB
- **Data management** workshop
- **Training courses** (biodiversity survey, new technologies)
- Seminar series of **MBON** network

## Engagement / Networking

- New pamphlet
- **GBIF** (Global Biodiversity Information Facility), **OBIS** (Ocean Biodiversity Information System)
- **Key Biodiversity Areas (KBA)**
- **CBD Post-2020 Global Biodiversity Framework**

# APBON Meetings (Webinar, Workshop)





13 September 2022	<b>13<sup>th</sup> APBON Web seminar</b> Special meeting for the 15 <sup>th</sup> AOGEO Symposium
8 July 2022	<b>12<sup>th</sup> APBON Web seminar</b> Dr. Charlie D. Heatubun (Head of the Research & Development Agency, Provincial Government of West Papua) Dr. Nirunrut Pomoim (Department of National Parks, Wildlife and Plant conservation)
4 March 2022	<b>11<sup>th</sup> APBON Web seminar (Special)</b> <b>Understanding the role and potential of Other Effective Area-based Conservation Measures (OECMs) in the Asia Pacific Region</b> Dr. Sunita Chaudhary (ICIMOD) Dr. Madhu Rao (Chair, IUCN World Commission on Protected Areas) Dr. Ruchi Pant (Head – Biodiversity, Climate Change UNDP India) Dr. Taku Kadoya (Head – Biodiversity Division, NIES, Japan) Dr. Nakul Chettri (Regional Programme Manager – Transboundary Landscapes, ICIMOD) Ms. Cristina Lazaro (UNEP-WCMC)
23 December 2021	<b>10<sup>th</sup> APBON Web seminar</b> Dr. Tetsukazu Yahara (Kyushu University) Dr. Ai Nagahama (Kyushu University)
10-12 November 2021	<b>14<sup>th</sup> Asia-Oceania Group on Earth Observations Symposium</b>
19 October 2021	<b>13<sup>th</sup> APBON Workshop</b> Scoping collaborative work plan of APBON in the next ca. 4 years (~2025), which is the first half of APBON's strategic plan toward 2030.
30 September 2021	<b>9<sup>th</sup> APBON Web seminar</b> Dr. Alice Hughes (Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences) Dr. Angela Quiros (Akkeshi Marine Station, Field Science Center for Northern Biosphere, Hokkaido University)

8 July 2021	<b>8<sup>th</sup> APBON Web seminar</b> Dr. Po Teen Lim (University of Malaya) Dr. Chaodong Zhu (Chinese Academy of Sciences)
27 May 2021	<b>7<sup>th</sup> APBON Web seminar</b> Dr. Yuichi Kano (Kyushu University) Dr. Asanee Kawtrakul (Kasetsart University)
25 February 2021	<b>6<sup>th</sup> APBON Web seminar</b> Dr. Eun-Shik Kim (Kookmin University) Dr. Tomoaki Miura (University of Hawaii, JAMSTEC)
22 January 2021	<b>12<sup>th</sup> APBON Workshop</b>
21 January 2021	<b>5<sup>th</sup> APBON Web seminar</b> Dr. Bunthang Touch (Inland Fisheries Research and Development Institute) Dr. Chheang Dany (Forestry Administration, Cambodia)
10 December 2020	<b>4<sup>th</sup> APBON Web seminar</b> Mr. Yao Tze Leong (Forest Research Institute Malaysia) Dr. Takashi Hosono (Japan Agency for Marine-Earth Science and Technology)
22 October 2020	<b>3<sup>rd</sup> APBON Web seminar</b> Dr. Po Teen Lim (University of Malaya) Dr. Laetitia Navarro (GEO BON)
27 August 2020	<b>2<sup>nd</sup> APBON Web seminar</b> Dr. Alice Hughes (Xishuangbanna Tropical Botanical Garden) Dr. Yuichi Kano (Kyushu University)
6–10 July 2020	<b>GEO BON Open Science Conference &amp; All Hands Meeting</b>
29 June 2020	<b>Kick-off Meeting   1<sup>st</sup> APBON Web seminar</b> Dr. Yongyut Trisurat (Kasetsart University) Dr. Sheila Vergara (ASEAN Centre for Biodiversity)




# APBON Activity Highlights 2020-2022

Understanding the role and potential of Other Effective Area-based Conservation Measures (OECMs) in the Asia Pacific Region


Opening Remarks

Madhu Rao  
Chair  
IUCN World Commission on Protected Areas

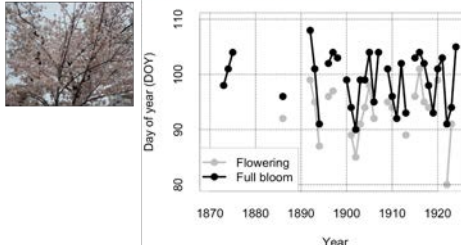


**A new method for monitoring plant phenology by social sensing (Google Trends: <https://trends.google.com/trends/?geo=JP>).**

▼ Relationship between time-series of RSV searched by Google Trends, and flowering information published on the website at Miharu Takizakura in Fukushima, Japan



Importance of sharing the past records and papers in – We should promote data mining and translating of written in the language of each country into English.



▲ Time series of cherry flowering and full-bloom dates from Atomi Kakei's diary in Tokyo, Japan [Shin et al., in press, Jpn. J. Biometeorol., in Japanese].

Article | Open Access | Published: 30 October 2019

**Improved Characterisation of Vegetation and Land Surface Seasonal Dynamics in Central Japan with Himawari-8 Hypertemporal Data**

Tomoaki Miura, Shin Nagai, Mika Takeuchi, Kazuhito Ichii & Hiroki Yoshioka

Scientific Reports 9, Article number: 15692 (2019) | Cite this article

**Forest Fragmentation Susceptibility (FFS) Mapping and Assessment**

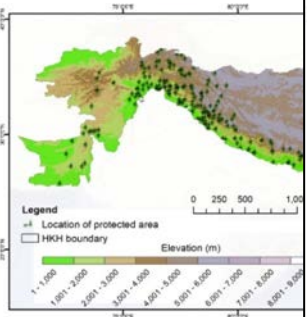
SCIENTIFIC IMPACT PAPER

Conservation Science and Practice  
A Journal of the Society for Conservation Biology

WILEY

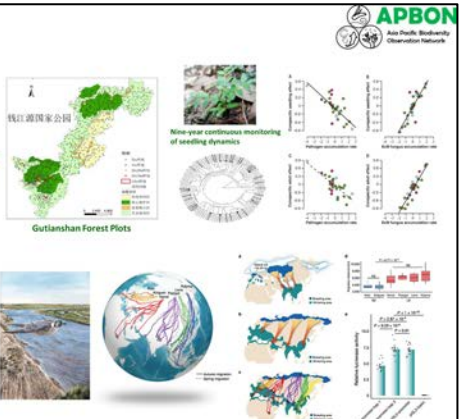
**Protected areas in the Hindu Kush Himalaya: A regional assessment of the status, distribution, and gaps**

Sunita Chaudhary<sup>1,2</sup> | Kabir Uddin<sup>1</sup> | Nakul Chettri<sup>1</sup> | Rajesh Thapa<sup>3</sup> | Eklabya Sharma<sup>1</sup>

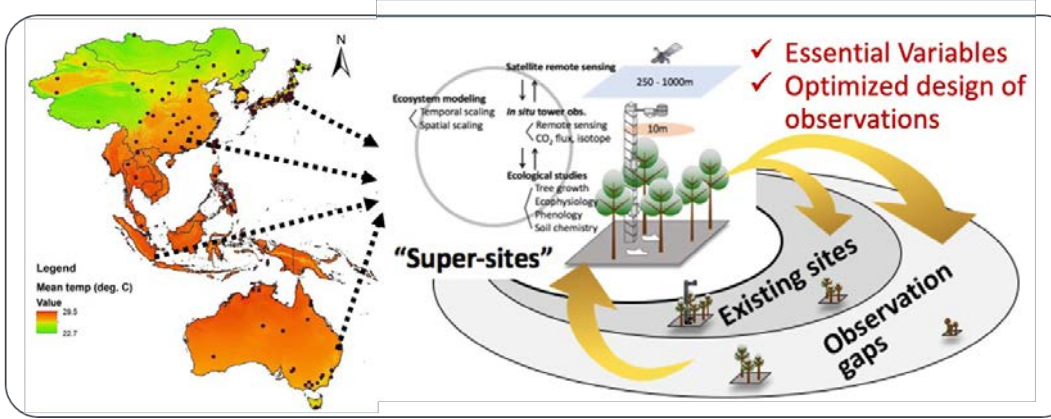


**Sino BON : Scientific discoveries**

- Revealing plant-fungi interactions regulating the coexistence of species in subtropical forests (Chen et al., 2019, *Science*)
- Revealing the reasons for the formation of bird migration routes and key genes for long-distance migration (Zhan et al., 2021, *Nature*)



**Master site concept to link in-situ and satellite obs.**



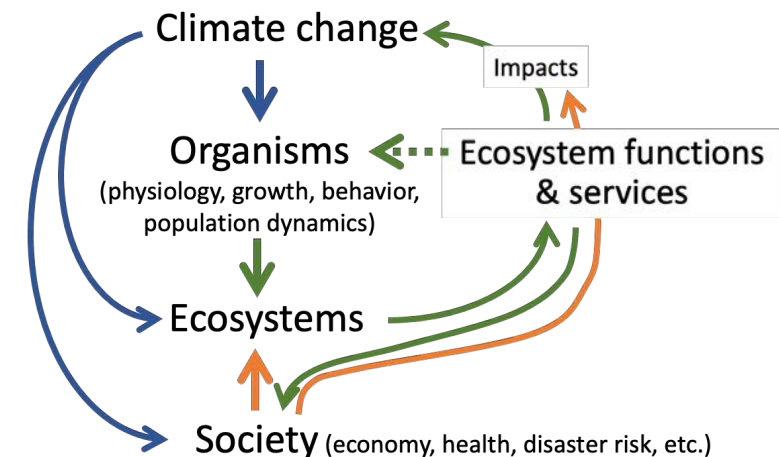
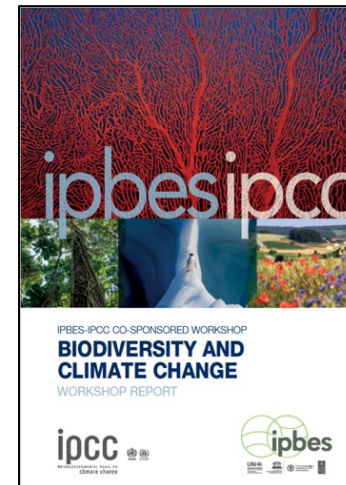
- Essential Variables
- Optimized design of observations

# Findings by APBON

## Issues in biodiversity/ecosystem and needs of research



Terrestrial	Freshwater	Coast & Marine
<ul style="list-style-type: none"> <li>• <b>Nature-based solutions</b> to global climate change mitigation and adaptation</li> <li>• Possible tradeoff in infrastructure for carbon neutrality and biodiversity</li> <li>• <b>Forest landscape integrity is key</b> for biodiversity conservation and ecosystem functions, services</li> <li>• <b>Valuable ecosystems</b> such as peatlands, rangeland and wetlands are degrading with climate crisis. Climate change-induced impacts on biodiversity assessment is urgent</li> <li>• <b>More research</b> to be carried out on carbon, issues <b>relevant to climate change and addressing the SDGs.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Understanding the <b>implications of water infrastructure development and climate change on fish yield</b> and welfare value in Cambodia</li> <li>• Impacts of illegal fishing, environmental change, population growth, hydropower dams on fish biodiversity in Cambodia</li> </ul>	<ul style="list-style-type: none"> <li>• Projects in response to the <b>UN Decade of Marine Science (deep sea, seagrass and mangrove mapping, pole to pole biodiversity)</b></li> <li>• Decline of <b>seaweed bed</b> due to climate and plant eaters is an emerging threat.</li> <li>• Sudden red tine in Hokkaido</li> </ul>



# APBON – Plan for 2023-2025



<p><b>Strengthening observations and proceeding data sharing to respond national, regional and global needs</b></p> <ul style="list-style-type: none"> <li>• <b>Continuing observations of biodiversity and ecosystems</b> for assessing status and changes under environmental changes</li> <li>• <b>Phenology and carbon cycle</b> as the interface of <b>biodiversity and climate change</b> issues</li> <li>• <b>eDNA and high throughput DNA sequencing</b> for species identification and monitoring for national and regional scale</li> <li>• <b>High resolution satellite data</b> are key for biodiversity indicators and metrics, assessing impacts of climate and land use change</li> <li>• Verification and implementation of <b>Essential Biodiversity Variables</b> are key for continuous observations</li> <li>• <b>Assimilating observations across scales</b> (e.g., from laboratory, in-situ field to remote sensing, and modeling).</li> <li>• <b>Master site concept</b> to enable multi-disciplinary and multi-platform observations.</li> </ul>	<p><b>Stakeholder engagement, and contribution to national, regional and global efforts</b></p> <ul style="list-style-type: none"> <li>• <b>Governments, private sectors, citizens, next generation</b></li> <li>• Academia, earth observation institutions, citizen science</li> <li>• <b>Translating and digitizing data/knowledge in local language to English</b> for rescuing historical local data, and comprehensive, fair assessment and conservation of biodiversity and Nature’s contribution to people (e.g., resources, cultures, etc.) in the Asia-Oceania region</li> <li>• <b>Development of networks within countries (→ National BONs), regional and global.</b></li> <li>• <b>Sustainable Development Goals</b> (6, 12, 13, 14, 15)</li> <li>• <b>CBD Post-2020 Global Biodiversity Framework</b></li> <li>• <b>Taskforce on Nature-related Financial Disclosures (TNFD)</b></li> </ul>
<p><b>Capacity development and Youth engagement</b></p> <ul style="list-style-type: none"> <li>• Encouragement and support the <b>education / training / meeting / workshop</b> opportunity</li> <li>• <b>More academia and youth networks</b> from the region and beyond APBON is expected</li> </ul>	<p><b>Cooperative, coordinated action plans</b></p> <ul style="list-style-type: none"> <li>• <b>Coordination and cooperation among all relevant stakeholders</b></li> <li>• <b>Sustainable mobilize resources</b> to achieve long term plans</li> <li>• Joint research implementation and publications</li> <li>• <b>Cooperation with AOGEO</b></li> </ul>

Climate change x Biodiversity      Nature-based Solutions (NbS)      Connecting in-situ and satellite obs. and modeling

Cooperation with AOGEO for multidisciplinary observations and assessment, youth and stakeholder engagement

For more information of APBON

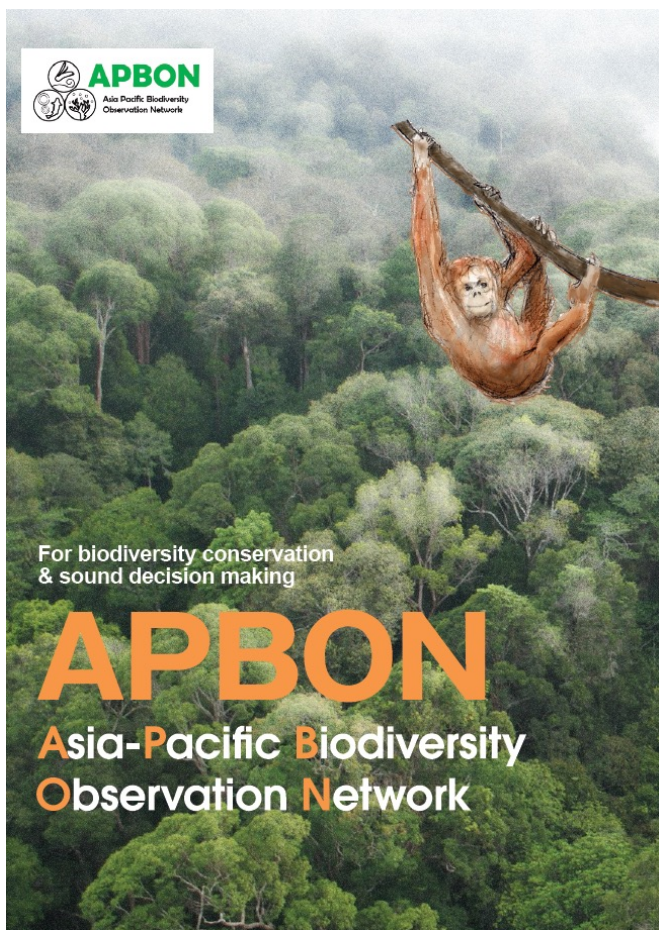
<http://www.esabii.biodic.go.jp/ap-bon/index.html>

APBON on-line seminars

<http://www.esabii.biodic.go.jp/ap-bon/meetings/index.html>

**APBON Secretariat:**

Biodiversity Center of Japan, MoE-J



For biodiversity conservation & sound decision making

# APBON

## Asia-Pacific Biodiversity Observation Network

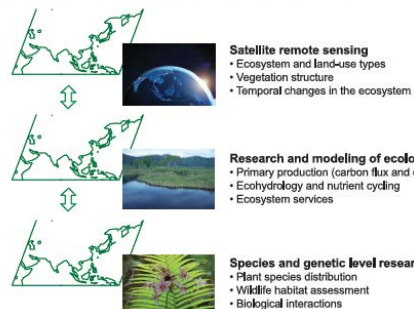
## Asia-Pacific Biodiversity Observation Network

### Biodiversity observation networks in the Asia-Pacific region

The Asia-Pacific Biodiversity Observation Network (APBON) is a network of institutions and research groups in the AP region, APBON contributes to and utilizes a knowledge resource base for decision making and policy making for the conservation of biodiversity and ecosystems. APBON was launched in 2009, in response to the establishment of the Biodiversity Observation Network under the Group on Earth Observations in 2008. APBON is closely collaborating with Asia-Oceania GEO.

Asia-Pacific Marine BON (AP-MBON) furthers the development of marine biodiversity science in the Asia-Pacific region, as a sub-group of the MBON and Asia-Pacific BON networks of GEO BON.

APBON's approaches for biodiversity monitoring involve three levels: remote sensing, ecological process research, and species/genetic research. APBON tries to link the outcomes of each level of observation with an aim to contribute to policy making for the conservation of biodiversity.



### APBON's Key Publications

**APBON books**

- The Biodiversity Observation Network in the Asia-Pacific Region: Toward Further Development of Monitoring, (eds.) S. Nakano et al. (2012), *Ecological Research Monographs*, Springer
- Asia-Pacific Biodiversity Observation Network: Integrative Observations and Assessments, (eds.) S. Nakano et al. (2014), *Ecological Research Monographs*, Springer
- Asia-Pacific Biodiversity Observation Network: Aquatic Biodiversity Conservation and Ecosystem Services, (eds.) S. Nakano et al. (2016) *Ecological Research Monographs*, Springer

**APBON Strategy Paper**

- The Asia-Pacific Biodiversity Observation Network: 10-year achievements and new strategies to 2030, Takeuchi et al. (2021), *Ecological Research* 36: 232-257 <https://doi.org/10.1111/1440-1703.12212>

### New strategies for 2030

**Biodiversity research and monitoring**

APBON fosters broader collaborative multidisciplinary approach to answer

**2009**

**2019-2020** CBD COP15

**2030** SUSTAINABLE DEVELOPMENT GOALS

**Mission:**

- Fostering network research group
- Promoting collaboration information
- Disseminating research results to aid the conservation

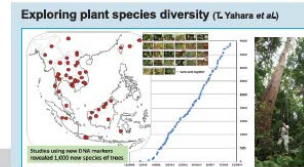
**New mission:**

- Promoting international problem-solving observation and
- Promoting data accessibility among through network
- Delivering accurate information to stakeholders

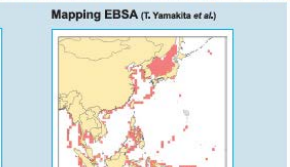
For more details, see: **APBON Strategy Paper**  
The Asia-Pacific Biodiversity Observation Network  
Takeuchi et al. (2021), *Ecological Research*

### Showcases of biodiversity observations and assessments by APBON

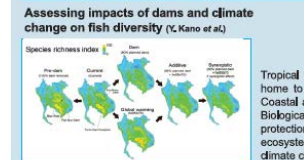
**Exploring plant species diversity** (T. Yahara et al.)



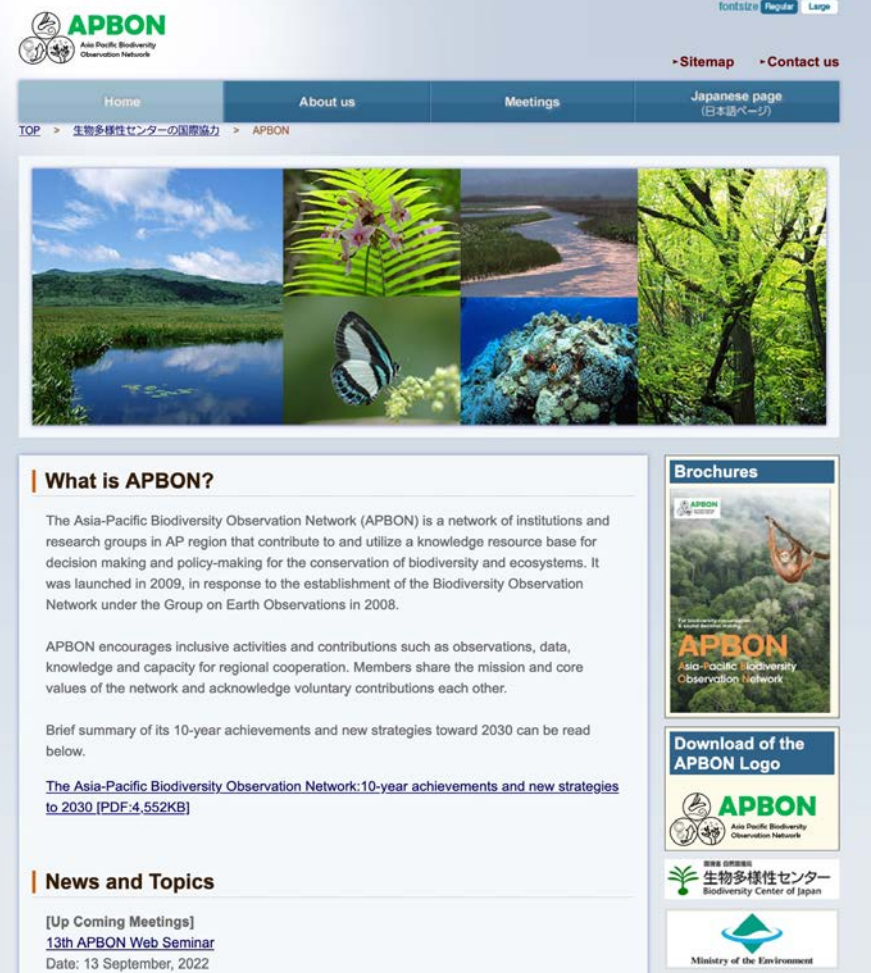
**Mapping EBSA** (T. Yamakita et al.)



**Assessing impacts of dams and climate change on fish diversity** (K. Kano et al.)



Tropical forests in Southeast Asia are hotspots of biodiversity and home to several undiscovered plant species. (T. Yahara's group). Coastal and marine ecosystems with high biodiversity (Ecologically Biologically Significant Areas: EBSA) need to be identified for protection. (Yamakita et al. 2017, *Marine Biology*). Freshwater ecosystem and fish diversity are susceptible to landuse change and climate change (Kano et al. 2016, *PLOS-ONE*).



APBON Asia Pacific Biodiversity Observation Network

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**What is APBON?**

The Asia-Pacific Biodiversity Observation Network (APBON) is a network of institutions and research groups in AP region that contribute to and utilize a knowledge resource base for decision making and policy-making for the conservation of biodiversity and ecosystems. It was launched in 2009, in response to the establishment of the Biodiversity Observation Network under the Group on Earth Observations in 2008.

APBON encourages inclusive activities and contributions such as observations, data, knowledge and capacity for regional cooperation. Members share the mission and core values of the network and acknowledge voluntary contributions each other.

Brief summary of its 10-year achievements and new strategies toward 2030 can be read below.

[The Asia-Pacific Biodiversity Observation Network: 10-year achievements and new strategies to 2030 \(PDF: 4.552KB\)](#)

**News and Topics**

[Up Coming Meetings]  
**13th APBON Web Seminar**  
Date: 13 September, 2022

**Brochures**

**Download of the APBON Logo**

生物多様性センター  
Biodiversity Center of Japan

Ministry of the Environment