

## BOOK OF ABSTRACTS

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### I. SESSION DESCRIPTION

ID: T2d

#### Challenges on monitoring biodiversity and nature's contributions to people

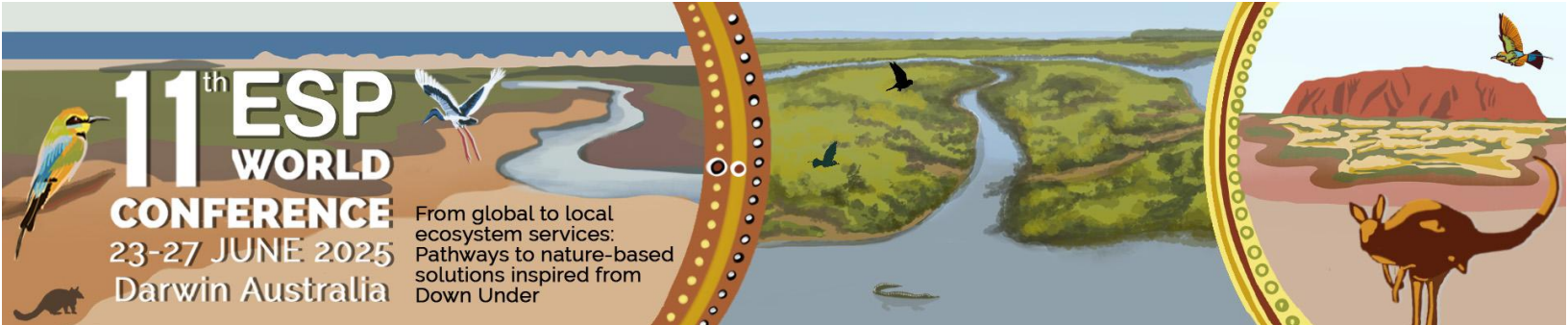
	Name	Organisation	E-mail
Host:	Ana Paula Turetta	Brazilian Agriculture Research Corporation	ana.turetta@embrapa.br
Co-host(s):	Ágnes Vári	HUN-REN Centre for Ecological Research	vari.agnes@ecolres-hu

#### Abstract:

The IPBES is developing a methodological assessment on monitoring biodiversity and nature's contributions to people (NCP). The goal is (a) to facilitate national and global initiatives to track biodiversity, NCPs, and the direct and underlying factors influencing observed changes; and (b) assess progress towards the goals and targets of the Kunming–Montreal Global Biodiversity Framework, thereby enhancing the implementation of the Convention on Biological Diversity, including its three objectives, and aiding in the monitoring of the Sustainable Development Goals outlined in the 2030 Agenda for Sustainable Development, as well as relevant multilateral environmental agreements, processes, and efforts, particularly those related to biodiversity, while considering the specific contexts of developing nations.

The report will address a highly complex issue due to its multiple interactions and the different capacities of nations to monitor biodiversity. It also includes evaluating deficiencies in data availability and accessibility, as well as existing biases in the taxonomic, geographic, and temporal representation of data for marine, freshwater, and terrestrial ecosystems.

In this session we welcome contributions that present first approaches or established ways to implement monitoring of biodiversity, of NCP, or of whole social–ecological systems. Answers to difficulties and obstacles regarding the capacities and resources required for acquiring and distributing data are sought, in line with the scope/given mandate to “enhance cooperation, to promote resource–sharing and reporting, to allow data from many sources to be combined and to improve understanding of biodiversity and NCP



change”

### Goals and objectives of the session:

The session hosts give a short overview of the scopes of the IPBES Monitoring assessment, while the greater part of the session offers the scientific community an opportunity to present different methods of biodiversity and NCPs monitoring. This is also intended to foster a network to share resources where synergies exist and establish cooperations.

### Planned output / Deliverables:

- Identify current projects related to biodiversity or NCP monitoring;
- Encourage dialogue about the primary challenges associated with biodiversity and NCP monitoring;
- Identify feasible strategies for biodiversity and NCP monitoring, considering geographical and temporal dimensions.

## II. SESSION PROGRAM

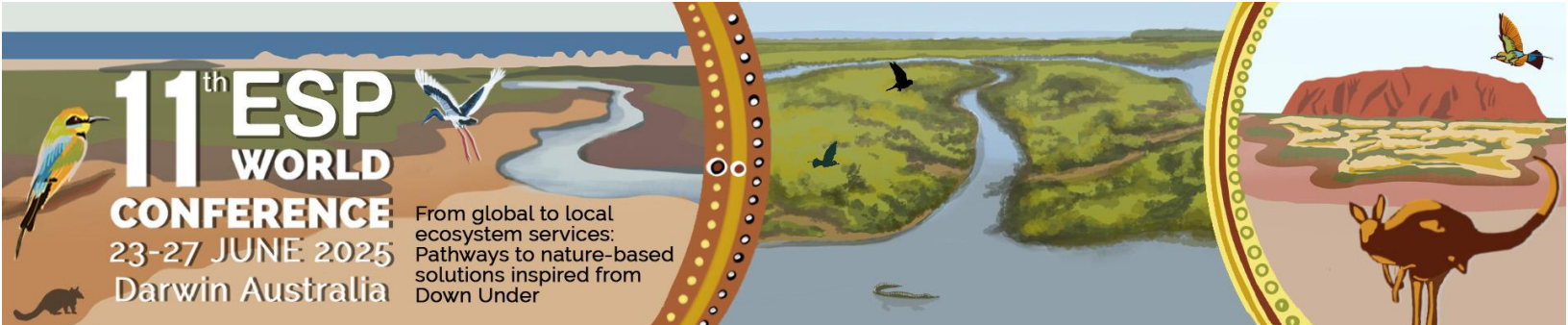
**Room:** Damibila 1

**Date of session:** Thursday 26<sup>th</sup> June, 2025

**Time of session:** 14:00–15:30h

### Timetable speakers:

Time	First name	Surname	Organization	Title of presentation
14:00h	Ana Paula	Turetta	Brazilian Agriculture Research Corporation – Embrapa	Challenges on monitoring biodiversity and nature’s contributions to people
	Ágnes	Vári	HUN–REN Centre for Ecological Research	
14:15h	Eren	Turak	NSW Department of Climate Change, Energy, the Environment and Water	Advancing national ecosystem services monitoring with essential variables
14:30h	Stefanie	Broszeit	University of Plymouth	How useful are global indicators to local and regional nature management – a stakeholder perspective
14:45h	Willy Puspa	Irawan	Universitas Diponegoro	Role of Ocean Accounting to Track Contribution of Marine Protected Area to Maritime Economy in



Time	First name	Surname	Organization	Title of presentation
				Indonesia: Anambas Islands MPA Case Study
15h	Haojie	Chen	U.S. Department of Energy, Oak Ridge Institute for Science and Education	How to assess realized or actual use of ecosystem services: Indicators, challenges, and suggestions
15:15h	Wrap up and discussions			

### III. LIST OF ABSTRACTS

*The first author is the presenting author unless indicated otherwise.*

#### 1. Advancing national ecosystem services monitoring with essential variables

**First author(s):** Eren Turak

**Other author(s):** Flavio Affinito, Anne-Gaelle Ausseil, Frank Muller-Karger, Franco L. Souza, Nuria Pistón, Ágnes Vári

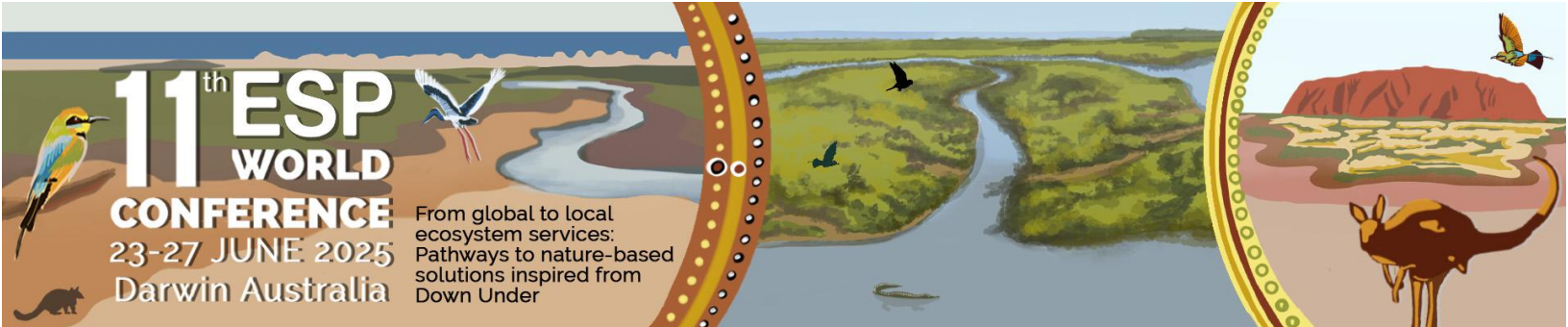
**First author affiliation:** NSW Department of Climate Change, Energy the Environment and Water, Australia

**Contact:** [eren.turak@environment.nsw.gov.au](mailto:eren.turak@environment.nsw.gov.au)

**Keywords:** essential ecosystem service variables, reporting, interoperability, cooperation, interdisciplinarity

Understanding ecosystem service (ES) change requires monitoring to help define policy options and implement sustainable development. Local and national governments worldwide face challenges in understanding how to measure ecosystem services, especially within the context of the Kunming–Montreal Global Biodiversity Framework (KM–GBF), where reporting on ecosystem services and biodiversity is required.

Multiple frameworks to measure ESs exist (e.g. SEEA EA, IPBES, TNFD), causing conceptual overlap and difficulties in collaboration across groups. Yet, the data needs of these frameworks are



similar and organising ES data effectively would help measure ESs consistently within and across frameworks. However, data on ecosystem services remains disjointed in disciplinary silos and assessments of ecosystem services typically focus on only one or two dimensions of ESs (e.g. supply, demand or value). A structured approach is needed to integrate different types of data from different sources on the multiple dimensions of ecosystem services.

Essential ecosystem service variables (EESVs) can address this challenge. EESVs focus on organising the data required to understand ES change using a social–ecological perspective. They provide a structured approach to harmonize data, facilitate interoperability and improve trend estimation. EESVs promote interdisciplinarity by taking advantage of data and methods from diverse fields. Using EESVs engages ecologists, economists and social scientists equally to measure, quantify and value change in the multiple dimensions of ESs. Doing so allows for the identification of trade–offs and policy options that go beyond traditional measures of ecosystem condition.

We present some examples of how using EESVs to measure ES change can help bridge across frameworks, provide actionable knowledge at the local scale, engage multi–disciplinarity and support a nuanced understanding of ES to guide policy. Using EESVs to measure ES change can support the implementation across scales of multiple targets in the KM–GBF and facilitate reporting towards it and other initiatives.

## 2. How useful are global indicators to local and regional nature management – a stakeholder perspective

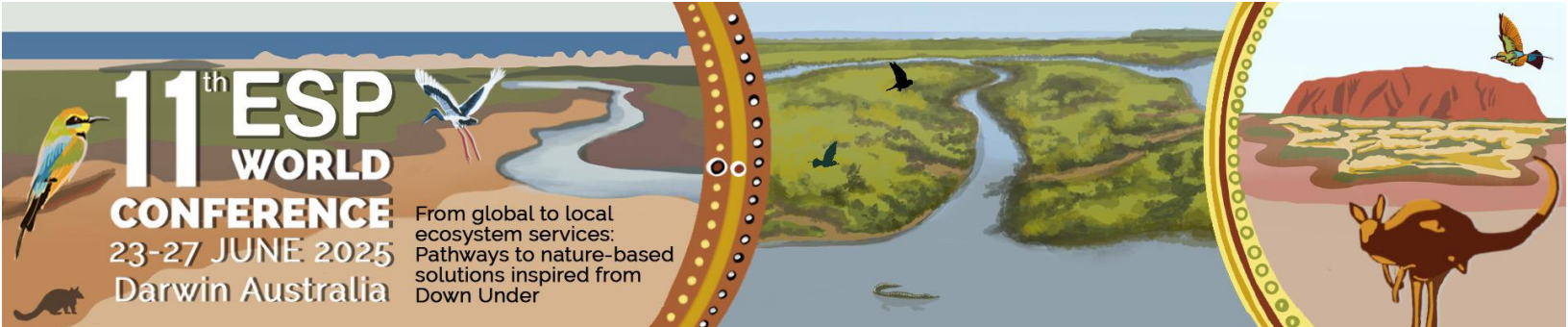
**First authors(s):** Stefanie Broszeit

**Other author(s):** Evangelia Drakou, Roxanne Suzette Lorilla, Samantha Garrard

**First author affiliation:** Plymouth Marine Laboratory, Plymouth, UK

**Contact:** [stbr@pml.ac.uk](mailto:stbr@pml.ac.uk)





**Keywords:** biodiversity, indicators, global scale, conservation, stakeholder consultation

Through the Biodiversity Indicator Partnership (BIP), the Intergovernmental Science–Policy Platform on Biodiversity and Ecosystem Services (IPBES) curate a list of biodiversity and Nature’s Contributions to People indicators. These also link to other sustainability and biodiversity protection initiatives such as the Kunming–Montreal Global Biodiversity Framework and Sustainable Development Goals and their indicators.

We will report on a study undertaken in five case study sites, four in Europe and in Madagascar. Each case study site had a “conflict” between infrastructure development and nature conservation. We asked stakeholders in each CSS to tell us about the biodiversity indicators that they use and those that they are interested in. The stakeholders were a variety of scientific institutes, nature management organisations such as national parks, as well as users of the space.

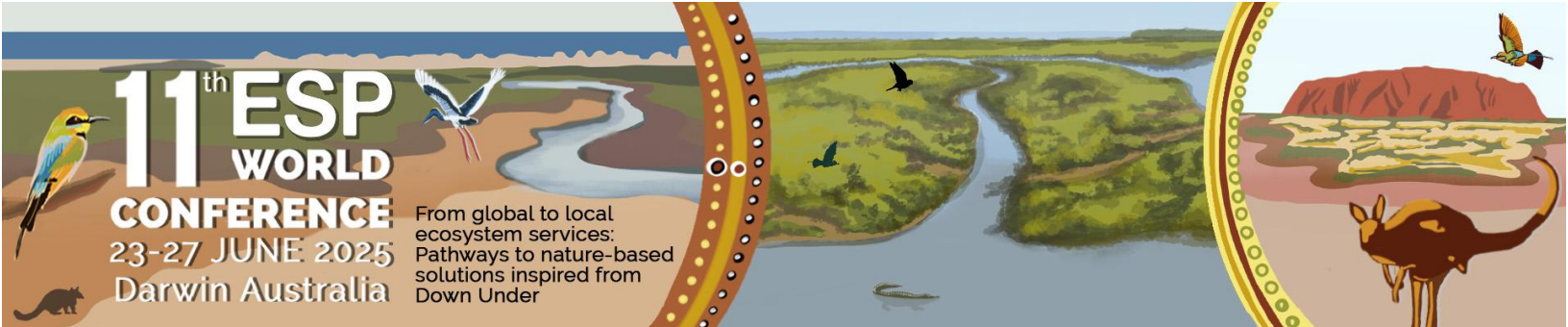
To better understand which indicators may be useful at small scale (smaller than national), we sent them lists of indicators that were curated from global to national initiatives with their specific case study in mind to see which ones they use as well as which ones they were interested in. Each case study site received between 40–70 indicators which consisted of indicators listed in global initiatives such as the Kunming–Montreal framework or BIP as well as national indicators. We also looked to have indicators telling us about different aspects of biodiversity such as dominance or ecosystem service and environmental pressures and management indicators.

Here we present our approach to curating bespoke indicator lists and the results of the stakeholder consultation.

### 3. Role of Ocean Accounting to Track Contribution of Marine Protected Area to Maritime Economy in Indonesia: Anambas Islands MPA Case Study

**First author(s):** Willy Puspa Irawan

**Other author(s):** Annisya Rosdiana, Intan Destianis Hartati, Agavia Kori Rahayu, Nabila Nur Septiani, Marsha Hamidah, Ayi Warmia, Jessica Pingkan, Firdaus Agung, Heidi Retnoningtyas, Andriyatno Hanif, Kandi Dwi Pratiwi, Irfan Yulianto

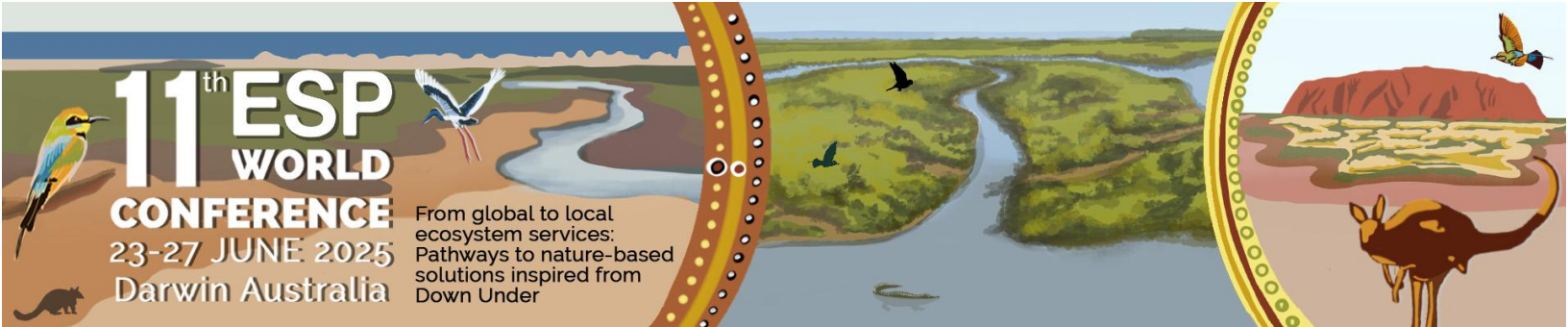


**First author affiliation:** Fisheries Resource Centre of Indonesia, Rekam Nusantara Foundation, Indonesia

**Contact:** willypuspairawan98@gmail.com

**Keywords:** community welfare, ecosystem services, Gross Value Added, maritime economy, SDGs

The maritime economy is a significant driver of national development within Indonesia. Balancing development with ecological conservation, however, requires spatial planning through Marine Protected Areas (MPAs), as supported by the Sustainable Development Goal 14: Life Below Water. These MPAs are designated to safeguard biodiversity, ecosystems, and valuable resources while also delivering economic benefits to society. Justification of MPAs is strengthened by understanding their contribution to society and the economy, which could be achieved through measuring ecosystem services. We piloted the use of System of Environmental–Economic Accounting (SEEA) and Ocean Accounts Framework in the Anambas Islands MPA. The identification and mapping of ecosystem services relevant to the MPA are conducted to assess the potential economic and social benefits. This relevance assessment is based on the Common International Classification of Ecosystem Services (CICES) framework. The Anambas Islands MPA has three key ecosystems: coral reefs, seagrass, and mangroves. Coral reefs being the most dominant, covering an area of 15,089.37 hectares. The biotic components, particularly fish biomass provision, are primarily utilized for marine capture fisheries and marine aquaculture activities. The study also examined 12 maritime clusters (economic sectors) operating within the MPA, as a baseline for understanding nature–dependencies of these critical economic sectors. In the survey 2023, seven of the 12 maritime clusters were identified in the Anambas Islands MPA, which resulted in an estimate of a total gross value added (GVA) of 740.5 billion IDR (46 million USD). Fisheries and maritime cultivation contributed the most, accounting for 604.2 billion IDR (37 million USD). Overall, the MPA contributed 4% to the Anambas Islands Gross Regional Domestic Product (GRDP). The findings provide valuable insights into the nature–dependent sectors operating within MPAs and these economic statistics are needed to better understand the reliance of these sectors on ecosystems and their services.



#### 4. How to assess realized or actual use of ecosystem services: Indicators, challenges, and suggestions

**First author(s):** Haojie Chen

**Other author(s):** No

**First author affiliation:** Oak Ridge Institute for Science and Education, U.S. Department of Energy

**Contact:** haojie.chen992@gmail.com

**Keywords:** Ecosystem services (ESs), realized ESs, assessment of ecosystem services

Ecosystem services (ESs) are the benefits that humans receive from ecosystems. In theory, ESs refer to realized benefits—those that are actually used or received by people. However, in practice, many existing ES assessments—particularly those using biophysical units—conflate ESs with ecosystems’ theoretical capacities to provide services based on functions, processes, or characteristics. These capacities may be described as potential ESs. The realization of potential ESs requires not only the presence of these ecological capacities but also human perception, actual use, and the fulfillment of human demand. As such, assessing realized ESs is inherently more complex than assessing potential ESs. Currently, there is no comprehensive guidance on methodologies for assessing realized ESs. This review addresses that gap by presenting a comprehensive set of indicators for various types of realized ESs. It also discusses key challenges and offers suggestions for improving assessment approaches. The aim is to support ES researchers, managers, and decision-makers in evaluating realized ESs—thereby contributing to environmental and economic policymaking. This includes measuring the actual contributions of ESs to socio-economic development and human well-being, as well as enabling more precise economic analyses to inform policy and market-based instruments.