



# EMODnet



European Marine  
Observation and  
Data Network

## **EMODnet Thematic Lot n°V - BIOLOGY**

**EASME/EMFF/2016/1.3.1.2- Lot 5/SI2.750022 – Biology**

**Start date of the project: 19/04/2019- (24 months)**

### **EMODnet Phase III**

**A Showcase for the European Atlas of Marine Life –  
Workshop Report and Recommendations (D5.4)**



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## Document info

Title [ref]*	A Showcase for the European Atlas of Marine Life – Workshop Report and Recommendations
WP title [ref]*	Outreach and Engagement [WP5]
Task [ref]*	Recommendation report [D5.4]
Authors [affiliation]	Lear, D. [MBA], Herman, P. [Deltares], Garcia, P. [VLIZ]
Dissemination level	Public
Submission date	06/08/2019
Deliverable due date	dd/mm/yyyy

\*[ref] refers to the corresponding abbreviated name of the Deliverable (or WP, or Task...), if appropriate

# Contents

<b>A Showcase for the European Atlas of Marine Life – Workshop Report and Recommendations.....</b>	<b>4</b>
<b>1 Introduction.....</b>	<b>4</b>
<b>2 The Event.....</b>	<b>5</b>
<b>3 Discussions.....</b>	<b>6</b>
<b>4 Recommendations and Next Steps.....</b>	<b>6</b>
<b>5 Appendix I .....</b>	<b>8</b>
5.1 Agenda .....	8
5.2 The Speakers.....	10

# A Showcase for the European Atlas of Marine Life – Workshop Report and Recommendations

## 1 Introduction

Established in 2009, the European Marine Observation and Data Network (EMODnet) Biology program has been highly successful in collating and facilitating access to marine biodiversity data and in the development of data products and services to ensure the data are presented in manner that conforms to the FAIR data principles<sup>1</sup>, whilst meeting stakeholder needs.

The third phase of EMODnet Biology began in May 2017, following previously successful phases.

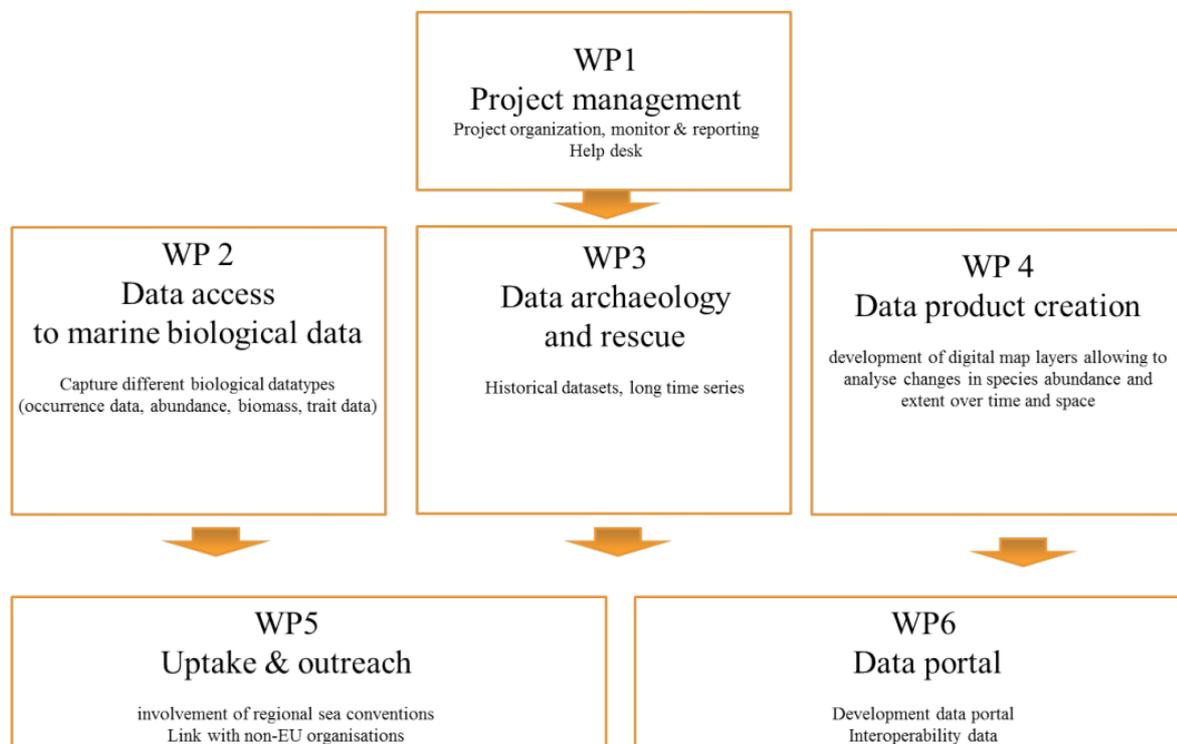


Figure 1. The EMODnet Biology Phase 3 Work Package Structure.

A significant measure of success of the EMODnet Biology program relates to the extent of adoption and integration that the data systems and products have with the wider community. Therefore a dedicated work package of EMODnet Biology (WP5) ensures the highest level of utility of those products created with Work Package 4 and the underlying data resources accessible through WP2.

<sup>1</sup> FAIR – Findable, Accessible, Interoperable, Resuable. <https://www.go-fair.org/fair-principles/>

By liaison with key stakeholders and users of marine biological data, we aim to illustrate that the data products fit the operational requirements essential for the management of Europe’s marine waters and ensure interoperability with global initiatives.

## 2 The Event

Building on a focussed, small-scale workshop held in London in November 2017, the EMODnet Biology WP5 team organised a wider, stakeholder engagement event to demonstrate the current suite of data products and how they align with end-user needs. With the invaluable assistance of the Portuguese Institute for Sea and Atmosphere (IPMA), a one-day ‘showcase’ event was organised at the Cultural Centre of Belem, Lisbon, Portugal. The event was organised as a side-meeting of the European Maritime Day conference held in Lisbon over the subsequent two days. In this way we were able to reach a wider, more varied audience, increasing the breadth of EMODnet Biology engagement, and building stronger links across both partnerships.

The event was structured around the Essential Ocean Variable (EOV) functional groups and habitat state categories.

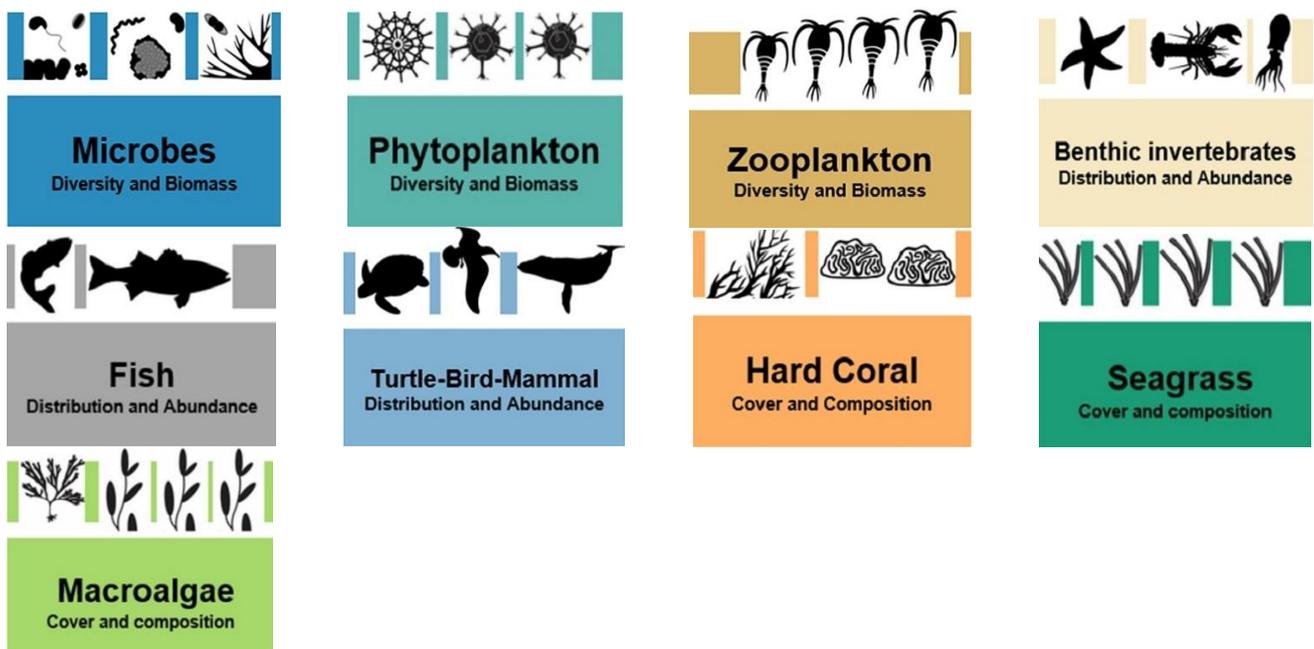


Figure 2 – The EOV categories relevant to EMODnet Biology

An introductory keynote presentation set the scene for the requirements for data products to support decision support tools and outlining the development of the EOV approach.

A broad-mix of international experts were invited to give contextual presentations alongside the technical showcase of the data products developed with the framework of EMODnet Biology. The detailed agenda and speaker biographies can be found in the Appendices.

In addition, a section on invasive species in ports and harbours and ballast water treatment was included to showcase a specific output from the last phase of EMODnet Biology and allow the participants to benefit

from a presentation from the European Maritime Safety Agency (EMSA) providing an ~~Recommendations~~ policy and industrial stakeholders.

The afternoon session included plenary discussions on the current suite of data products, and some of the gaps and challenges that EMODnet Biology can seek to address in the coming years. The event closed with a viewpoint on the current landscape of global data products and the need for a global community of practice to support biological EOY networks.

All the presentations are available from the EMODnet Biology project website - <http://www.emodnet-biology.eu/documents>

### 3 Discussions

The open discussion session allowed a range of comments from those specifically relating to the presentations and data products available through the Atlas, to more generic debate on the role and future of EMODnet Biology.

The clear message received from all stakeholders was that the need for robust, transparent data and resultant products has never been greater. However, it is recognised that it will never be possible for EMODnet Biology to provide finalised, bespoke products for all stakeholders. The products showcased at the Lisbon event serve as exemplar outputs, illustrating the potential for the data curated through EMODnet Biology and the underlying infrastructure.

Through discussions with participants from other EMODnet lots it is clear that engagement and outreach activities have been interpreted and handled in a range of different ways. This is illustrated by the close coupling of the data managed by EMODnet Chemistry and the resultant products and their direct applicability and support for Indicators 5 (eutrophication), 8 (contaminants) and 9 (sea-food contaminants) of the Marine Strategy Framework Directive (MSFD). The very nature and structure of the biodiversity-based MSFD indicators means that the same engagement strategy would not be possible for EMODnet Biology, and as such, a different approach was being pursued.

However it was explicitly stated on a number of occasions during the event, that the data which underlies national and regional assessments (including MSFD), must be open and FAIR. In some cases intermediate data, or derived products are made available by member states and Regional Sea commissions, but the raw data remain inaccessible. In order to build trust, promote transparency and facilitate reuse, the entire data lifecycle and workflow for those data used in policy-based assessments should be open.

### 4 Recommendations and Next Steps

There was general endorsement of the current range of activities undertaken by EMODnet Biology and its approach to outreach and engagement. The next two-years of Phase 3 is confirmed with an ambitious workplan to continue the collation of data across the EU's regional seas and with a focus on the provision of high-quality open data to support policy development and management activities.

Given the recognition that it is unfeasible to develop a comprehensive range of fully operational data products that would meet the requirements of all stakeholders, significant focus will be given to the development of a suite of transparent, curated and standardised datasets that serve as an intermediate step between raw data and the 'polished' products presented at this showcase event.

These curated data packages will allow users to develop bespoke products, tools and visualisations that are relevant to their particular use-cases with confidence. For EMODnet Biology Work Package 4, the emphasis will be placed on the compilation of coherent datasets on different functional and taxonomic groups of organisms. These datasets will, wherever possible, be compiled from diverse sources and

*A Showcase for the European Atlas of Marine Life – Workshop Report and Approaches*

corrected for taxonomic and methodological bias. Wherever possible, basic modelling approaches taking into account environmental variables will be used to fill observational gaps in the temporal and/or spatial domain. For several groups (e.g. macrobenthos, fish, plankton) trait information is available and will be used to derive trait-based, as opposed to taxonomy-based, data products. Derivation of indicators and other applications of direct use to stakeholders will be possible on the basis of these products, but will not be the essence of the EMODnet Biology efforts.

The next two years will also see EMODnet Biology work to support the aims of the Galway and Belem statements on cooperation across the whole of the Atlantic Ocean through the outreach and engagement activities of WP5. By working with colleagues in North and South America and South Africa, EMODnet Biology can provide a platform for the development and promotion of data products that can be considered interoperable and reproducible at the trans-Atlantic scale. To support this, a workshop is planned for 2020 to further develop a subset of the existing data products hosted through the European Atlas of Marine Life, using data from the Western and Southern Atlantic. Such work will help to build the aspiration for the establishment of Communities of Practice for marine biodiversity data, and work towards data products to support global assessments utilising EOY and EBV methodologies.

The next two-year phase of EMODnet Biology will enable the further development of the established data products. Their utility and applicability will be broadened through engagement with a wider range of stakeholders and the ability to test the products using data from a range of other geographic locations.



Figure 3. The event participants. Photo by Charles Troupin, University of Liege.

## **5 Appendix I**

### **5.1 Agenda**

#### Essential Biological Data Products

#### A Showcase for the European Atlas of Marine Life

#### An EMODnet Biology End-User Event

Cultural Centre de Belém, Lisbon, Portugal

15th May 2019

#### **Agenda**

08:30 - Arrival

09:00 - Welcome & Introduction (Dan Lear, MBA)

09:15 - Opening Address (Luis Valdés Santurio, Spanish Institute of Oceanography)

09.45 - EU Commission Perspective (Iain Shepherd, EU Commission)

10:00 - Linking EMODnet Biology to EOVS (Peter Herman, Deltares)

#### **Plankton**

10:15 – How plankton data can meet global policy challenges (Abigail McQuatters-Gollop, University of Plymouth)

10:45 - Plankton Data Products (Charles Troupin, University of Liege)

11:00 - Coffee

#### **Benthos & Fish**

11:30 - ICES use of Trait-based products (Seb Valanko, ICES)

12:00 - Traits-based approaches (Gert van Hoey, ILVO)

12:15 - Thermal Niche product (Tom Webb, University of Sheffield)

#### **Birds, Mammals & Reptiles**

12:30 – Mammals & Birds in the Black Sea (Irina Makarenko, Black Sea Commission)

13:00 - Gridded abundance maps (Lennert Schepers, VLIZ)

13:15 - Lunch, Atlas Demonstration & Networking

**Macroalgae & Coral**

14:15 - OSPAR Adoption of EMODnet Products (Cristina Herbon, JNCC)

14:45 - EMODnet Seabed Habitats (Helen Lillis, EMODnet Seabed Habitats/JNCC)

**Ballast Water & Invasives**

15:00 – Ballast Water Management and the European Maritime Safety Agency (Mercedes Garcia Horrillo, EMSA)

15:30 - Management of port areas in the Mediterranean sea basin. (Christos Arvanitidis, HCMR)

15:45 - Breakout Groups - Gaps & Challenges

16:30 - Coffee

16:45 - Breakout Feedback & Panel on Data Product Development - Gaps and Challenges

17:30 - Towards Global Data Products (Isabel Sousa-Pinto, MBON)

18:00 - Close of Meeting

## **5.2 The Speakers**

### **Luis Valdes**

Luis is Research Professor at the Instituto Español de Oceanografía (IEO) and was the Head of Ocean Sciences at the Intergovernmental Oceanographic Commission of UNESCO (IOC-UNESCO) from 2009 to 2015, formerly (2000–2008) he was the Director of the Centro Oceanográfico de Gijón (CO Gijón-IEO).

He served as the Spanish Delegate in the IOC-UNESCO (2002-2008) and in the International Council for the Exploration of the Sea (ICES).

With more than 35 years of experience in marine research and field studies related to marine ecology and climate change, he established in 1990 the time series programme, based on ocean sampling sites and marine observatories, which is maintained by Spain in the North Atlantic.

He has a long experience in science management and has advised various governmental, intergovernmental and international organizations as well as research funding agencies and chaired several Working Groups and Committees, including the ICES Oceanographic Committee.

### **Iain Shepherd**

Iain is Senior Expert in the European Commission's Directorate General for maritime affairs and fisheries. A physics graduate, he has been working for the Commission for nearly 40 years, initially in the Joint Research Centre on scientific support to EU policy in areas such as nuclear reactor safety, humanitarian aid, fisheries control and (prevention of) weapons of mass destruction. Current responsibilities include investment, innovation, knowledge and decarbonisation in the blue economy.

### **Peter Herman**

Peter is Professor of Ecological Hydraulic Engineering at Delft University of Technology, Senior researcher at Deltares (Coastal and Marine Systems). He is an ecologist working on physical-ecological interaction and modelling ecological dynamics in estuaries and coasts.

He is a broadly interested estuarine ecologist, fascinated by the ecological functioning of these systems full of gradients between fresh and salt, quiet and dynamic, high and low.

He uses mathematical models and theoretical concepts to better understand the complexity of these landscapes. He tries to understand and describe this complexity in quantitative terms, e.g. in biogeochemical cycles, food webs, physical structures.

He conveys the knowledge gained in these theoretical studies to society.

### **Abigail McQuatters-Gollop**

Abigail is a plankton ecologist and lecturer in marine conservation at University of Plymouth. She is a NERC Knowledge Exchange Fellow and Defra Senior Policy Fellow and is leading the implementation of the EU Marine Strategy Framework Directive for pelagic habitats (plankton) for the UK and OSPAR (Northern Europe). Abigail's research focuses on marine ecological responses to anthropogenic and climate change and the subsequent integration of results into the policy process. A key area of interest lies in the separation of climate responses in the

plankton from those due to anthropogenic disturbances, and the linking of biodiversity/state changes to manageable human pressures. Abigail also sits on the British Ecological Society Brexit Policy Working Group and has recently received a Japan Society for the Promotion of Science Invited Fellowship to work on policy impact generation in Japan.

### **Charles Troupin**

Charles is an engineer in Physics and PhD in Oceanography. He is specialised in data analysis (in situ and remote sensing) and is one of the developers of the DIVA and DIVAnd interpolation tools. He also has experience in numerical modeling, with a particular interest of submesoscale processes in coastal upwelling areas. He was the head of the SOCIB Data Center (Balearic Islands) from March 2014 to January 2017 and lead several projects dealing with data analysis, visualisation and ingestion. He is currently involved in SeaDataCloud, EOSC-Hub and EMODnet (Chemistry, Biology, Data Ingestion).

### **Sebastian Valanko**

Sebastian is a Professional Officer for ecosystem related advice at ICES. He is a benthic ecologist by training, working in the policy – science interface at ICES. In this role he supports and coordinates the production of environmental advice in line with the ecosystem approach to ensure that ICES evolves with the changing policy environment and that future advice outcomes are aligned with client expectations (OSPAR, HELCOM, NEAFC, DGENV, DGMARE). He also has a leading role in coordinating work related to the EU's MSFD and is a member of EU's technical group (TG) on D6. This work aims to promote understanding and dissemination of an assessment method that can be applied at the regional scale and across European Seas.

### **Gert van Hoey**

Gert works at the Aquatic Environment and Quality department of ILVO, where he coordinates and executes projects related to the evaluation of the impact of human activities on the seafloor ecosystem. His research is focused on developing and applying structural and functional indicators in the framework of environmental impact assessments for several human activities (Dredge disposal, fishery, aggregate extraction, wind farms) and the EU Nature Directives requirements (Marine Strategy Framework Directive and Habitat Directive). In relation to this an adequate and integrated monitoring program is strived for.

### **Tom Webb**

Tom is a marine macroecologist and biodiversity scientist, and a lecturer in marine ecology and conservation in the Department of Animal and Plant Sciences, University of Sheffield, UK. He has a particular interest in how to combine different sources of marine biodiversity data (e.g. species occurrences, taxonomy, and traits) into novel products to help us to understand how life in the seas varies in time, space, and in response to environmental and human drivers. Within EMODnet he has been developing methods for deriving thermal affinities of marine species using open source data and tools.

### **Irina Makarenko**

Irina has worked at the Permanent Secretariat of the Commission on the Protection of Black Sea Against Pollution (Bucharest Convention) since 2010. Before moving to Turkey she worked as a diplomat in the Mission of Ukraine to the European Union in Brussels, and earlier as a Deputy Head of Office to Vice Prime Minister of Ukraine on European Integration and as a diplomat of the Ministry for Foreign Affairs of Ukraine. She has a Master Degree in the field of Environmental and Energy Law obtained at a Faculty of Law of the Catholic University of Leuven (Kingdom of Belgium), Certificates on Water Law (University of Dundee, Scotland), Environmental Diplomacy (University of Geneva, Switzerland) and Regional Economics (University of Genoa, Italy). In April 2018 Irina was appointed as member of Pool of Experts for UN World Ocean Assessment II (WOA II) and currently contributes to process of drafting the Chapter of WOA II on Marine Mammals.

### **Lennert Schepers**

Lennert holds a Master degree in Geography (Ugent) and a PhD degree in Science (UAntwerpen). He moved from coastal marshes, which he studied during his PhD, to the marine world in 2018 when he started working for the Flanders Marine Institute (VLIZ). Currently he is working on EMODnet Biology products and related national and international projects with a focus on (geo)spatial data.

### **Christina Herbon**

Christina is a scientific expert on benthic ecosystems, with particular expertise on the development of indicators and targets for the assessment of benthic ecosystems as part of the implementation of EU Directives such as the Marine Strategy Framework Directive, and other international obligations such as the OSPAR Convention. Co-chair of the OSPAR ICG-COBM Benthic Expert Group, which is the group responsible for data, assessments and indicators related to benthic ecosystems in OSPAR regions. Provision of advice to EEA as part of the European Topic Centre on Regional seas Convention indicators, management of marine data flows, and technical review on the development of assessments tools.

### **Helen Lillis**

Helen co-ordinates the EMODnet Seabed Habitats initiative, which collates and creates data and data products about seabed habitats in Europe, making them freely available online. She works for the Joint Nature Conservation Committee in the UK, where she ensures the best seabed habitat data is available to Government so it can make the best decisions about how to conserve the marine environment. The work fits her goals perfectly: to be nerdy, to go outside and (hopefully) to do her bit for the planet.

### **Mercedes Garcia Horrillo**

Mercedes is posted as Project Officer in Unit B.3, Environment & Capacity Building in the European Maritime Safety Agency for the last four years, dealing mainly with prevention of pollution by ships, such as air emissions and ballast water. She was involved in drafting guidance documents for Sulphur Inspectors as well as Guidance, Distant Learning Packages and delivering training on the Ballast Water Convention. Before joining EMSA she worked in the Spanish Maritime Administration as Head of Unit for International Relations. Mercedes graduated from

the Universidad Politécnica de Madrid as a Naval Architect/Design Engineer and started her professional career in the shipbuilding industry as maritime surveyor for the International Classification Society DNV-GL. She also holds a MSc. in Shipping.

### **Christos Arvanitidis**

Christos' research focuses on marine biodiversity, biodiversity informatics, functional diversity, and coastal ecosystems. He works on the comparisons of marine biodiversity information patterns deriving from various biological organization levels and scales of observation, trying to develop new approaches to explore their interrelationships.

He is involved in 65 research and education projects, having coordinated 8 and attracting >€7M in research funding. Christos is author of more than 100 peer-reviewed scientific articles, including 3 monographs. He is Associate Editor in *Frontiers in Marine Science*, *Biodiversity Data Journal* and Handling Editor in *Mediterranean Marine Science* in addition to acting as Guest Editor in *Marine Ecology Progress Series* and *Journal of Sea Research*. He is a member of the editorial board of *Transitional Waters Bulletin* and has acted as reviewer in more than 45 international peer-reviewed journals.

### **Isabel Sousa Pinto**

Isabel has PhD in Marine Biology from the University of California, Santa Barbara, USA and is Professor at the University of Porto and Head of the Biodiversity of Aquatic Ecosystems group from the Interdisciplinary Centre for Marine and Environmental Research – CIIMAR-UP. Her research focus is on algal cultivation and use and on ecology and marine biodiversity. She is co-chair of MBON - Marine Biodiversity Observation Network from GEO BON. She has been working with AtlantOS – All-Atlantic Observation System and on EOOS – European Ocean Observation System to develop the biology component of the Ocean observations and with the European Marine Board to identify gaps in biological observations and produce recommendations to fill them. Isabel is a member of the POGO working group “Planning the implementation of a global long-term observing and data sharing strategy for macroalgal communities”. She was also a Coordinating Lead Author for the Regional Assessment of Biodiversity and Ecosystem Services in Europe and Central Asia for UN IPBES – Intergovernmental Panel on Biodiversity and Ecosystem Services (2015-2018), Portuguese Representative in this platform until 2018, and is now a member of its Multidisciplinary Expert Panel.