



# MARINE AND COASTAL BIODIVERSITY DATA FOR LARGE MARINE ECOSYSTEMS (LMEs)

Ocean<sup>+</sup>

# Who are we?

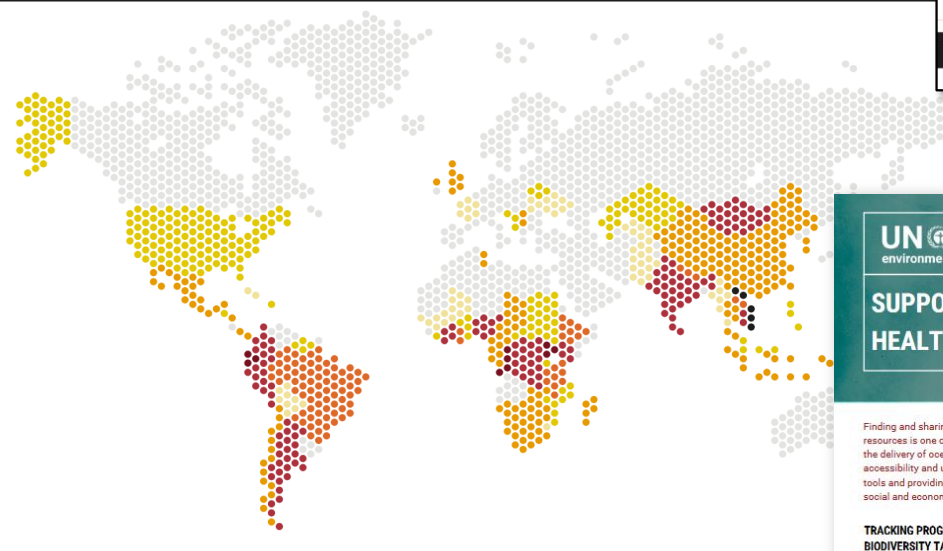
## UN Environment World Conservation Monitoring Centre

- Supporting the transition to a **healthy ocean**;
- Mainstreaming biodiversity into **sustainable development**;
- Planning for places: supporting **area-based planning** and decision-making
- Strengthening natural capital for **private sector** decision-making;
- Securing a **sustainable** future for **wildlife**;
- Supporting **intergovernmental agreements** on biodiversity and ecosystem services

### DEVELOPING THE TOOLS FOR CHANGE

UNEP-WCMC helps countries develop their capacity to achieve conservation and Sustainable Development Goals. In 2016, we delivered workshops, webinars and e-learning modules to 650 participants representing 81 countries. They awarded our training an evaluation score of 8 out of 10.

Training days / country: ● 0-5 ● 6-10 ● 11-20 ● 21-50 ● 51-100 ● 101-200 ● 201-500 ● 501-1000



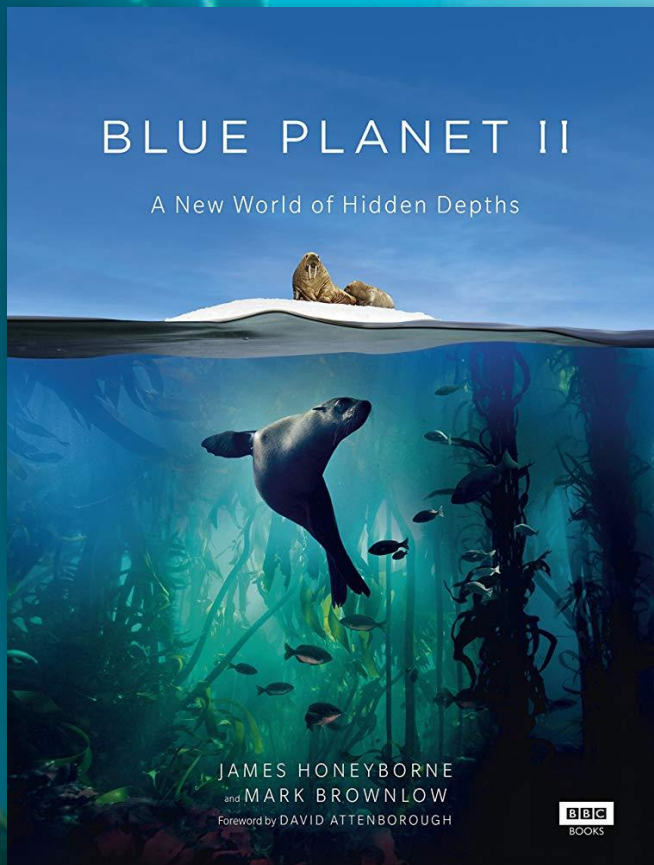




## PART 1

# INTRODUCTION





© Rick Stuart-Smith, *Reef Life Survey*



© Cesar Harada, Flickr



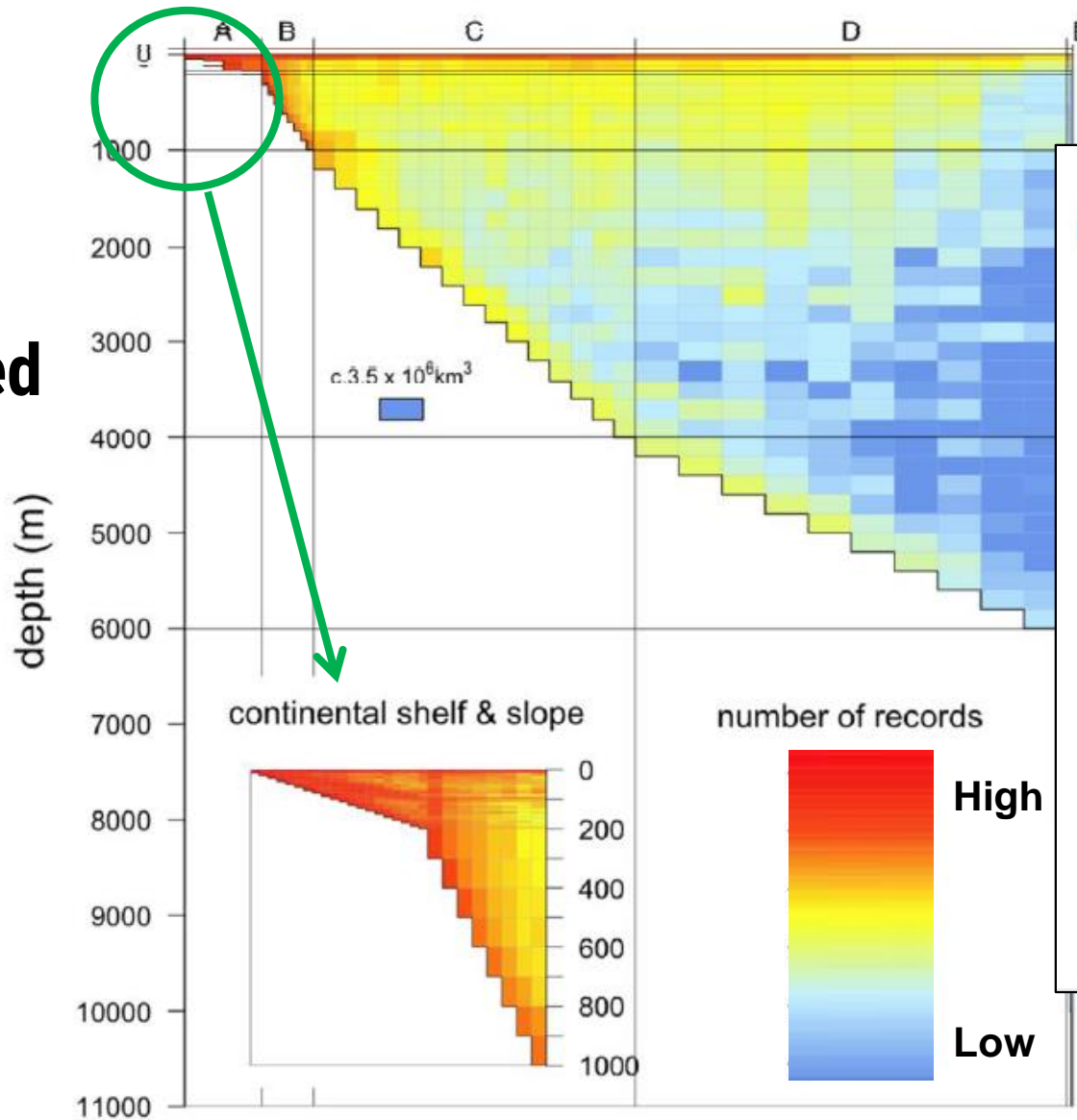
@LVWeatherdon, @unepwcmc





# Marine biodiversity knowledge remains limited

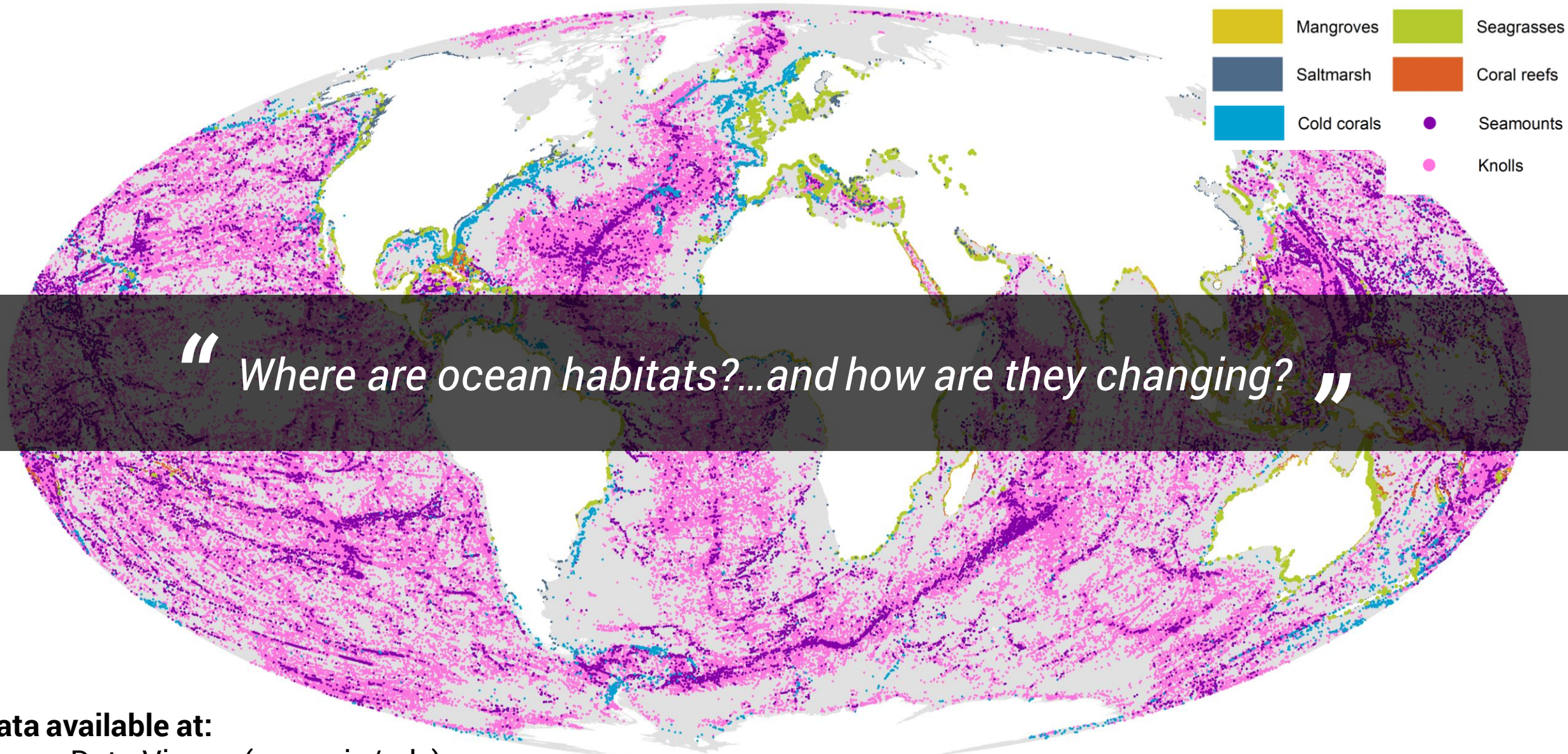
Shallow coastal waters are better sampled than deep offshore waters



Reference: Webb et al. (2010), *PLOS ONE*



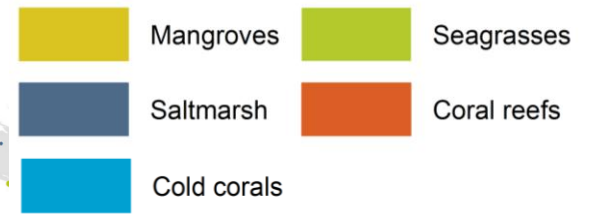




*“Where are ocean habitats?...and how are they changing?”*

**Data available at:**  
Ocean Data Viewer ([wcmc.io/odv](https://wcmc.io/odv))





*“Where are ocean habitats?...and how are they changing?”*

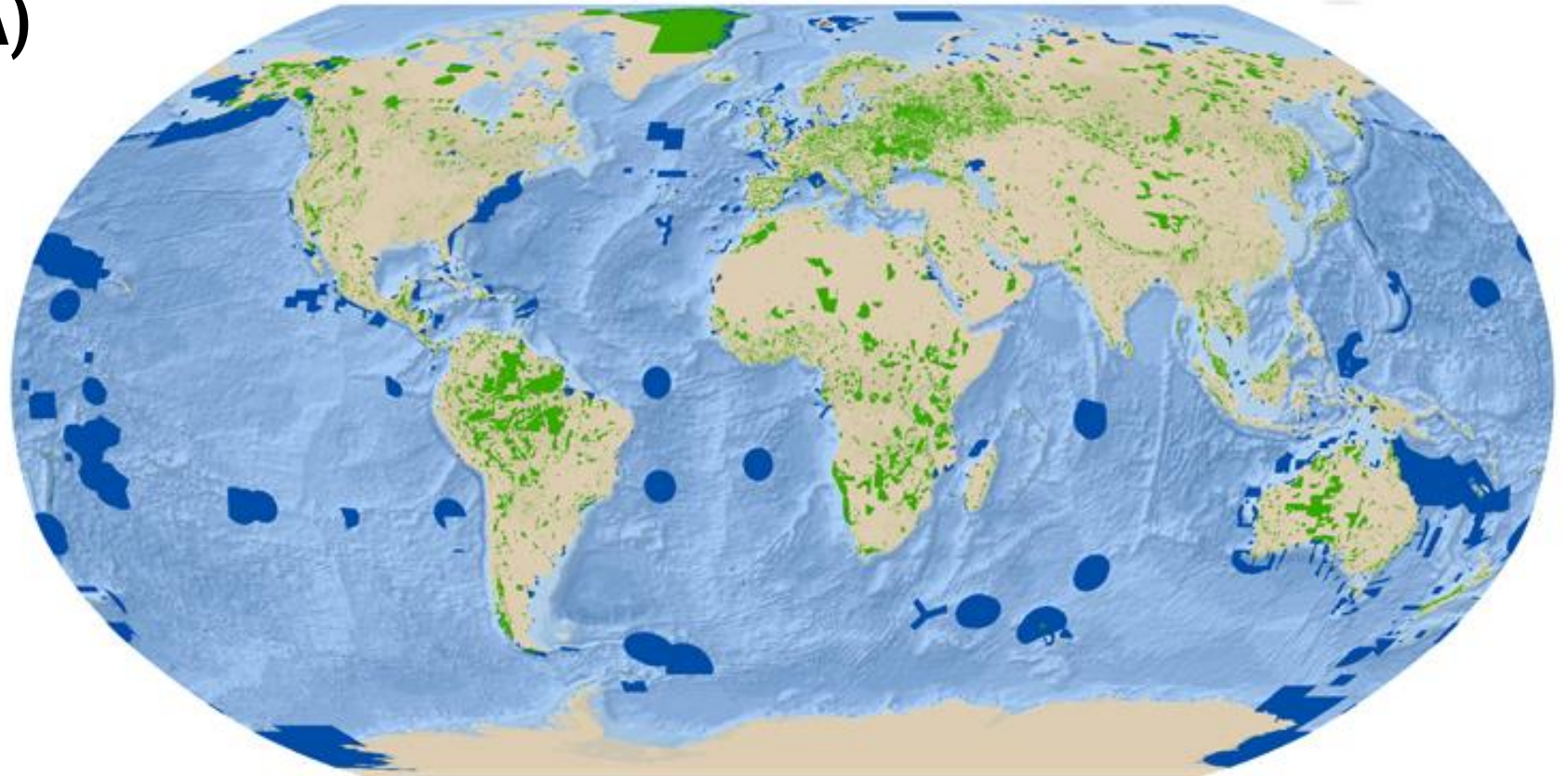
**Data available at:**  
Ocean Data Viewer ([wcmc.io/odv](https://wcmc.io/odv))

# The World Database on Protected Areas (WDPA) today...

More than **234,000** protected area records, from 245 countries and territories.



protected  
planet



Source: UNEP-WCMC AND IUCN (2018). Protected Planet: The World Database on Protected Areas (WDPA) [On-line]. June 2018, Cambridge, UK: UNEP-WCMC. Available at [www.protectedplanet.net](http://www.protectedplanet.net)



Terrestrial protected areas



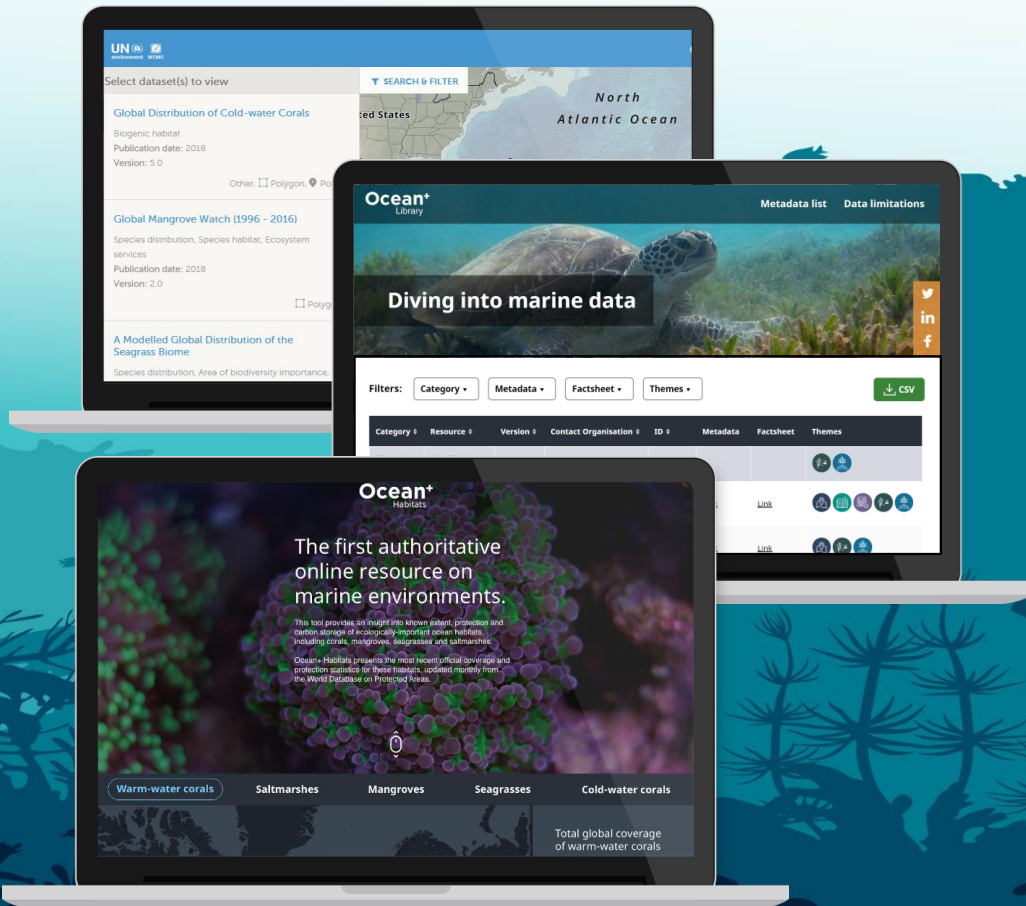
Marine and coastal protected areas





# Ocean<sup>+</sup>

“...to facilitate the availability and inter-operability of the **best available marine and coastal biodiversity datasets across global, regional and national scales**” (COP Decision X/29, 2012)



UN Biodiversity Lab

beta

ABOUT

DATA

STORIES

USER C

Select country/region

Explore 18 biodiversity status maps created for your country.

Apply Aichi Biodiversity Targets:

Aichi Biodiversity Target 5

Aichi Biodiversity Target 11

Aichi Biodiversity Target 12

Aichi Biodiversity Target 14

Aichi Biodiversity Target 15

Apply Themes:

Biodiversity

Climate & Carbon

Ecosystem Services

Human Impact

Land Cover

Marine

Natural Hazards

Protected Areas

UNBiodiversityLab - World

English

Filter views ...

Sort by Title Date Filter activated views

Change in Cumulative Human Impact to Marine Ecosystems (2008-2013)

Continuous Land-Sea Administrative Boundary

Cumulative Ocean Impact - Sum of Pressure Data 2013 - KNB

Exclusive Economic Zone (200NM) (2018)

Global Distribution of Saltmarshes (2018)

Global Distribution of Seagrasses (2017)

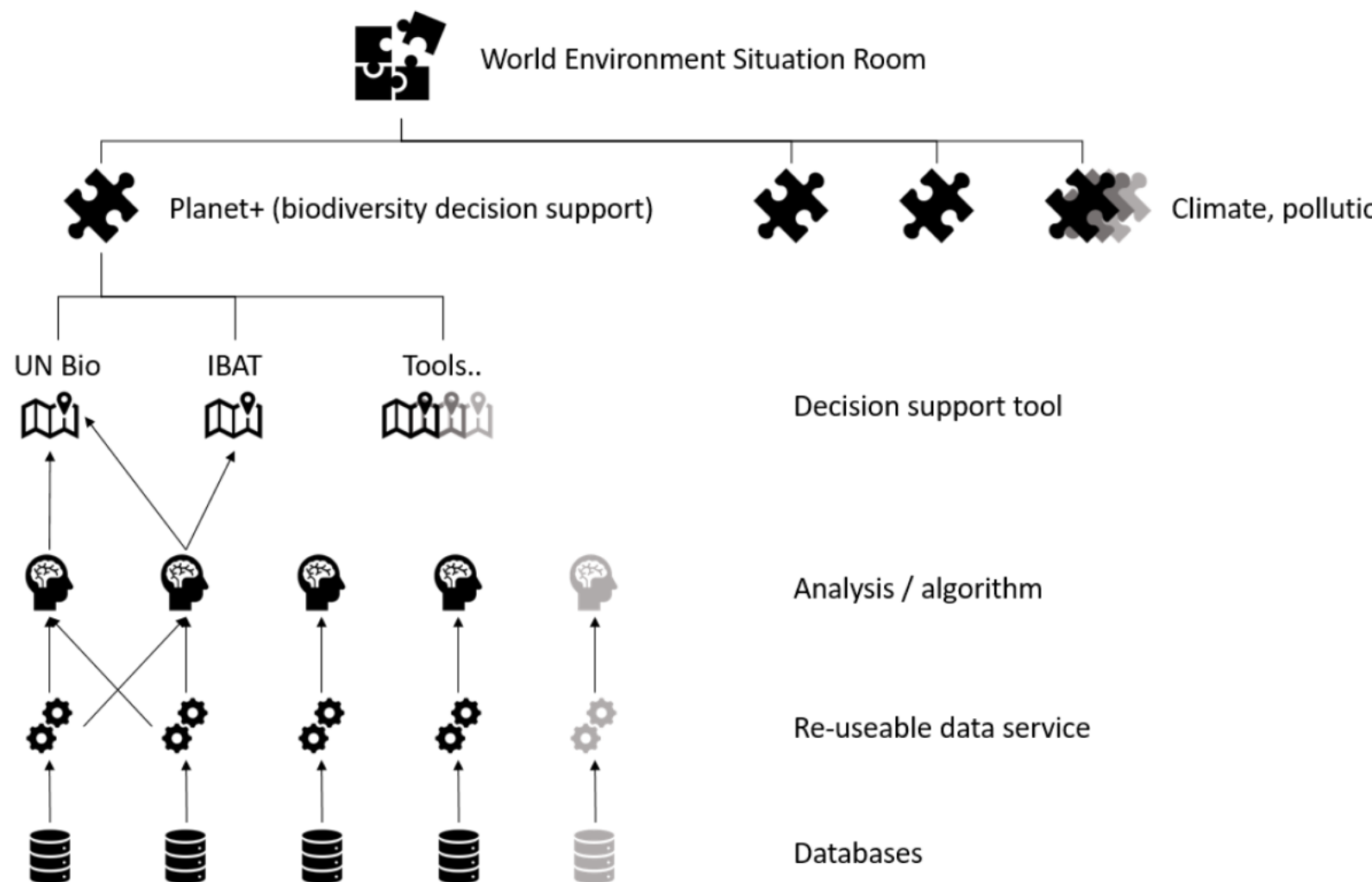
This dataset shows the global distribution of seagrasses, and is composed of two subsets of point and polygon occurrence data. The data were compiled by UN Environment World Conservation Monitoring Centre in collaboration with many collaborators (e.g. Frederick Short of the University of New Hampshire), organisations (e.g. OSPAR), and projects (e.g. European project Mediterranean Sensitive Habitats "Mediterranean Sensitive Habitats" across the globe (full available in accompanying metadata table within dataset)).

Data can be accessed from WCMC Ocean Data Viewer

Filter views by tag

Privacy Policy

Terms of Use



<https://www.unbiodiversitylab.org/#>





European Environment Agency  
European Topic Centre on Inland,  
Coastal and Marine Waters



European multi-lateral initiatives



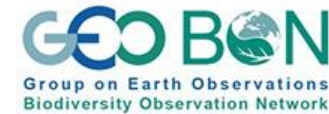
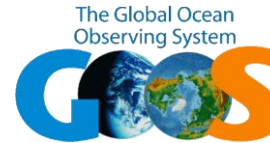
International multi-lateral  
environmental agreements



Convention on  
Biological Diversity

## CATALYSING PARTNERSHIPS

Regional Seas, LMEs and  
National Governments



Global, regional and national biodiversity  
monitoring networks; NGOs; researchers

Companies and  
consultancies



UN agencies





## PART 2

# TAILORING BIODIVERSITY DATA AND INFORMATION

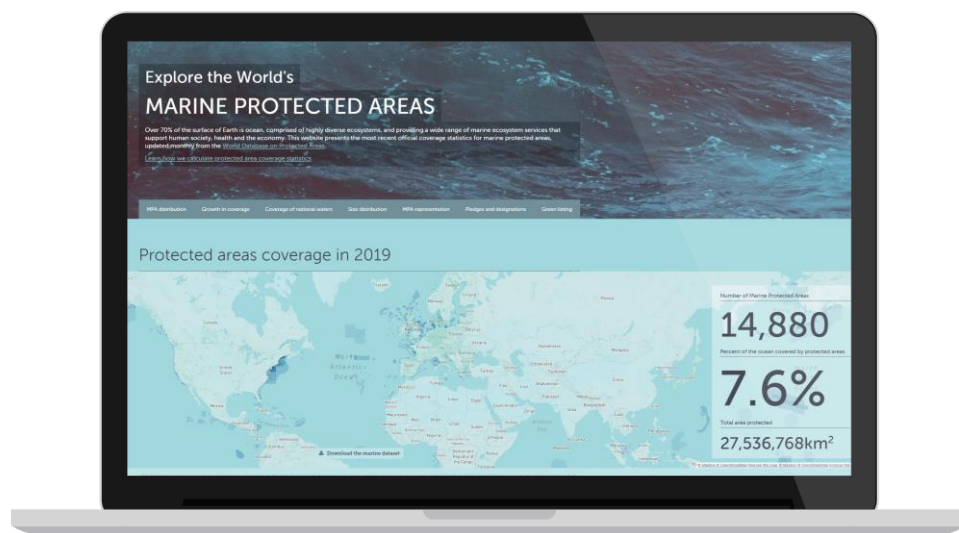




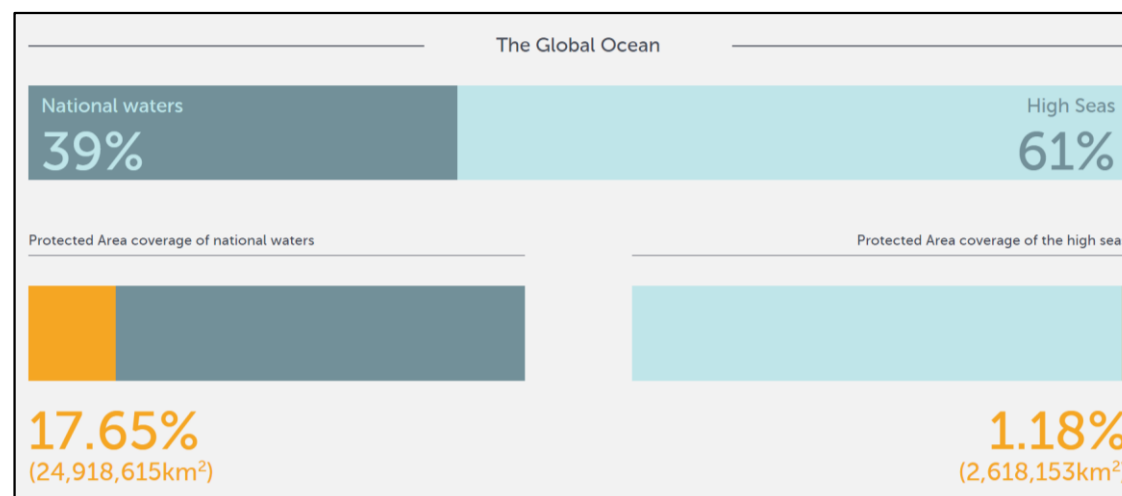


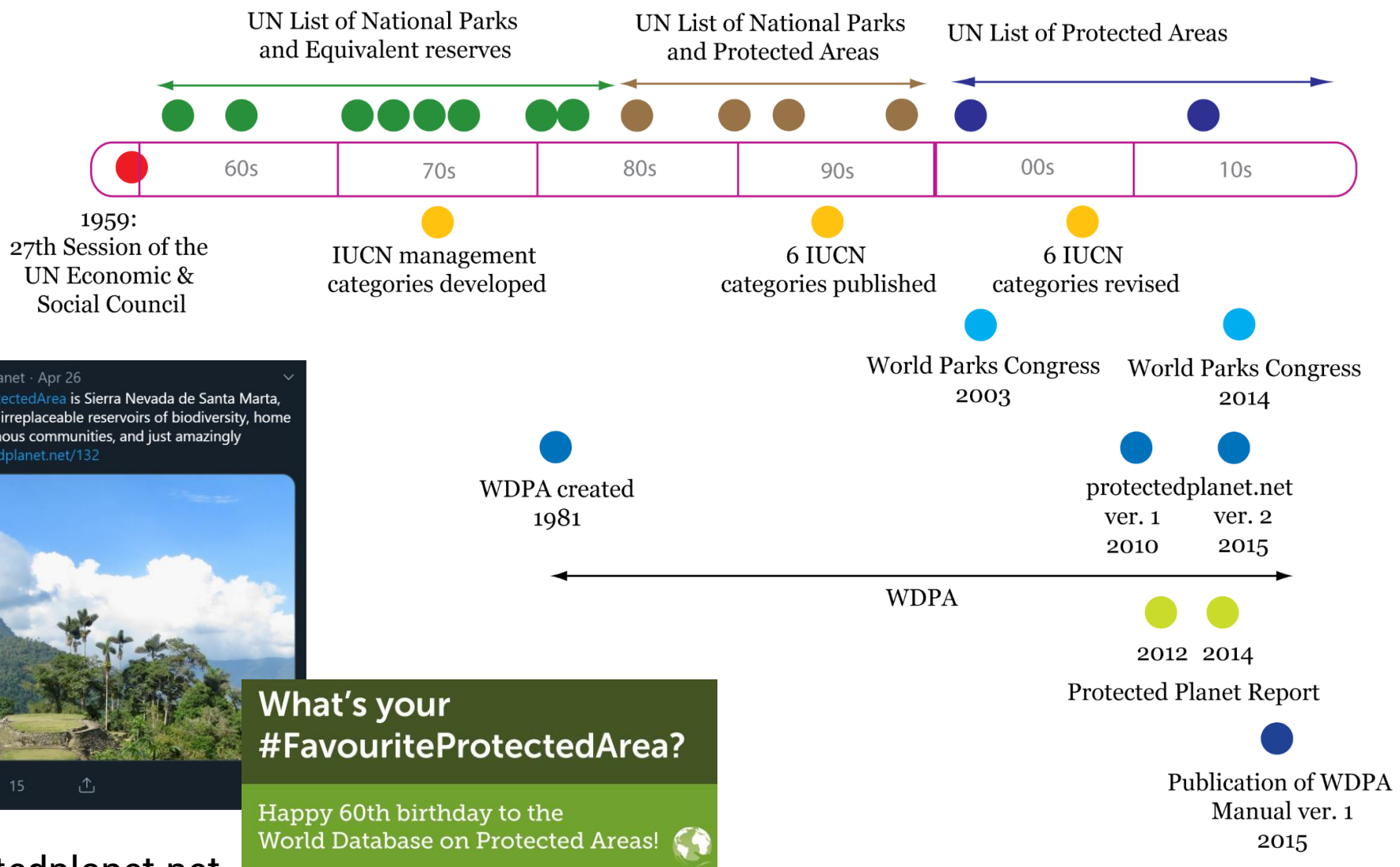
The authoritative database on protected areas, with more than 234,000 records from 245 countries and territories.

Updated monthly, and used to track progress toward Aichi Target 11 and Sustainable Development Goal Targets 14.2 and 15.1.



[www.protectedplanet.net](http://www.protectedplanet.net)  
[wcmc.io/mpas](http://wcmc.io/mpas)





**What's your #FavouriteProtectedArea?**

Happy 60th birthday to the World Database on Protected Areas! 🌍

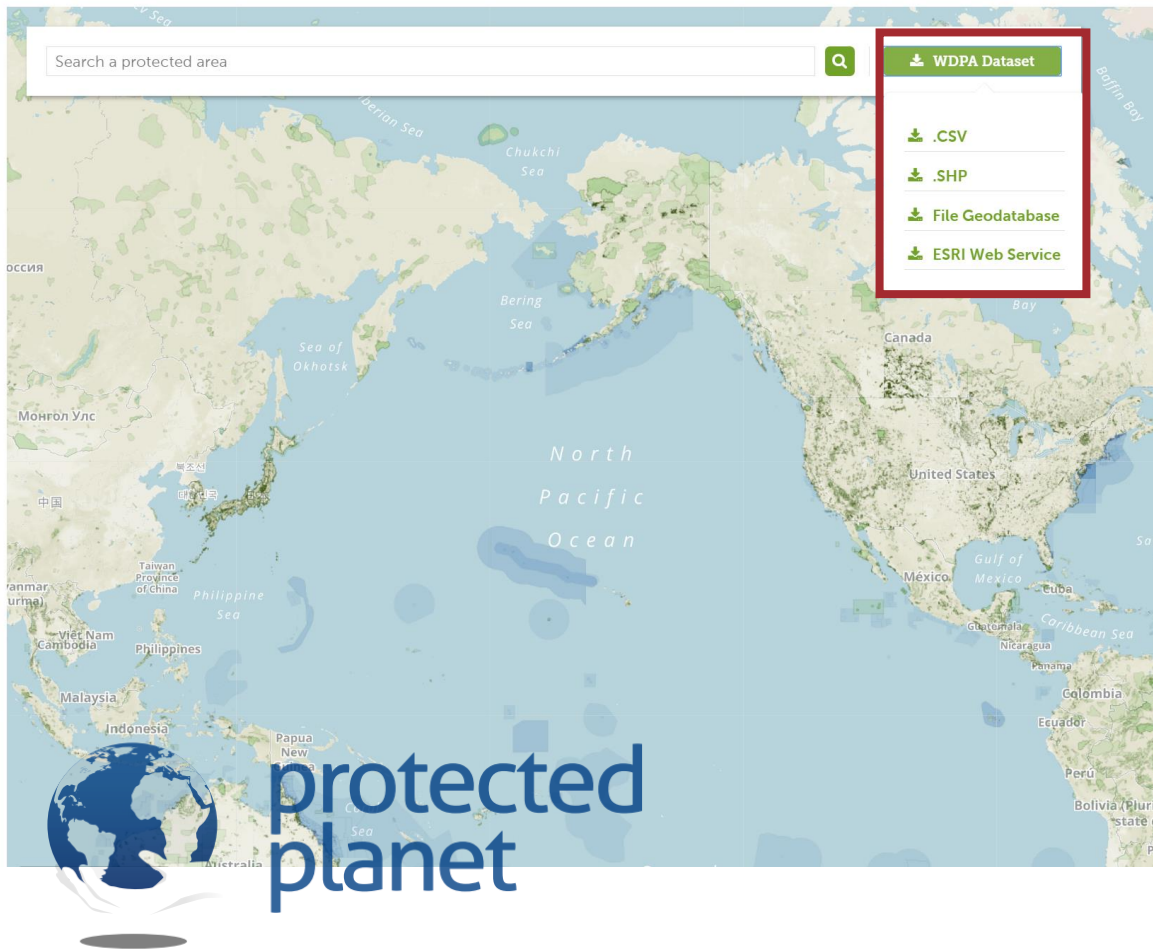
[www.protectedplanet.net](http://www.protectedplanet.net)  
[wcmc.io/mpas](http://wcmc.io/mpas)





# EXPLORE AND DOWNLOAD THE WORLD'S PROTECTED AREAS

[www.protectedplanet.net](http://www.protectedplanet.net)



## Namibia, Africa

[Download this dataset](#)



Number of Protected areas

148

↓ 18

with management effectiveness evaluations

Polygons/Points ratio

100%

Polygons

0%

Points

Number of sources

For International designations 2

For National designations 1

TOTAL 3

Protected areas coverage (Ref 1 ↓)



Area terrestrial



37.89%

coverage

313,534 km<sup>2</sup>

Land Area Protected

827,465 km<sup>2</sup>

Total Land Area

↓ 41.33%

with management effectiveness evaluation

129,581.956002 km<sup>2</sup>

Area Assessed



Area marine



1.71%

coverage

9,646 km<sup>2</sup>

Marine Area Protected

562,728 km<sup>2</sup>

Total Marine Area

↓ 2.53%

with management effectiveness evaluation

243.836272 km<sup>2</sup>

Area Assessed

**Warning:** These statistics might differ from those reported officially by countries due to difference in methodologies and datasets used to assess protected area coverage and differences in the base maps used to measure terrestrial and marine area of a country or territory.

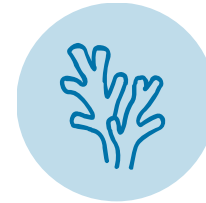
[Learn how we calculate protected area coverage statistics](#)



# Ocean<sup>+</sup>

## Data Viewer

A portal for **viewing and downloading spatial datasets** useful for managing and conserving marine and coastal biodiversity.



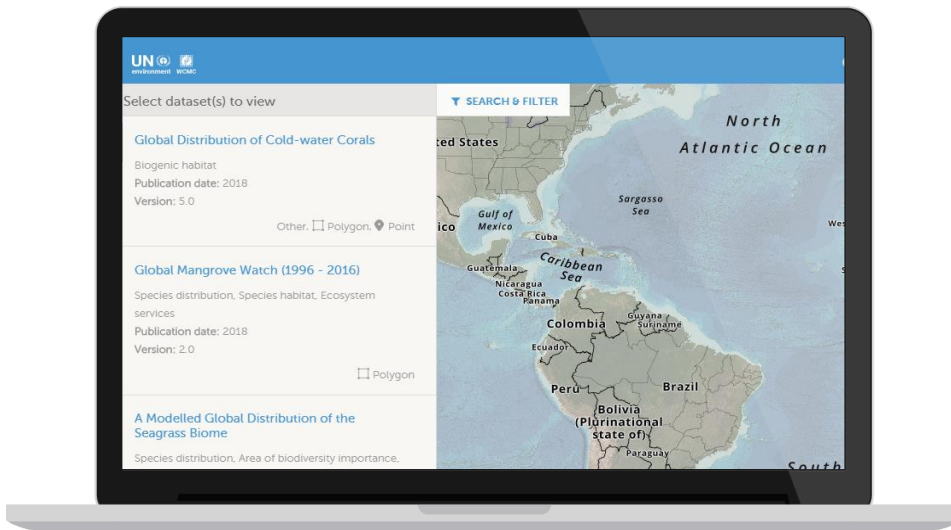
**More than 2.5 million records**  
of marine and coastal habitats



**More than 2.1 million km<sup>2</sup>**  
of marine and coastal areas mapped



**More than 30 marine datasets**  
available for use



[data.unep-wcmc.org](https://data.unep-wcmc.org)



# VIEW AND DOWNLOAD SPATIAL DATASETS ON MARINE BIODIVERSITY

[wcmc.io/odv](https://wcmc.io/odv)

LME Indicator 35+

UN WCMC  
environment 40 years

SELECT DATASET(S) TO VIEW

Global Distribution of Tidal Flat Ecosystems

Biogeographic classification, Species habitat, Biogenic habitat

Publication date: 2019

Version: 1

☐ Raster

Global Distribution of Coral Reefs

Biogenic habitat

Publication date: 2018

Version: 4.0 (November 2018)

☐ Point, ☐ Polygon

Global Distribution of Cold-water Corals

Biogenic habitat

Publication date: 2018


Version: 5.0

☐ Other, ☐ Polygon, ☐ Point

Global Mangrove Watch (1996 - 2016)

Species distribution, Species habitat, Ecosystem

SEARCH & FILTER



Leaflet | Terms & Feedback


The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

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environment 40 years

UN WCMC  
environment 40 years

[www.oceanplus.org](https://www.oceanplus.org)

 @oceanplus\_@unepwcmc

proteus



# VIEW AND DOWNLOAD SPATIAL DATASETS ON MARINE BIODIVERSITY

wcmc.io/odv

UN WCMC

OCEAN DATA VIEWER

Select dataset(s) to view

Version: 4.0 (November 2018)

Point, Polygon

Global Distribution of Cold-water Corals

Biogenic habitat

Publication date: 2018

Version: 5.0

Other, Polygon, Point

Global Mangrove Watch (1996 - 2016)

Species distribution, Species habitat, Ecosystem services

Publication date: 2018

Version: 2.0

Updated

Polygon

View dataset detail

Temporal range: 1996-2016

Data Type: Classification

Contact organisation: Global Mangrove Watch

A Modelled Global Distribution of the

funded by

proteus

partners for a wiser world

Global Mangrove Watch (1996 - 2016)

ACCESS

Download

Metadata

Factsheet

ArcGIS

LAST PAGE UPDATE

14/06/19

Please use the main download button to download all years.  
To download individual years please use the following links:

- [GMW 1996](#)
- [GMW 2007](#)
- [GMW 2008](#)
- [GMW 2009](#)
- [GMW 2010](#)
- [GMW 2015](#)
- [GMW 2016](#)

The [Global Mangrove Watch](#) (GMW) was initiated as part of the [JAXA Kyoto & Carbon Initiative](#) in 2011. It is led by [Aberystwyth University](#) and [solo Earth Observation](#), in collaboration with [Wetlands International](#), the [International Water Management Institute](#) and the [UN Environment World Conservation Monitoring Centre](#) (U.K.). The African part is supported by [DOB Ecology](#) through the [Mangrove Capital Africa](#) project. The GMW aims to provide geospatial information about mangrove extent and changes to the Ramsar Convention, national wetland practitioners, decision makers and NGOs. It is part of the Ramsar Science and Technical Review Panel (STRP) work plan for 2016-2018 and a Pilot Project to the Ramsar Global Wetlands Observation System (GWOS), which is implemented under the GEO-Wetlands Initiative. The primary objective of the GMW has been to provide countries lacking a national mangrove monitoring system with first cut mangrove extent and change maps, to help safeguard against further mangrove forest loss and degradation.

The GMW has generated a global baseline map of mangroves for 2010 using ALOS PALSAR and Landsat (optical) data, and changes from this baseline for six epochs between 1996 and 2016 derived from JERS-1 SAR, ALOS PALSAR and ALOS-2 PALSAR-2. Annual maps are planned from 2018 and onwards.

Bunting P., Rosenqvist A., Lucas R., Rebelo L-M., Hilarides L., Thomas N., Hardy A., Itoh T., Shimada M. and Finlayson C.M. (2018). The Global Mangrove Watch – a New 2010 Global Baseline of Mangrove Extent. *Remote Sensing* 10(10): 1669. doi: 10.3390/rs1010669.

Other cited references:  
Thomas N, Lucas R, Bunting P, Hardy A, Rosenqvist A, Simard M. (2017). Distribution and drivers of global mangrove forest change, 1996-2010. *PLOS ONE* 12: e0179302. doi: 10.1371/journal.pone.0179302

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Global Mangrove Watch (1996 - 2016)

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LME Indicator 35+

UN

environment

WCMC

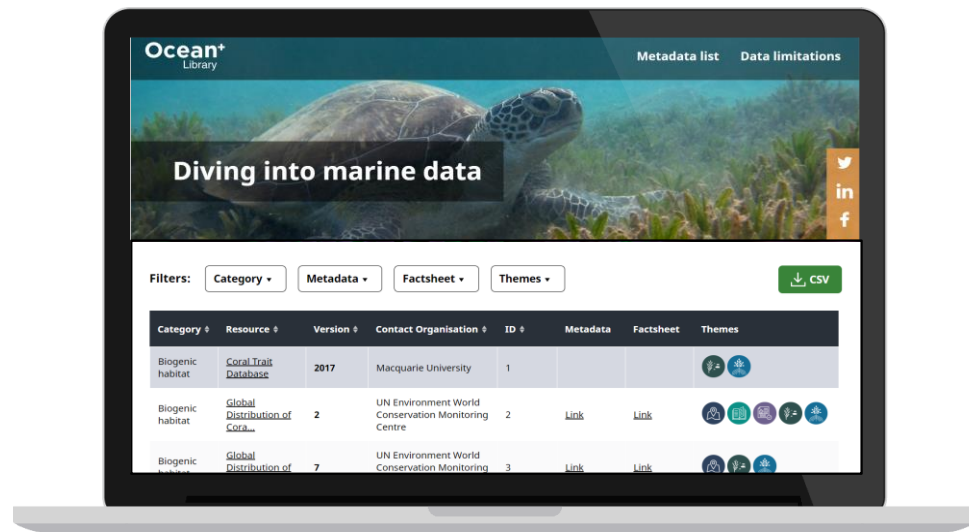
40 years

[www.oceanplus.org](http://www.oceanplus.org)

@oceanplus\_@unepwcmc



# Ocean<sup>+</sup> Library



[library.oceanplus.org](https://library.oceanplus.org)

A library of 190+ resources of data and information relevant to marine and coastal biodiversity, and for uses related to:



Marine spatial planning



Education



Environmental impact assessment



Ecosystem assessment



Ecosystem services
















Links to detailed metadata for 116 resources (in Annex 3).  
([wcmc.io/MarineDataManual](https://wcmc.io/MarineDataManual))

# BROWSE OUR LIBRARY OF OCEAN RESOURCES

Ocean<sup>+</sup>  
Library

## Metadata list

Filters: Category ▾ Resource ▾ Metadata ▾ Themes ▾ Country 1 ▾ Region ▾ Licence ▾

Category ⬆	Resource ⬆	Contact Organisation ⬆	Themes	⬇ CSV
Biogenic habitat	<a href="#">Global Distribution of Cold-water Corals</a>	UN Environment World Conservation Monitoring Centre	    	
Ecological status and impact	<a href="#">Legacy dataset - Global Coral Disease Database (2010)</a>	UN Environment World Conservation Monitoring Centre	  	
Administration	<a href="#">Global Distribution of Islands "IBPoW" (2010)</a>	UN Environment World Conservation Monitoring Centre		
Species habitat	<a href="#">Global Distribution of Sea Turtle Feeding Sites (1999)</a>	UN Environment World Conservation Monitoring Centre	  	
Species habitat	<a href="#">Global Distribution of Sea Turtle Nesting Sites (1999)</a>	UN Environment World Conservation Monitoring Centre	  	

Ocean<sup>+</sup>  
Library

## MANUAL OF MARINE AND COASTAL DATASETS OF BIODIVERSITY IMPORTANCE

AN INTRODUCTION TO KEY MARINE AND COASTAL BIODIVERSITY DATASETS (03/2019 EDITION)

Detailed dataset-specific metadata

UN  WCMC  
environment 40 years

Citation(s): Bunting, P.; Rosenqvist, A.; Lucas, R.; Rebelo, L.-M.; Hilarides, L.; Thomas, N.; Hardy, A.; Itoh, T.; Shimada, M. and Finlayson, C.M. (2018). The Global Mangrove Watch – a New 2010 Global Baseline of Mangrove Extent. Remote Sensing 10(10): 1669. doi: 10.3390/rs1010669.

Other cited references: Thomas, N.; Lucas, R.; Bunting, P.; Hardy, A.; Rosenqvist, A.; Simard, M. Distribution and drivers of global mangrove forest change, 1996–2010. PLoS ONE 2017, 12, e0179302

Temporal range: 1996 - 2016  
Geographical range: Global

Supplementary information: The methods used to create this dataset are described in detail in Thomas, N.; Lucas, R.; Bunting, P.; Hardy, A.; Rosenqvist, A.; Simard, M. Distribution and drivers of global mangrove forest change, 1996–2010. PLoS ONE 2017, 12, e0179302. The Global Mangrove Watch uses using ALOS PALSAR and Landsat data. More

Manual: <http://wcmc.io/MarineDataManual> | Ocean<sup>+</sup> Library: <http://library.oceanplus.org>

UN  WCMC  
environment 40 years





Page 16 of 350

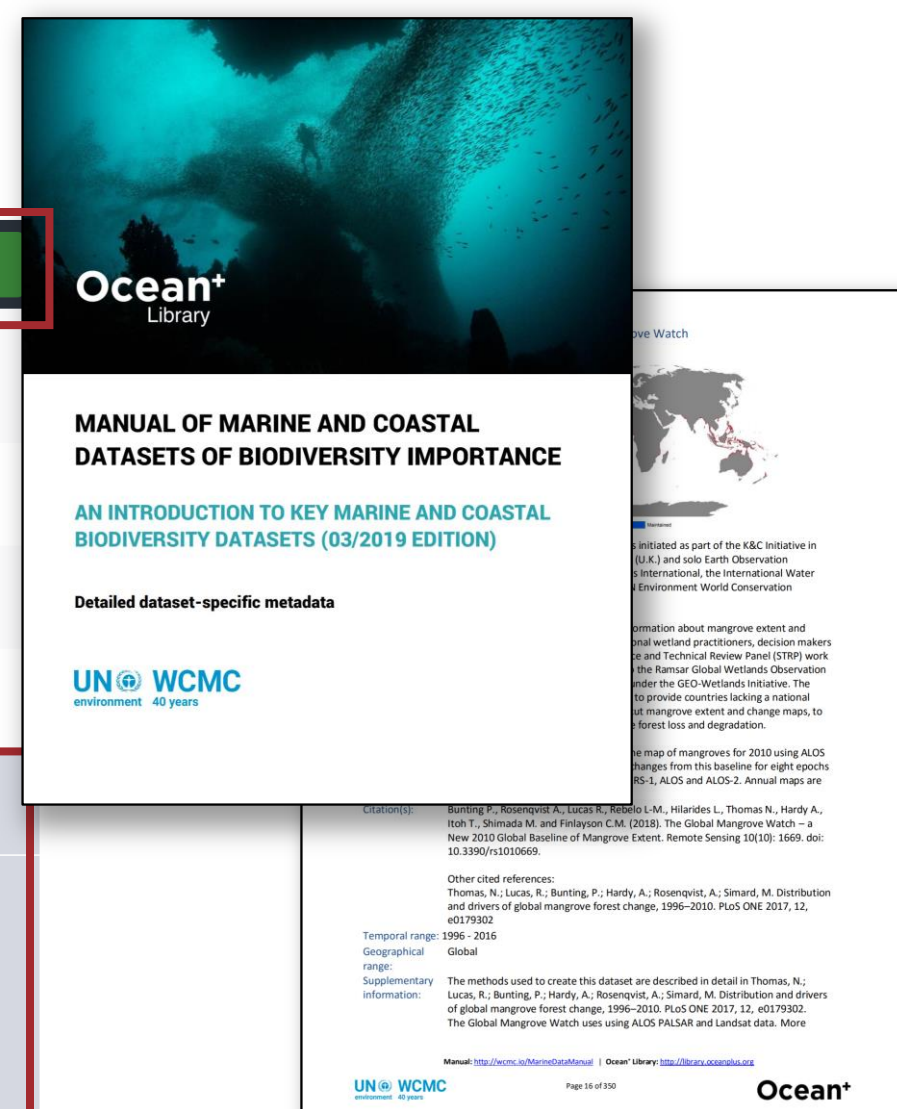
Ocean<sup>+</sup>

library.oceanplus.org  
McDermott-Long et al. (2019). Available at:  
[wcmc.io/MarineDataManual](http://wcmc.io/MarineDataManual)



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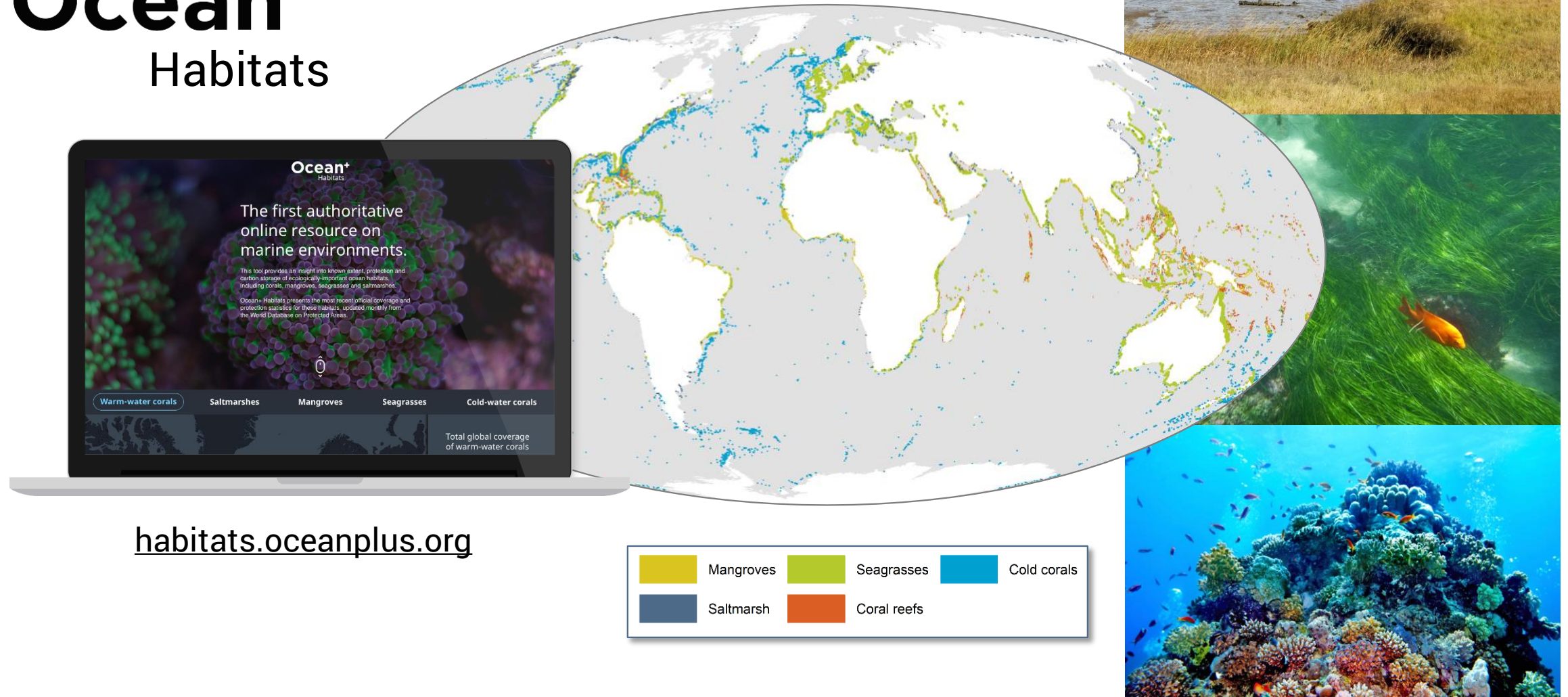
Category ▾	Resource ▾	Contact Organisation ▾	Themes	 CSV
Trade	<a href="#">Species+</a>	UN Environment World Conservation Monitoring Centre	 	
Taxonomic database	<a href="#">World Porifera Database (sponges)</a>	Flanders Marine Institute		
Taxonomic database	<a href="#">Encyclopedia of Life (EoL)</a>	Encyclopedia of Life (EOL)		
Taxonomic database	<a href="#">The Sponge Guide (tSG)</a>	Universidad Nacional de Colombia	  	
Taxonomic database	<a href="#">World Register of Marine Species (WoRMS)</a>	Flanders Marine Institute		
<b>Resource:</b> World Register of Marine Species (WoRMS)		<b>Themes:</b>		
<b>Version:</b>		 <a href="#">Ecosystem assessment</a>		
<b>ID:</b> VLIZ-004				
<b>Metadata:</b> <a href="#">Link</a>				
<b>Factsheet:</b>				
<b>Licence:</b> CC BY 3.0				



library.oceanplus.org  
McDermott-Long et al. (2019). Available at:  
wcmc.io/MarineDataManual

# Ocean<sup>+</sup> Habitats

Developing national, regional and global **inventories of ocean habitat occurrence**, with statistics on coverage and progress toward targets.





# EXPLORE THE WORLD'S MARINE AND COASTAL HABITATS



[habitats.oceanplus.org](https://habitats.oceanplus.org)



Rate of loss of all natural habitats is at least halved.



Anthropogenic pressures on coral reefs and other vulnerable ecosystems are minimized.



Coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved.



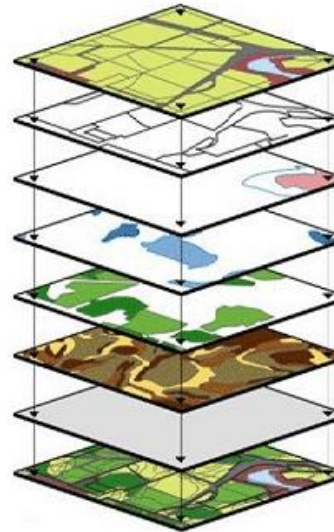
Ecosystems that provide essential services are safeguarded.



Ecosystem resilience and contribution of biodiversity to carbon stocks are enhanced.

# NEXT STEPS? (SNEAK PREVIEW)

- Next evolution of ocean habitat 'Essential Ocean Variable' (EOV) datasets
- National and regional dashboards (pilots welcome!)
- Answering:
  - Where are marine and coastal habitats?
  - How do they contribute to human wellbeing?
  - Are we protecting them?
  - How are they changing?
  - Where are hotspots of diversity?
  - Connectivity?



Remote sensing layers (global extent)

*In situ* occurrence layers (more detailed attributes, defined in the EOVs)

Habitat suitability / “transparency” layers (to determine “known unknowns”)



# TRACKING COMMITMENTS TOWARD GLOBAL OCEAN TARGETS

## Distribution of marine protected areas

The global coverage of marine protected areas (MPAs) is 6.35%. The Global Ocean can be divided into areas within national jurisdiction (National Waters) and those in international waters (Areas Beyond National Jurisdiction (ABNJ))

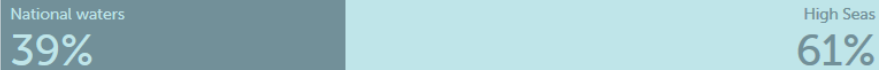
MPAs can be more easily created by governments in national waters where there are dedicated legal systems in place. In ABNJ it is more difficult to create MPAs due to the complex legal framework in place. As such, the percentage of MPAs created within national waters is much higher than that for ABNJ. National waters represent 39% of the global ocean and at present, 15.9% of these waters are designated as protected areas. In contrast, only 0.25% of ABNJ, which makes up the remaining 61% of the global ocean, has been established as protected areas. At present, international discussions are underway to establish ways of simplifying the process to create MPAs in ABNJ. For more information on this, please see the [DOALOS website](#).

### National waters and the High Seas

National waters represent an area of coastal water extending out to the limit of the Exclusive Economic Zone at 200 nautical miles from the baseline of a Coastal State. Coastal States have management jurisdiction over these waters, the resources within them and the resources in/under the seabed.

Marine Areas Beyond National Jurisdiction (ABNJ) are areas of the ocean that are not under the jurisdiction of any one country. Therefore, no individual nation has the sole responsibility for management of these areas. Defined in recent international discussions<sup>1</sup>, ABNJ includes both the High Seas – all parts of the sea that are not included in national waters<sup>2</sup>, and the "Area" – the seabed beyond the limits of national waters<sup>3</sup>.

#### The Global Ocean

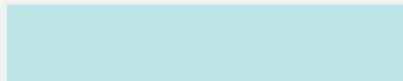


#### Protected Area coverage of national waters



15.9%  
(22,445,068km²)

#### Protected Area coverage of the high seas



0.25%  
(558,116km²)

## Explore the World's MARINE PROTECTED AREAS

Over 70% of the surface of Earth is ocean, comprised of highly diverse ecosystems, and providing a wide range of marine ecosystem services that support human society, health and the economy. This website presents the most recent official coverage statistics for marine protected areas, updated monthly from the [World Database on Protected Areas](#).

[Learn how we calculate protected area coverage statistics](#)



Marine spatial planning

[MPA distribution](#) [Growth in coverage](#) [Coverage of national waters](#) [Size distribution](#) [MPA representation](#) [Pledges and designations](#) [Green listing](#)

## Protected areas coverage in 2017

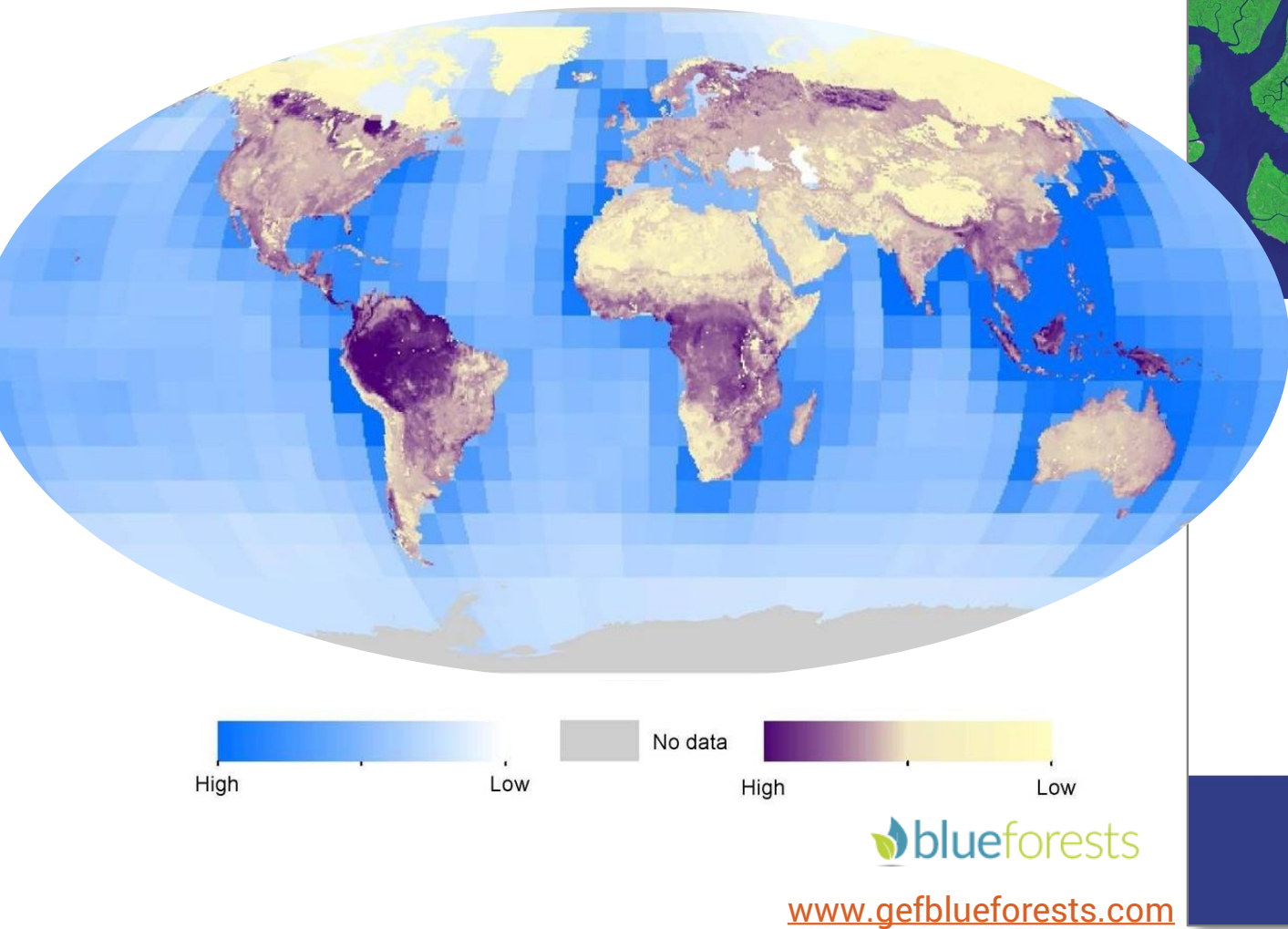


Available at:  
[wcmc.io/mpas](http://wcmc.io/mpas)




# ACCOUNTING FOR NATURAL CAPITAL

Valuing key ecosystem assets and services



blueforests | Mapping tool

Validations Users Ipad admin  Andrea

Blue Forests

Measuring Carbon Stocks Worldwide

START USING THE TOOL

The Blue Forests Mapping tool allows you to learn more about the important role of coastal marine ecosystems and their ability to absorb and store carbon dioxide from the atmosphere.

Duis rhoncus velit ac dictum vulputate. Integer pellentesque non commodo lacus sollicitudin quis. Vivamus sollicitudin massa, ornare eget accumsan at, euismod vitae justo lacinia tincidunt. Vestibulum facilisis felis in nulla molestie.


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START USING THE TOOL

Visit our help page

WHAT IS BLUE CARBON?

Nulla pulvinar odio vitae quam pellentesque, vitae pellentesque enim pellentesque. Maecenas consectetur blandit metus vitae egestas. Suspendisse



DRAW ANOTHER POLYGON


Total carbon stock

1849102.04 T

Area

1250.25 km<sup>2</sup>




Equivalent per capita CO2 emissions

 325165.52 years

Polygons in this area

Ecosystem	Area ha	Area % of Tot.	C-Stock T
Algal Mats	2987.92	27.63	318214
Saltmarshes	2290.38	48.01	165824
Algal Mats	18623.24	12.28	961332
Saltmarshes	4110.27	41.69	403734

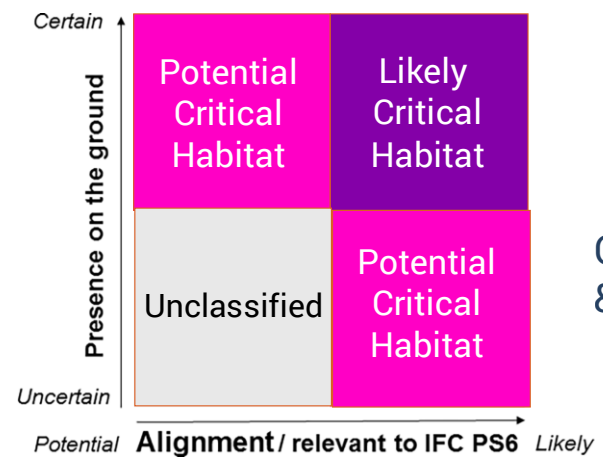
blueforests | Mapping tool

The Blue Forests Mapping Toolkit was developed by   

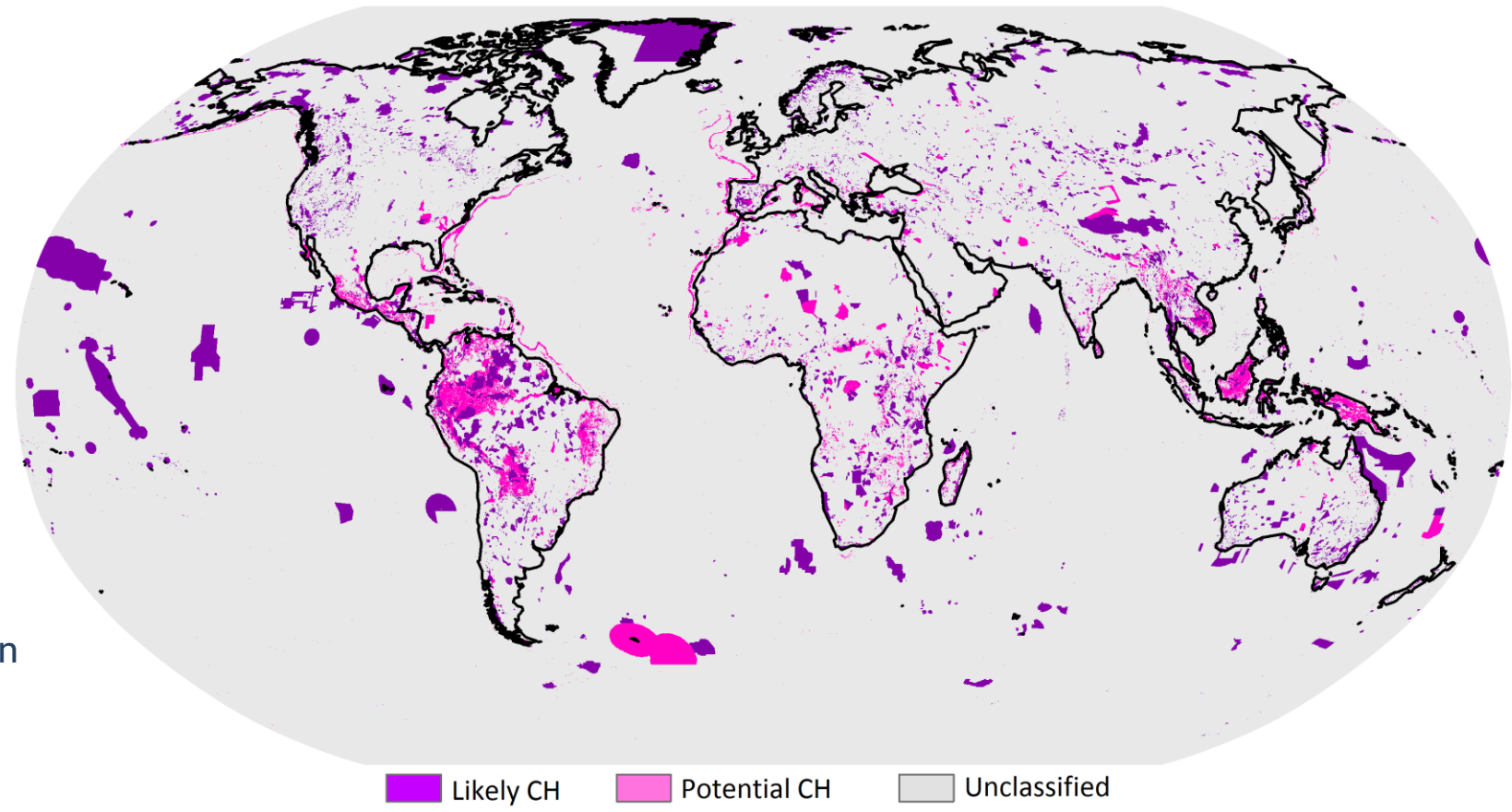


# SCREENING FOR AREAS OF BIODIVERSITY IMPORTANCE

**17 biodiversity features:** *Key Biodiversity Areas (KBAs), protected areas, turtle nesting sites, seagrass beds, tropical/cold corals, seeps, saltmarshes, mangroves, vents, seamounts, ever wet and dry tropical forests, tropical montane cloud forests, distributions of threatened species, Alliance for Zero Extinction sites*



Classification & mapping



Martin et al. (2015). *Marine Policy* 53: 45-53.  
 Brauneder et al. (2017) *PLOS ONE* 13(3): e0193102.

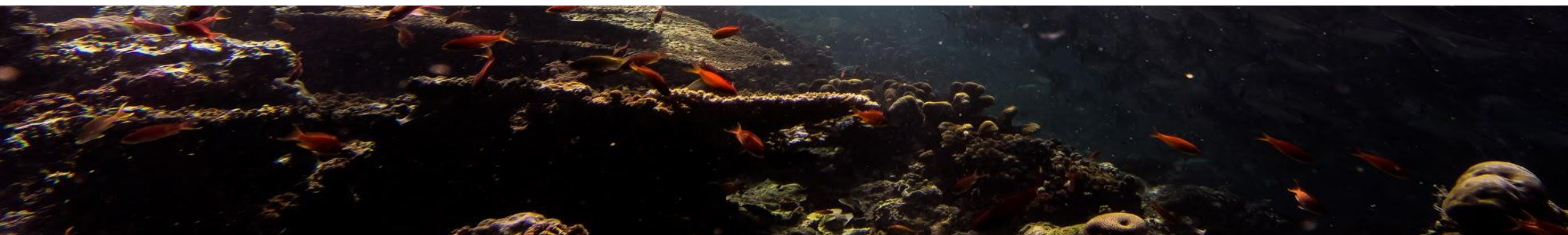


## GROUP DISCUSSION

1. What question(s) would you like Ocean+ to answer?
2. Where do you currently go for data?
3. How would these products be useful in your region?

15 minutes

[www.oceanplus.org](http://www.oceanplus.org) / [www.protectedplanet.net](http://www.protectedplanet.net)







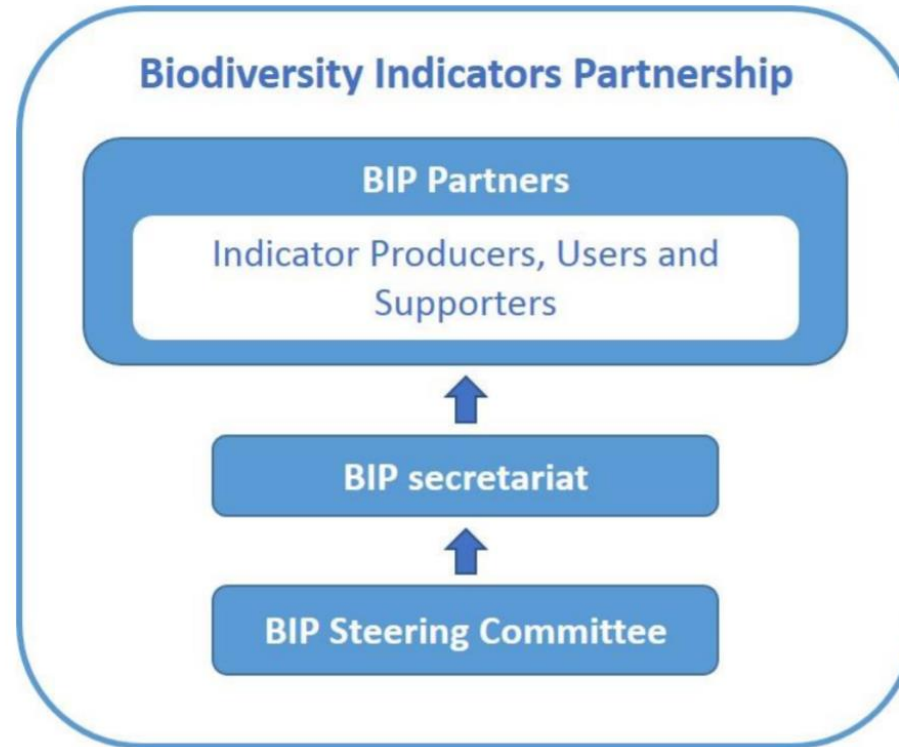
## PART 3

# SUPPORTING BIODIVERSITY INDICATOR DEVELOPMENT



# BIODIVERSITY INDICATORS PARTNERSHIP

- **CBD-mandated initiative** to promote the development and delivery of biodiversity indicators.
- **Focused on national and regional needs for reporting.**
- **Supports other multilateral environmental agreements and targets.**

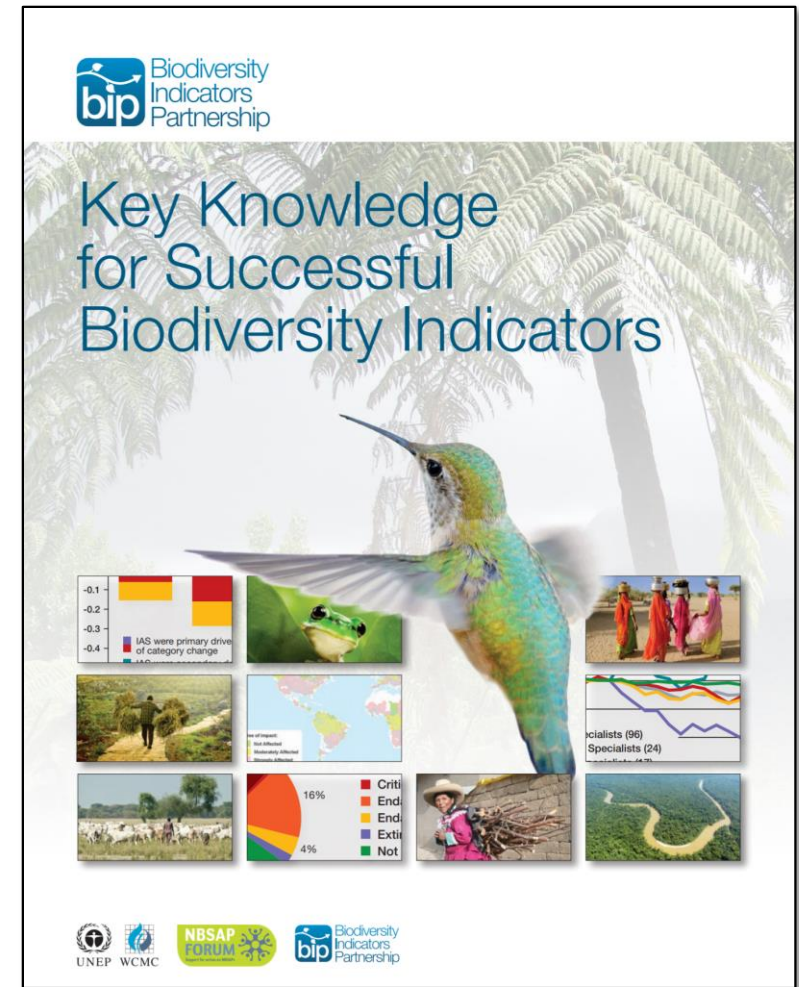




# PROCESS FOR SUBMITTING AN INDICATOR?

## SUCCESSFUL INDICATORS?

- **Scientifically valid:** Relationship between the indicator and its purpose (what it means); reliability of data.
- **Based on available (accessible) data** over time, with active monitoring (i.e. ability to update regularly).
- **Responsive to change**
- **Easily understandable:** Conceptually + presentation + interpretation
- **It is used!** Need demonstration of use for measuring progress, early-warning, awareness-raising, understanding, etc.
- **\*\*Transferable, adaptable and scalable across levels of capacity**



# PROCESS FOR SUBMITTING AN INDICATOR?

## EVALUATION CHARACTERISTICS?

- **Category A.** Indicators which are **developed/operational** and feature in the indicative list of indicators for the Strategic Plan for Biodiversity 2011-2020 (Recommendation XIX/4).
- **Category B.** Indicators which are **under development** and feature in the indicative list of indicators for the Strategic Plan for Biodiversity 2011-2020 (Recommendation XIX/4).
- **Category C.** Other indicators, which have **potential for future use at global and regional levels**, in order to monitor progress towards one or more Aichi Targets and/or for other biodiversity-related MEAs and processes.

**Note:** Recommendation XIX/4 explicitly mentions ‘essential biodiversity variables’ and that “further efforts are required to improve the monitoring of these variables” for indicator development.



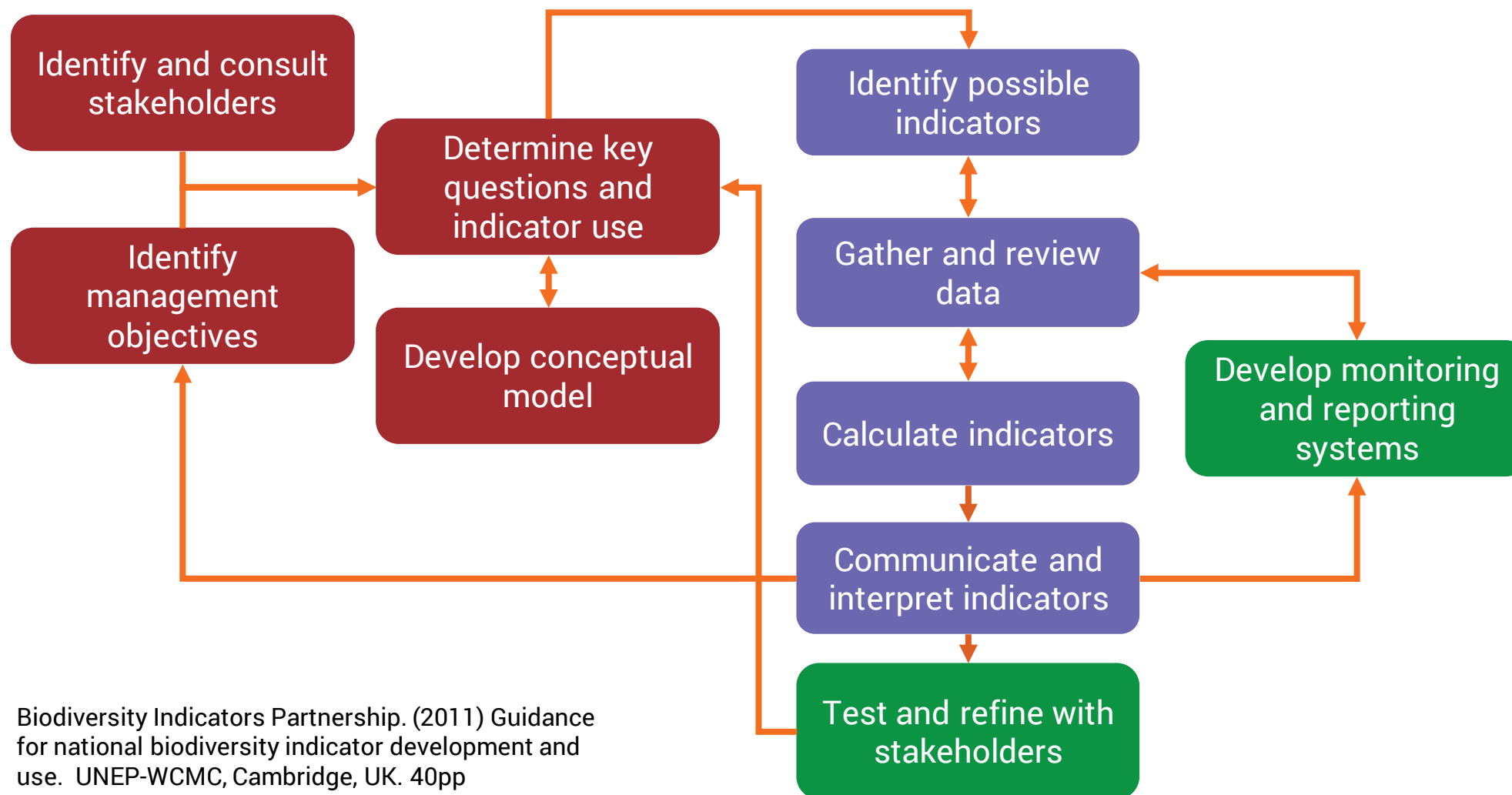


# Process for submitting an indicator for consideration?

## EVALUATION CHARACTERISTICS?

<b>Policy Relevant</b>	<p><b>Essential:</b> Indicator(s) relevant to one or more of the Aichi Biodiversity Targets.</p> <p><b>Desired:</b> Indicator features in the indicative list of indicators for the Strategic Plan for Biodiversity 2011-2020; Indicator(s) relevant to the Targets of other biodiversity-related MEAs and processes, including the SDGs.</p>
<b>Temporal data production and sustainability</b>	<p><b>Essential:</b> Plans in place to continue indicator production and produce regular updates – not an isolated one-off study.</p> <p><b>Desired:</b> Indicator data updated annually.</p>
<b>Aggregation and flexibility</b>	<p><b>Essential:</b> Indicator applicable at the global or regional scale.</p> <p><b>Desired:</b> Indicator aggregated from national level data or can be disaggregated to the national level.</p>
<b>Scientifically sound</b>	<p><b>Essential:</b> Indicator(s) must be based on clearly defined, verifiable and scientifically acceptable data, which are collected using standard methods with known accuracy and precision, or based on traditional knowledge that has been validated in an appropriate way</p> <p><b>Desired:</b> Peer reviewed in scientific literature</p>
<b>Sensitivity</b>	<p><b>Essential:</b> Indicators should be sensitive to show trends and detect changes in systems in time frames and on the scales that are relevant to the decisions, but also be robust so that measuring errors do not affect the interpretation.</p>

# INDICATOR DEVELOPMENT FRAMEWORK

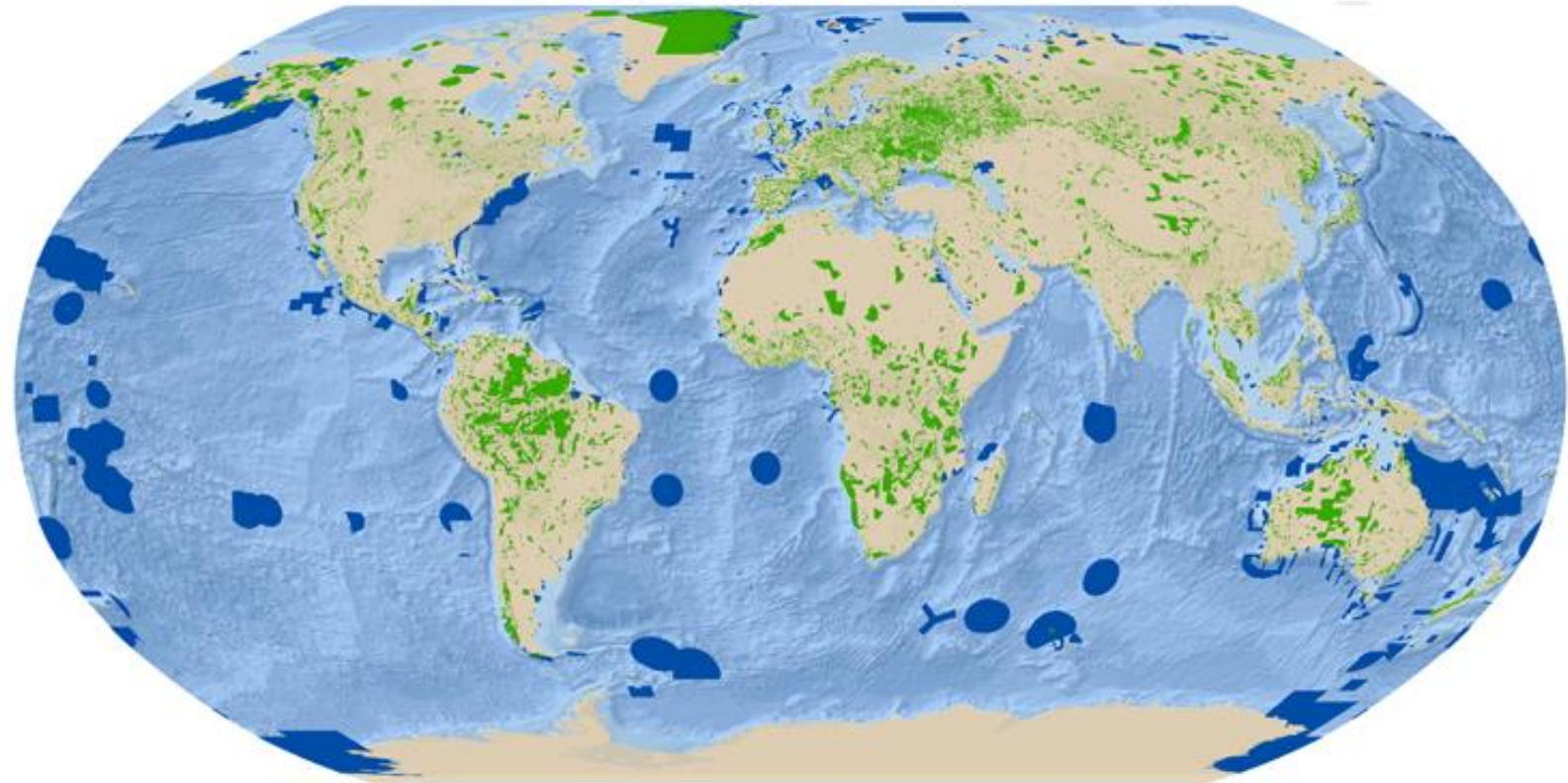


Biodiversity Indicators Partnership. (2011) Guidance for national biodiversity indicator development and use. UNEP-WCMC, Cambridge, UK. 40pp



## Primary indicators

- › [Wildlife Picture Index in tropical forest protected areas](#)
- › [Protected area coverage](#)
- › [Protected Area Coverage of Key Biodiversity Areas](#)
- › [Protected Areas Management Effectiveness](#)
- › [Protected Area Coverage of Ecoregions](#)
- › [Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type](#)
- › [Protected Area Representativeness Index \(PARC-Representativeness\)](#)
- › [Protected Area Connectedness Index \(PARC-Connectedness\)](#)



Source: UNEP-WCMC AND IUCN (2018). Protected Planet: The World Database on Protected Areas (WDPA) [On-line]. June 2018, Cambridge, UK: UNEP-WCMC. Available at [www.protectedplanet.net](http://www.protectedplanet.net)



Terrestrial protected areas



Marine and coastal protected areas





## GROUP DISCUSSION / Q&A

15 minutes





**UN Environment  
World Conservation Monitoring Centre**

[www.unep-wcmc.org](http://www.unep-wcmc.org)  
[@unepwcmc](https://twitter.com/unepwcmc)

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