Proteus Partners Annual Meeting 2014

Hosted by BP at Jesus College, Cambridge 13th-14th May

Welcome Address

proteus
partners for a wiser world

bp

A Biodiversity Moment

UNEP WCMC

Proteus Partners Annual Meeting 2014

Hosted by BP at Jesus College, Cambridge 13th-14th May

Welcome and Introductions

Jon Hutton
Director, UNEP-WCMC

UNEP WCMC

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Introductions

There are a number of new faces today…

And we also have two new members…

Initiated in 2003, the Proteus Partnership now has 17 company members

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Proteus Partners		
Gail Ross	Manager, Biological and Ecological Sciences	Barrick Gold Corporation
Richard Head	Head of Environment	BG Group
Jeff Parker	Head of HSEC, West Africa Iron Ore	BHP Billiton
Mark Johnston	Group Ecology Expert	BP
Andrea Steffke	Remote Sensing Scientist	Chevron Corporation
Sarah Terry	Senior Principal Consultant	ConocoPhillips
Elena Pavanel	Environmental and Biodiversity Specialist	eni
Davide Speranza	Environmental and Biodiversity Specialist	eni
Rich Davi	Scientific Associate	ExxonMobil
Oriol Lopez	Social and Environmental Management Analyst	Repsol
Peter Harvey	Chief HSEC advisor – Evaluations	Rio Tinto
Gertjan Roseboom	Senior Environmental Manager	Shell
Deric Quaile	Manager Environmentally Sensitive Areas	Shell
Jon Rytter Hasle	Advisor Impact Assessment	Statoil
Steven Dickinson	Senior Environment Advisor Biodiversity, EIA and Water Resources	Total

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Observers		
Ruth Romer	Senior Manager, Biodiversity, Ecosystem Services, and Water	IPIECA
Jessica Smith	CSBI Project Manager	Cross-Sector Biodiversity Initiative (CSBI)
Guest Speakers		
Richard Kenchington	Professor, Environment and Natural Resource Management	Australian National Centre for Ocean Resources & Security
Leon Bennun	Director of Science, Policy and Information	BirdLife International
Kristian Teleki	Director of Global Engagement	Global Ocean Commission
Lucas Joppa	Head of Conservation Science Research Unit	Microsoft Research
Joe Bull	Director	Wild Business
Tim Hirsch	Deputy Director and Head of Participation	Global Biodiversity Information Facility (GBIF)

Proteus Refresher…

UNEP-WCMC

- UNEP-WCMC is UNEP's specialist Biodiversity. Assessment Centre since 2000
- Illustrious 35 Year history – created by IUCN…
- Initiated Proteus in 2003 to support biodiversity standards in the extractive sector.

What was the original Proteus vision?

1. New data and information will be developed so that decisions affecting biodiversity are better informed.
2. Decision-makers will be provided with an opportunity to support the generation and maintenance of the data they need.

….because the lack of knowledge, data and relevant tools was one of the biggest barriers to informed decision-making and implementation of biodiversity policy within the business sector.

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Unique institutional arrangement…

1. Not CSR, nor a simple service arrangement, but a collaboration with agreed objectives.
2. Implemented through negotiated 3-yearly work programs with transparent reporting.

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Proteus Partnership
2013-2015
Next Phase Strategy

The objectives of the Partnership today are…

1. To improve significantly **the accuracy, completeness and currency** of information in the World Database on Protected Areas, focusing on data verification, quality assurance and enhancements in interoperability.
2. To support **integrated knowledge products** that provide access to information on **sites of global importance** for biodiversity and increasingly feature sites that are considered national priorities.
3. To compile **globally consistent, comprehensive and validated datasets** for important coastal and **marine ecosystems**, and develop a business-relevant baseline of biodiversity priorities in the marine realm.
4. To share **context and insights** into the latest trends and developments in biodiversity and ecosystem policy, initiatives, data and tools of importance to business.

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Proteus Partners have access to…

- National and international data on protected areas
- Global data on threatened species and areas critically important for biodiversity
- Data on marine and coastal ecosystems
- Customised tools and business/biodiversity resources
- Information and interpretation of biodiversity policy
- Technical assistance and training
- Regular meetings to share new information, ideas and perspectives

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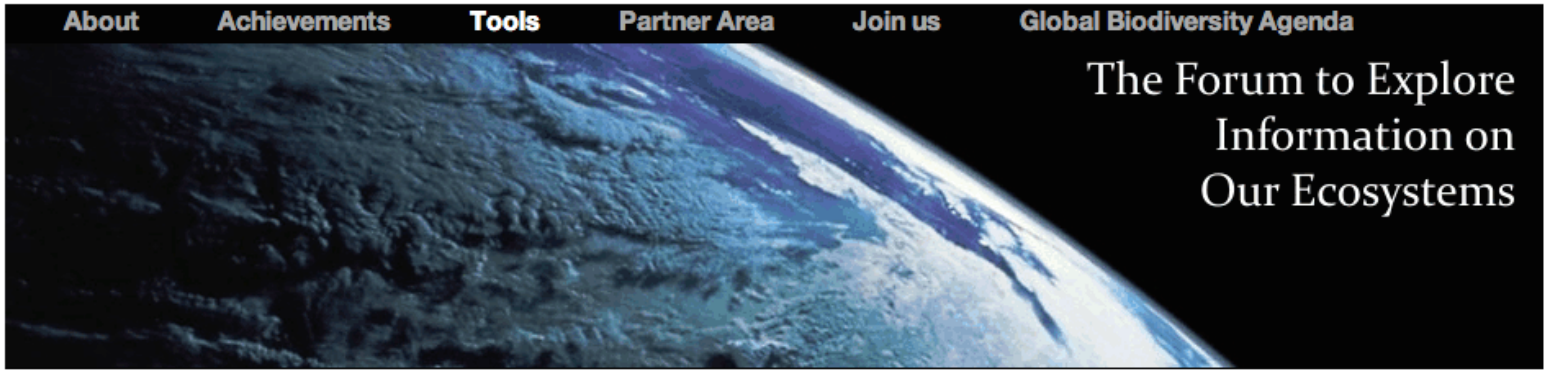

Tools

WDPA/Protected Planet The World Database on Protected Areas is the only global inventory of protected areas. Information is provided to the WDPA from National governments, NGOs, International conventions and regional Partners. It is managed and developed through collaboration between UNEP-WCMC and IUCN...

More...

Global Biodiversity Agenda

View the latest news, videos, factsheets and briefing notes.

Recent news

- WDPA May Release 2014 May 1, 2014
- WDPA April Release 2014 April 1, 2014
- Video & Factsheet: Protected Area Mythbusting March 31, 2014
- Update to the WDPA

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Things we have done together…

Mount Kenya National Park/Natural Forest World Heritage Site

Parc national/Forêt naturelle du mont Kenya, Kenya



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1 2 3

Description

Mount Kenya National Park, established in 1949, protects the region surrounding Mount Kenya. Initially it was a forest reserve before being announced as a national park. Currently the

Official Record

100% COMPLETE

WDPA ID
145585

NAME
Mount Kenya National Park/Natural Forest

ORIGINAL NAME
Parc national/Forêt naturelle du mont Kenya

COUNTRY / TERRITORY
KEN

SUB LOCATION
FJ-E

IUCN CATEGORY

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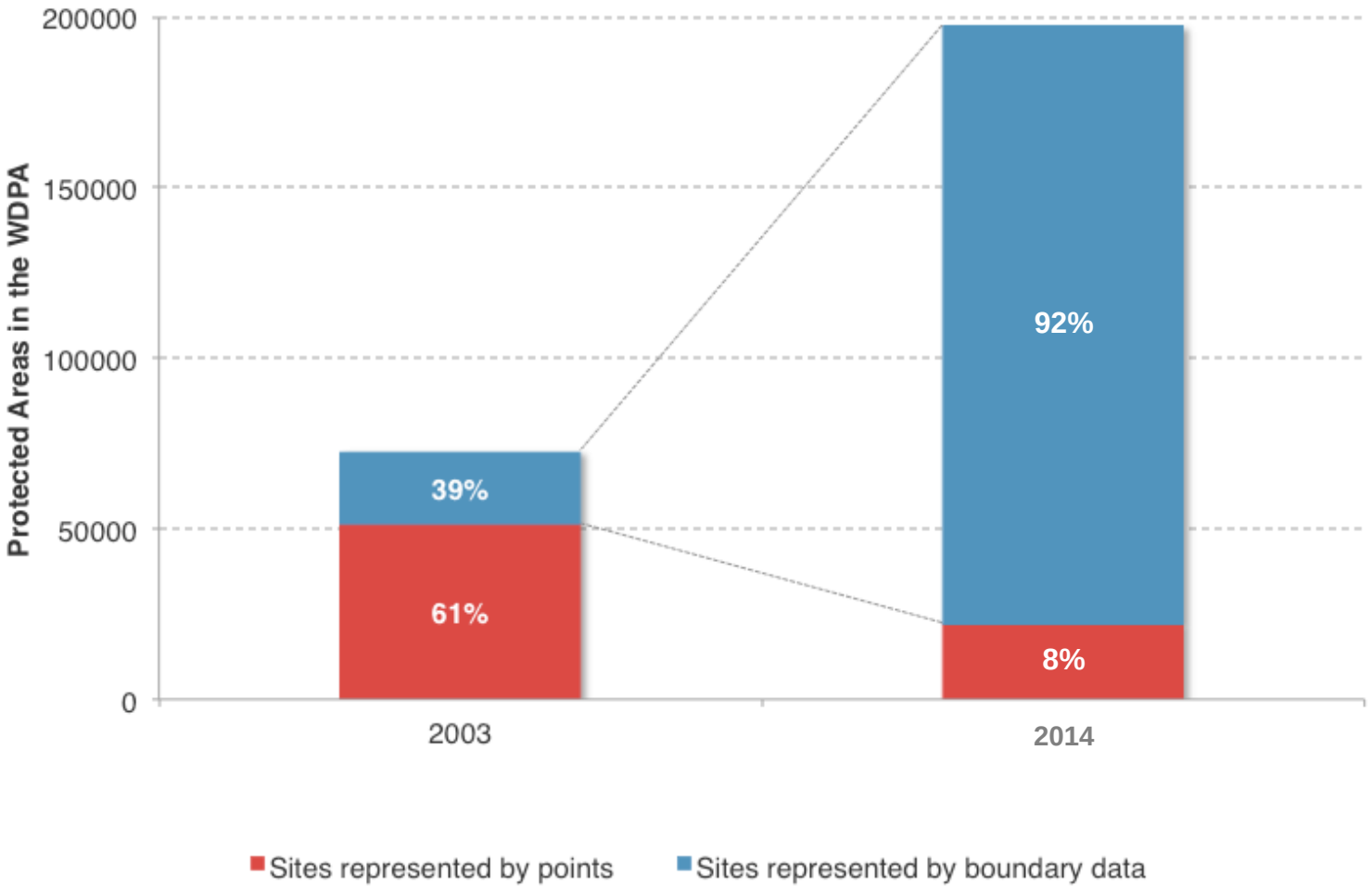
Quality of the WDPA…



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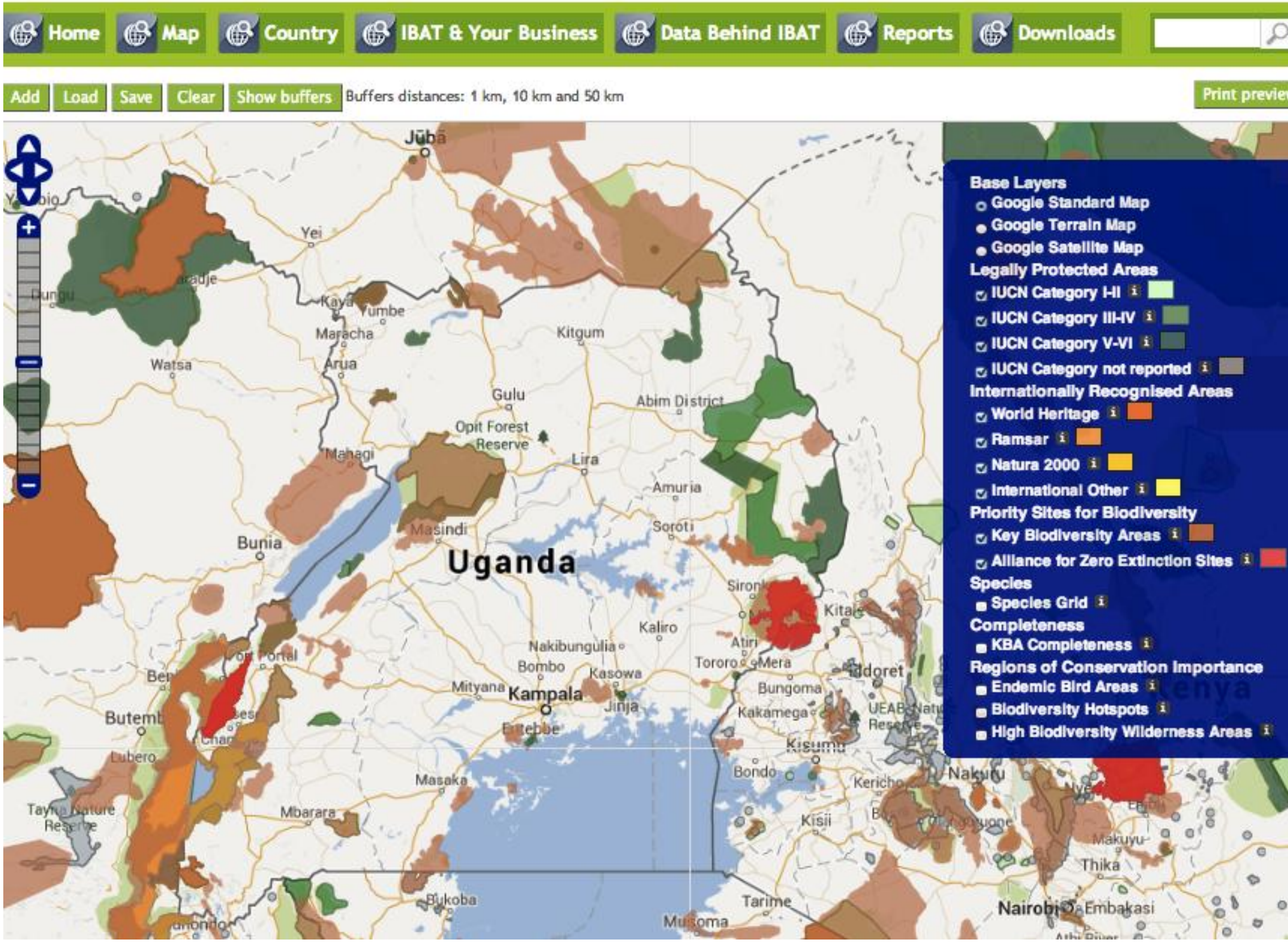
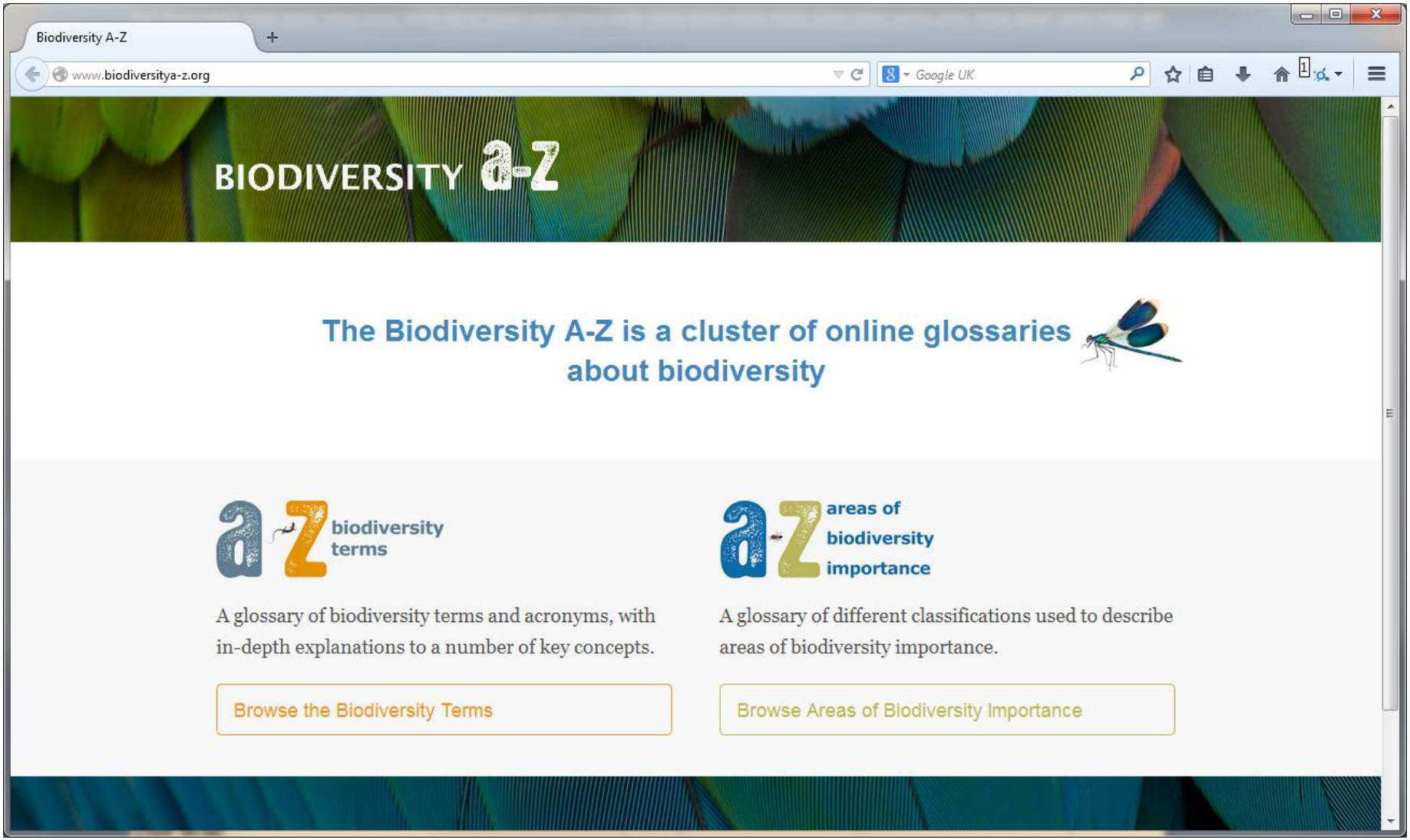

Home
Map
Country
IBAT & Your Business
Data Behind IBAT
Reports
Downloads
Add
Load
Save
Clear
Show buffers
Buffers distances: 1 km, 10 km and 50 km
Print preview
Base Layers
Google Standard Map
Google Terrain Map
Google Satellite Map
Legally Protected Areas
IUCN Category I-II
IUCN Category III-IV
IUCN Category V-VI
IUCN Category not reported
Internationally Recognised Areas
World Heritage
Ramsar
Natura 2000
International Other
Priority Sites for Biodiversity
Key Biodiversity Areas
Alliance for Zero Extinction Sites
Species
Species Grid
Completeness
KBA Completeness
Regions of Conservation Importance
Endemic Bird Areas
Biodiversity Hotspots
High Biodiversity Wilderness Areas
Uganda
Juba
Yei
Kaya
Yumbe
Maracha
Arua
Kitgum
Gulu
Abim District
Watsa
Opit Forest Reserve
Lira
Mahagi
Amuria
Masindi
Soroti
Bunia
Kaliro
Nakibungulia
Bombo
Kasowa
Tororo
Mera
Bungoma
Kakamega
Mityana
Kampala
Jinja
Entebbe
Kisumu
Bondo
Kericho
Nakuru
Masaka
Mbarara
Kisii
Makuyu
Thika
Bukoba
Tarime
Musoma
Nairobi
Embakasi
Butembo
Lubero
Tayna Nature Reserve


Ocean Data Viewer
EXPLORE THE DATA
ABOUT
CONTACT
BUSINESS
FACTSHEETS
18
DATASETS
Showing 1 dataset
Dataset detail
Global Distribution of Coral Reefs (2010)
Access
Description
The dataset represents the global distribution of warm water coral reefs and should be seen an 'interim' global product. It has been compiled from a number of data sources which have been merged together by UNEP-WCMC and the WorldFish Centre in collaboration with WRI and TNC. It supersedes the dataset used in the World Atlas of Coral Reefs (2001), although some aspects of this product still originate from that data source. This amalgamated dataset has been created to further mobilise the Millennium Coral Reef Map Products and their validation. This data set should by no means replace the official release of the
Download
Factsheet
ArcGIS

Marine Critical Habitat…


Biodiversity A-Z
www.biodiversitya-z.org
Google UK
BIODIVERSITY a-Z
The Biodiversity A-Z is a cluster of online glossaries about biodiversity
biodiversity terms
A glossary of biodiversity terms and acronyms, with in-depth explanations to a number of key concepts.
Browse the Biodiversity Terms
areas of biodiversity importance
A glossary of different classifications used to describe areas of biodiversity importance.
Browse Areas of Biodiversity Importance

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Finally…

- ✓ By supporting access to better biodiversity data to meet their own needs, The Proteus Partners contribute to the creation of data that are used in global conservation decision-making.

- ✓ Not only is this a direct contribution to international biodiversity conservation targets, but it means that everyone is using same data, on a common platform, so companies can have increasing confidence in the currency of the information they are using…

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www.proteuspartners.org
www.unep-wcmc.org

Proteus Partners Annual Meeting 2014

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Proteus Achievements

2013-2014

Melissa Tolley, Matt Jones, Ruth Fletcher

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Meeting overview and agenda

Tuesday 13th May:

Proteus Annual Meeting, members only

Wednesday 14th May:

Proteus and CSBI Workshop on Protected Areas

Meeting objectives

- Share updates on progress in the Proteus workplan
- Gather feedback on direction of Proteus workplan
- Provide contextual information for the data provided through Proteus
- Discuss developments in protected areas and engagement at the World Parks Congress
- Consider Proteus data and resources in the context of business approaches to biodiversity
- Discuss data access and sharing

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Proteus 2013 - 2015

Objectives:

- To improve significantly the accuracy, completeness and currency of information in the **World Database on Protected Areas**, focusing on data verification, quality assurance and enhancements to interoperability
- To support integrated knowledge products that provide access to **information on sites of global importance for biodiversity** and increasingly feature sites that are considered national priorities
- To compile globally consistent, comprehensive and validated **datasets for important coastal and marine ecosystems**, and develop a business-relevant baseline of biodiversity priorities in the marine realm
- To share context and insights into the **latest trends and developments in biodiversity** and ecosystem policy, initiatives, data and tools of importance to business

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New Partners

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Achievements in the Proteus Workplan 2013 - 2014

- World Database on Protected Areas (WDPA)
- Integrated Biodiversity Assessment Tool (IBAT)
- Marine and Coastal Data

- Key Outputs:
  - Global Biodiversity Agenda Series
  - Biodiversity A-Z
  - Marine Data Manual

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Financial Update

2013 Income and Expenditure Summary

- Total income USD 1,213,089
  - Supplemented by in-kind contributions and leveraged funds
- Total expenditure USD 1,214,0321

2013 Income and Expenditure

Income to 31st December 2013	Income
Proteus Partner Income	**$1,213,089**

Expenditure to 31st December 2013	Expenditure
Project management	**$165,044**
Improve WDPA	**$355,218**
Provide integrated data	**$521,323**
Coastal and Marine data	**$123,726**
Global Biodiversity Agenda	**$49,009**
Total	**$1,214,0321**
Balance	**- $1,231**

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2014 Income and Budget

Budgeted Income 2014	Income
Proteus Partner Income	**$1,343,100**

Budgeted Expenditure 2014	Expenditure
Project management	**$148,500**
Improve WDPA	**$419,100**
Provide integrated data	**$457,050**
Coastal and Marine data	**$138,600**
Global Biodiversity Agenda	**$33,000**
Total	**$1,196,250**

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Improving the World Database on Protected Areas

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- A (very) brief overview
- Updates in the WDPA
- Restructuring the WDPA

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193,942 sites

15% land; 3% marine

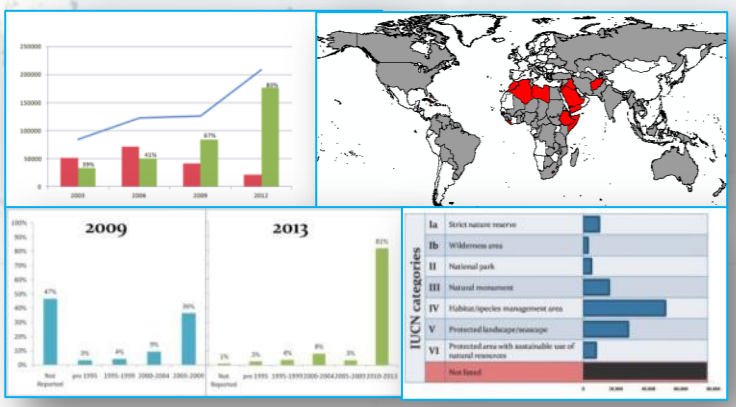
Governments

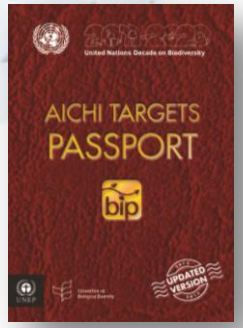
International

Regional

NGOs and Others

WDPA





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Updates in the WDPA

2013

3,946	New records for protected areas added
17,097	Records removed during quality control
38,740	Records reviewed/validated
92%	Records now represented by boundaries

In 2014 so far

11	Countries updated so far
3,025	New records for protected areas added
5,623	Records reviewed/validated
Ramsar	Complete dataset updated

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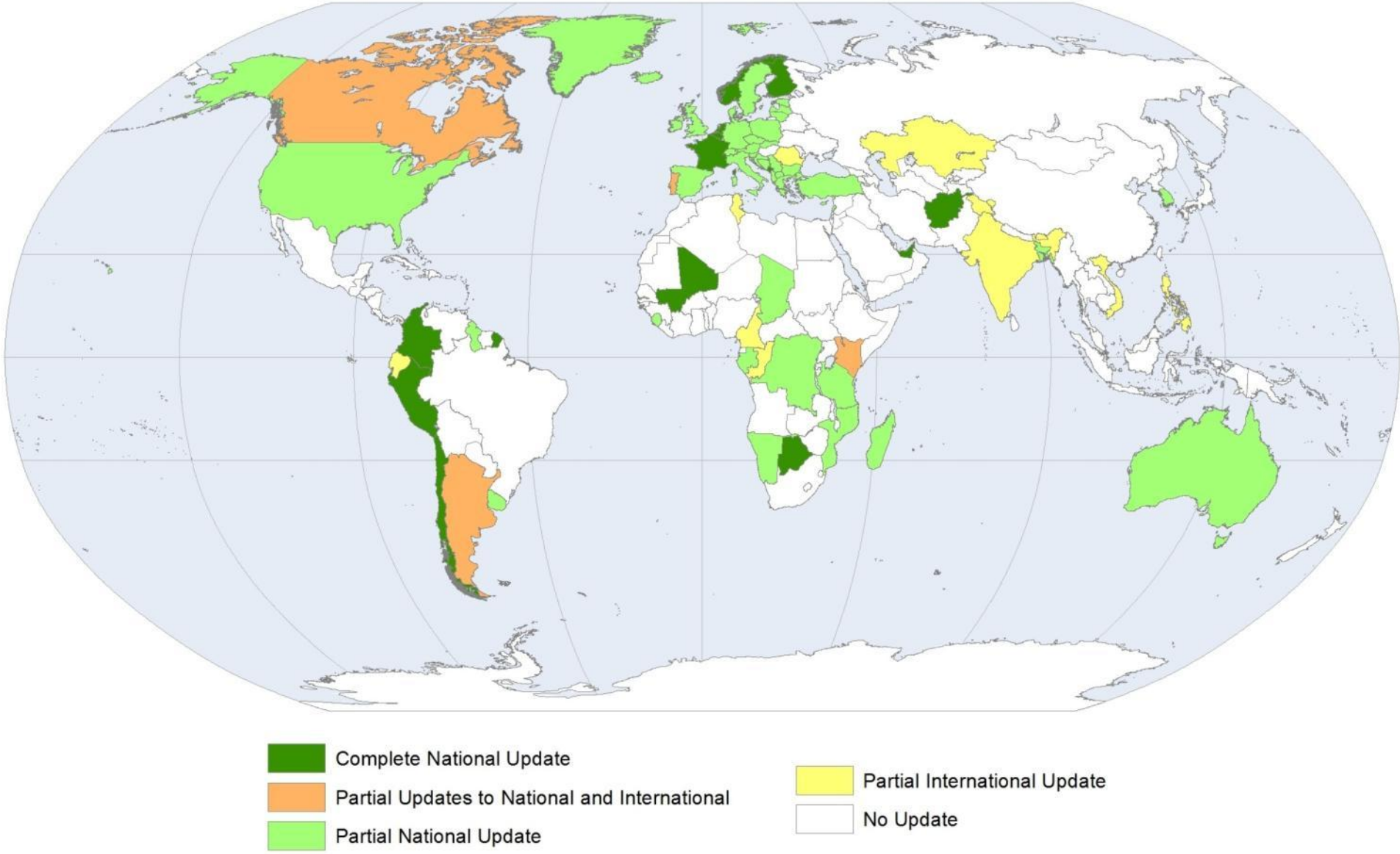
Countries Updated in 2013



A global update process: The UN List of Protected Areas

- Currently under development
- A snapshot in time of protected areas
- Provides impetus for governments to submit data
- Produced once every 10 years
- Often aligned to the World Parks Congress

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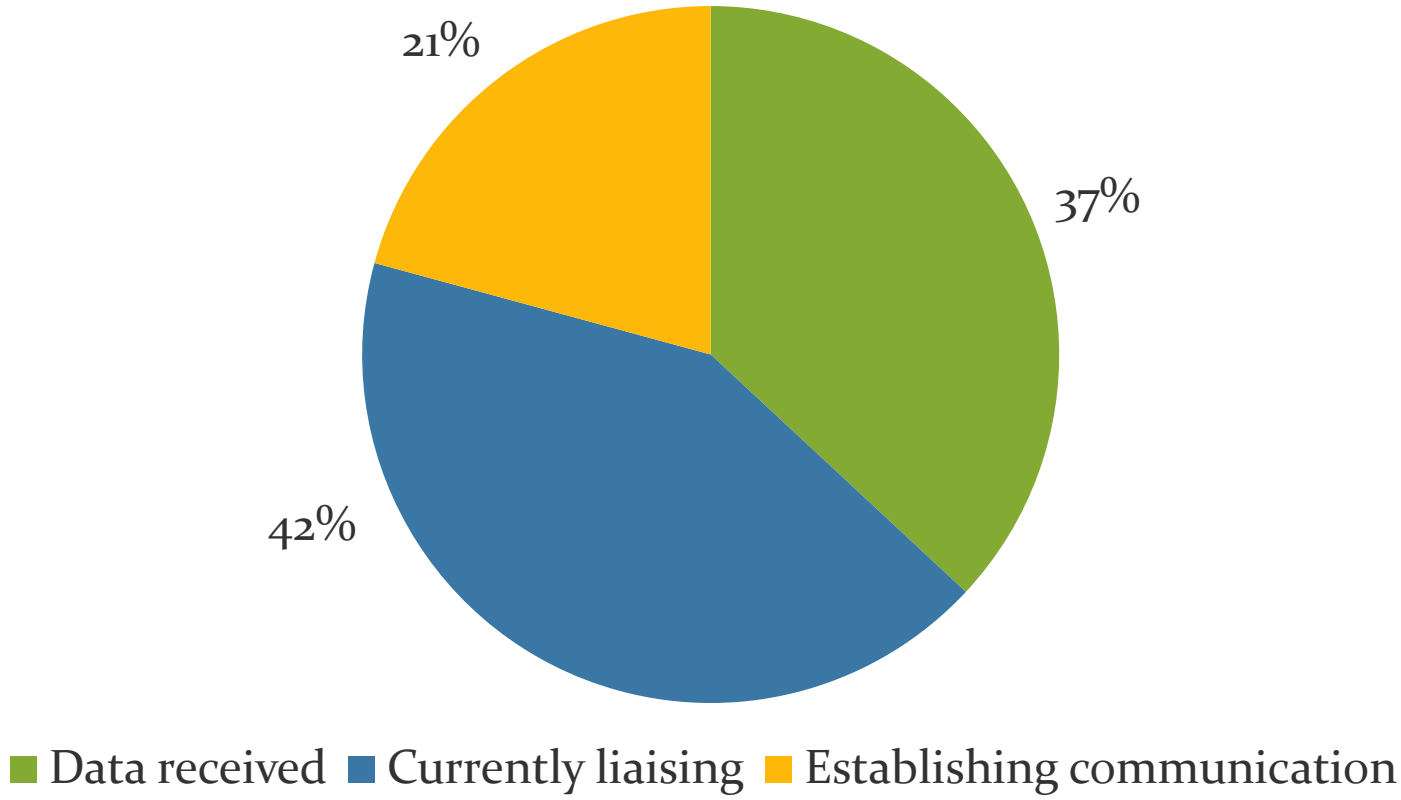
Responses so far have been positive



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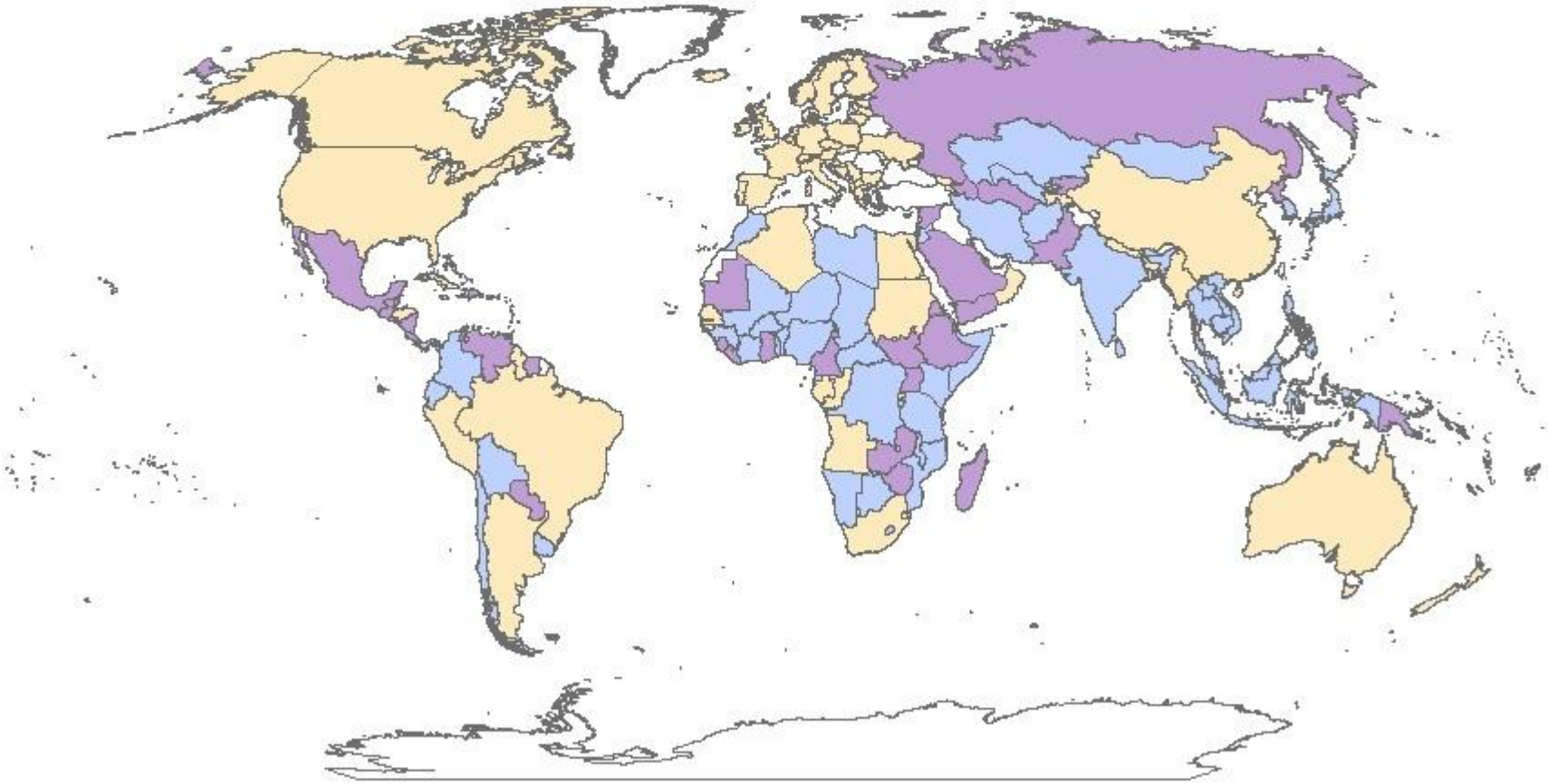

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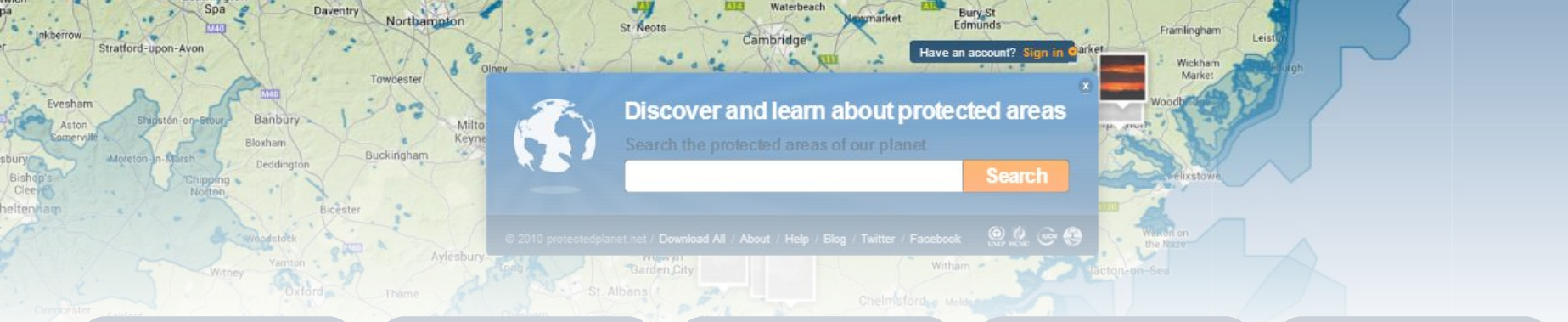
Restructuring the WDPA



Management	Users	Infrastructure	Process	Data
Governance	Requirements	GIS	Standardised business process	Data Model
Resources	Skills	Databases	Data in/out process	Data Standards
	Goals	Web-portal		Quality Control

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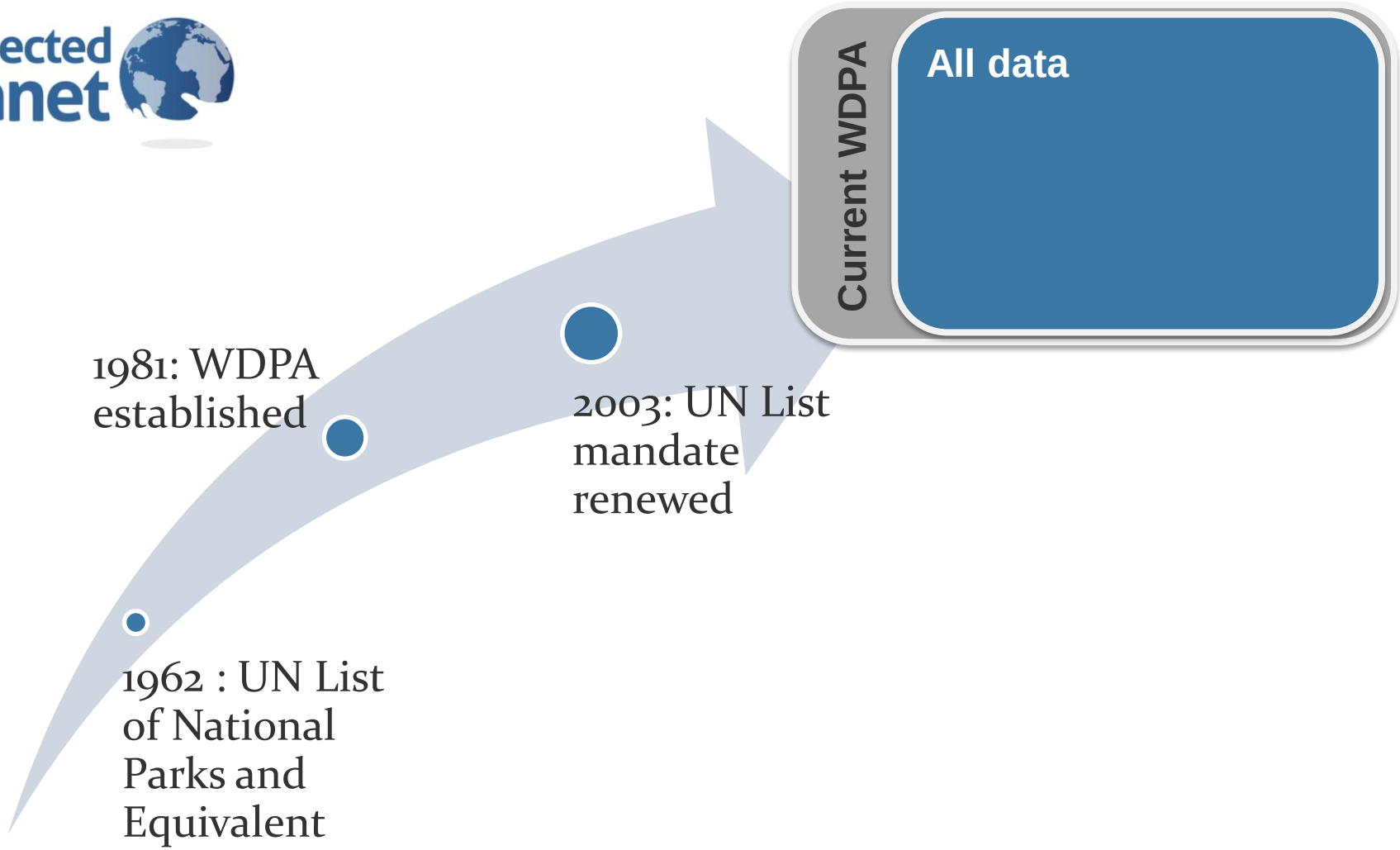
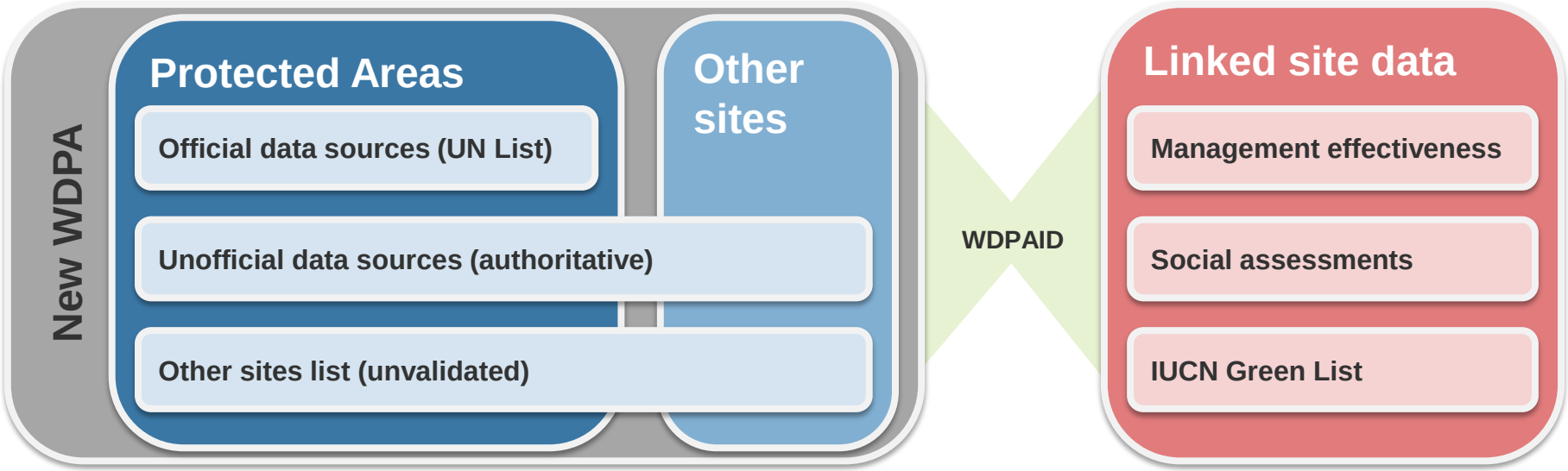

Current WDPA
All data
1981: WDPA established
2003: UN List mandate renewed
1962 : UN List of National Parks and Equivalent Reserves


Current WDPA
All data

In 2014...


New WDPA
Protected Areas
Official data sources (UN List)
Unofficial data sources (authoritative)
Other sites list (unvalidated)
Other sites
WDPAID
Linked site data
Management effectiveness
Social assessments
IUCN Green List

Providing access to integrated data and knowledge

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- Information on protected areas
- Quality in the WDPA
- The Integrated Biodiversity Assessment Tool
- Biodiversity A-Z

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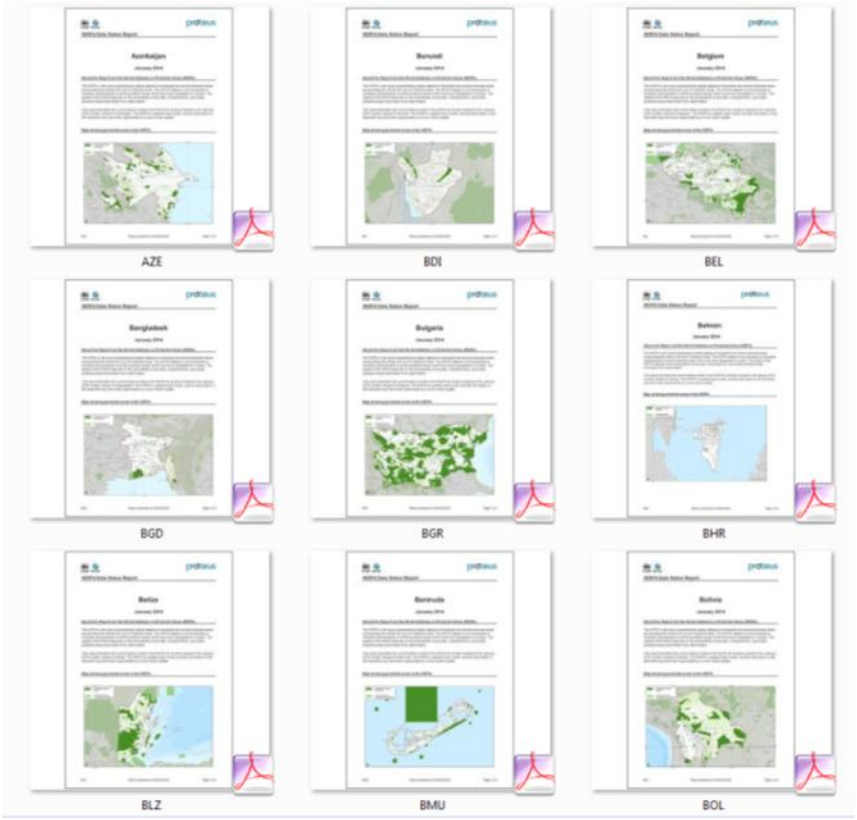
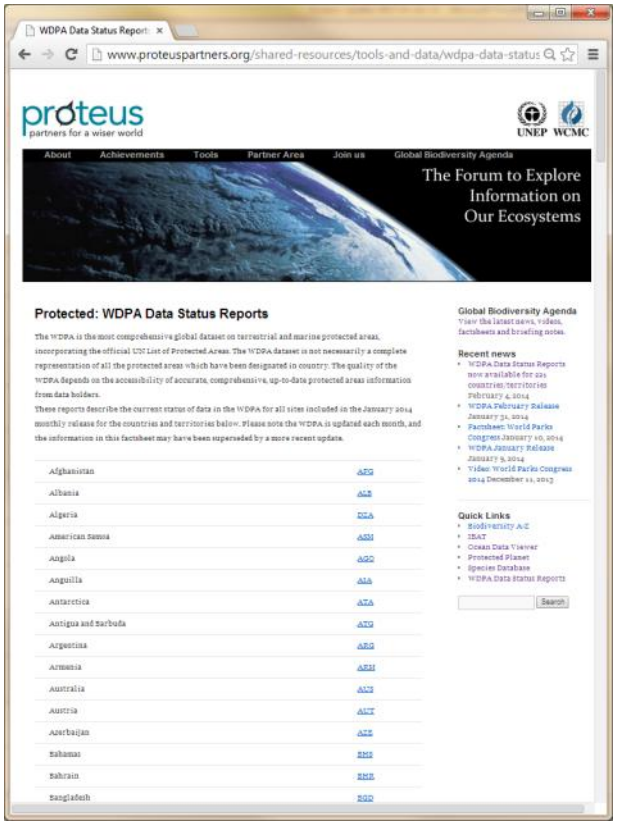
Providing contextual information on protected areas

We now produce country factsheets for the whole WDPA





There is a matching factsheet for the whole WDPA

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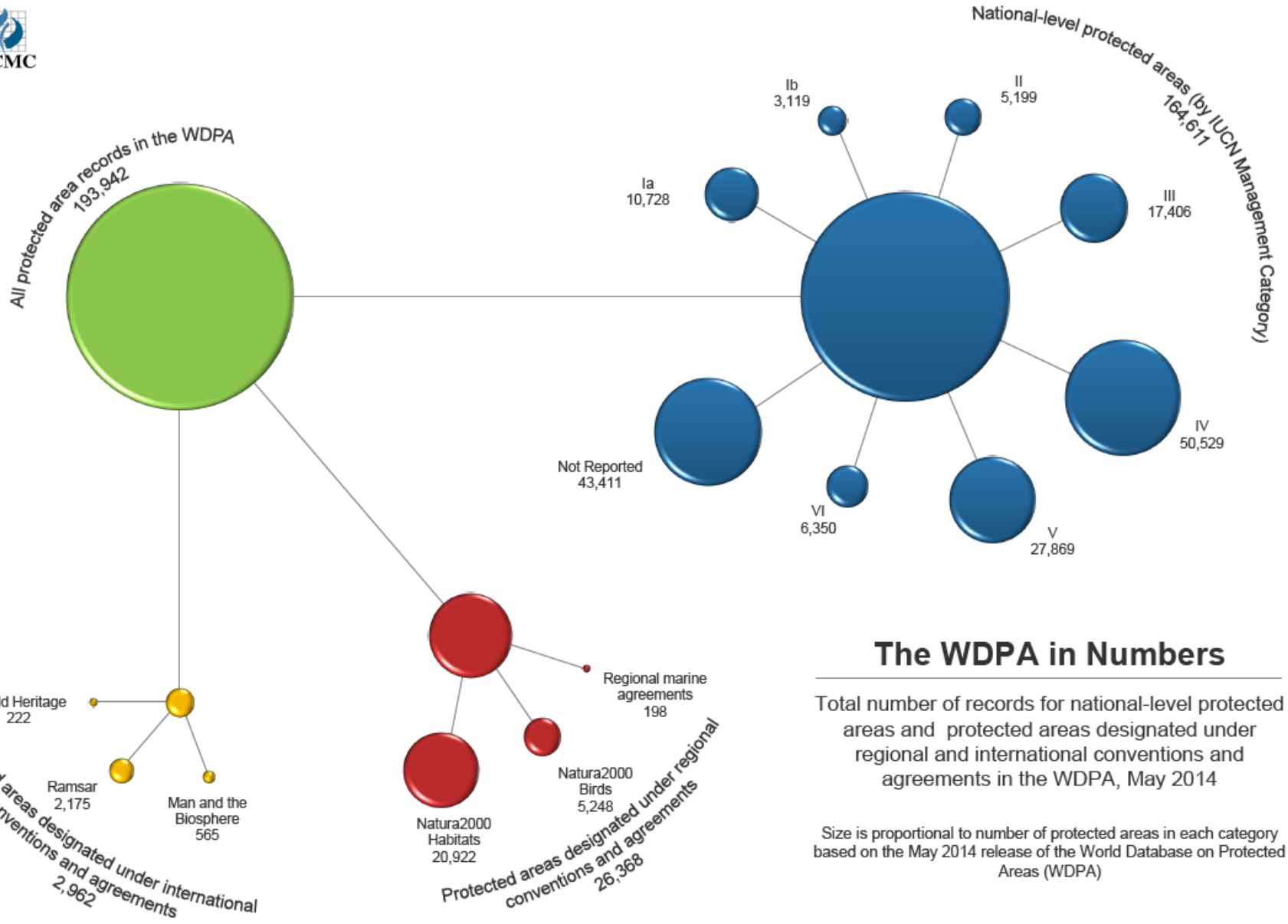


The WDPA in Numbers

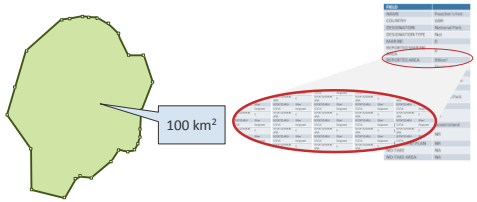
Total number of records for national-level protected areas and protected areas designated under regional and international conventions and agreements in the WDPA, May 2014

Size is proportional to number of protected areas in each category based on the May 2014 release of the World Database on Protected Areas (WDPA)

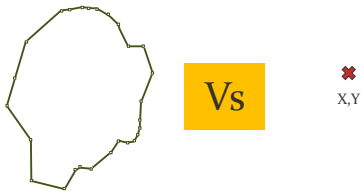
A new quality approach for the WDPA

Spatial Detail

% of records where the Reported Area matches the calculated area



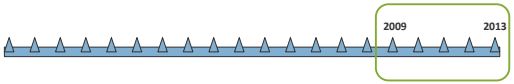
% of records which have a polygon boundary (preferred)



Agreement within Data

Completeness of Attributes

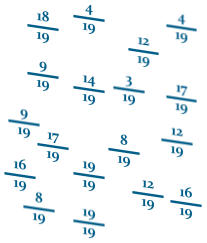
% of records updated or validated in the last 5 years



Year of Update

% of attributes completed (up to 20 attributes per record)

FIELD
NAME
COUNTRY
DESIGNATION
DESIGNATION TYPE
MARINE
REPORTED MARINE AREA
REPORTED AREA
STATUS
STATUS YEAR
ORIGINAL NAME
SUB-LOCATION
DESIGNATION ENGLISH
IUCN CATEGORY
INTERNATIONAL CRITERIA
GOVERNANCE TYPE
MANGEMENT AUTHORITY
MANGEMENT PLAN
NO-TAKE
NO-TAKE AREA



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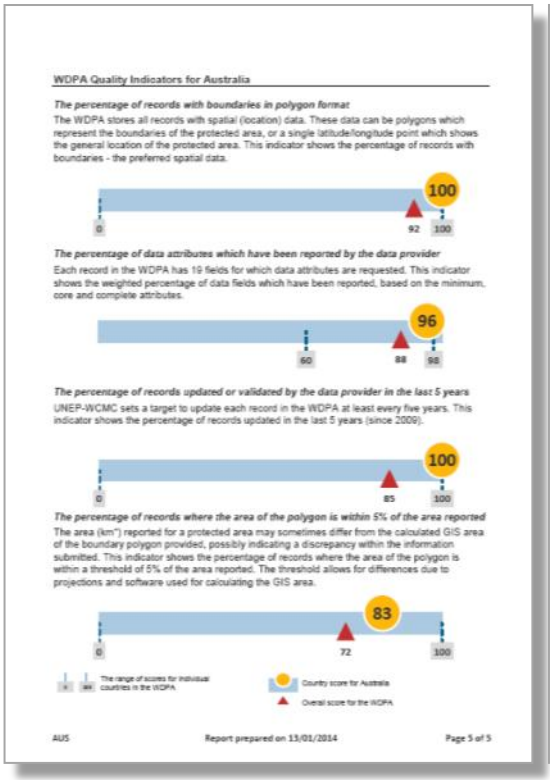
We now apply these quality scores to each country in the WDPA



WDPA Quality Indicators for Australia

The percentage of records with boundaries in polygon format

The WDPA stores all records with spatial (location) data. These data can be polygons which represent the boundaries of the protected area, or a single latitude/longitude point which shows the general location of the protected area. This indicator shows the percentage of records with boundaries - the preferred spatial data.

100

The percentage of data attributes which have been reported by the data provider

Each record in the WDPA has 19 fields for which data attributes are requested. This indicator shows the weighted percentage of data fields which have been reported, based on the minimum, core and complete attributes.

96

The percentage of records updated or validated by the data provider in the last 5 years

UNEP-WCMC sets a target to update each record in the WDPA at least every five years. This indicator shows the percentage of records updated in the last 5 years (since 2009).

100

The percentage of records where the area of the polygon is within 5% of the area reported

The area (km²) reported for a protected area may sometimes differ from the calculated GIS area of the boundary polygon provided, possibly indicating a discrepancy within the information submitted. This indicator shows the percentage of records where the area of the polygon is within a threshold of 5% of the area reported. The threshold allows for differences due to projections and software used for calculating the GIS area.

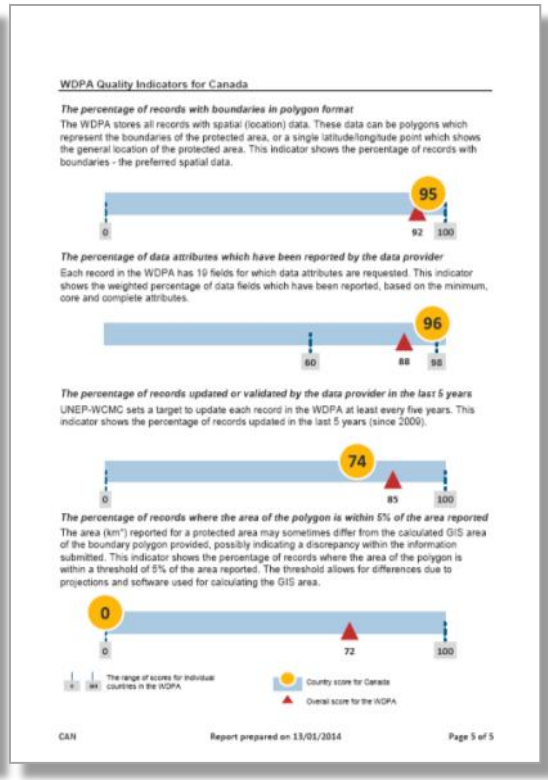
83

The range of scores for individual countries in the WDPA

Country score for Australia

Overall score for the WDPA

AUS Report prepared on 13/01/2014 Page 5 of 5



WDPA Quality Indicators for Canada

The percentage of records with boundaries in polygon format

The WDPA stores all records with spatial (location) data. These data can be polygons which represent the boundaries of the protected area, or a single latitude/longitude point which shows the general location of the protected area. This indicator shows the percentage of records with boundaries - the preferred spatial data.

95

The percentage of data attributes which have been reported by the data provider

Each record in the WDPA has 19 fields for which data attributes are requested. This indicator shows the weighted percentage of data fields which have been reported, based on the minimum, core and complete attributes.

96

The percentage of records updated or validated by the data provider in the last 5 years

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74

The percentage of records where the area of the polygon is within 5% of the area reported

The area (km²) reported for a protected area may sometimes differ from the calculated GIS area of the boundary polygon provided, possibly indicating a discrepancy within the information submitted. This indicator shows the percentage of records where the area of the polygon is within a threshold of 5% of the area reported. The threshold allows for differences due to projections and software used for calculating the GIS area.

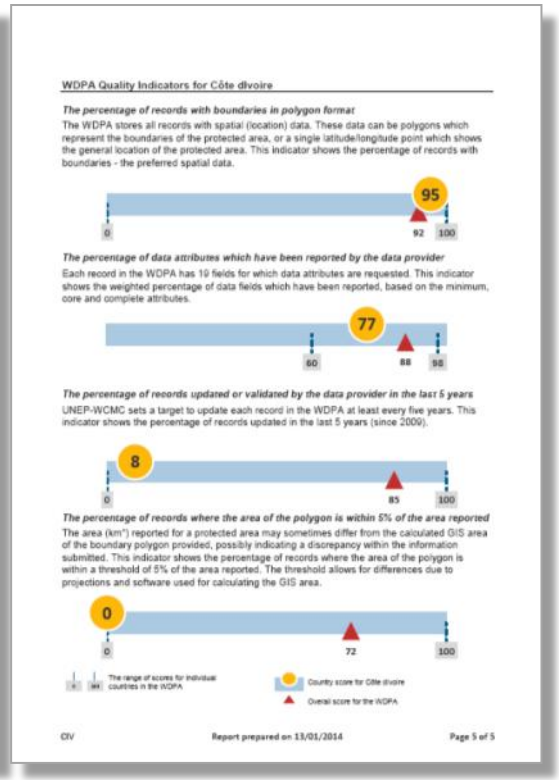
0

The range of scores for individual countries in the WDPA

Country score for Canada

Overall score for the WDPA

CAN Report prepared on 13/01/2014 Page 5 of 5



WDPA Quality Indicators for Côte dIvoire

The percentage of records with boundaries in polygon format

The WDPA stores all records with spatial (location) data. These data can be polygons which represent the boundaries of the protected area, or a single latitude/longitude point which shows the general location of the protected area. This indicator shows the percentage of records with boundaries - the preferred spatial data.

95

The percentage of data attributes which have been reported by the data provider

Each record in the WDPA has 19 fields for which data attributes are requested. This indicator shows the weighted percentage of data fields which have been reported, based on the minimum, core and complete attributes.

77

The percentage of records updated or validated by the data provider in the last 5 years

UNEP-WCMC sets a target to update each record in the WDPA at least every five years. This indicator shows the percentage of records updated in the last 5 years (since 2009).

8

The percentage of records where the area of the polygon is within 5% of the area reported

The area (km²) reported for a protected area may sometimes differ from the calculated GIS area of the boundary polygon provided, possibly indicating a discrepancy within the information submitted. This indicator shows the percentage of records where the area of the polygon is within a threshold of 5% of the area reported. The threshold allows for differences due to projections and software used for calculating the GIS area.

0

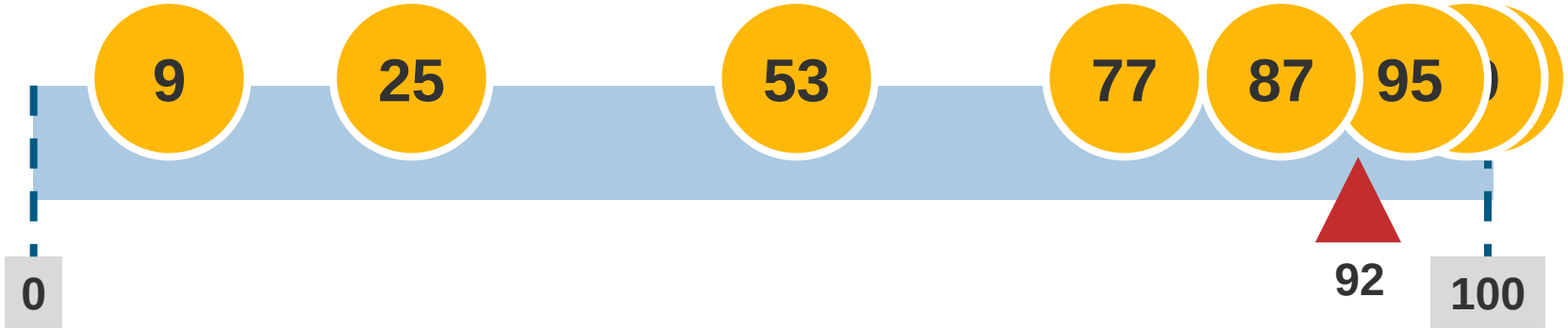
The range of scores for individual countries in the WDPA

Country score for Côte dIvoire

Overall score for the WDPA

CIV Report prepared on 13/01/2014 Page 5 of 5

% of records with boundary data



Afghanistan

GBA Factsheets

Online Videos

Technical Briefings

UNEP WCMC

The Integrated Biodiversity Assessment Tool

UNEP WCMC

IBAT Data updates

Protected Areas

- Over 193,000 protected area records
- March 2014

Key Biodiversity Areas

- Over 13,000 KBA records
- Now includes newly identified IBAs in the high seas
- March 2014

Species

- Main grid update due in Q3 2014 (data current to November 2013)
- New Freshwater grid based on catchments now available

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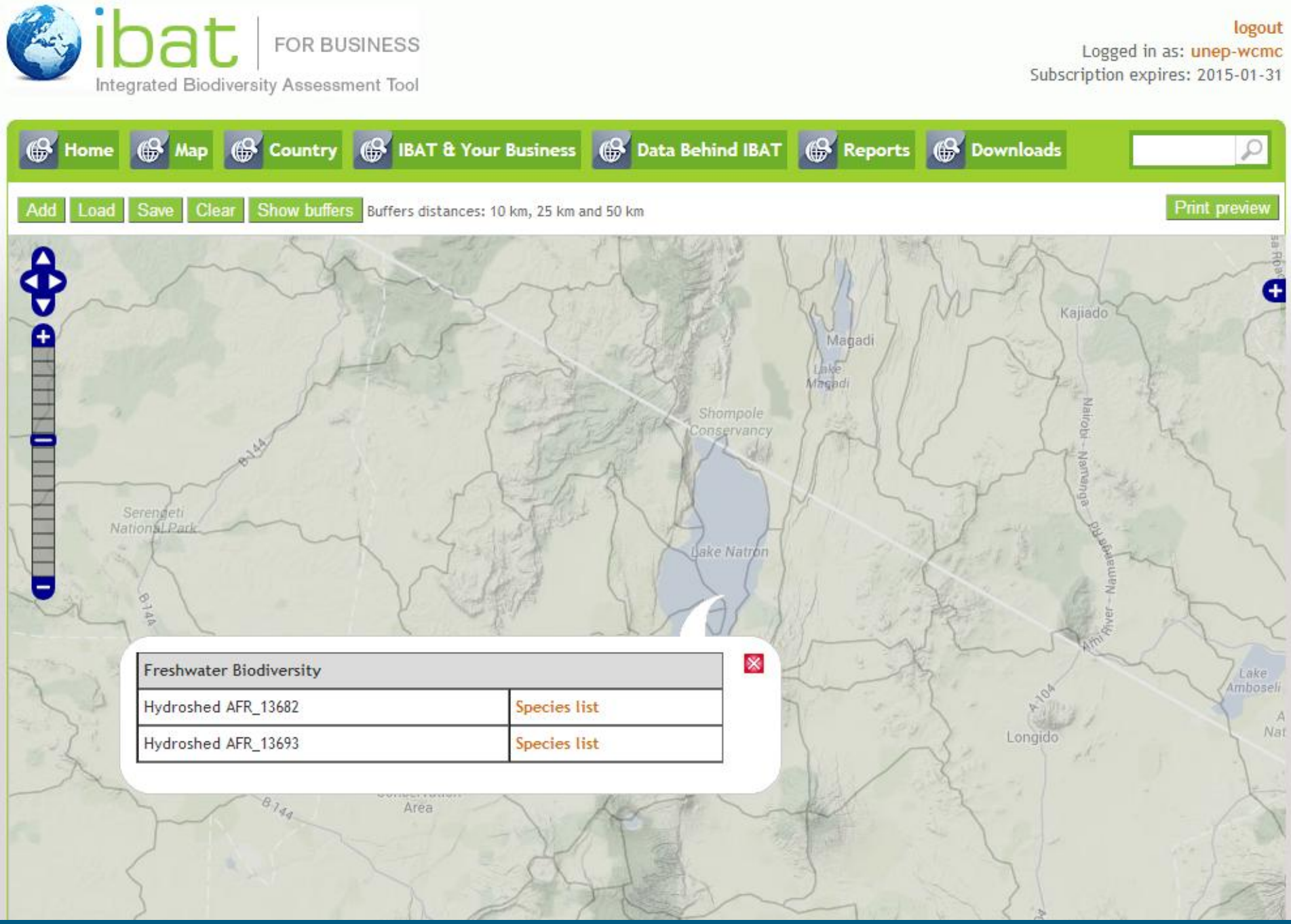
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Country
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Data Behind IBAT
Reports
Downloads
Add
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Buffers distances: 10 km, 25 km and 50 km
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Kajiado
Magadi
Lake Magadi
Shompole Conservancy
Serengeti National Park
Lake Natron
B144
Nairobi - Namanga Rd
Athi River - Namanga
Lake Amboseli
A104
Longido
Area
Freshwater Biodiversity
Hydroshed AFR_13682
Species list
Hydroshed AFR_13693
Species list

Planned updates to IBAT in 2014

Tool

- New look
- Revised navigation

Data

- Monthly updates to PA data
- New ways of accessing species information

Reports

- Information relevant to IFC PS6
- Information relevant to HCV
- Information relevant to GRI reporting

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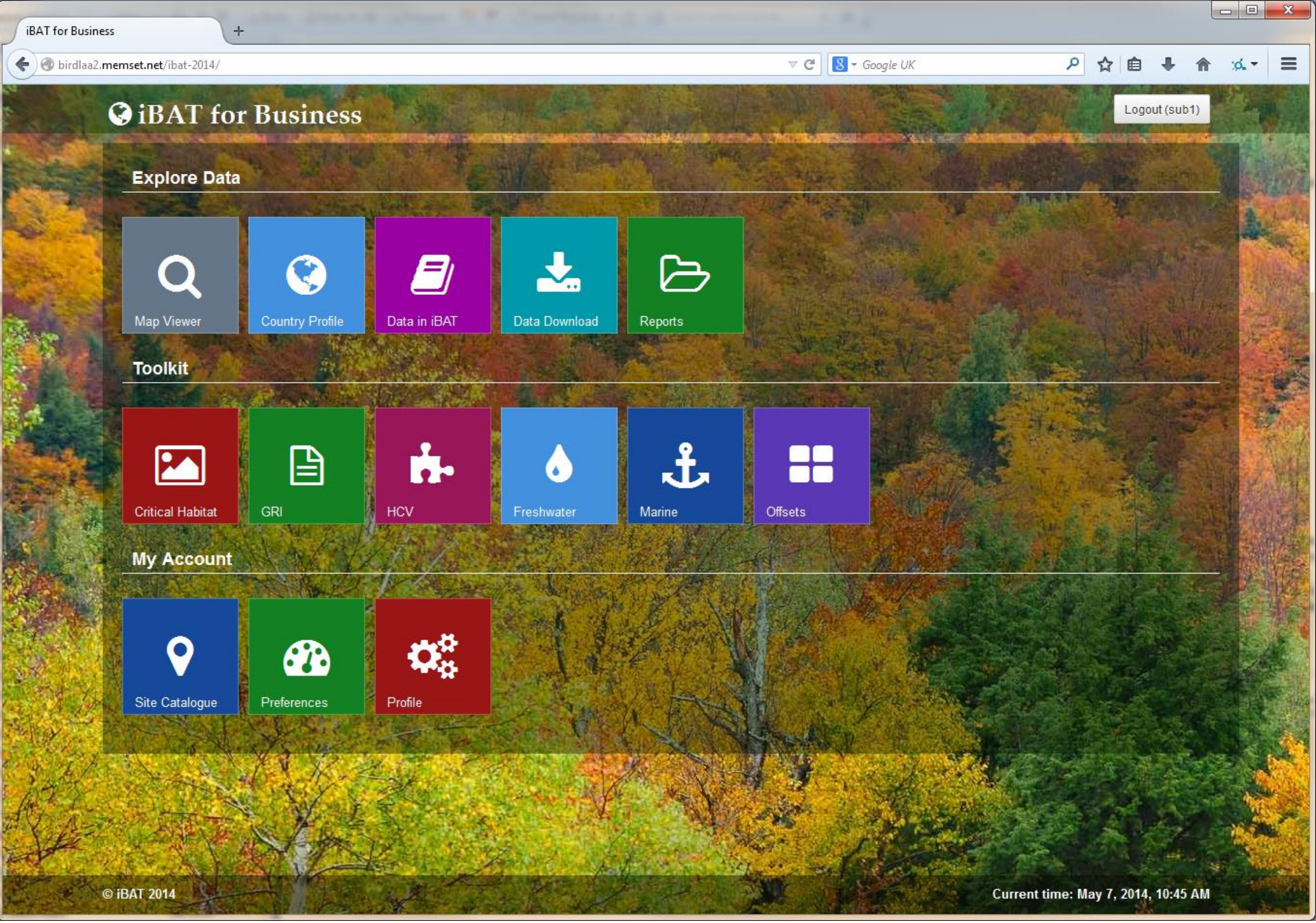
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Map Viewer
Country Profile
Data in iBAT
Data Download
Reports
Toolkit
Critical Habitat
GRI
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Freshwater
Marine
Offsets
My Account
Site Catalogue
Preferences
Profile
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Current time: May 7, 2014, 10:45 AM

Biodiversity A-Z

Two online resources intended to support business users (specialists and non-specialists)

- An online glossary of areas important for biodiversity
- A new online glossary of biodiversity terms

BIODIVERSITY A-Z

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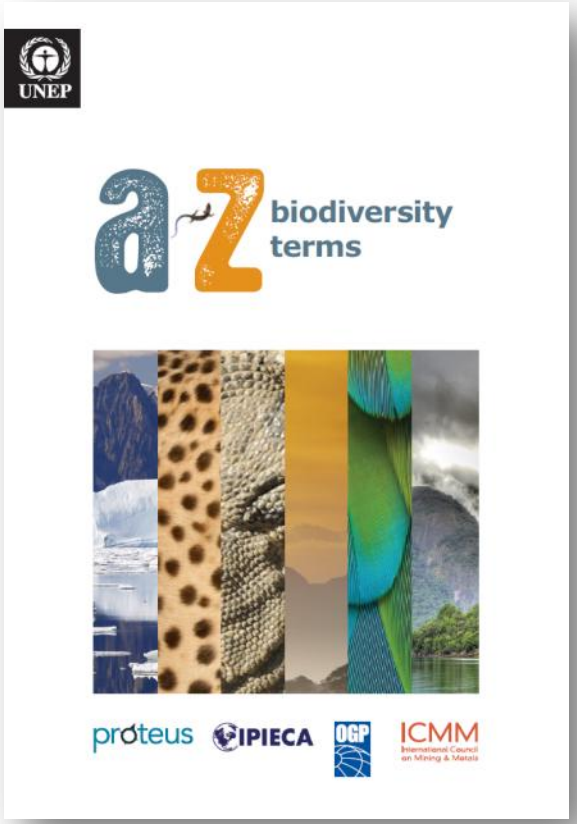
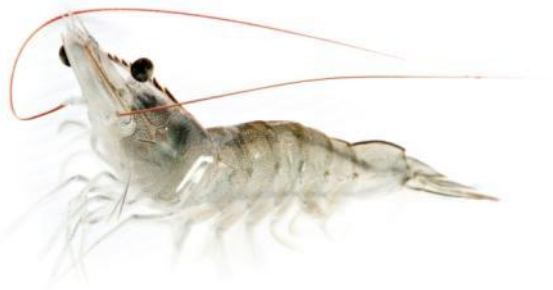
The new Biodiversity Terms A-Z

- Importance of **standardised** language and terminology
- Industry feedback
- Support the understanding of technical documents about biodiversity
- Over 200 referenced terms and definitions



Marine & Coastal Data and Information



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Marine Component of Proteus Work Plan

- Manual of Marine & Coastal Datasets
- Marine Data
- Critical Habitat Data Layer

Marine Data

Marine information is fragmented and incomplete

98% of the ocean remains unexplored

"*unknown unknowns*"

"*known unknowns*"

"*known knowns*"

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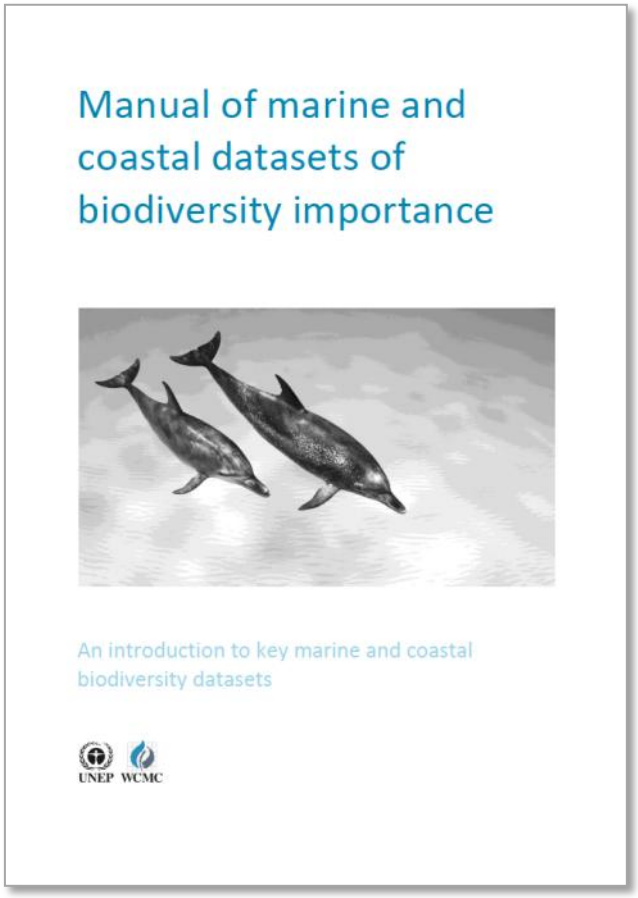
Manual of Marine and Coastal Data

Manual of Marine & Coastal Data

- Help improve marine data knowledge
- Limited awareness of what exists
- Identify existing data
- Research the data gaps
  - What are the “known unknowns”?



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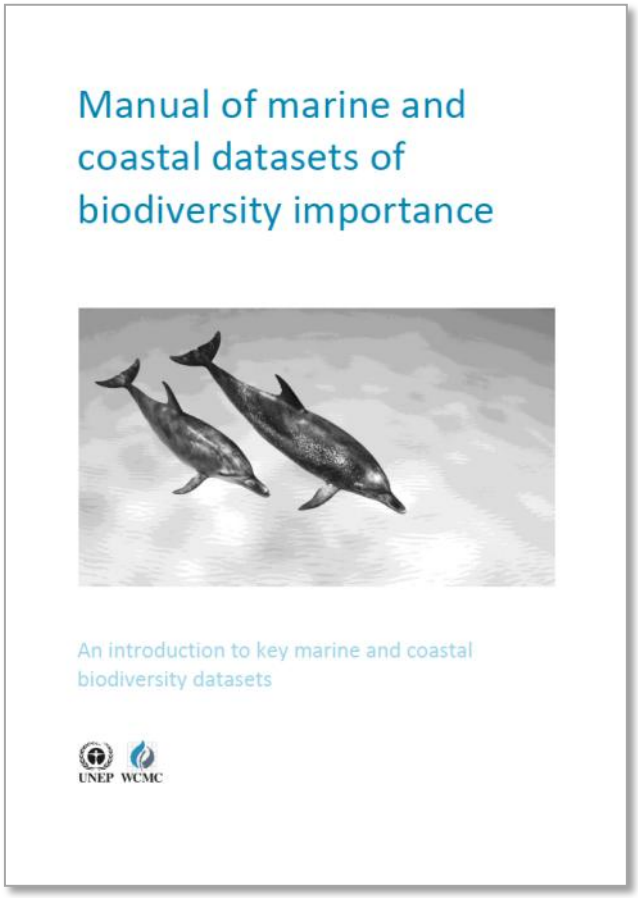
Manual of Marine Data

- Review of marine datasets
- Data challenges and gaps
- Factsheets: ecological features
- Detailed metadata
- Information on new marine mammal data



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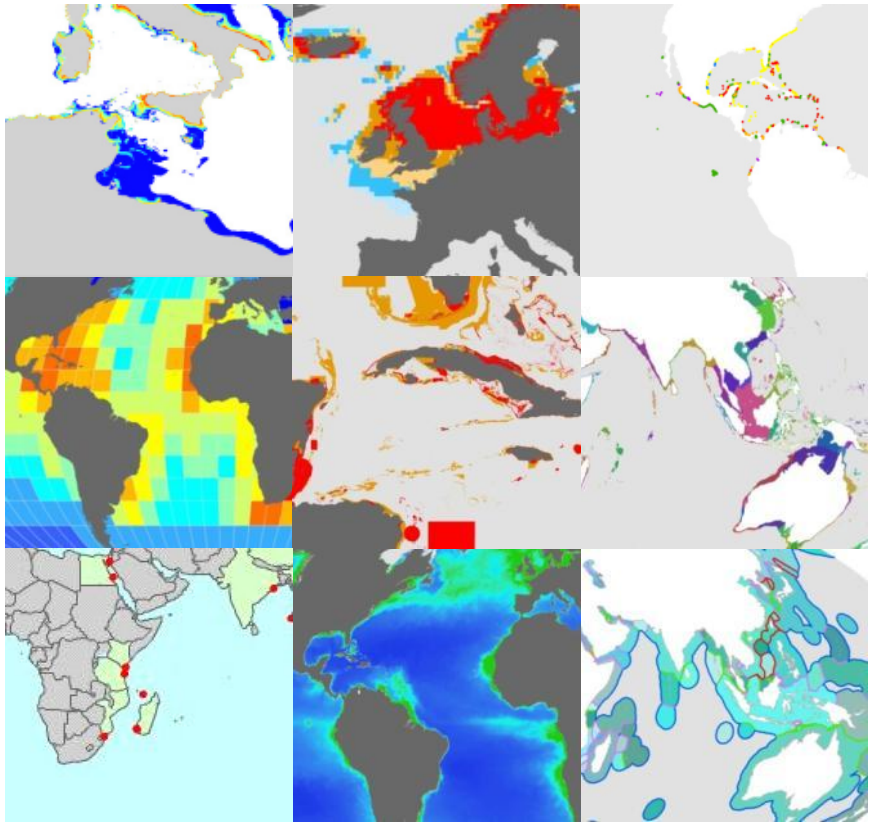
Marine Data Manual
Overview of 78 datasets

Nine Categories

- Biogenic habitat
- Species distribution
- Species habitat
- Biodiversity metric
- Area of biodiversity importance
- Biogeographic classification
- Ecological status and impact
- Environment descriptor
- Administration



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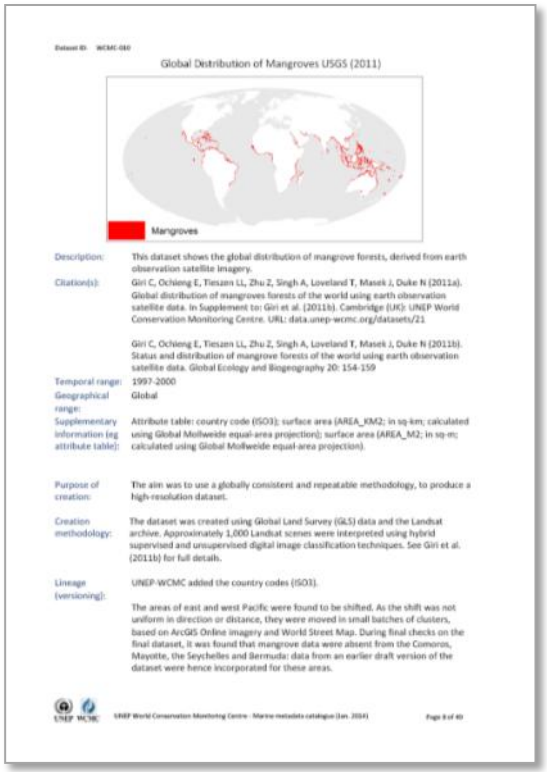
Marine Data Manual

Detailed metadata factsheets (45 datasets to date)



Global Distribution of Mangroves USGS (2011)

Mangroves

Description: This dataset shows the global distribution of mangrove forests, derived from earth observation satellite imagery.

Citation(s): Giri C, Ochieng E, Tieszen LL, Zhu Z, Singh A, Loveland T, Masek J, Duke N (2011a). Global distribution of mangroves forests of the world using earth observation satellite data. In Supplement to: Giri et al. (2011b). Cambridge (UK): UNEP World Conservation Monitoring Centre. URL: data.unep-wcmc.org/datasets/21

Giri C, Ochieng E, Tieszen LL, Zhu Z, Singh A, Loveland T, Masek J, Duke N (2011b). Status and distribution of mangrove forests of the world using earth observation satellite data. Global Ecology and Biogeography 20: 154-159

Temporal range: 1997-2000

Geographical range: Global

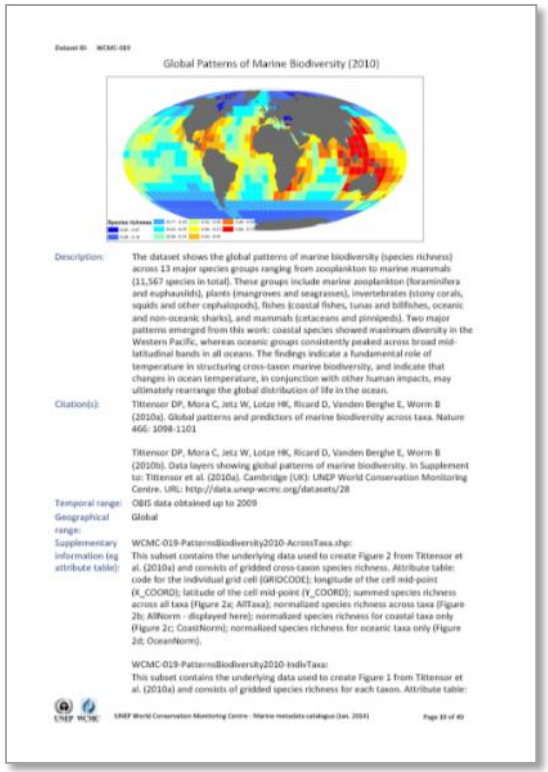
Supplementary information (eg attribute table): Attribute table: country code (ISO3); surface area (AREA_KM2; in sq-km; calculated using Global Mollweide equal-area projection); surface area (AREA_M2; in sq-m; calculated using Global Mollweide equal-area projection).

Purpose of creation: The aim was to use a globally consistent and repeatable methodology, to produce a high-resolution dataset.

Creation methodology: The dataset was created using Global Land Survey (GLS) data and the Landsat archive. Approximately 1,000 Landsat scenes were interpreted using hybrid supervised and unsupervised digital image classification techniques. See Giri et al. (2011b) for full details.

Lineage (versioning): UNEP-WCMC added the country codes (ISO3).

The areas of east and west Pacific were found to be shifted. As the shift was not uniform in direction or distance, they were moved in small batches of clusters, based on ArcGIS Online imagery and World Street Map. During final checks on the final dataset, it was found that mangrove data were absent from the Comoros, Mayotte, the Seychelles and Bermuda: data from an earlier draft version of the dataset were hence incorporated for these areas.



Global Patterns of Marine Biodiversity (2010)

Description: The dataset shows the global patterns of marine biodiversity (species richness) across 13 major species groups ranging from zooplankton to marine mammals (11,567 species in total). These groups include marine zooplankton (foraminifera and euphausiids), plants (mangroves and seagrasses), invertebrates (stony corals, squids and other cephalopods), fishes (coastal fishes, tunas and billfishes, oceanic and non-oceanic sharks), and mammals (cetaceans and pinnipeds). Two major patterns emerged from this work: coastal species showed maximum diversity in the Western Pacific, whereas oceanic groups consistently peaked across broad mid-latitudinal bands in all oceans. The findings indicate a fundamental role of temperature in structuring cross-taxon marine biodiversity, and indicate that changes in ocean temperature, in conjunction with other human impacts, may ultimately rearrange the global distribution of life in the ocean.

Citation(s): Tittensor DP, Mora C, Jetz W, Lotze HK, Ricard D, Vanden Berghe E, Worm B (2010a). Global patterns and predictors of marine biodiversity across taxa. Nature 466: 1098-1101

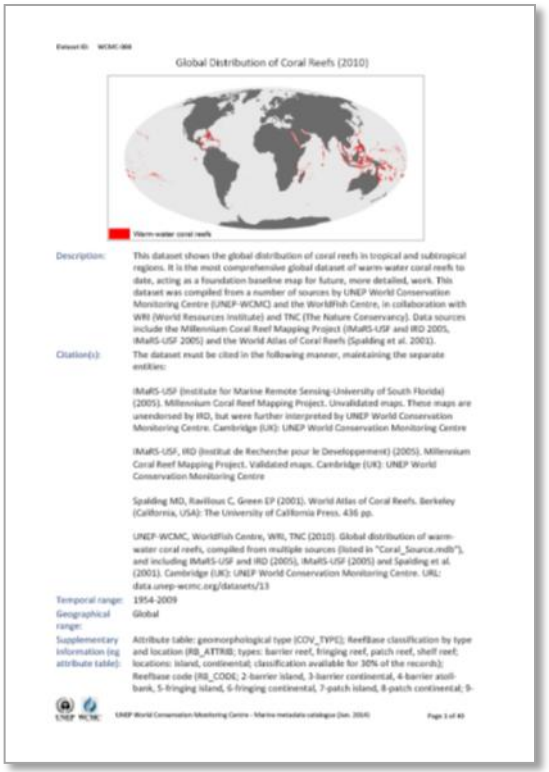
Tittensor DP, Mora C, Jetz W, Lotze HK, Ricard D, Vanden Berghe E, Worm B (2010b). Data layers showing global patterns of marine biodiversity. In Supplement to: Tittensor et al. (2010a). Cambridge (UK): UNEP World Conservation Monitoring Centre. URL: http://data.unep-wcmc.org/datasets/28

Temporal range: OBIS data obtained up to 2009

Geographical range: Global

Supplementary information (eg attribute table): WCMC-019-PatternsBiodiversity2010-AcrossTaxa.shp: This subset contains the underlying data used to create Figure 2 from Tittensor et al. (2010a) and consists of gridded cross-taxon species richness. Attribute table: code for the individual grid cell (GRIDCODE); longitude of the cell mid-point (X_COORD); latitude of the cell mid-point (Y_COORD); summed species richness across all taxa (Figure 2a; AllTaxa); normalized species richness across taxa (Figure 2b; AllNorm - displayed here); normalized species richness for coastal taxa only (Figure 2c; CoastNorm); normalized species richness for oceanic taxa only (Figure 2d; OceanNorm).

WCMC-019-PatternsBiodiversity2010-IndivTaxa:
This subset contains the underlying data used to create Figure 1 from Tittensor et al. (2010a) and consists of gridded species richness for each taxon. Attribute table:



Global Distribution of Coral Reefs (2010)

Description: This dataset shows the global distribution of coral reefs in tropical and subtropical regions. It is the most comprehensive global dataset of warm-water coral reefs to date, acting as a foundation baseline map for future, more detailed, work. This dataset was compiled from a number of sources by UNEP World Conservation Monitoring Centre (UNEP-WCMC) and the WorldFish Centre, in collaboration with WRI (World Resources Institute) and TNC (The Nature Conservancy). Data sources include the Millennium Coral Reef Mapping Project (IMaRS-USF and IRD 2005, IMaRS-USF 2005) and the World Atlas of Coral Reefs (Spalding et al. 2001).

Citation(s): The dataset must be cited in the following manner, maintaining the separate entities:

IMaRS-USF (Institute for Marine Remote Sensing-University of South Florida) (2005). Millennium Coral Reef Mapping Project. Unvalidated maps. These maps are unendorsed by IRD, but were further interpreted by UNEP World Conservation Monitoring Centre. Cambridge (UK): UNEP World Conservation Monitoring Centre

IMaRS-USF, IRD (Institut de Recherche pour le Developpement) (2005). Millennium Coral Reef Mapping Project. Validated maps. Cambridge (UK): UNEP World Conservation Monitoring Centre

Spalding MD, Ravilious C, Green EP (2001). World Atlas of Coral Reefs. Berkeley (California, USA): The University of California Press. 436 pp.

UNEP-WCMC, WorldFish Centre, WRI, TNC (2010). Global distribution of warm-water coral reefs, compiled from multiple sources (listed in "Coral_Source.mdb"), and including IMaRS-USF and IRD (2005), IMaRS-USF (2005) and Spalding et al. (2001). Cambridge (UK): UNEP World Conservation Monitoring Centre. URL: data.unep-wcmc.org/datasets/13

Temporal range: 1954-2009

Geographical range: Global

Supplementary information (eg attribute table): Attribute table: geomorphological type (COV_TYPE); ReefBase classification by type and location (RB_ATTRIB; types: barrier reef, fringing reef, patch reef, shelf reef; locations: inland, continental; classification available for 30% of the records); ReefBase code (RB_CODE; 2-barrier island, 3-barrier continental, 4-barrier atoll-bank, 5-fringing island, 6-fringing continental, 7-patch island, 8-patch continental; 9-

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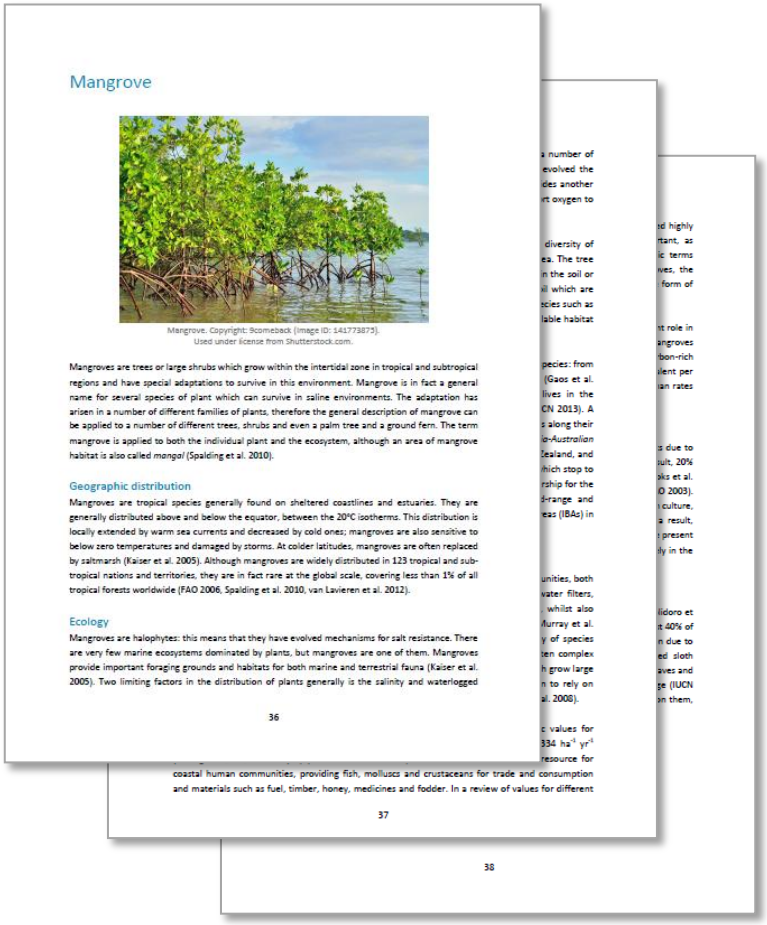
Marine Data Manual
Factsheets



Mangrove

Mangrove. Copyright: 9comeback (Image ID: 141773875).
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Mangroves are trees or large shrubs which grow within the intertidal zone in tropical and subtropical regions and have special adaptations to survive in this environment. Mangrove is in fact a general name for several species of plant which can survive in saline environments. The adaptation has arisen in a number of different families of plants, therefore the general description of mangrove can be applied to a number of different trees, shrubs and even a palm tree and a ground fern. The term mangrove is applied to both the individual plant and the ecosystem, although an area of mangrove habitat is also called *mangal* (Spalding et al. 2010).

Geographic distribution

Mangroves are tropical species generally found on sheltered coastlines and estuaries. They are generally distributed above and below the equator, between the 20°C isotherms. This distribution is locally extended by warm sea currents and decreased by cold ones; mangroves are also sensitive to below zero temperatures and damaged by storms. At colder latitudes, mangroves are often replaced by saltmarsh (Kaiser et al. 2005). Although mangroves are widely distributed in 123 tropical and sub-tropical nations and territories, they are in fact rare at the global scale, covering less than 1% of all tropical forests worldwide (FAO 2006, Spalding et al. 2010, van Lavieren et al. 2012).

Ecology

Mangroves are halophytes: this means that they have evolved mechanisms for salt resistance. There are very few marine ecosystems dominated by plants, but mangroves are one of them. Mangroves provide important foraging grounds and habitats for both marine and terrestrial fauna (Kaiser et al. 2005). Two limiting factors in the distribution of plants generally is the salinity and waterlogged

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coastal human communities, providing fish, molluscs and crustaceans for trade and consumption and materials such as fuel, timber, honey, medicines and fodder. In a review of values for different

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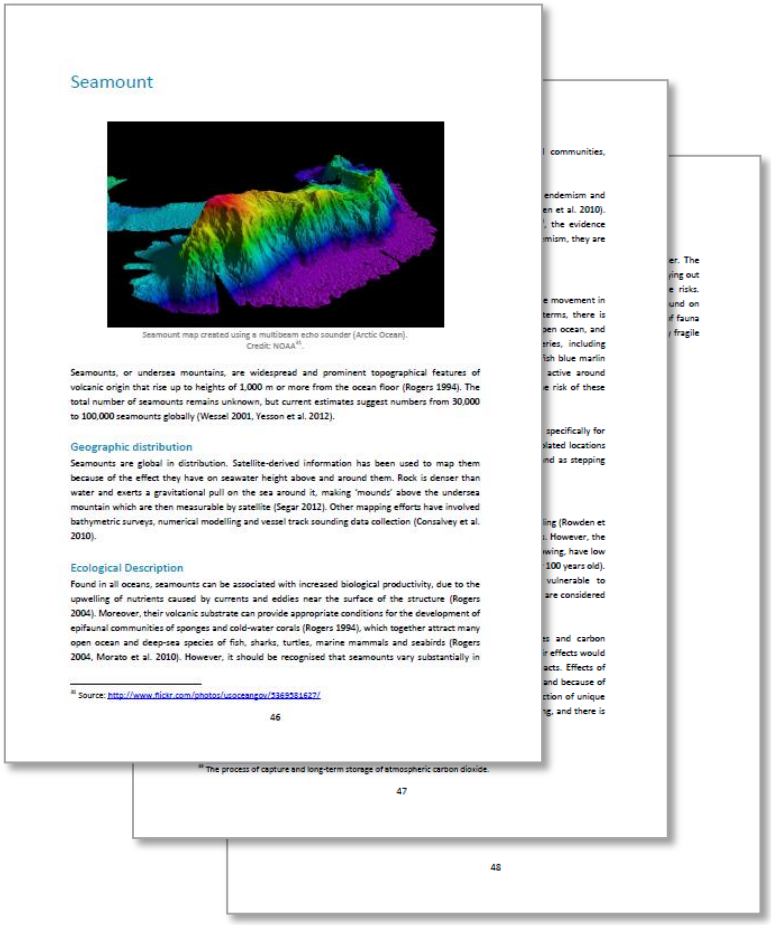

Seamount

Seamount map created using a multibeam echo sounder (Arctic Ocean).
Credit: NOAA[35].

Seamounts, or undersea mountains, are widespread and prominent topographical features of volcanic origin that rise up to heights of 1,000 m or more from the ocean floor (Rogers 1994). The total number of seamounts remains unknown, but current estimates suggest numbers from 30,000 to 100,000 seamounts globally (Wessel 2001, Yesson et al. 2012).

Geographic distribution

Seamounts are global in distribution. Satellite-derived information has been used to map them because of the effect they have on seawater height above and around them. Rock is denser than water and exerts a gravitational pull on the sea around it, making 'mounds' above the undersea mountain which are then measurable by satellite (Segar 2012). Other mapping efforts have involved bathymetric surveys, numerical modelling and vessel track sounding data collection (Consalvey et al. 2010).

Ecological Description

Found in all oceans, seamounts can be associated with increased biological productivity, due to the upwelling of nutrients caused by currents and eddies near the surface of the structure (Rogers 2004). Moreover, their volcanic substrate can provide appropriate conditions for the development of epifaunal communities of sponges and cold-water corals (Rogers 1994), which together attract many open ocean and deep-sea species of fish, sharks, turtles, marine mammals and seabirds (Rogers 2004, Morato et al. 2010). However, it should be recognised that seamounts vary substantially in

[35] Source: http://www.flickr.com/photos/uscoengov/3369581627/

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[36] The process of capture and long-term storage of atmospheric carbon dioxide.

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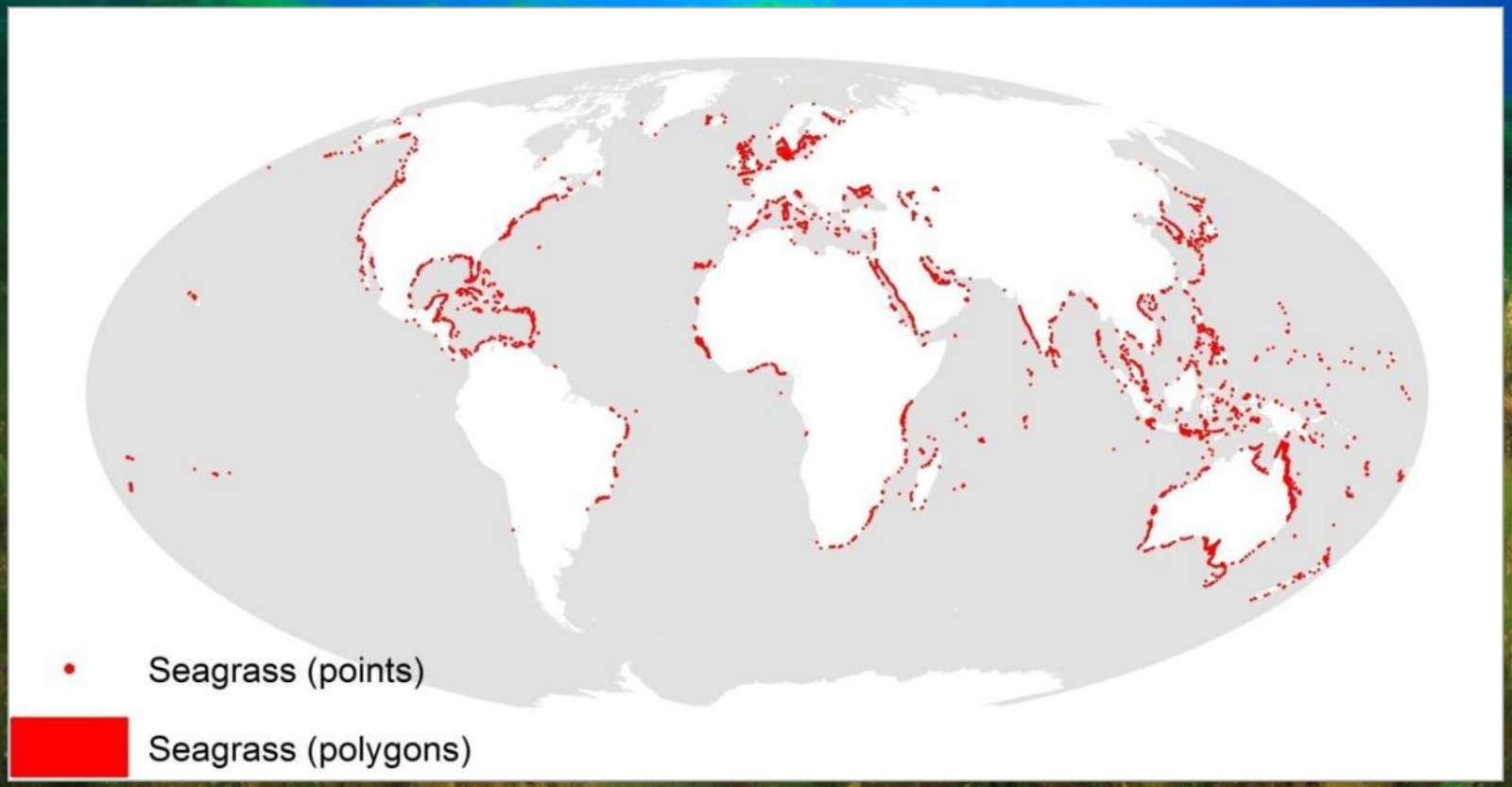
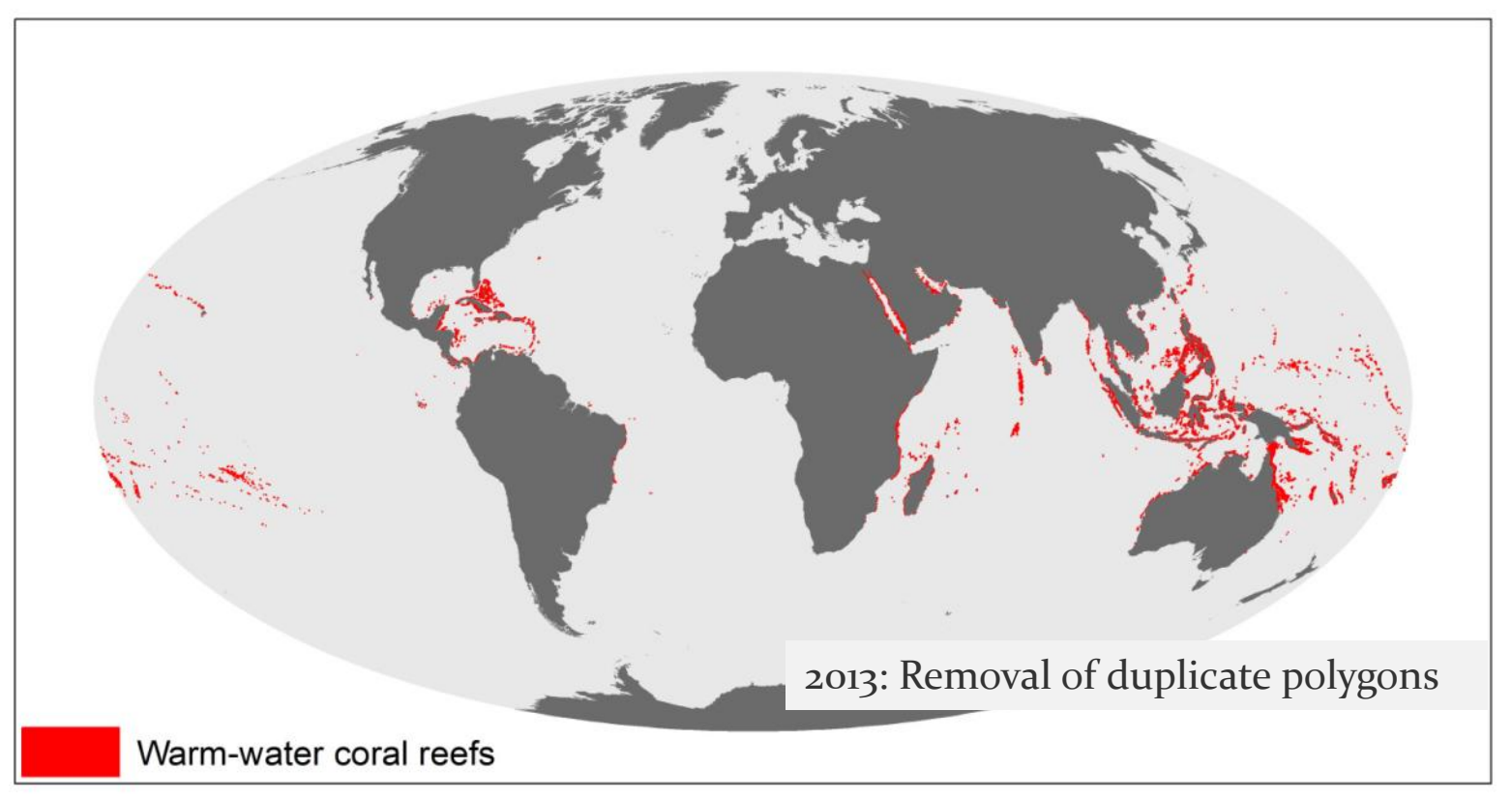
Marine Data

- Global Data
- Regional Data
- Annual Species Distribution
- Species Seasonal Maps

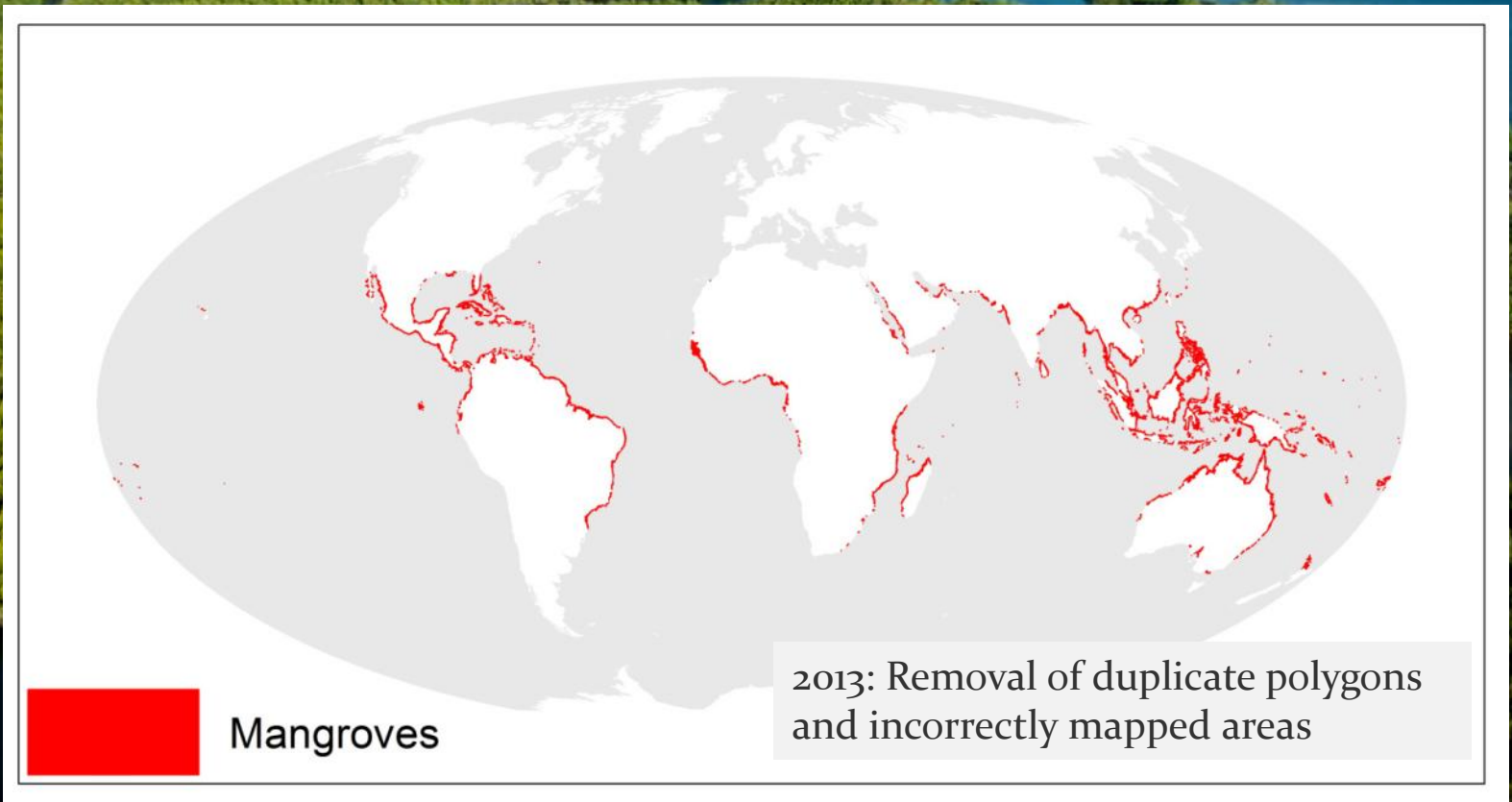
Global Data: Seagrass data



Global Data: Global Distribution of Coral Reefs (2010)



Marine Data: Global Distribution of Mangroves USGS (2011)



Marine Data: Regional

Regional Data: Mediterranean
coralligenous outcrops and maërl beds

Coralline red algal with a calcareous structure which form reefs

- Biogenic habitat
- Creates habitat structure
- Protected under legislation – Habitats Directive, Bern Convention & Barcelona Convention (Mediterranean Regional Seas Convention)

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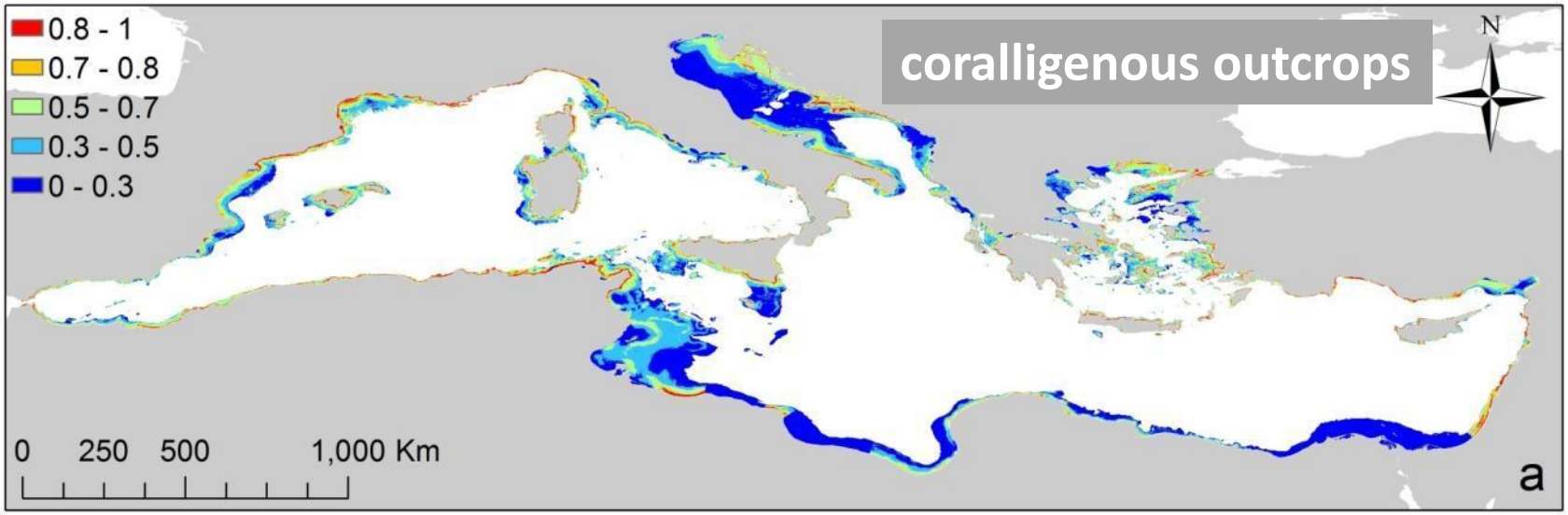
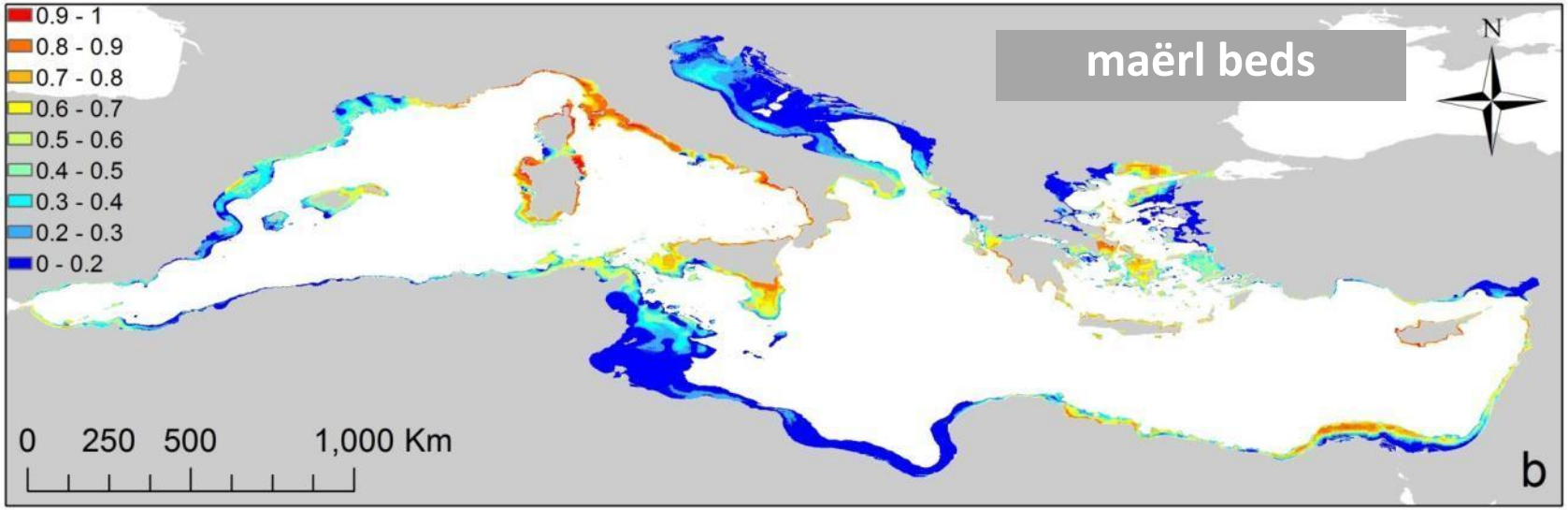
Modelled habitat suitability





Key: Probability of occurrence

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Annual Species Distribution Maps

Mapping Marine Megafauna

Annual distribution maps for an initial 10 species

Group	Common name
Pinniped	Northern fur seal
	Hawaiian monk seal
	Grey seal
Cetacean	Hector's dolphin
	Northern bottlenose whale
	Sperm whale
	Bowhead whale
	Sei whale
	Atlantic spotted dolphin
	Melon-headed whale

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Mapping Marine Megafauna

Annual distribution maps for an initial 10 species

Group	Common name	Scientific name	IUCN status
Pinniped	Northern fur seal	*Callorhinus ursinus*	VU
	Hawaiian monk seal	*Monachus schauinslandi*	CR
	Grey seal	*Halichoerus grypus*	LC
Cetacean	Hector's dolphin	*Cephalorhynchus hectori*	EN
	Northern bottlenose whale	*Hyperoodon ampullatus*	DD
	Sperm whale	*Physeter macrocephalus*	VU
	Bowhead whale	*Balaena mysticetus*	LC*/ regionally CR
	Sei whale	*Balaenoptera borealis*	EN
	Atlantic spotted dolphin	*Stenella frontalis*	DD
	Melon-headed whale	*Peponocephala electra*	LC

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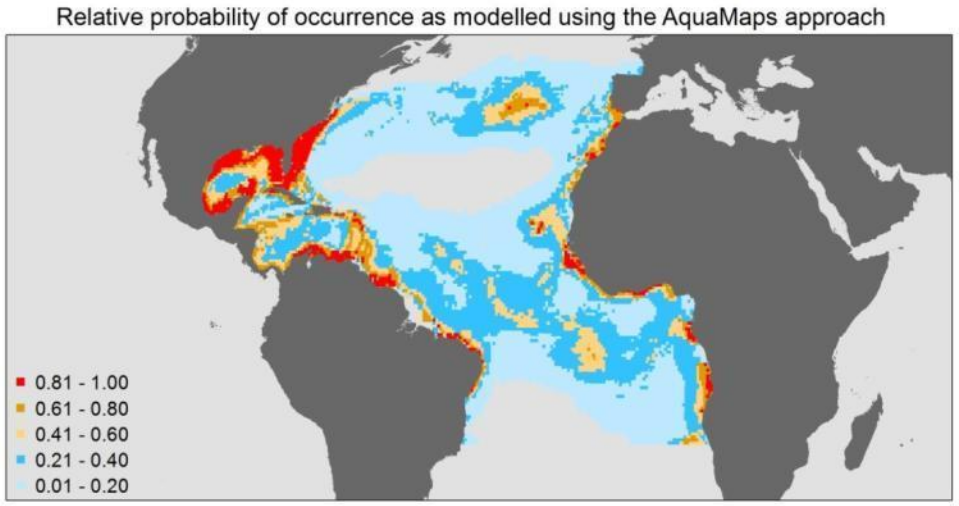
Mapping Marine Megafauna
Atlantic Spotted Dolphin

IUCN Red List Category:

Data Deficient

- Taxonomy being reviewed (possibly 3 species)
- Distribution mostly offshore (continental shelf and deep ocean)



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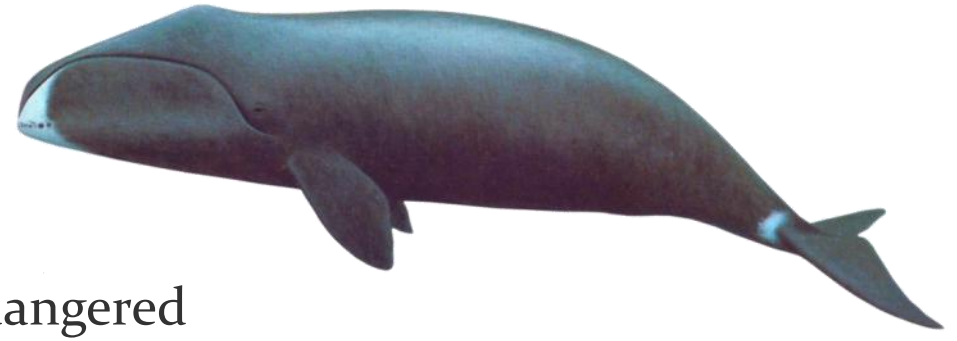
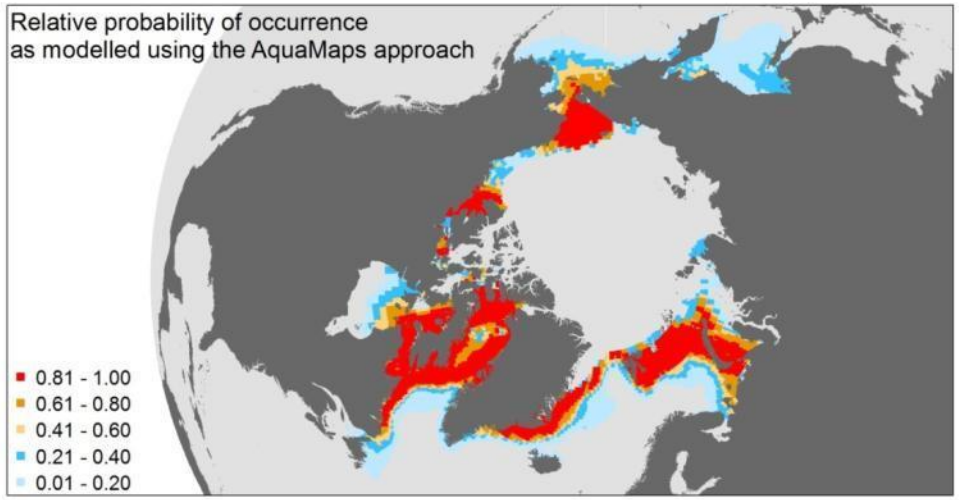
Mapping Marine Megafauna
Bowhead whale



IUCN Red List Category:
Least Concern - globally

Regionally Critically Endangered
in Svalbard-Barents Sea (Spitsbergen) subpopulation

- Only found in the Arctic
- Distribution generally follows the ice edge seasonal movements



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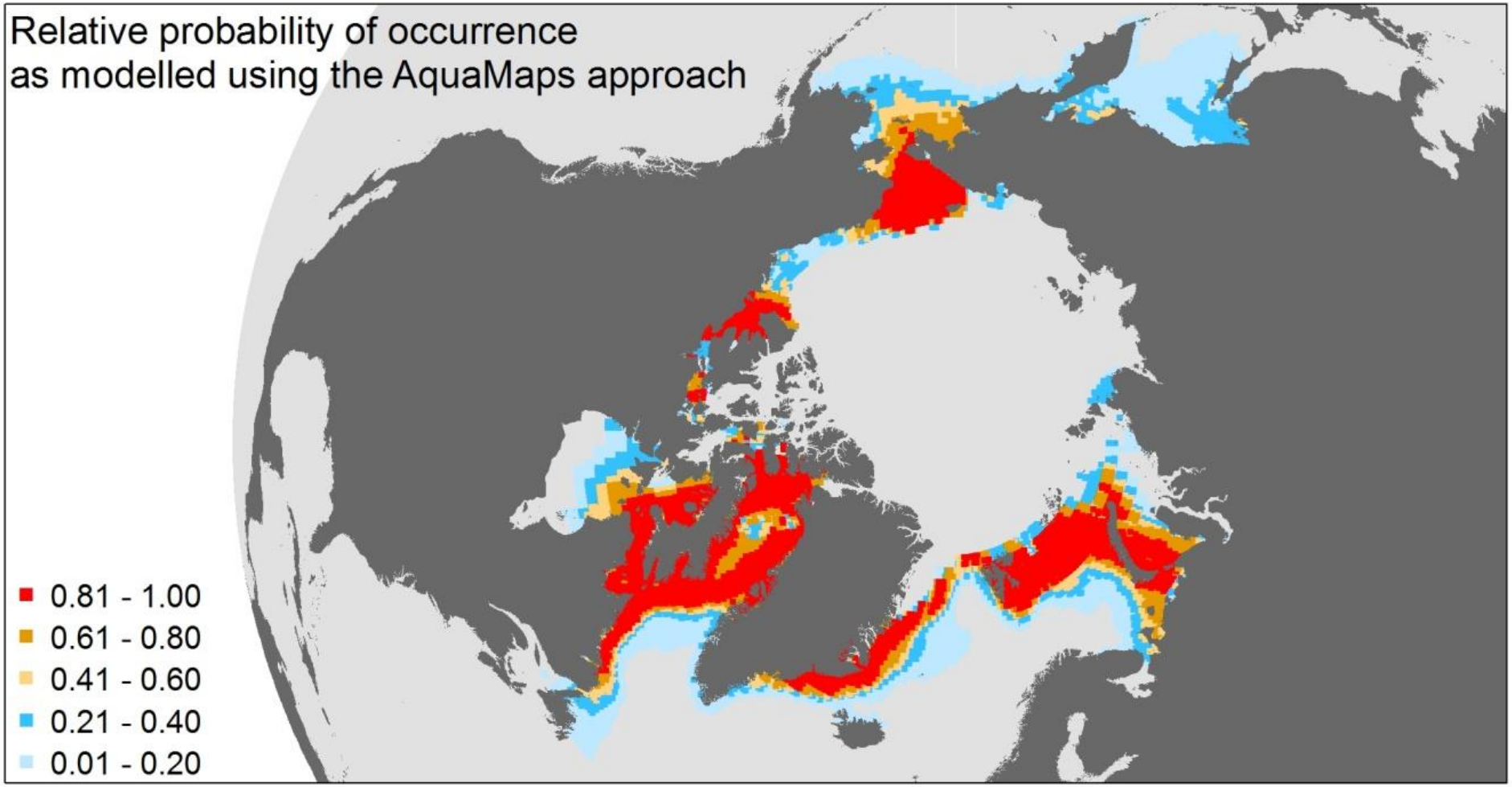

Goes beyond traditional range data by including probability of occurrence

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Seasonal Species Distribution Maps

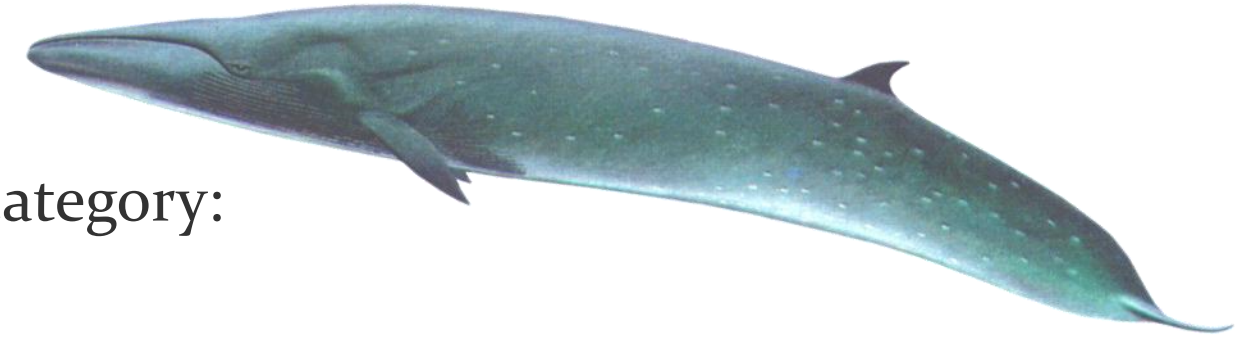
Initial two species:

Sei Whale

Sperm Whale

Seasonal Marine Data

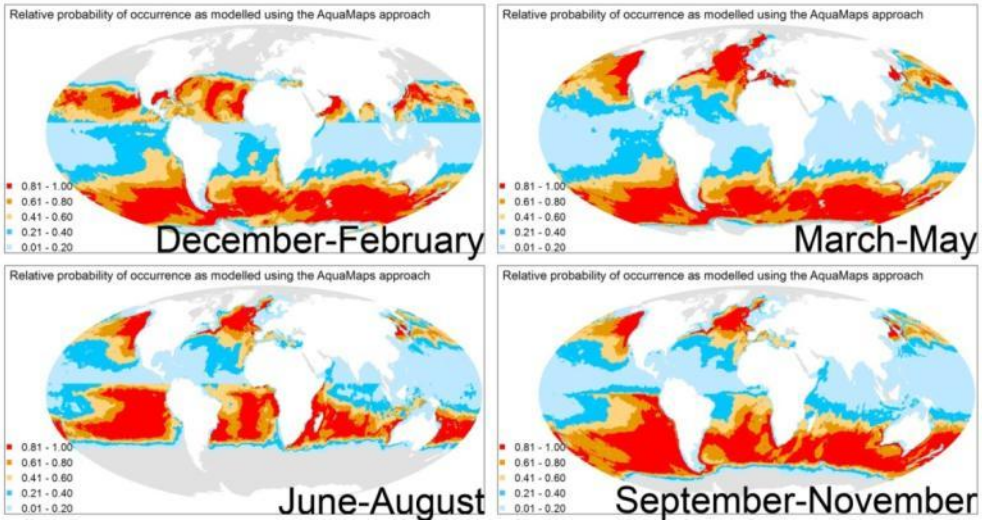
Sei whale



IUCN Red List Category:

Endangered

- Two populations
- Seasonal migratory movements
- Distribution mainly offshore



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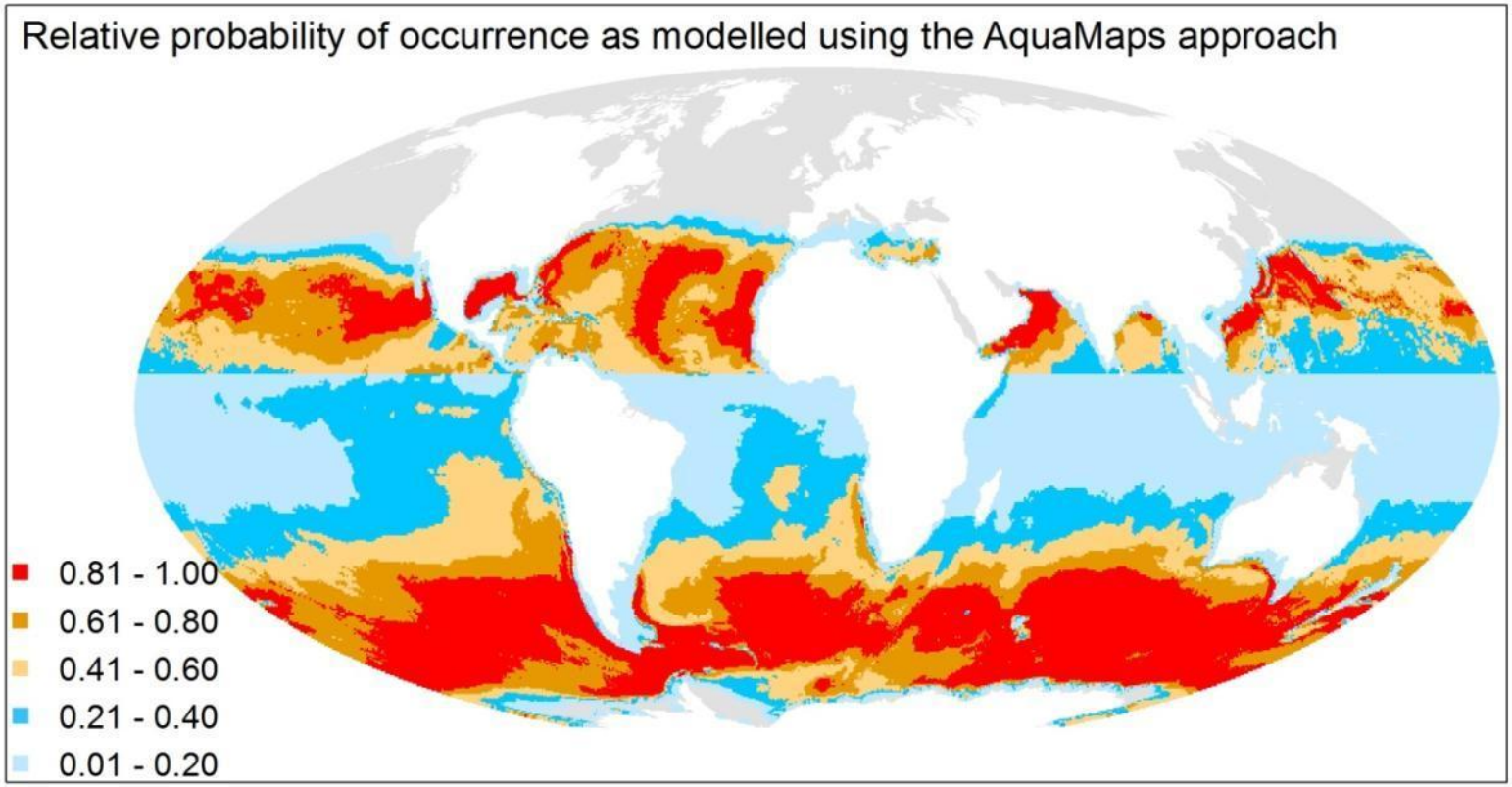
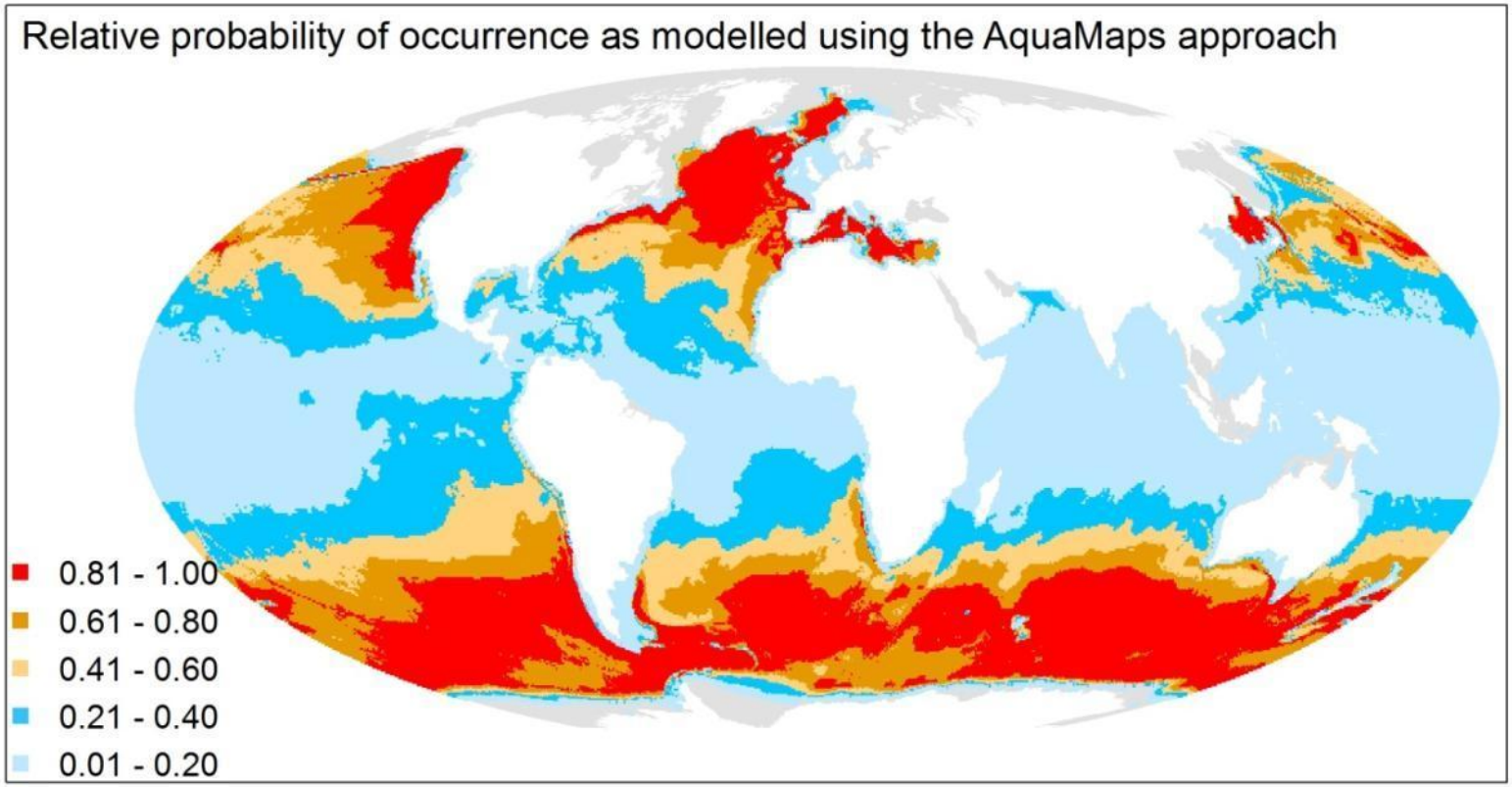
Sei whale December - February



UNEP WCMC

Sei whale March - May



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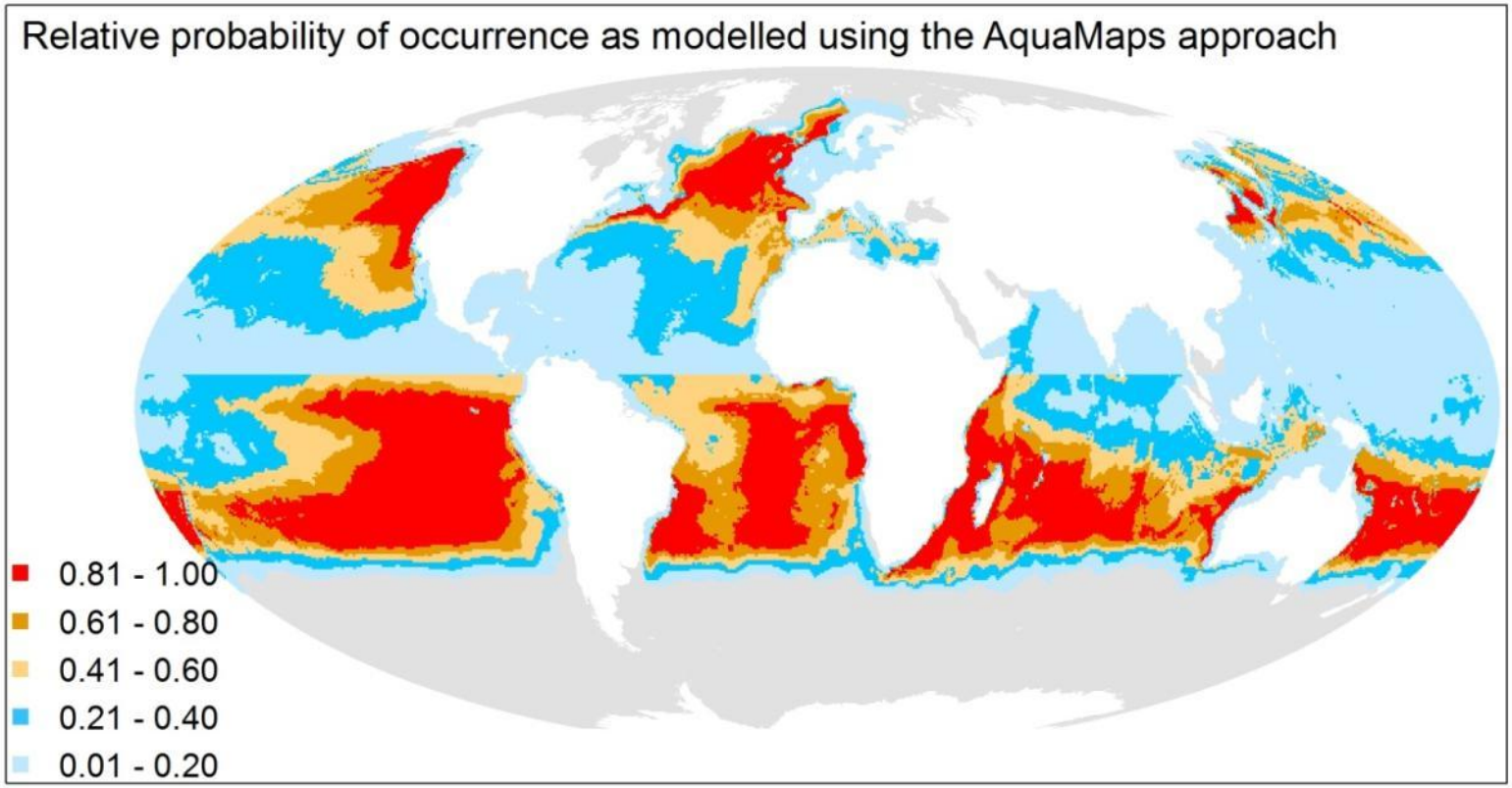
Sei whale June - August



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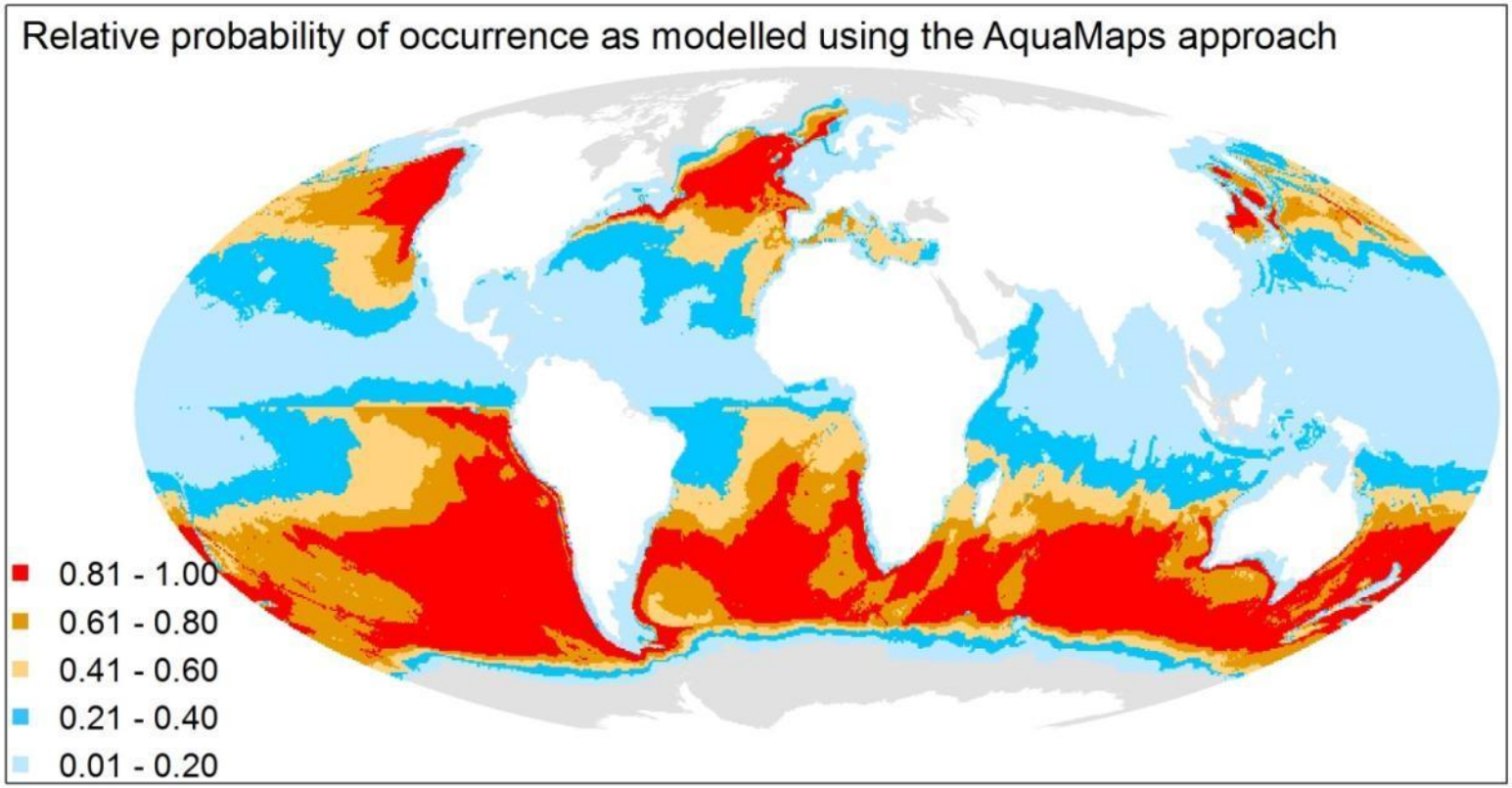
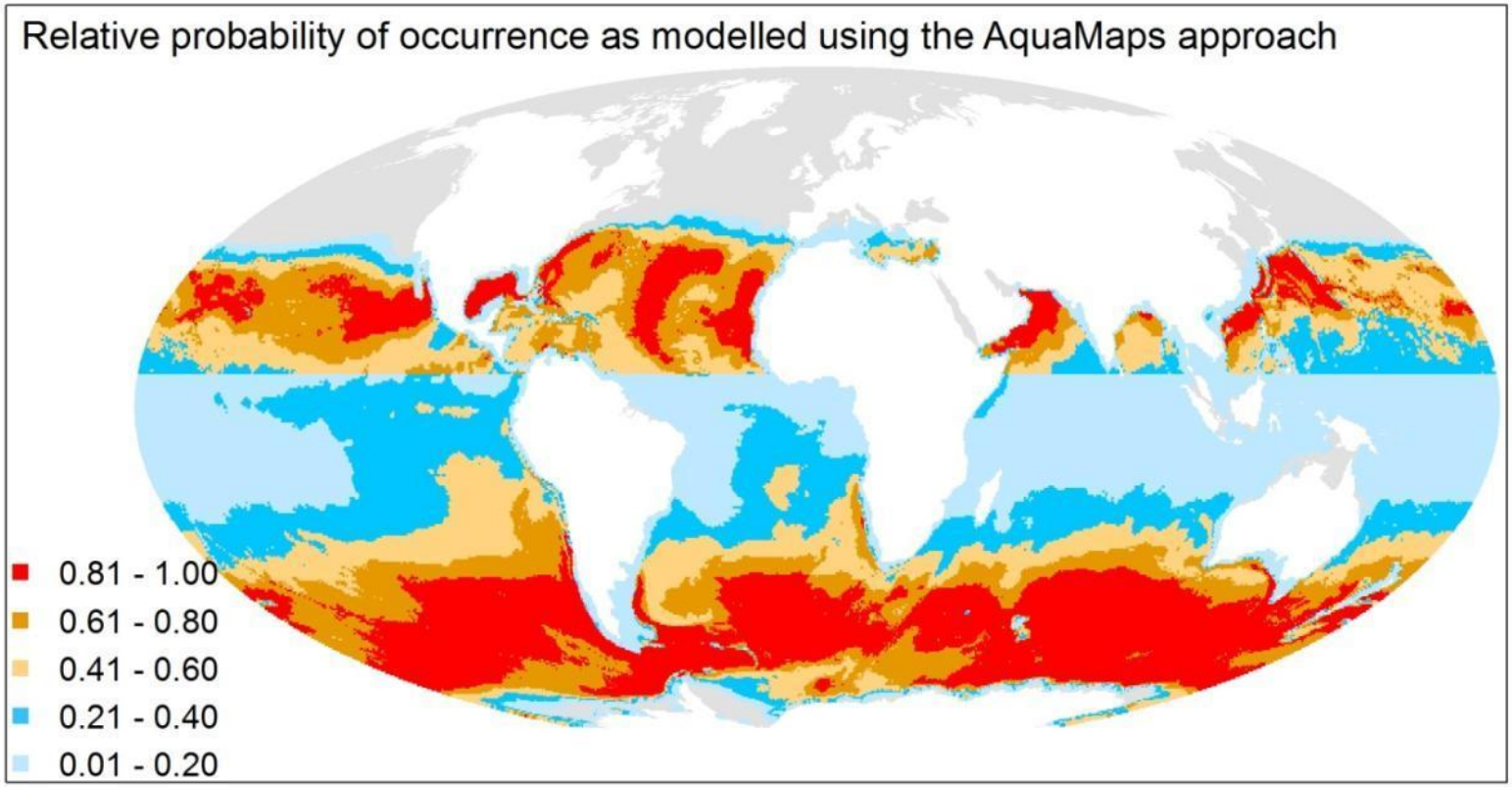
Sei whale September - November



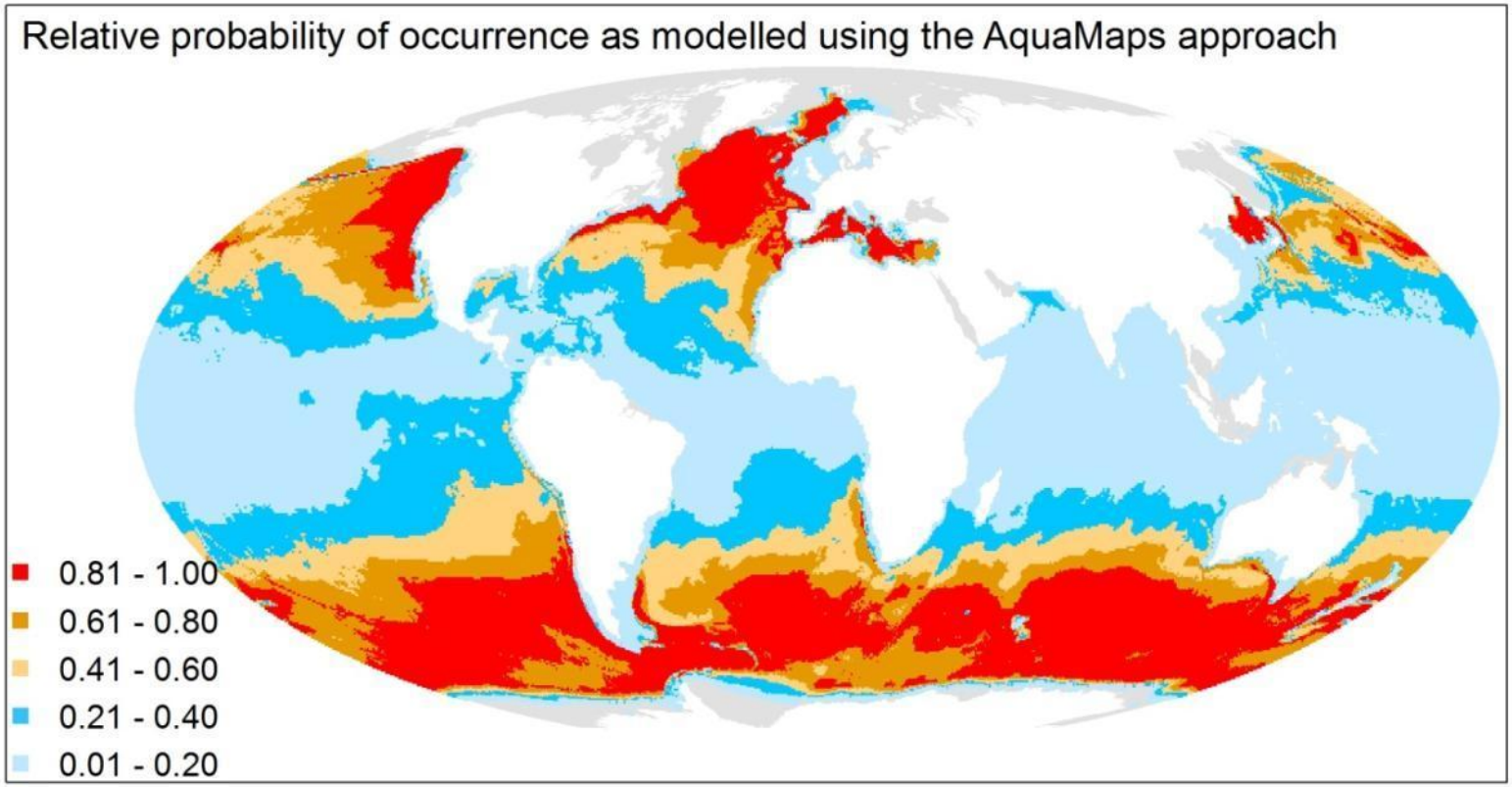
UNEP WCMC

Sei whale December - February



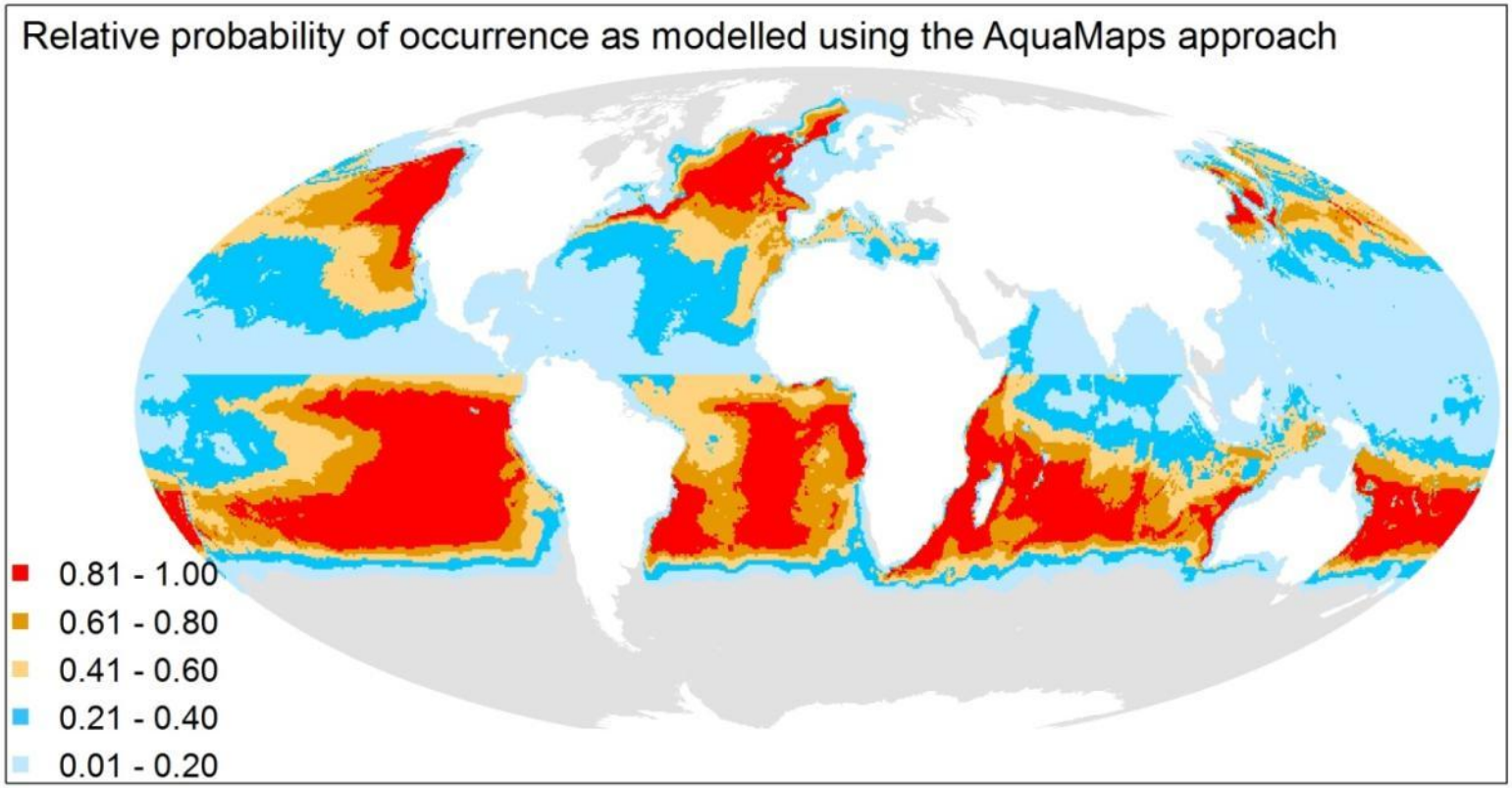
UNEP WCMC

Sei whale March - May



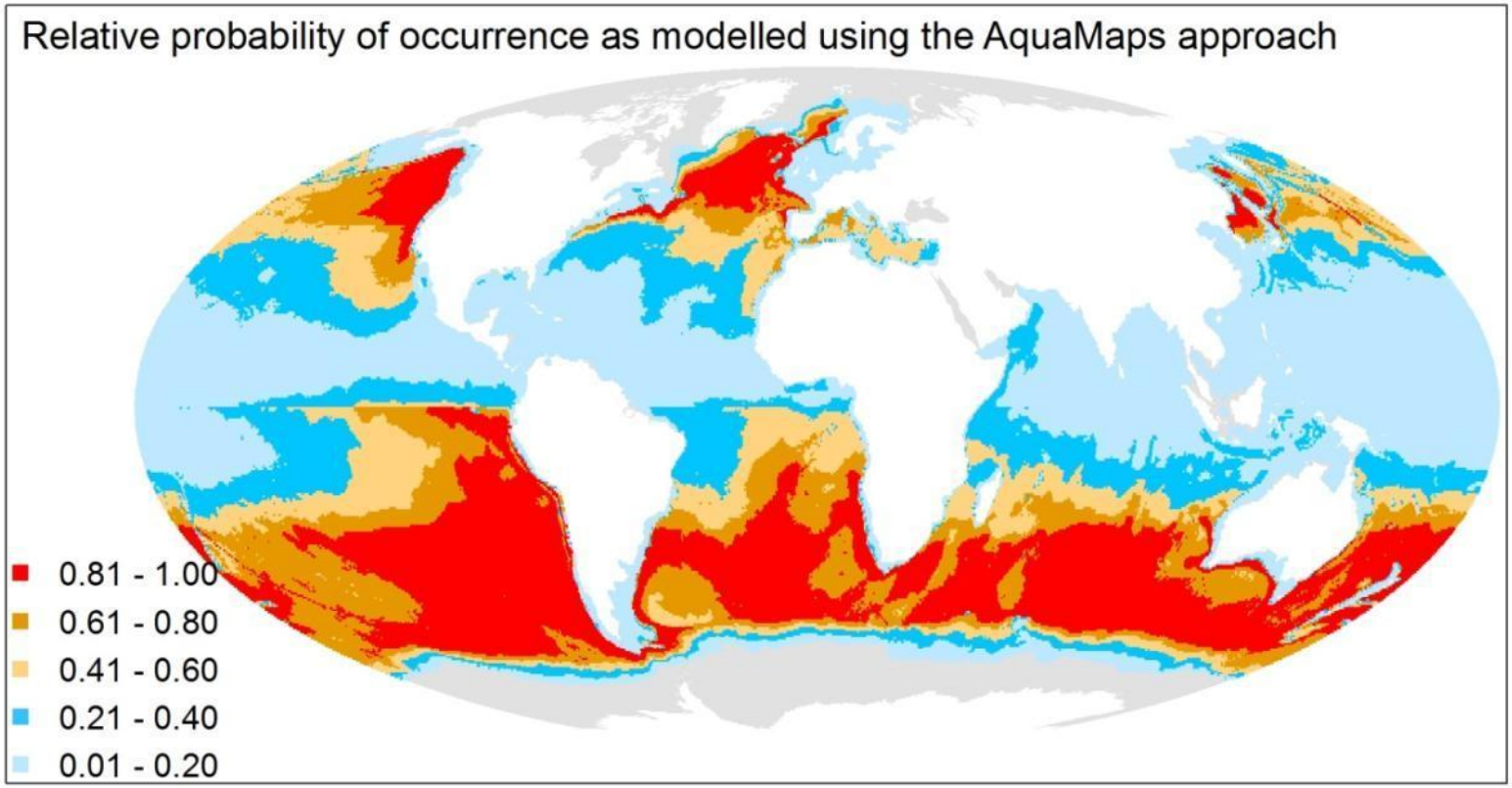
UNEP WCMC

Sei whale June - August



UNEP WCMC

Sei whale September - November



UNEP WCMC

Species Distribution Maps

Working with AquaMaps

Initial selection of species

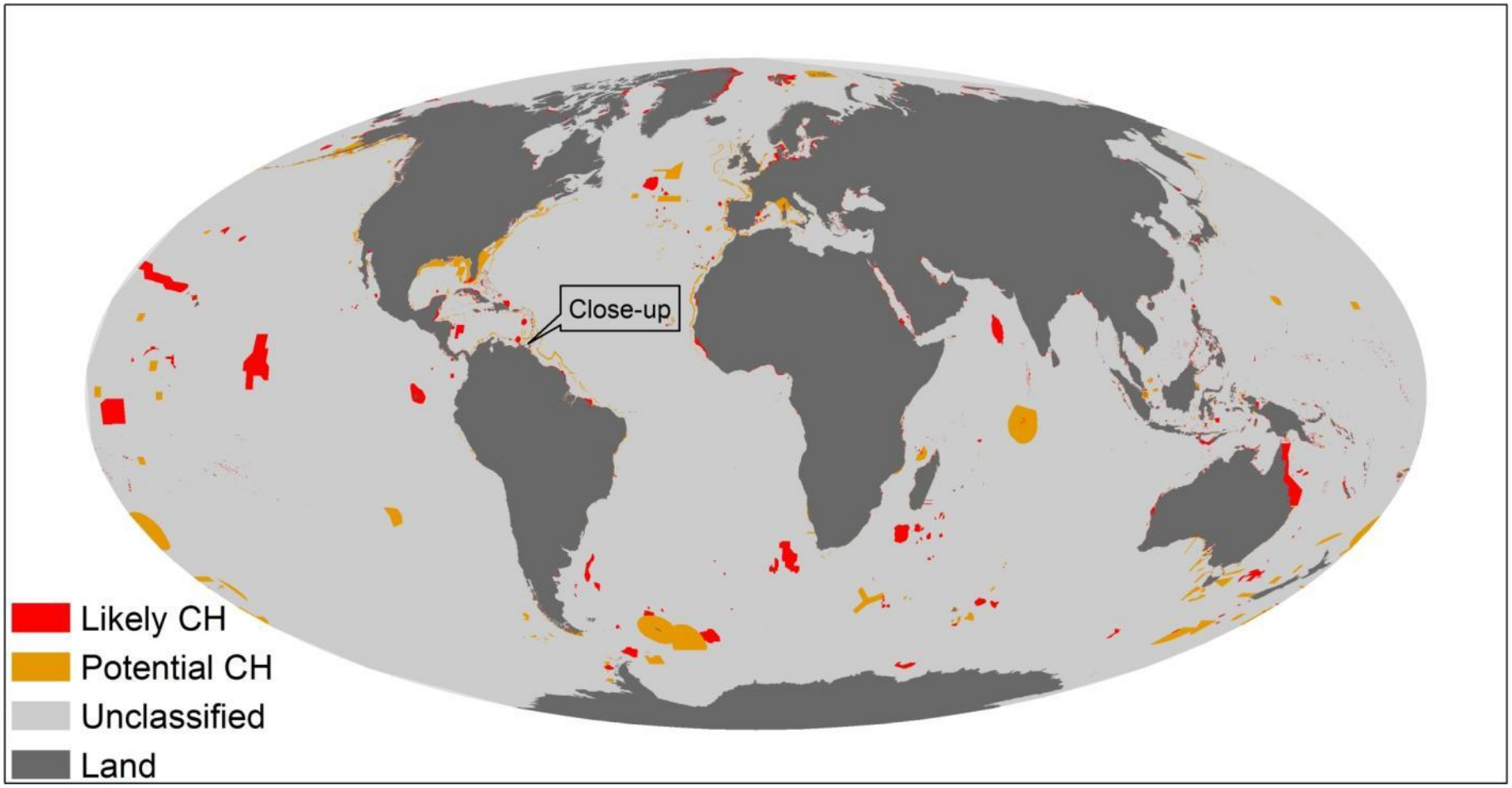
Future plans to build this data resource if it proves to be useful

Critical Habitat Data Layer

IFC International Finance Corporation
World Bank Group

UNEP WCMC

Marine Critical Habitat



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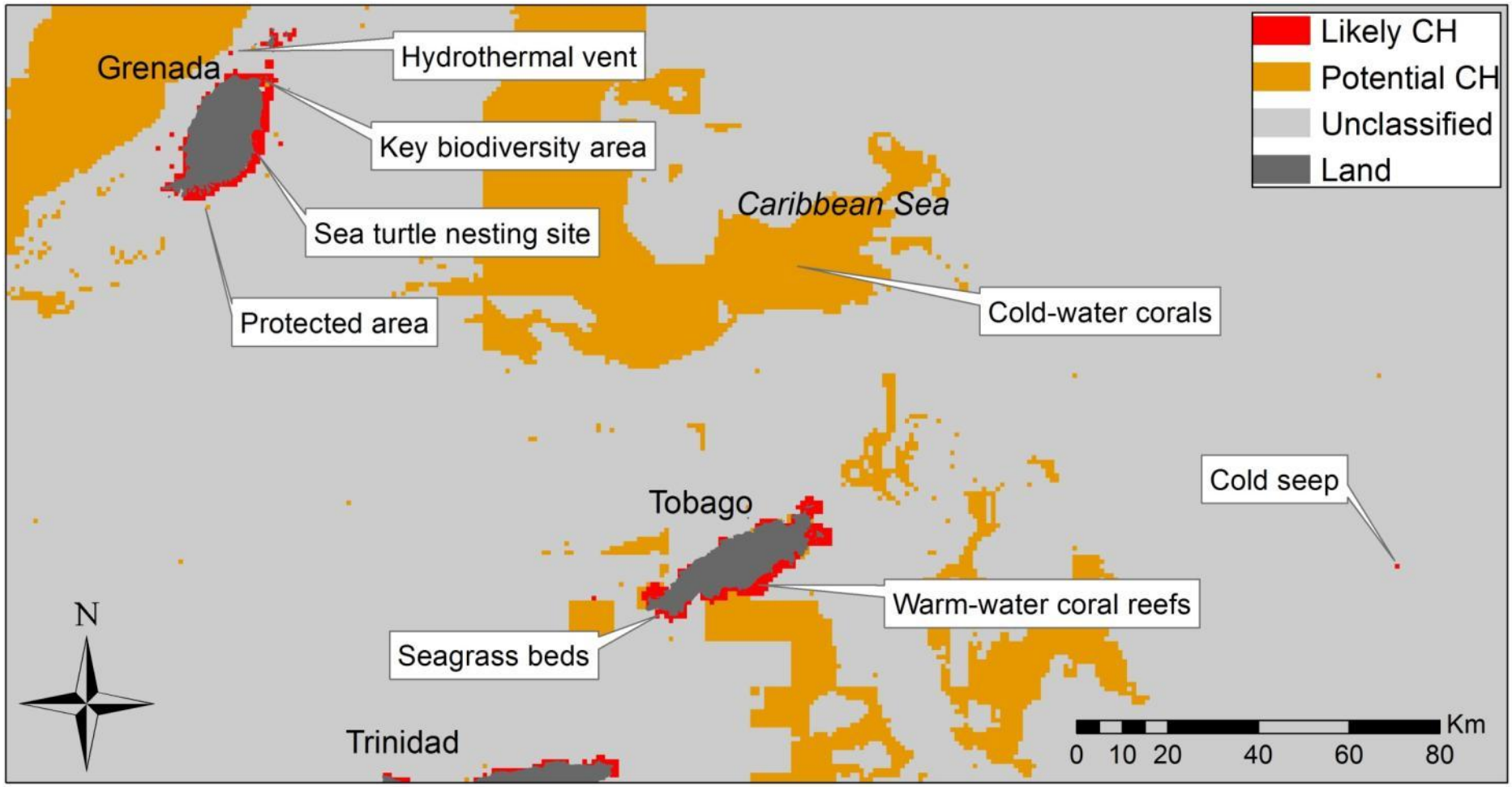
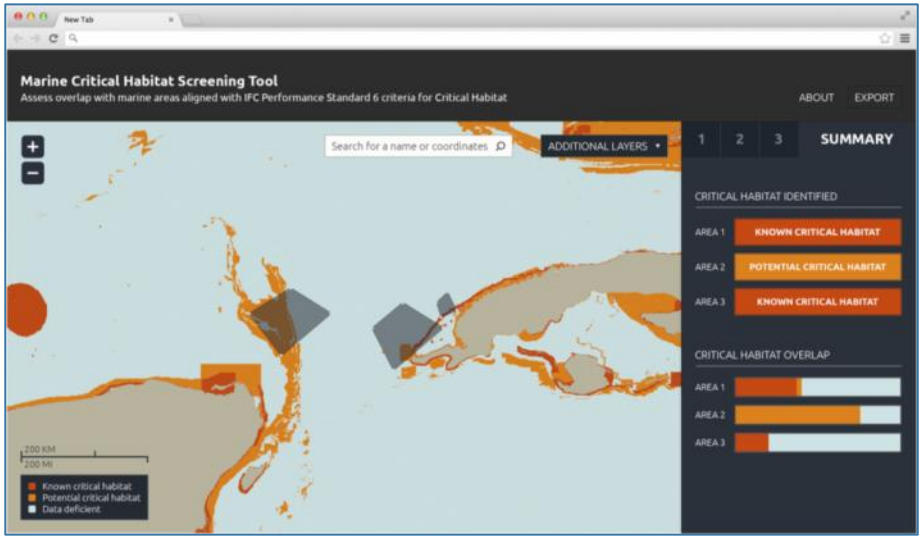

Likely CH
Potential CH
Unclassified
Land
Grenada
Hydrothermal vent
Key biodiversity area
Sea turtle nesting site
Protected area
Caribbean Sea
Cold-water corals
Cold seep
Tobago
Warm-water coral reefs
Seagrass beds
Trinidad
N
Km
0 10 20 40 60 80

Marine Critical Habitat

Current Activities:

Manuscript outlining methodology submitted to Marine Policy Journal for peer review

Analysis of the best options for display and delivery




Researching the feasibility of mapping
terrestrial critical habitat

Thank you