Laying the foundations of the MBON Pole to Pole of the Americas

MBON
Marine Biodiversity Observation Network

GOOS
Biology and Ecosystems Panel

IOOS
Integrated Ocean Observing System

AmeriGEOSS

OBIS
OCEAN BIOGEOGRAPHIC INFORMATION SYSTEM

MarineGEO
THE TENNENBAUM MARINE OBSERVATORIES NETWORK

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University of South Florida

https://marinebon.github.io/p2p/

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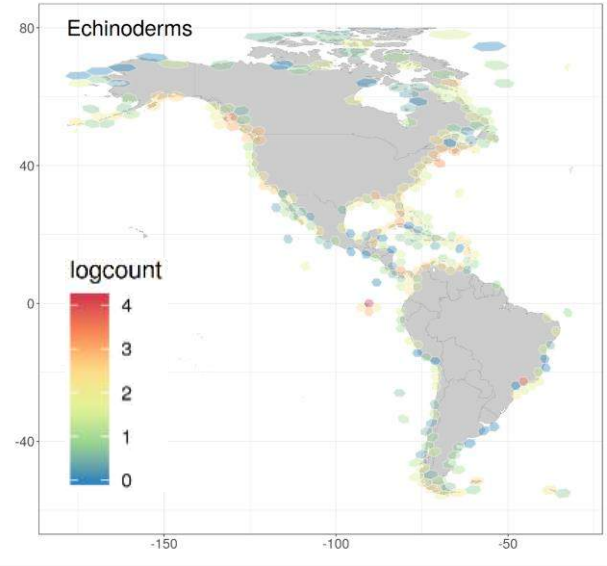
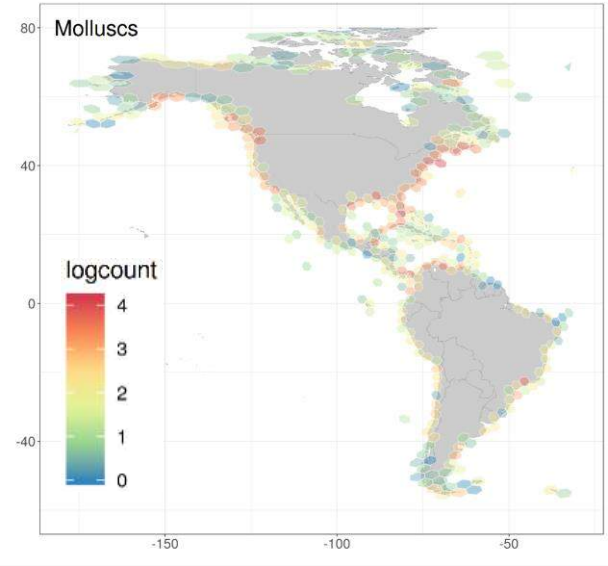
- U.S. Virgin Islands: S. Habtes (UVI)
- Mexico: E. Escobar-Briones (UNAM)
- Brazil: A. Marques (USP)
- Argentina: G. Bigatti (CONICET)
- OBIS: E. Klein (iOBIS)
- IOC-GOOS: P. Miloslavich (BioEco Panel)

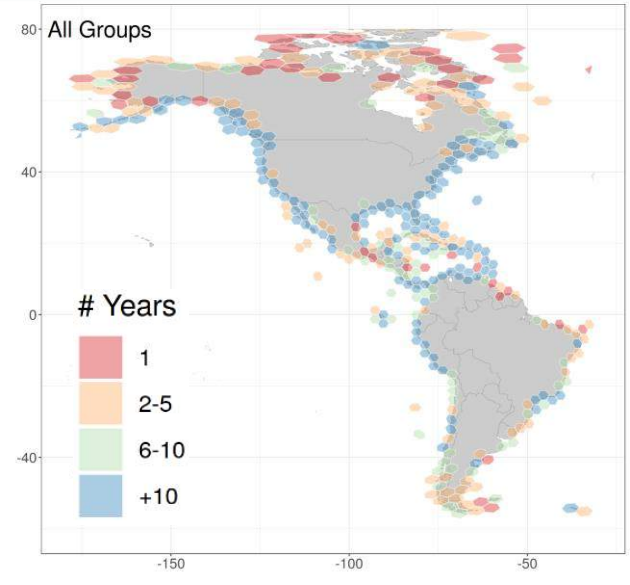
NASA

The project is supported by the National Aeronautics and Space Administration (NASA) grant 80NSSC18K0318

Why is MBON Pole to Pole needed?







Major biodiversity data gaps exist along the east and west coastal areas of the Americas.

Density of biodiversity records vary significantly among taxonomic groups.

Lack of time series data in critical areas.

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OCEAN BIOGEOGRAPHIC INFORMATION SYSTEM

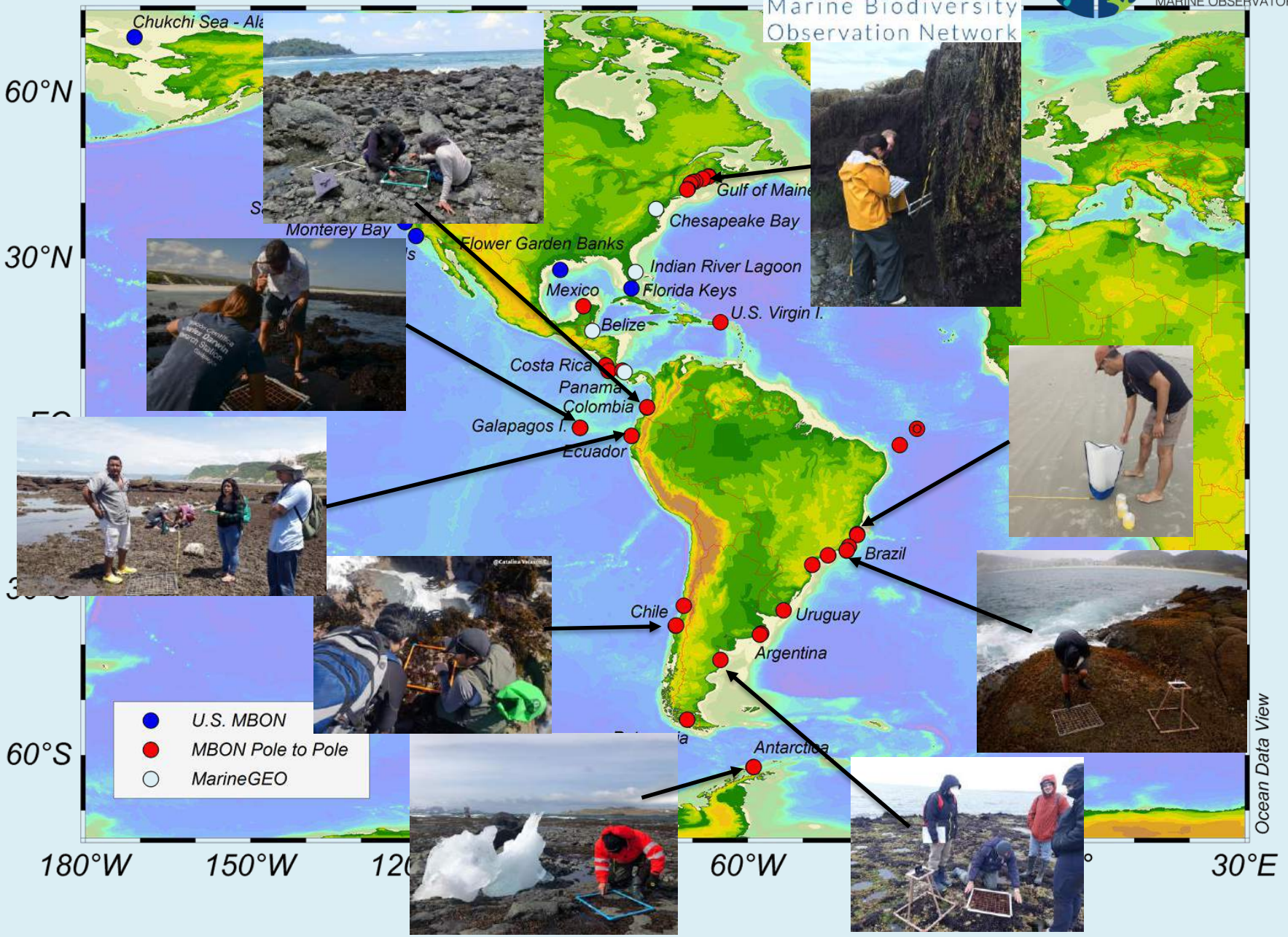
Goal: Build a regional Community of Practice for understanding and conserving life in the ocean

- Develop capacity to:
  - expand our knowledge of biodiversity and its services
  - coordinate disaggregated biodiversity monitoring
  - share data and best practices
  - increase understanding of physical and biological connectivity
  - foster integration of in situ observations with satellite data

Development of field protocols

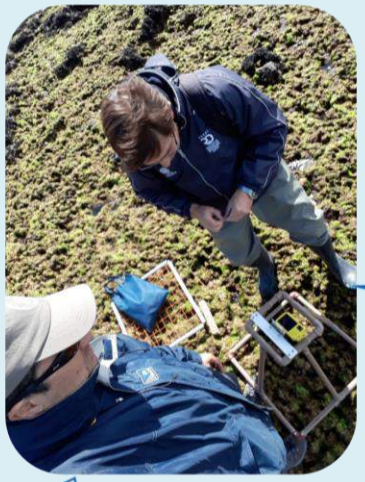
MBON
Marine Biodiversity Observation Network

MarineGEO
THE TENNENBAUM MARINE OBSERVATORIES NETWORK



Capacity Building – Data workflows

Field data collection



Data tables

id	basisOfRecord	occurrenceID
armata	Animalia	Arthropoda
on	P2P-BRA-SSEB-T3N1-0009	0
elepis	Animalia	Annelida
-45.422059	urn:lsid:marinespecie	
ation	P2P-BRA-SSEB-T3N3-0023	0
P-BRA-SSEB-T1N4-0028	0	absen
22059	urn:lsid:marinespecies.org:ta	
A	NAP2P-BRA-SSEB-T1N3-0039	

Converted

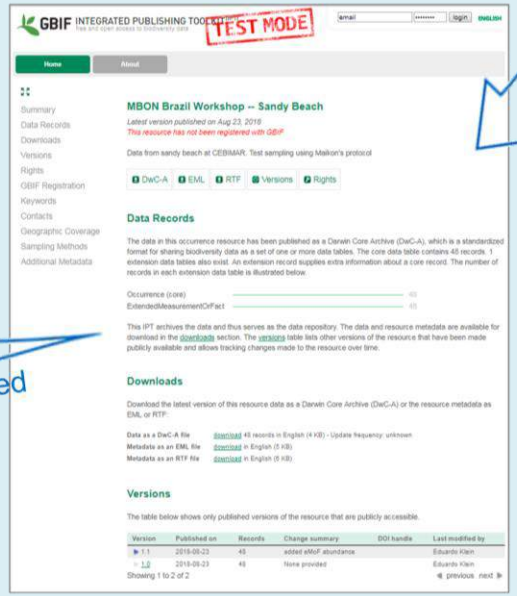
Wrangled

Open-source R packages

devtools::install_github("iobis/obistools")

Formatted & translated

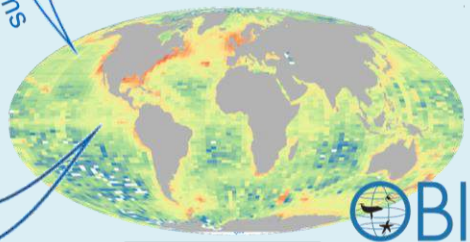
Integrated Publishing Toolkit



Darwin Core-Event Core

Shared

Open data



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Informs

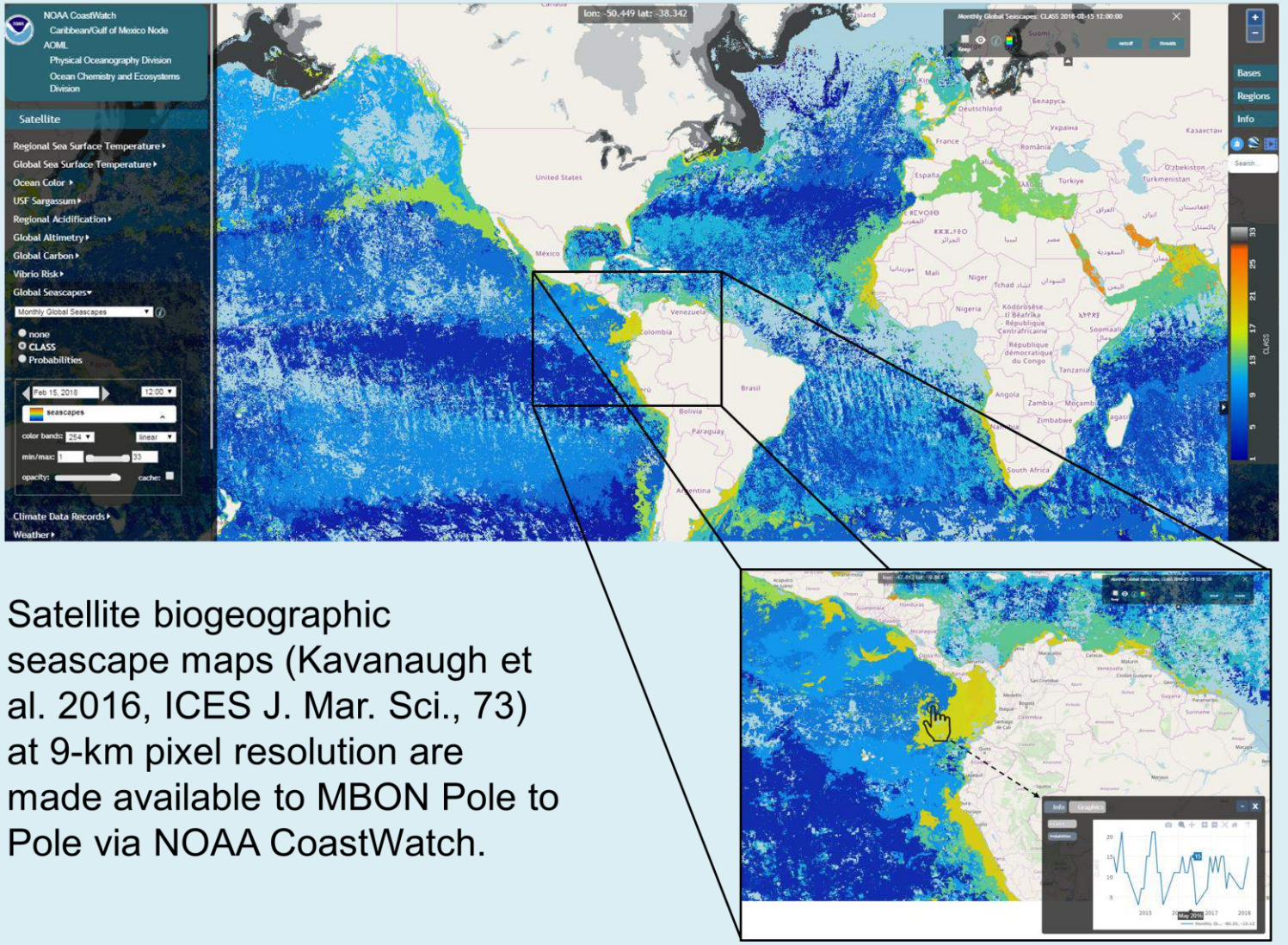
Essential Biodiversity Variables
EBV's

Essential Ocean Variables
EOV's

Biology and Ecosystems Panel

Capacity Building – Use of satellite data

Satellite Remote Sensing: Seascapes (Biogeography)



Satellite biogeographic seascape maps (Kavanaugh et al. 2016, ICES J. Mar. Sci., 73) at 9-km pixel resolution are made available to MBON Pole to Pole via NOAA CoastWatch.

Marine Biodiversity Workshops: from the Sea to the Cloud

USF UNIVERSITY OF SOUTH FLORIDA COLLEGE OF MARINE SCIENCE

- São Sebastião, Brazil, August 6-10, 2018
- 38 participants
- 11 countries

CENTRO DE BIOLOGIA MARINHA UNIVERSIDADE DE SÃO PAULO CEBIMar USP

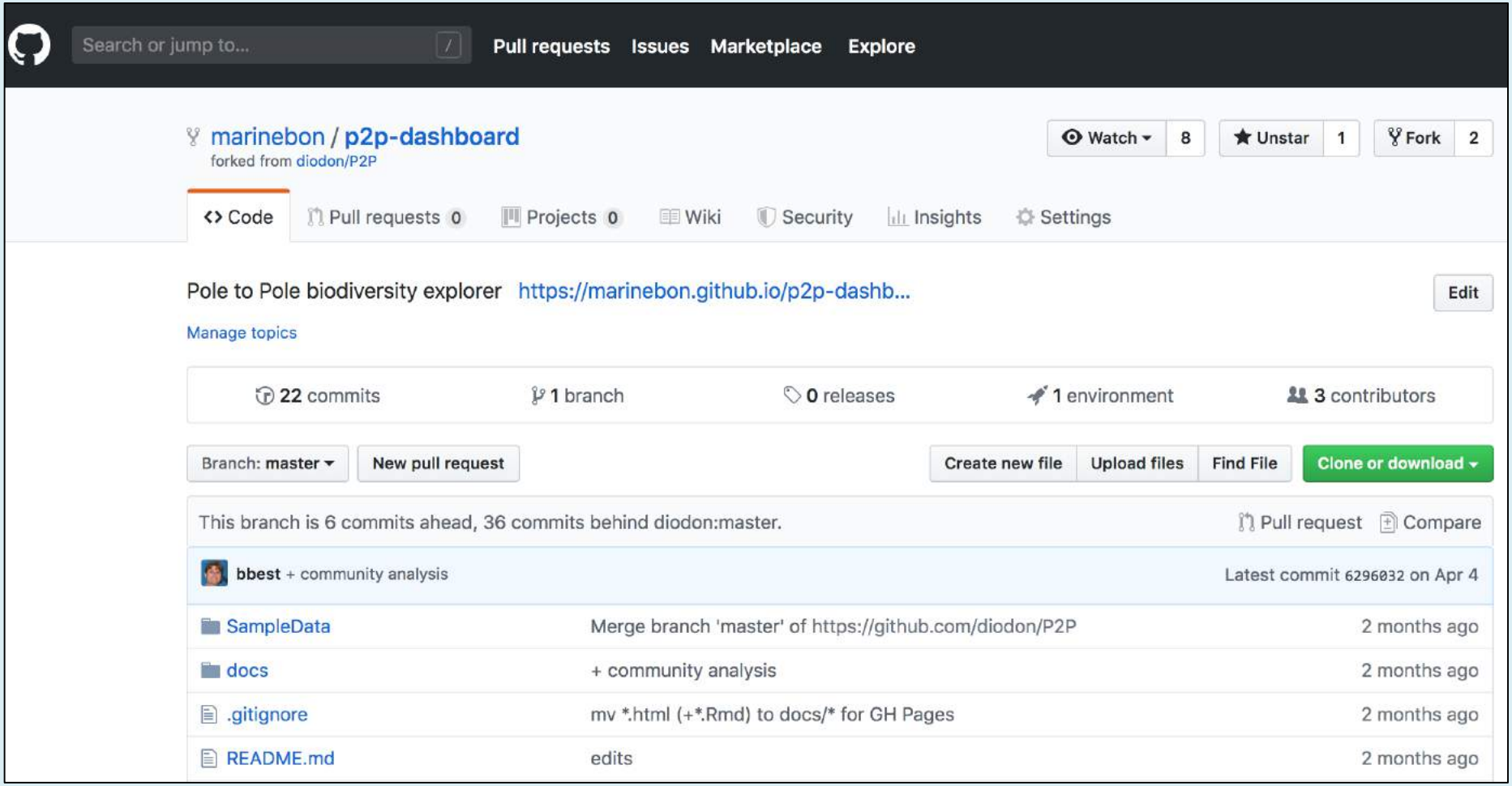
- Puerto Morelos, Mexico, April 2-5, 2019
- 35 participants
- 12 countries

http://www.goosocean.org/index.php?option=com_oe&task=viewEventRecord&eventID=2284

http://www.goosocean.org/index.php?option=com_oe&task=viewEventRecord&eventID=2382

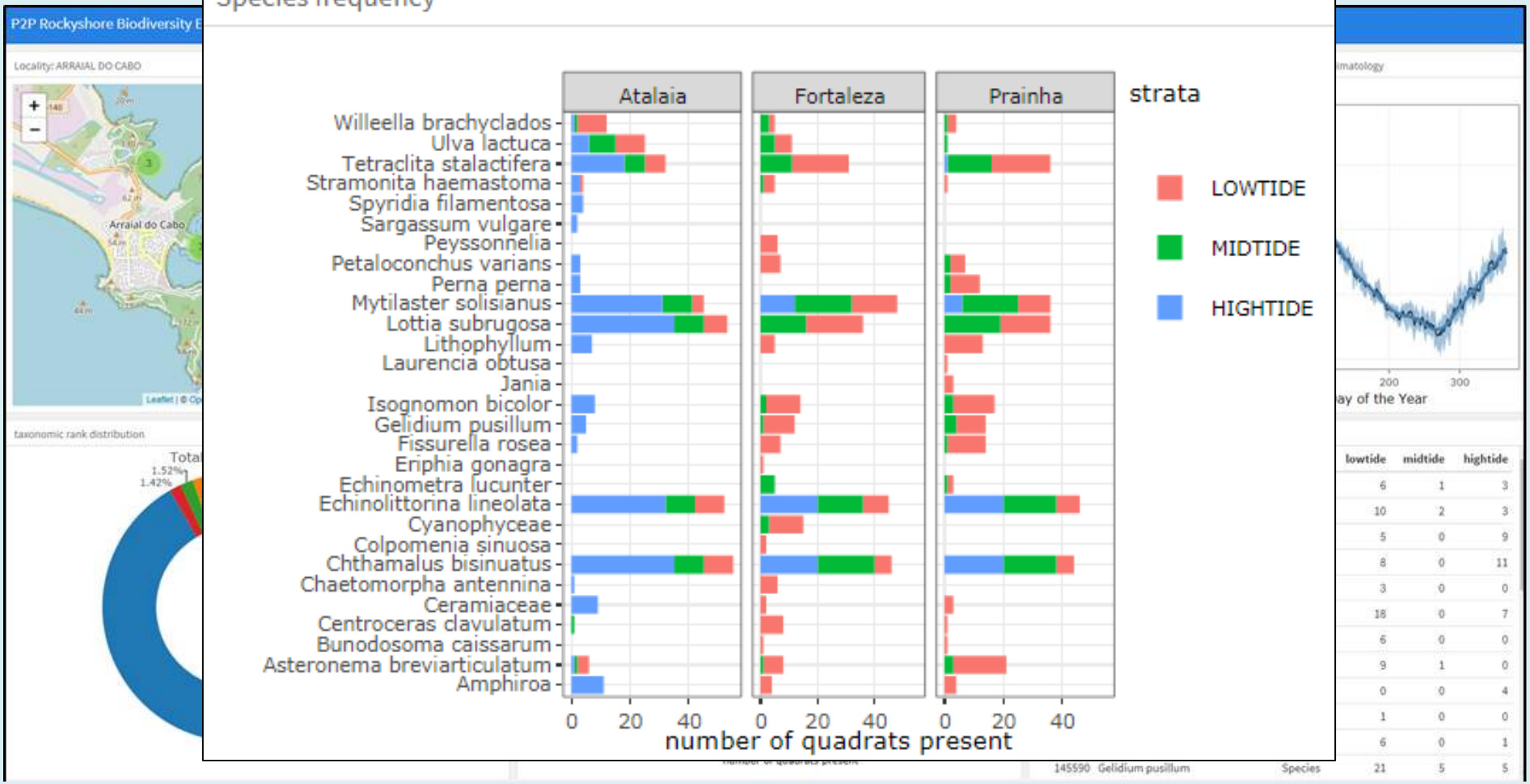
GOOS Biology and Ecosystems Panel

Marine Biodiversity Workshops: from the Sea to the Cloud



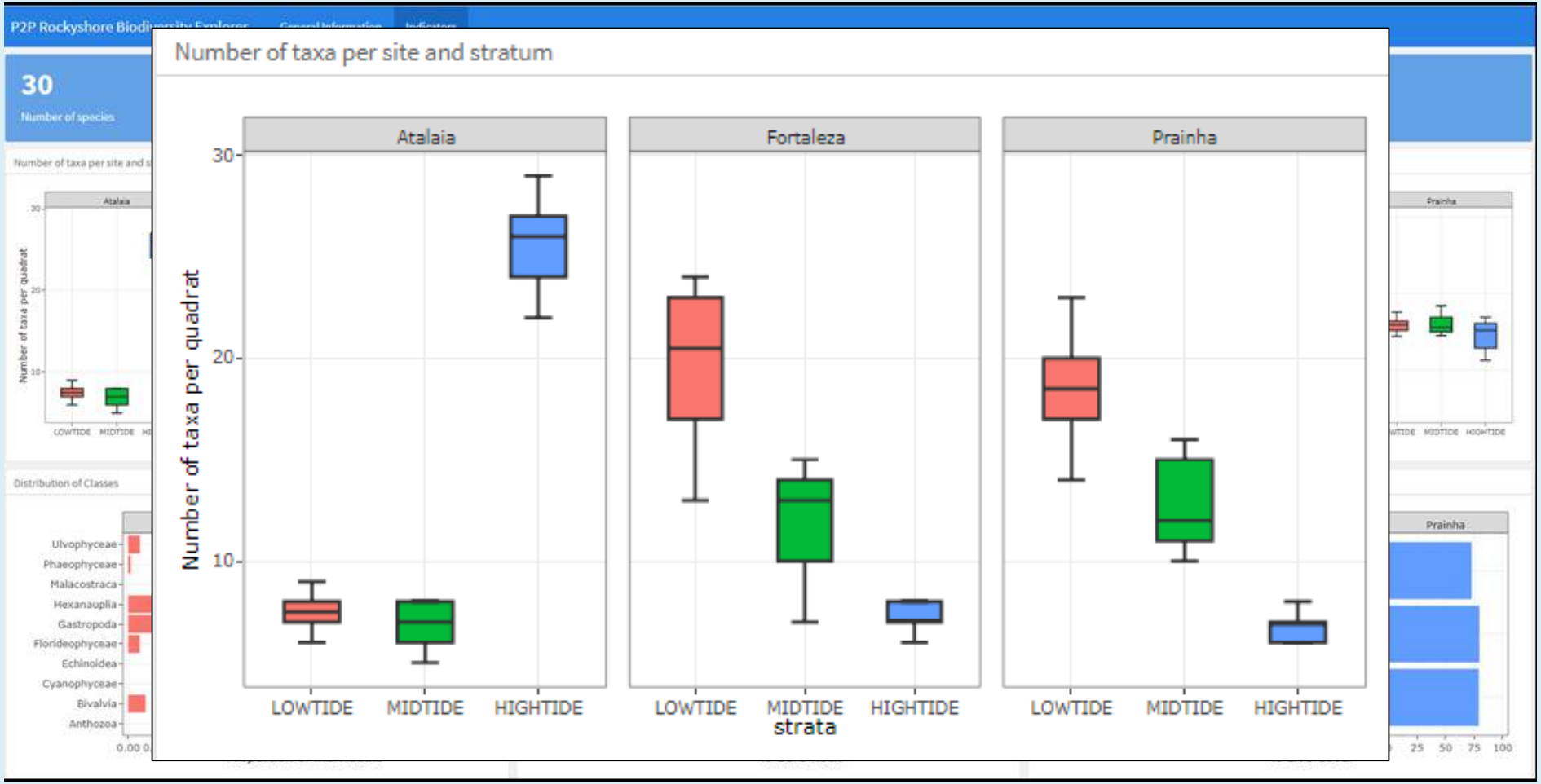
Dashboard: Biodiversity survey records and satellite data

Example: Rocky shore at Arraial do Cabo – Brazil



Dashboard: Biodiversity indicators

Example: Rocky shore at Arraial do Cabo – Brazil



Simplifying data analysis and sharing

Analysis-ready data files

Darwin Core Archive

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GLOBAL BIODIVERSITY INFORMATION FACILITY

Community analysis R-based tools

load packages

Gregorio's Argentina rocky shore data

Gil's Israel rocky shore data

Community Analysis

Code

- P2P community analysis - Google Docs
  - NMDS Tutorial in R – sample(ECOLOGY)
  - Lab 8. Communities

load packages

Code

Gregorio's Argentina rocky shore data

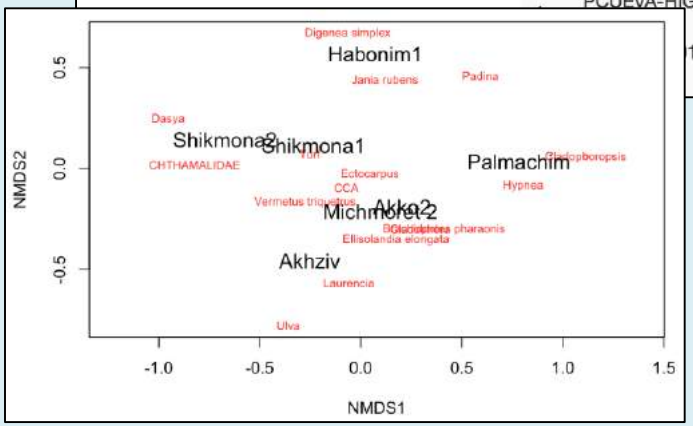
- P2P data templates
- Gregorio enters data: `Biodiv_surverys/Argentina/GBigatti/Data_Sheet_RockyShore_GB_Puerto Madryn.xlsx`
- ↳ Eduardo's P2P transformation: RS_dataTransform
- ↳ P2P cleaned data: ~ `sites.csv` , ~ `obs.csv`
- ↳ P2P analytical products, eg p2p-dashboard, ...

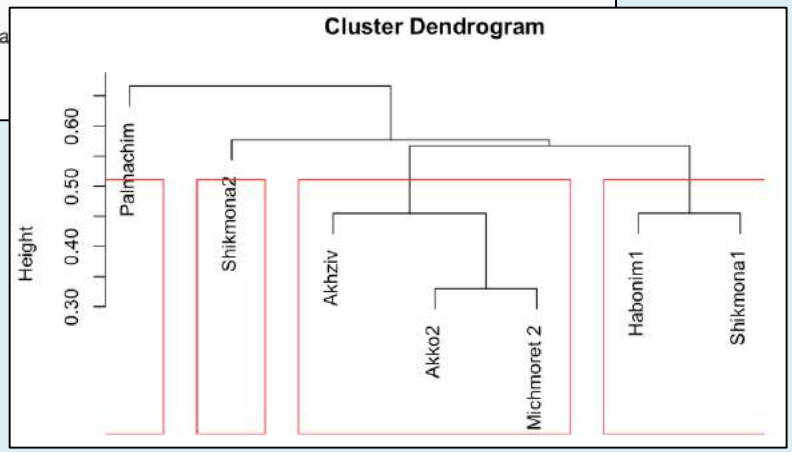
load data

Code

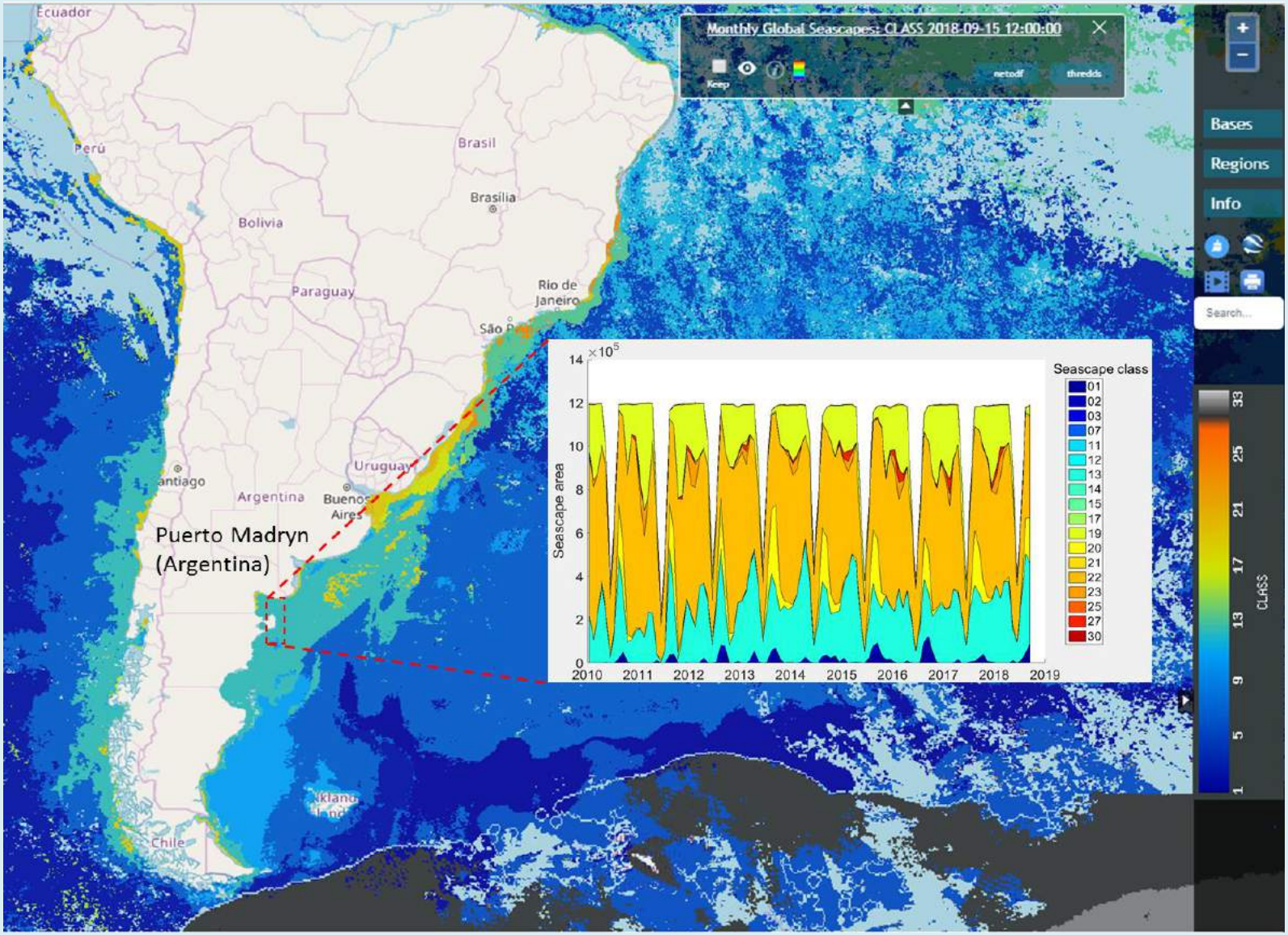
Show 10 entries Search:

occurrenceID	eventID	eventDate	country	locality	site	strata	pictureID	replicateID
NA-PMAD-PCUEVA-HIG-	NA-PMAD-PCUEVA-HIG-20181105-R0001	2018-11-05T00:00:00Z	Argentina					

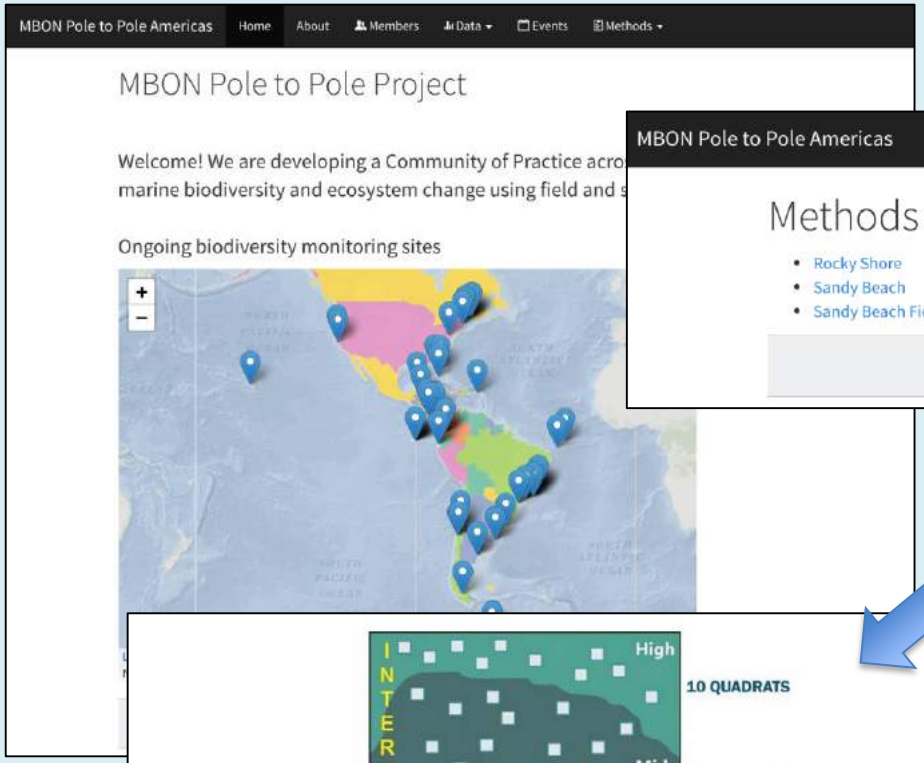


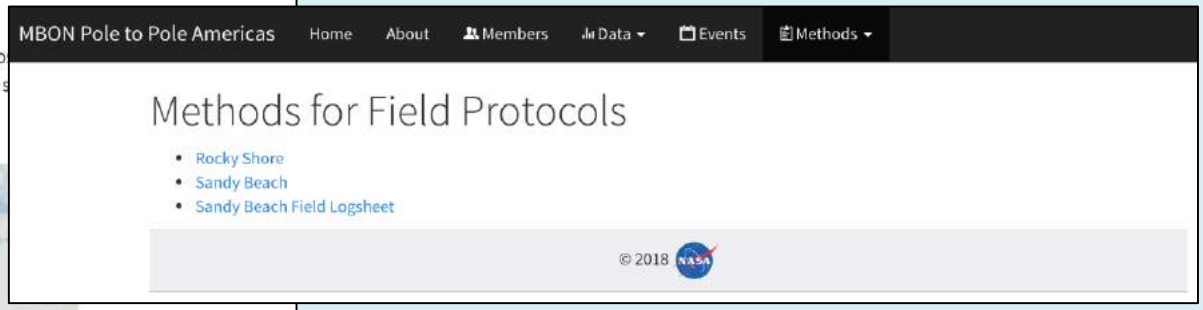


Time series data of seascape area per class at monitoring sites



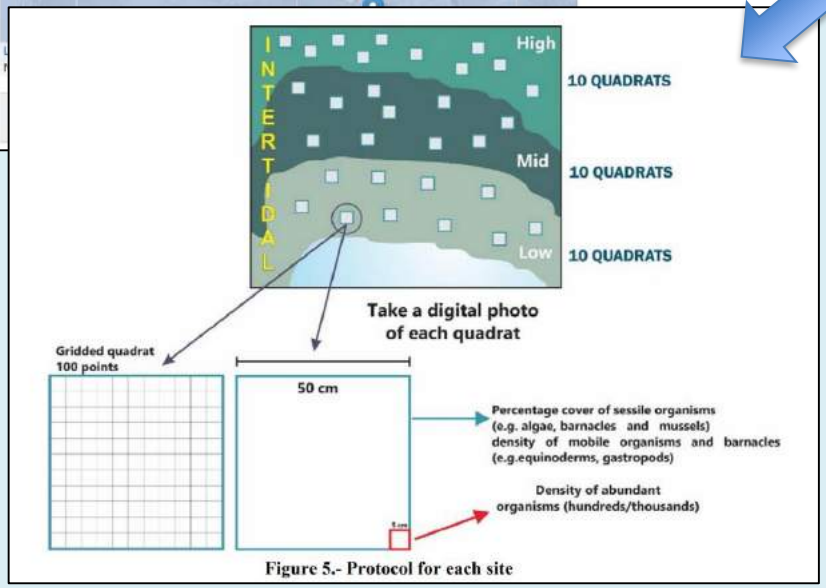
Outputs: standard field protocols

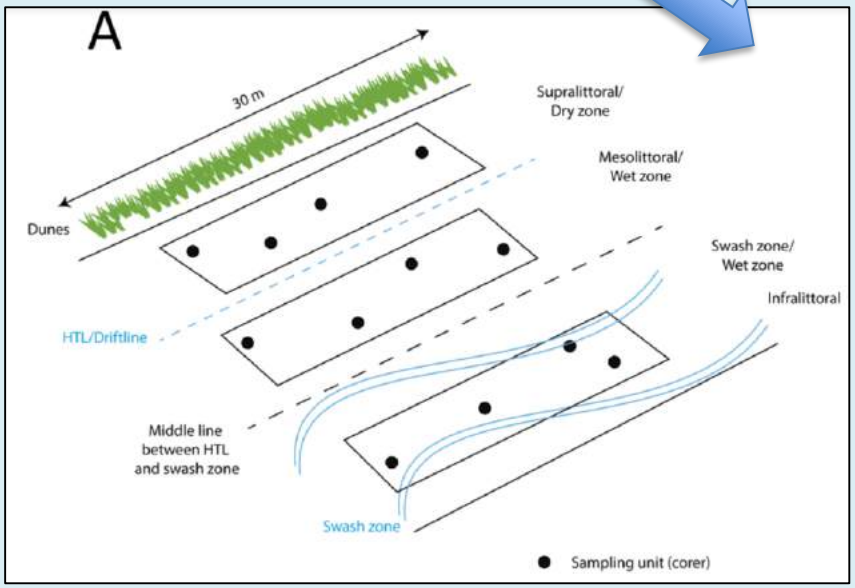




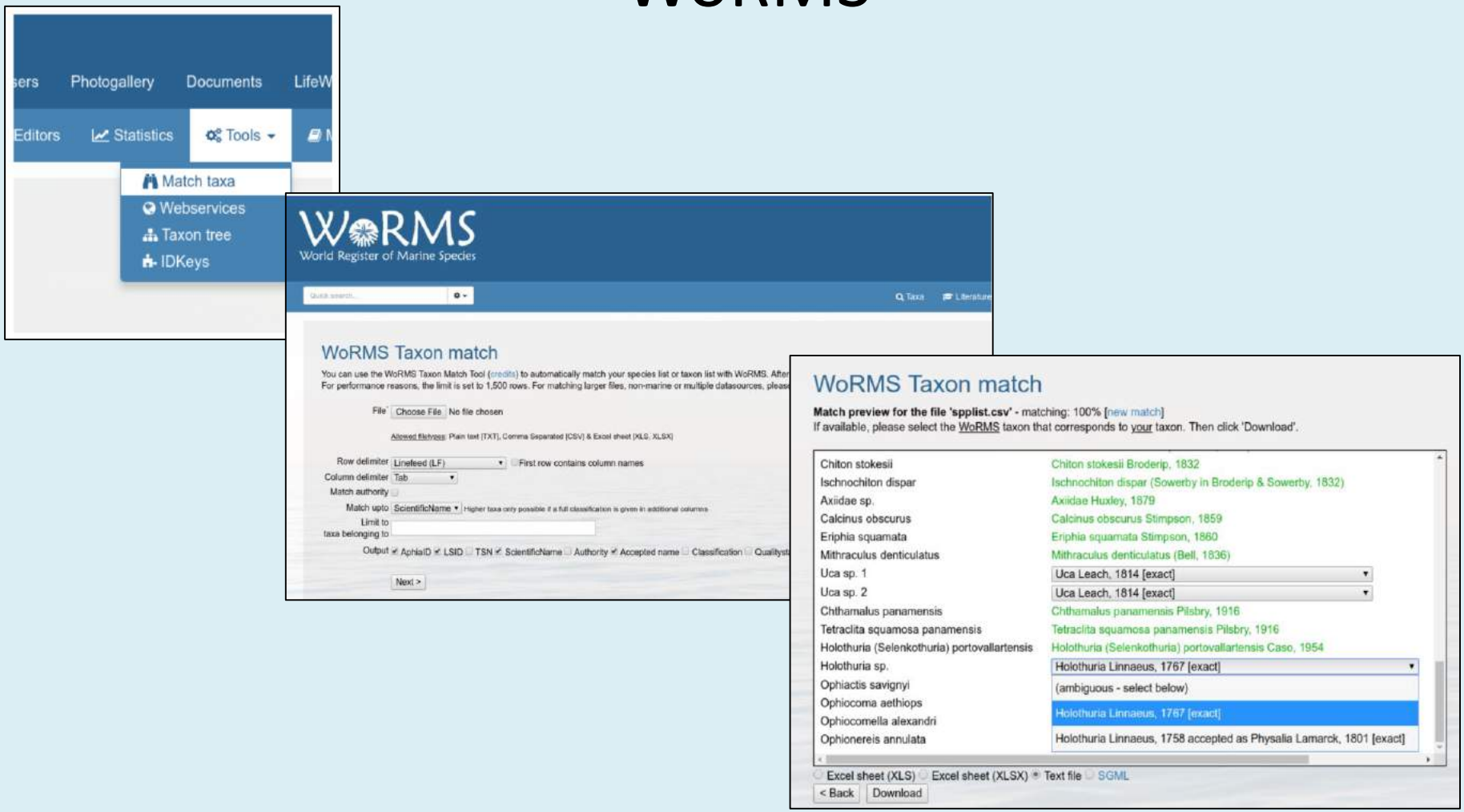
Rocky shores

Sandy beaches

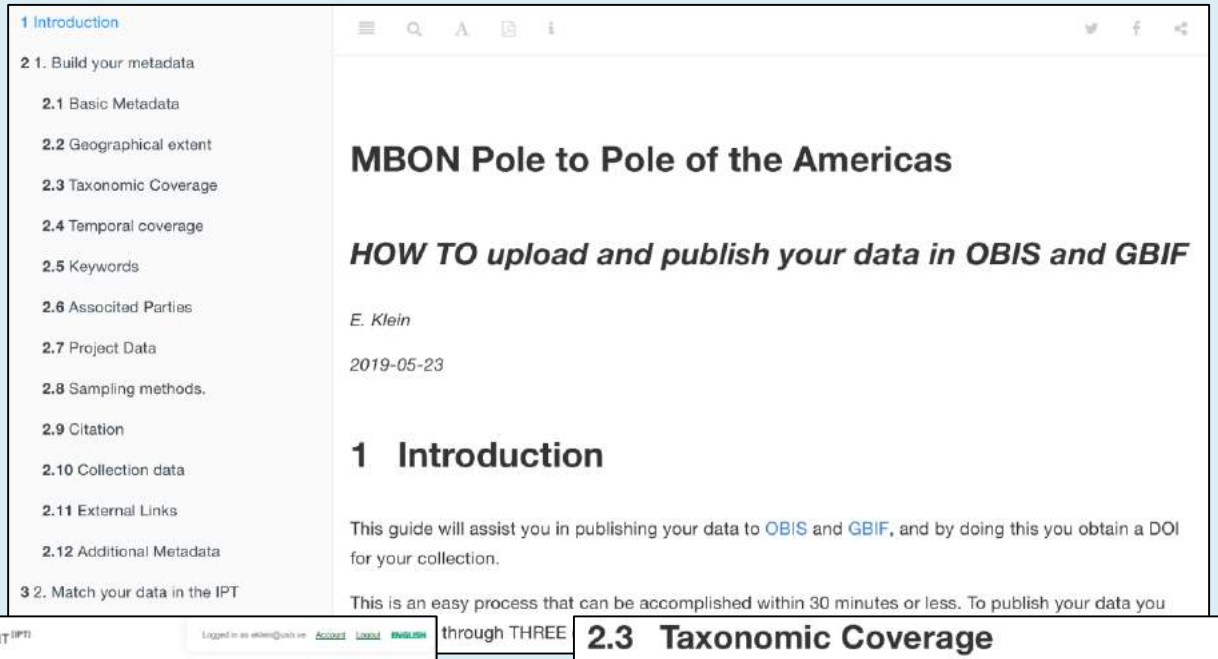




Outputs: HOW TO data quality check WoRMS



Outputs: HOW TO upload and publish data in OBIS and GBIF



1 Introduction

2 1. Build your metadata

- 2.1 Basic Metadata
- 2.2 Geographical extent
- 2.3 Taxonomic Coverage
- 2.4 Temporal coverage
- 2.5 Keywords
- 2.6 Associtad Parties
- 2.7 Project Data
- 2.8 Sampling methods.
- 2.9 Citation
- 2.10 Collection data
- 2.11 External Links
- 2.12 Additional Metadata

3 2. Match your data in the IPT

MBON Pole to Pole of the Americas

HOW TO upload and publish your data in OBIS and GBIF

E. Klein

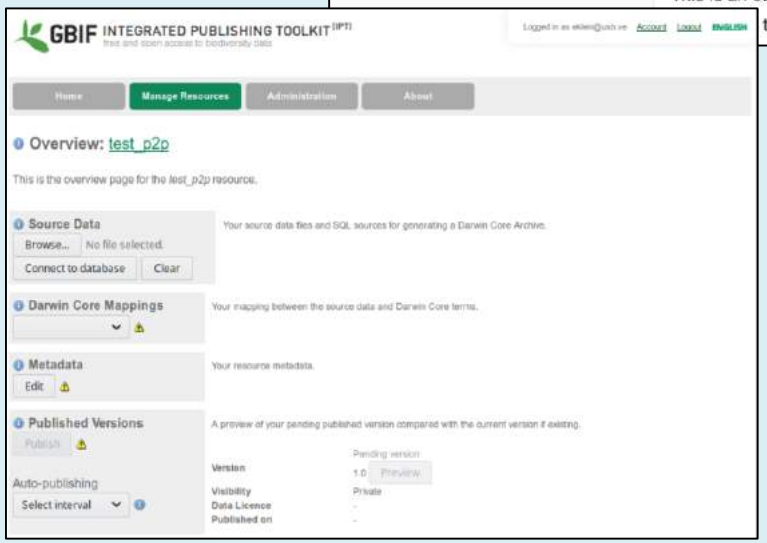
2019-05-23

1 Introduction

This guide will assist you in publishing your data to OBIS and GBIF, and by doing this you obtain a DOI for your collection.

This is an easy process that can be accomplished within 30 minutes or less. To publish your data you

through THREE



2.3 Taxonomic Coverage

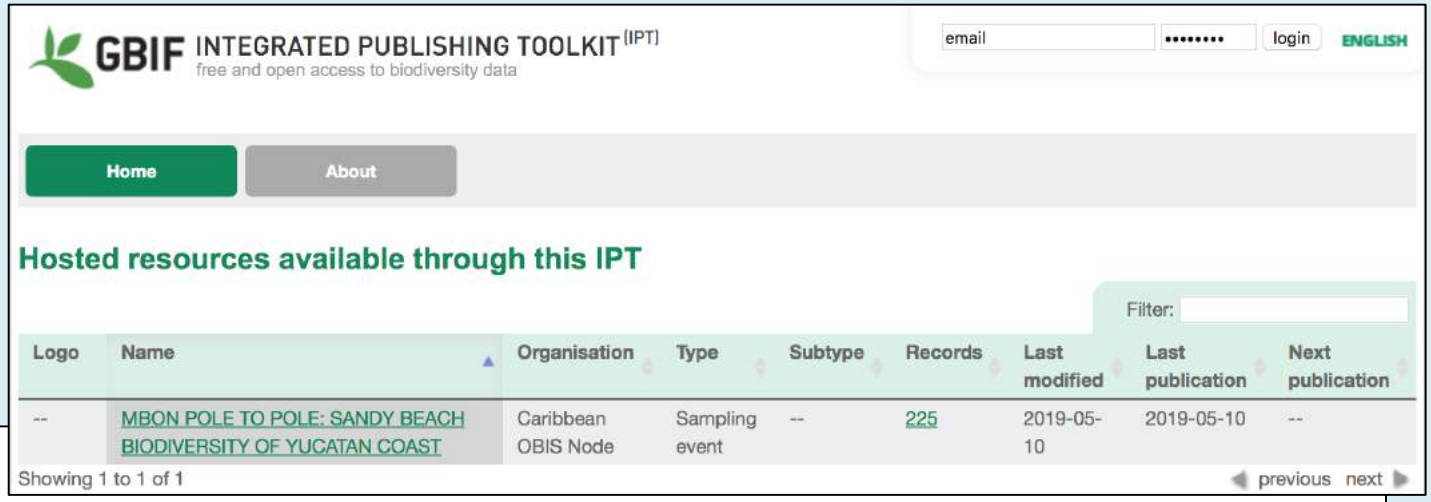
Here you need to input all the scientific names of taxa present at your study site. You can extract this information from the occurrence file for your site from the DataAnalysisFile folder in the projects google drive.

Here is an example of the list of taxa from Puerto Madryn rocky shores sites:

```
Occurrence = readr::read_csv("ARGENTINA_PUERTOMADRYN_PUNTAESTE_dashboard_occurrence.csv", progre
sppList = unique(Occurrence$ScientificName_accepted)
## remove NAs
sppList = sppList[!is.na(sppList)]

## Write the names to a text file
writeLines(con="sppList.txt", sppList)
print(sppList)
```

Open data is becoming real



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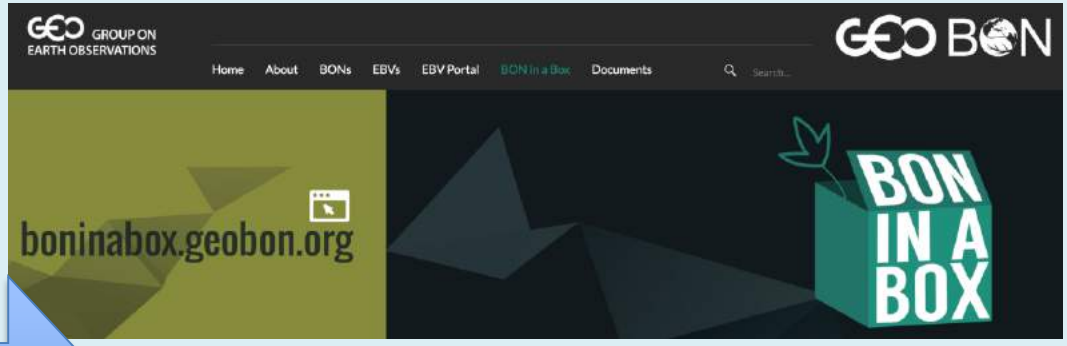
MBON POLE TO POLE: SANDY BEACH BIODIVERSITY OF YUCATAN COAST

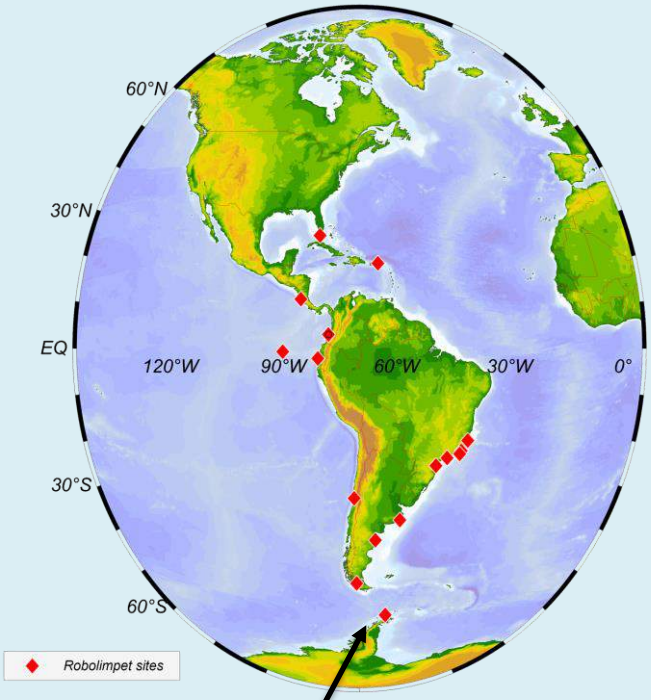
URL	http://ipt.iobis.org/mbon/resource?r=yucatan_sandybeach2018
Installation URL	http://ipt.iobis.org/mbon/
Node	OBIS Secretariat
Published	2019-05-10 16:59
Updated	2019-05-15 10:14
Abstract	The MBON Pole to Pole effort seeks to develop a framework for the collection, use and sharing of marine biodiversity data in a coordinated, standardized manner leveraging on existing infrastructure managed by the Global Ocean Observing System (GOOS; IOC-UNESCO), the GEO Biodiversity Observation Network (GEO BON), and the Ocean Biogeographic Information System (OBIS). The MBON Pole to Pole aims to become a key resource for decision-making and management of living resource across countries in the Americas for reporting requirements under the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), Aichi Targets of the Convention of Biological Diversity (CBD), and the UN 2030 Agenda for Sustainable Development Goals (SDGs). This collection corresponds to the species registered on sandy beaches of the State of Yucatan, Mexico, using the MBON P2P sampling protocol for sandy beaches, with funding from the LANRESC UNAM-CONACYT (Laboratorio Nacional de Resiliencia Costera, Universidad NAcional Autonoma de Mexico - CONACyT)
Citation	Guerra-Castro E (2019): MBON POLE TO POLE: SANDY BEACH BIODIVERSITY OF YUCATAN COAST. v1.2. Caribbean OBIS Node. Dataset/Samplingevent. http://ipt.iobis.org/mbon/resource?r=yucatan_sandybeach2018&v=1.2

MBON Pole to Pole handbook tools

- Field protocols
- R-based analysis tools
- Dashboards
- HOW-TO documents



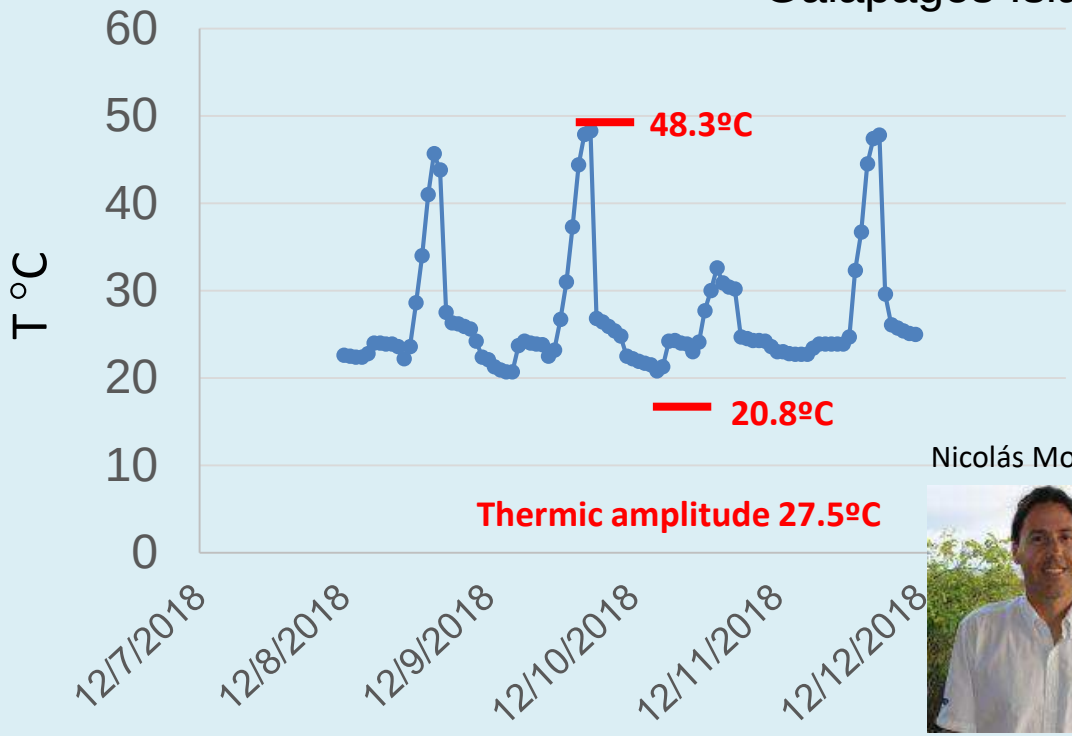
EnvLoggers network (temperature)



Antarctica

Erasmo Macaya

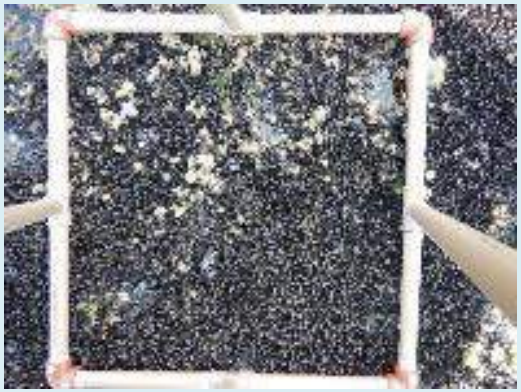
Galapagos Islands



Nicolás Moity

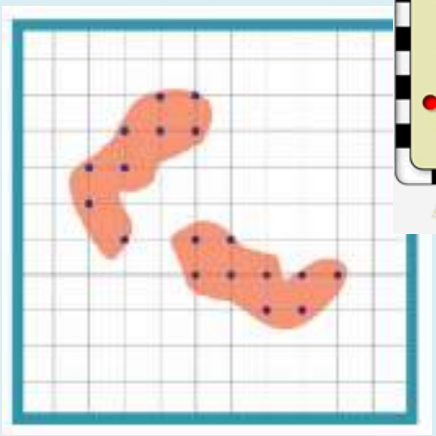
Photo-quadrat versus visual intercept records

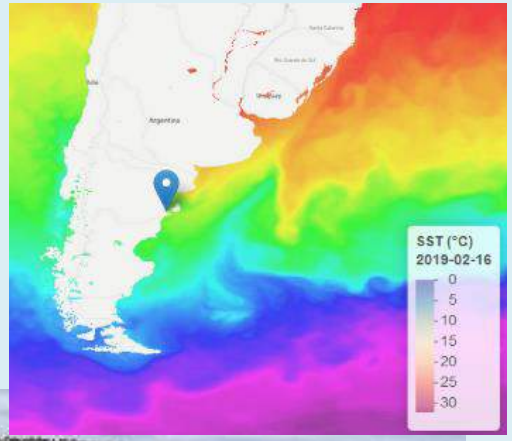
Photoquadrats



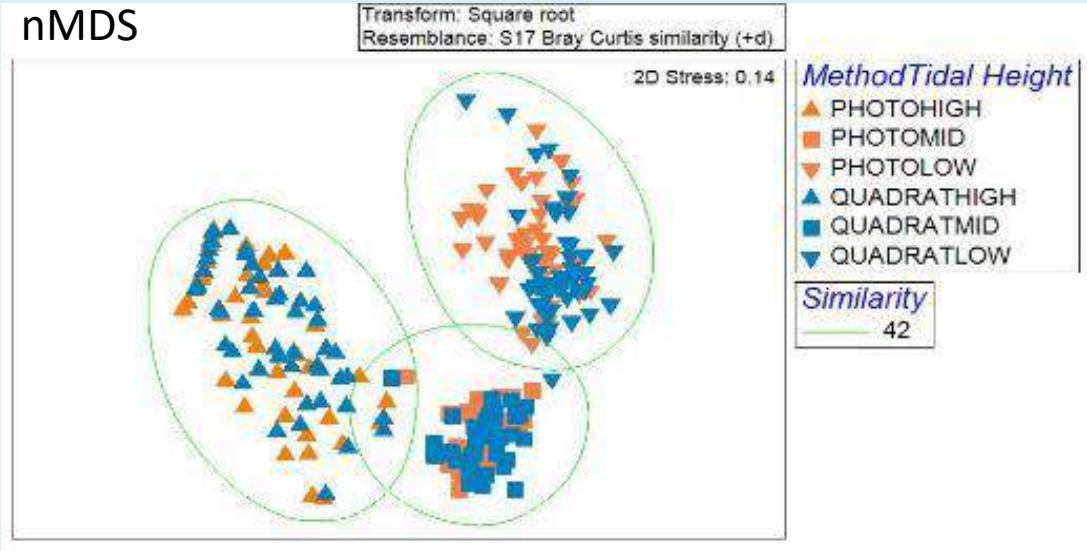
vs

visual



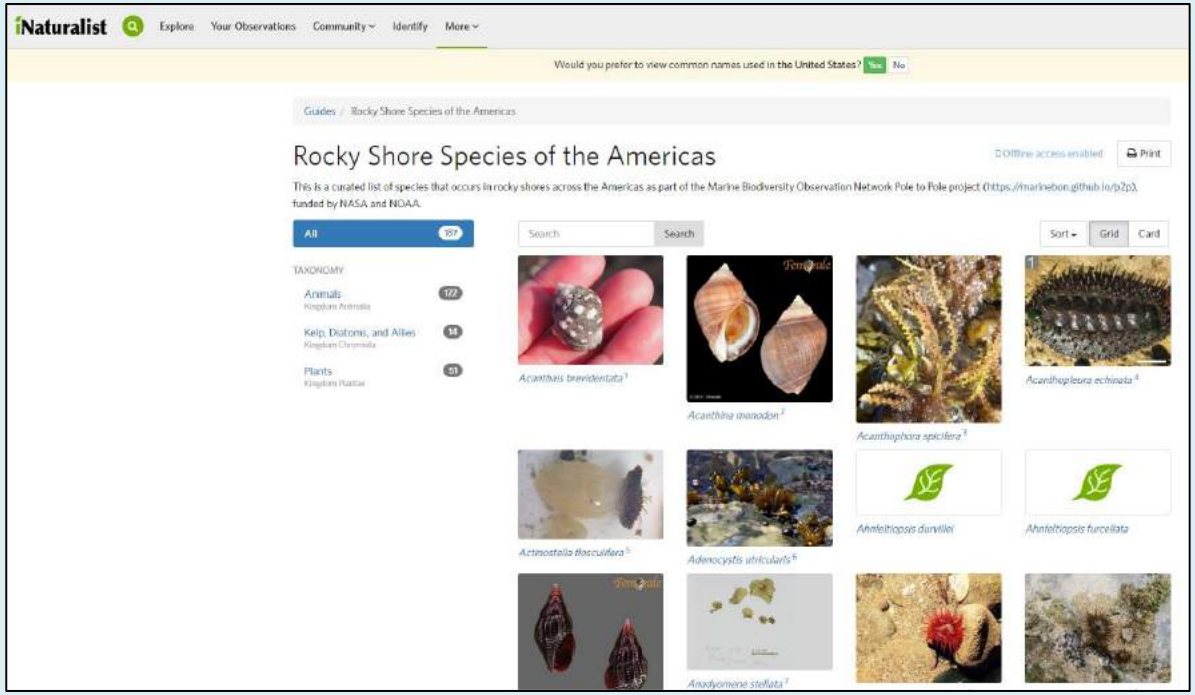


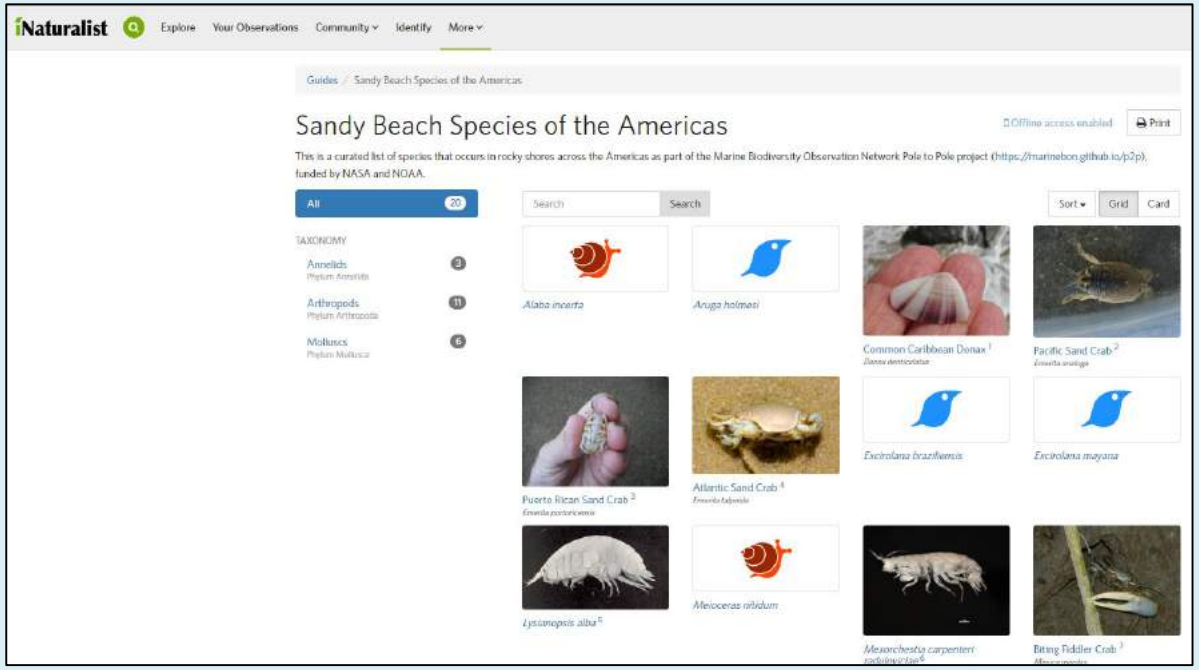
nMDS



Gregorio Bigatti – IBIOMAR-CONICET

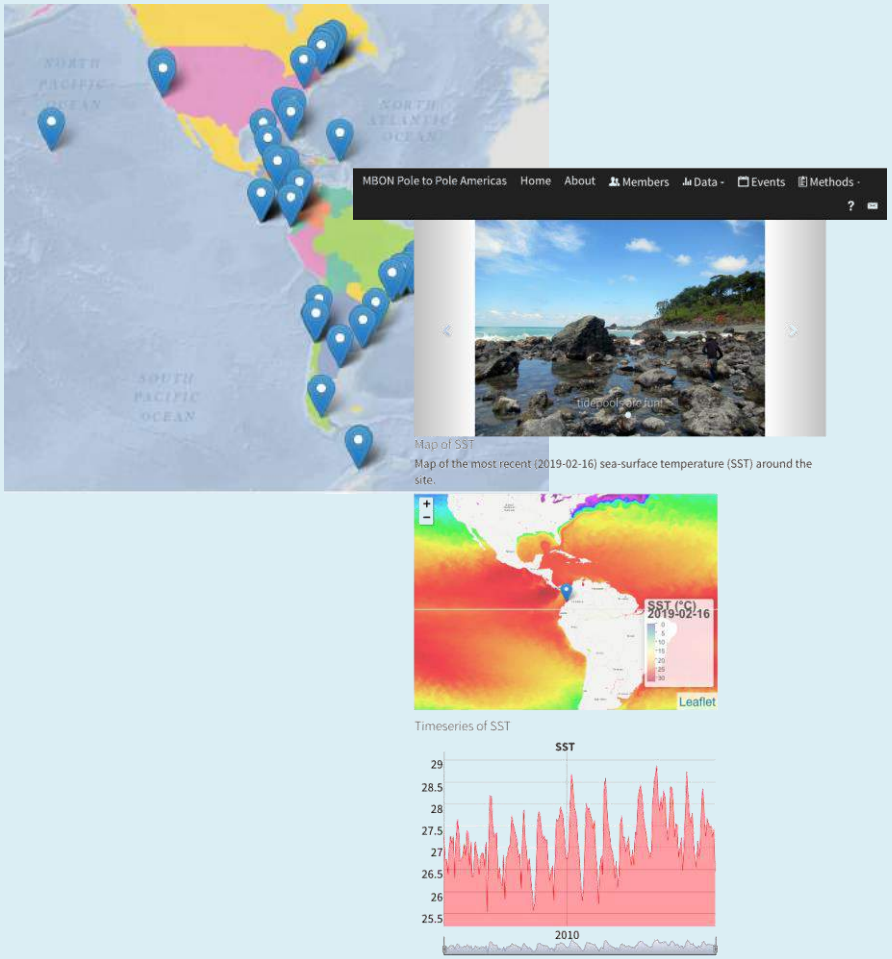
MBON Pole to Pole species catalogs on iNaturalist





Thank you!

Website



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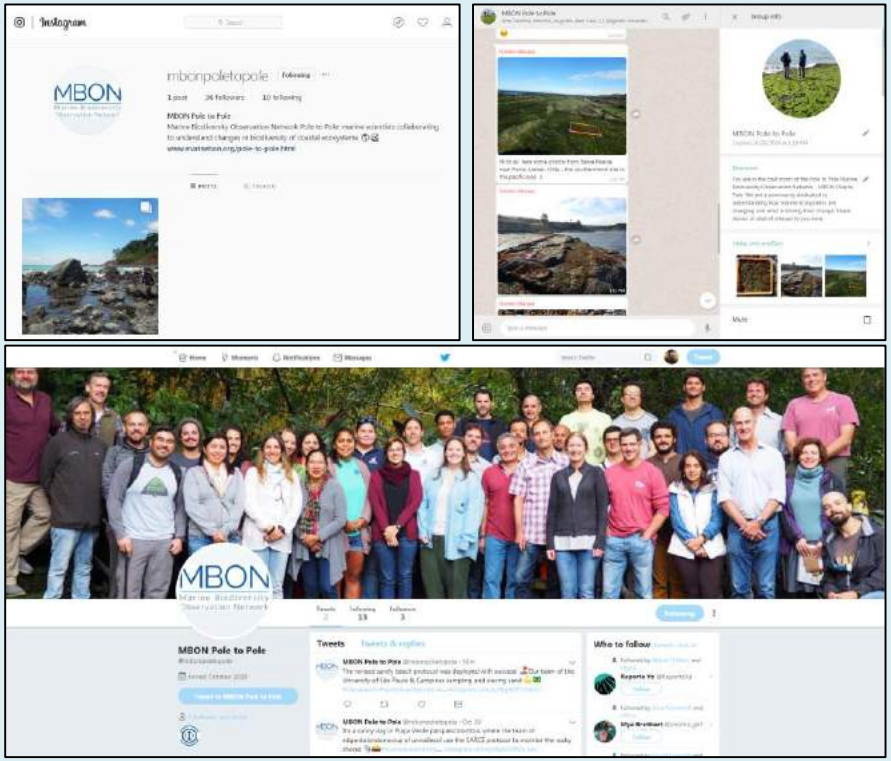

https://marinebon.github.io/p2p/index.html