

Observing Life in the Sea



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

MBON
Marine Biodiversity
Observation Network



Co-Investigators:

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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)

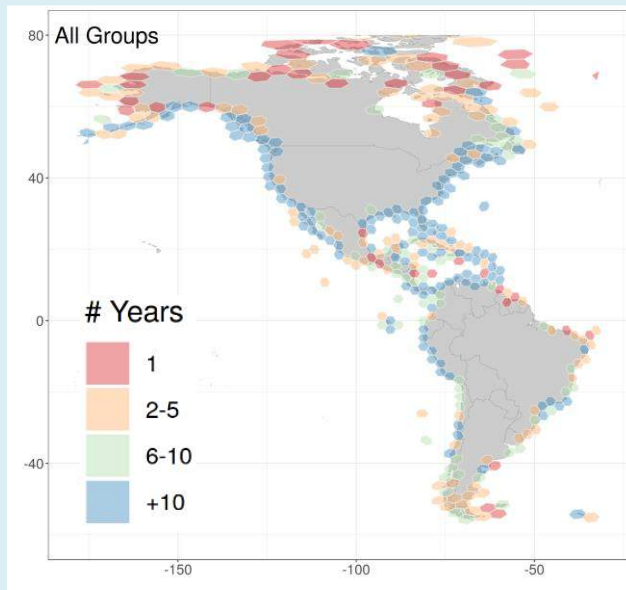
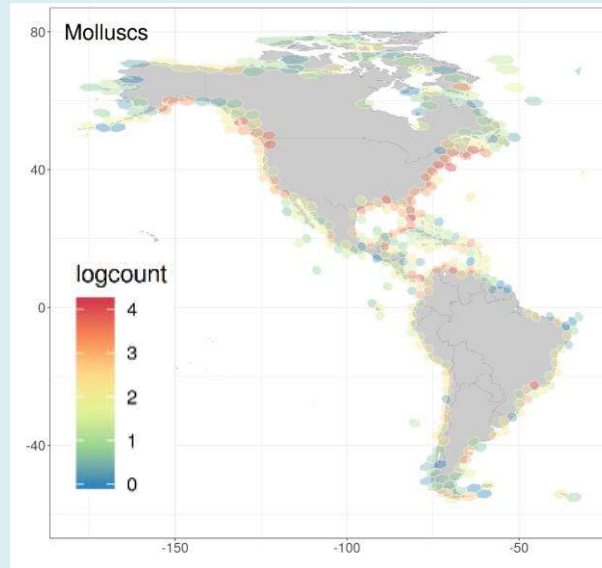
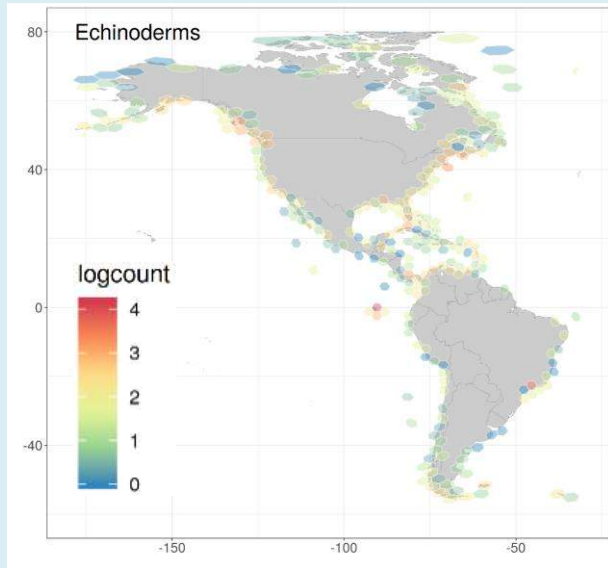
Enrique Montes (emontesh@mail.usf.edu)
University of South Florida

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



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.

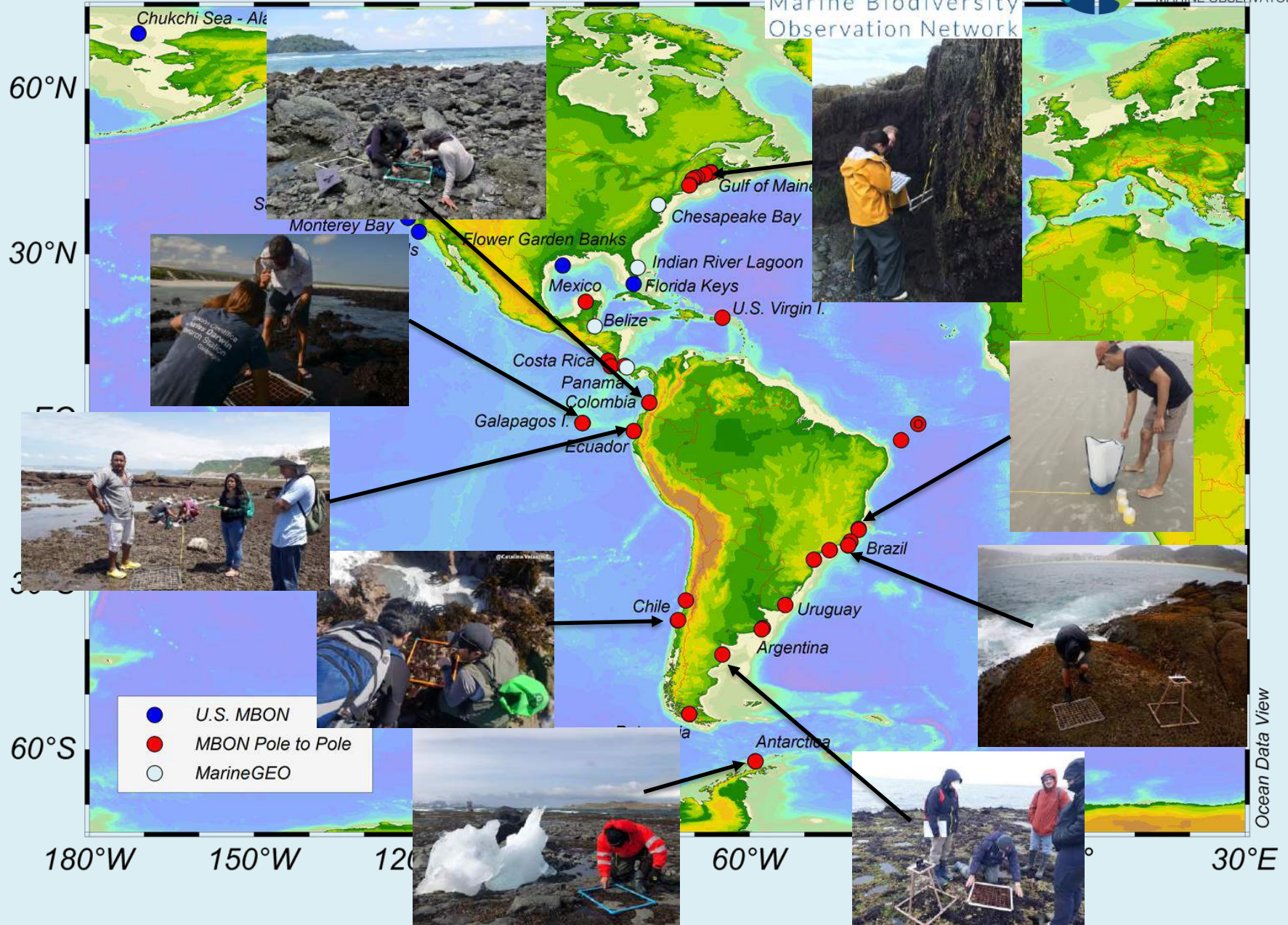
Density of biodiversity records vary significantly among taxonomic groups.

Lack of time series data in critical areas.

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



Capacity Building – Data workflows

Field data collection



Data tables

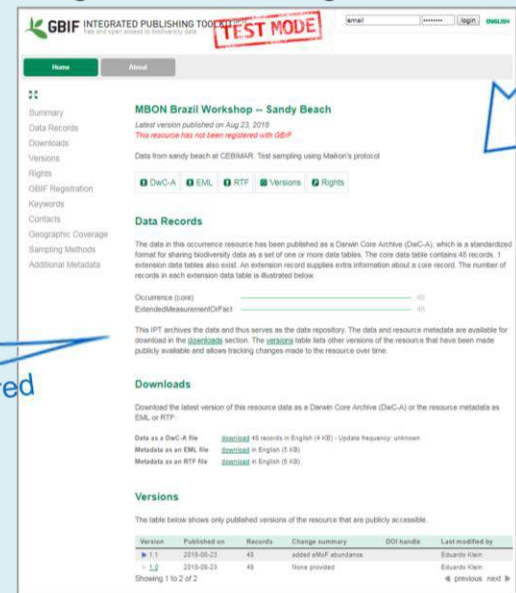
id	basinofRecord	occurrenceID
armata	Animalia	Arthropoda
on	P2P-BRA-SSEB-T3N1-0009	0
elep	Animalia	Annelida
-45.422059	urn:lsid:marinespecies	
ation	P2P-BRA-SSEB-T3N3-0023	0
P-BRA-SSEB-TIN4-0028	0	absen
22059	urn:lsid:marinespecies.org:ta	
A	NAP2P-BRA-SSEB-TIN3-0039	
66653	Calceptera	NA

Converted

Wrangled

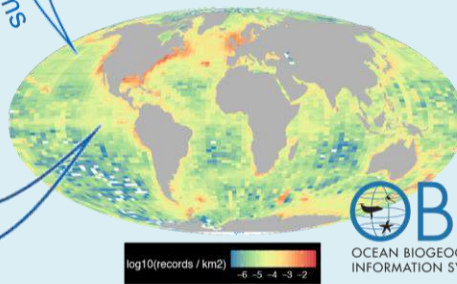


Integrated Publishing Toolkit



Formatted & translated

Open data



Shared

Informs

Essential Biodiversity Variables

EBV's



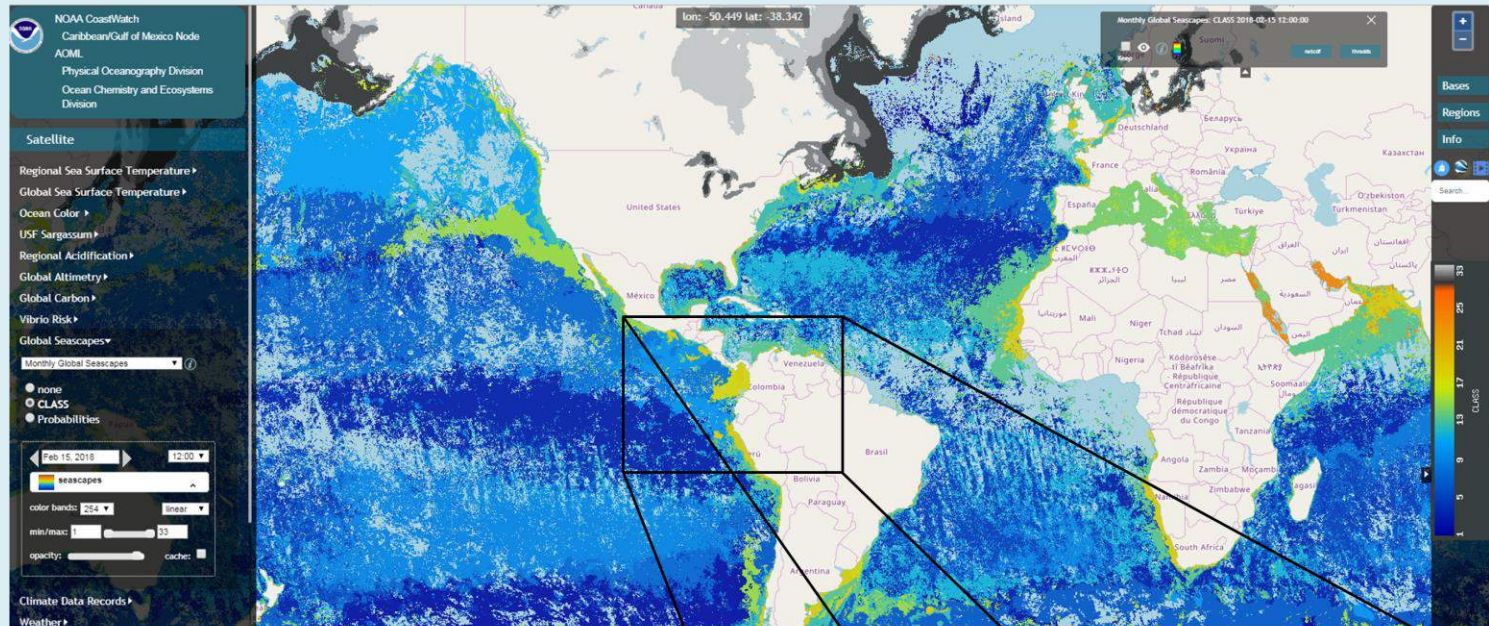
Essential Ocean Variables
EOV's



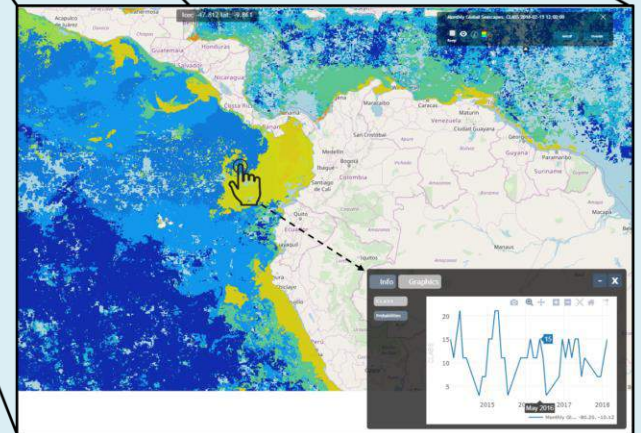
Darwin Core-Event Core

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



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



- 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



Marine Biodiversity Workshops: from the Sea to the Cloud

The screenshot shows the GitHub interface for the repository `marinebon / p2p-dashboard`, which is a fork of `diodon/P2P`. The repository has 8 watches, 1 unstar, and 2 forks. The main navigation bar includes links for Code, Pull requests (0), Projects (0), Wiki, Security, Insights, and Settings. The repository description is "Pole to Pole biodiversity explorer" with a link to <https://marinebon.github.io/p2p-dashb...> and an "Edit" button. Below the description, it shows 22 commits, 1 branch, 0 releases, 1 environment, and 3 contributors. The "Branch: master" dropdown is set to "master", and there is a "New pull request" button. To the right are buttons for "Create new file", "Upload files", "Find File", and a green "Clone or download" button. A status message indicates the branch is 6 commits ahead and 36 commits behind `diodon:master`, with links for "Pull request" and "Compare". The commit history shows a merge of the master branch from `https://github.com/diodon/P2P` 2 months ago, followed by adding community analysis, moving HTML files to docs for GitHub Pages, and editing the README.md, all 2 months ago.

Search or jump to... / Pull requests Issues Marketplace Explore

marinebon / p2p-dashboard
forked from diodon/P2P

Watch 8 Unstar 1 Fork 2

Code Pull requests 0 Projects 0 Wiki Security Insights Settings

Pole to Pole biodiversity explorer <https://marinebon.github.io/p2p-dashb...> Edit

Manage topics

22 commits 1 branch 0 releases 1 environment 3 contributors

Branch: master New pull request Create new file Upload files Find File Clone or download

This branch is 6 commits ahead, 36 commits behind diodon:master. Pull request Compare

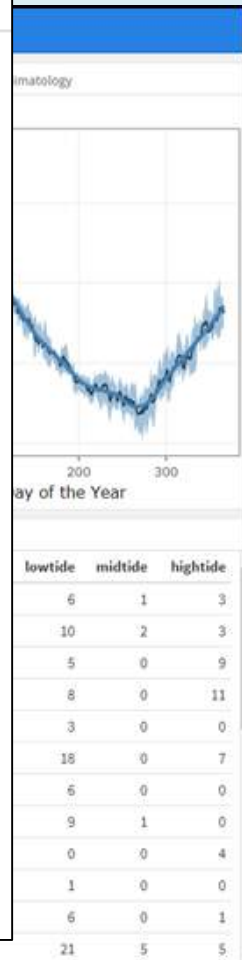
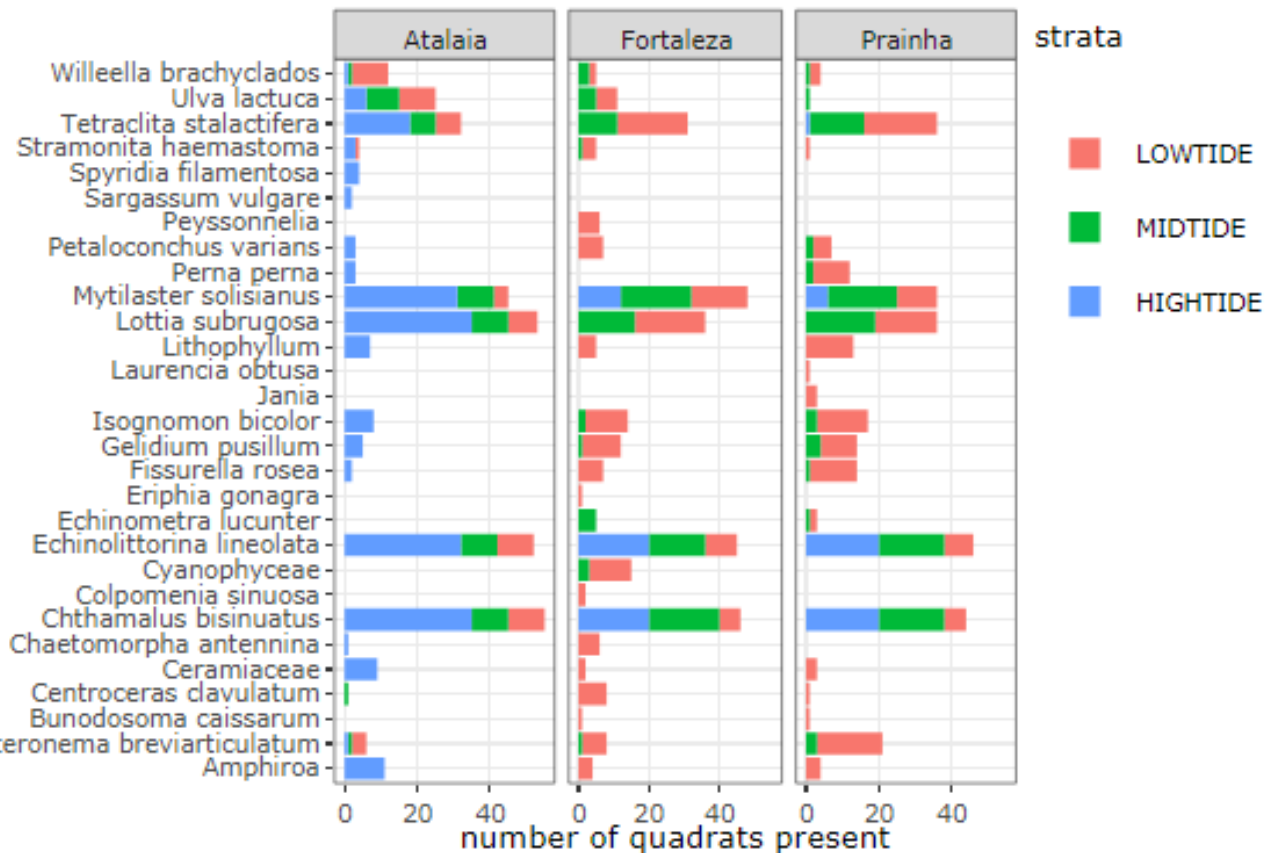
bbest + community analysis Latest commit 6296032 on Apr 4

SampleData	Merge branch 'master' of https://github.com/diodon/P2P	2 months ago
docs	+ community analysis	2 months ago
.gitignore	mv *.html (+*.Rmd) to docs/* for GH Pages	2 months ago
README.md	edits	2 months ago

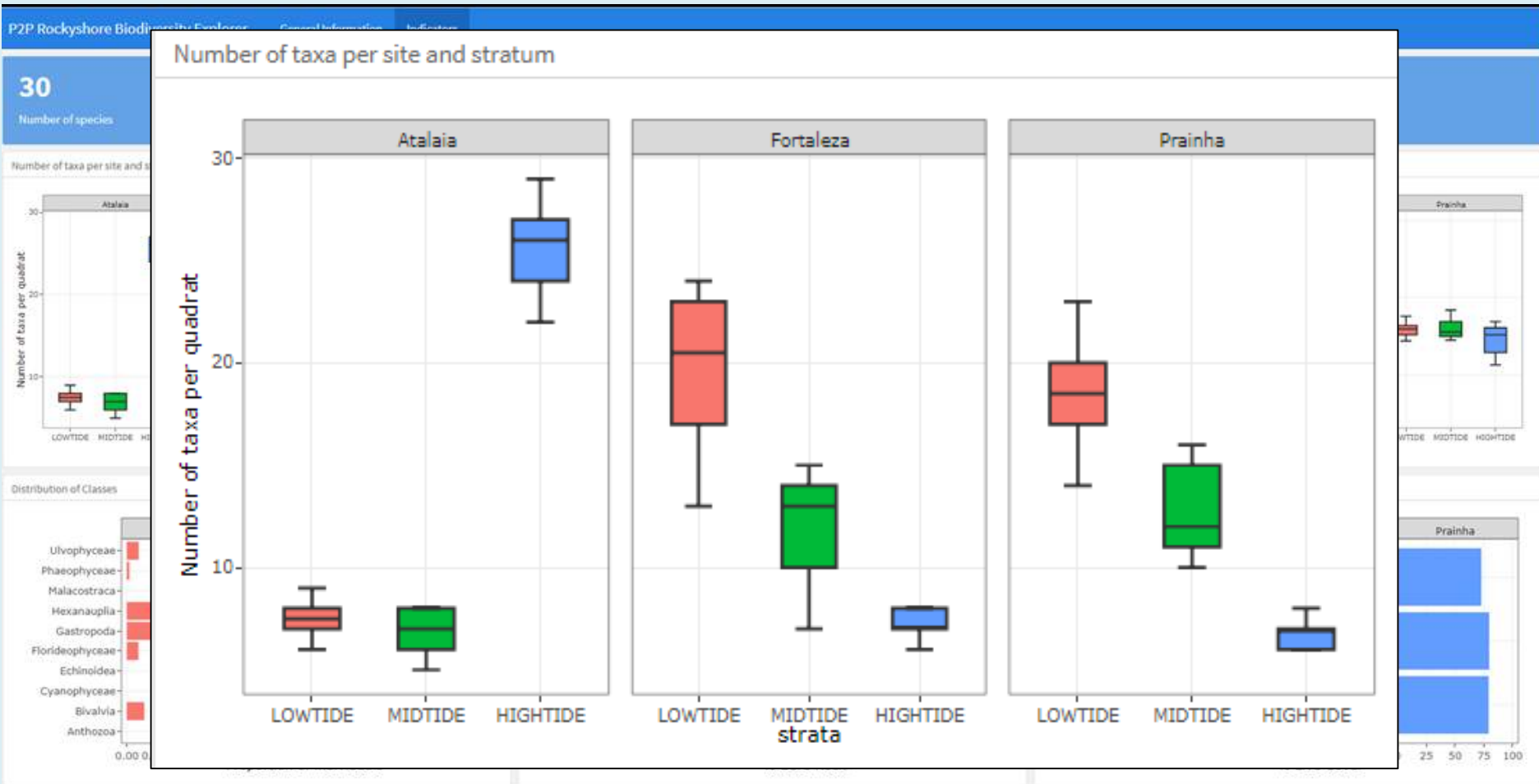
Dashboard: Biodiversity survey records and satellite data

Example: Rocky shore of Arraial do Cabo, Brazil

Species frequency



Example: Rocky shore at Arraial do Cabo – Brazil



Simplifying data analysis and sharing

Analysis-ready data files



Darwin Core Archive



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_surveys/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](#),

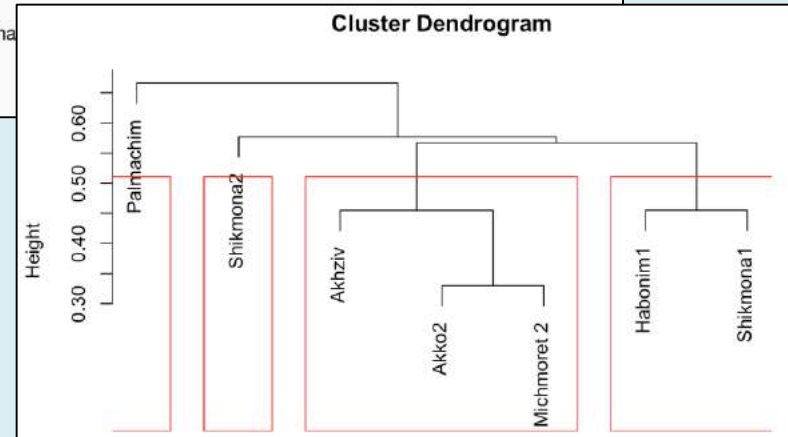
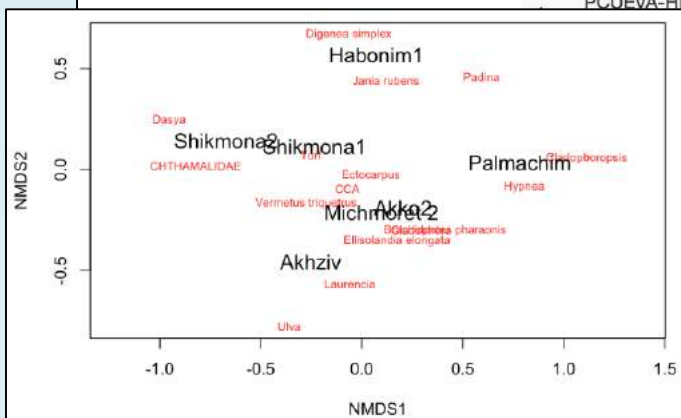
load data

Code

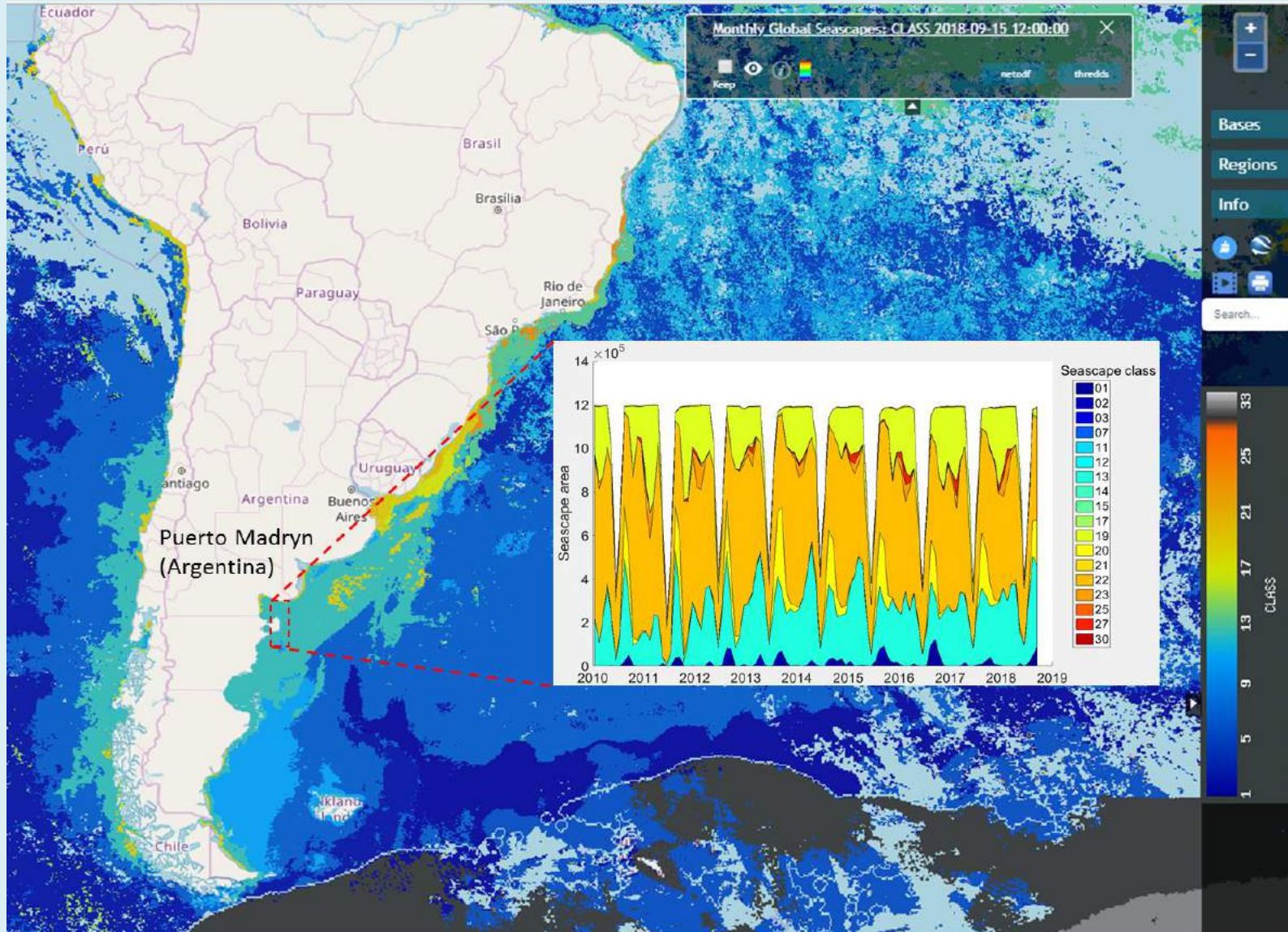
Show 10 ▾ entries

Search:

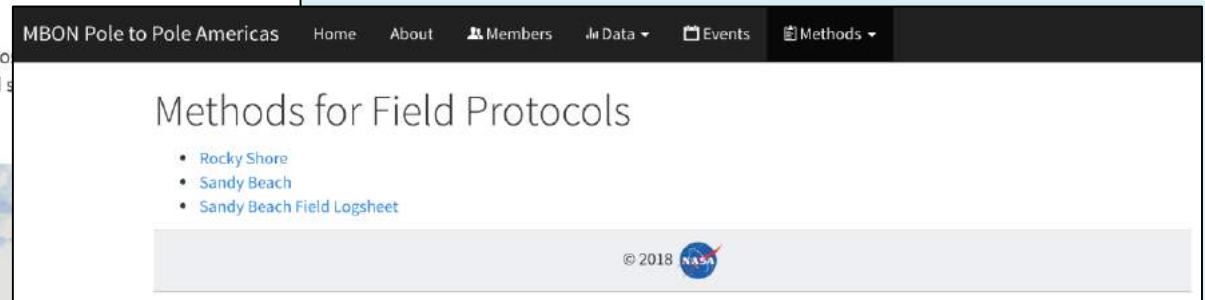
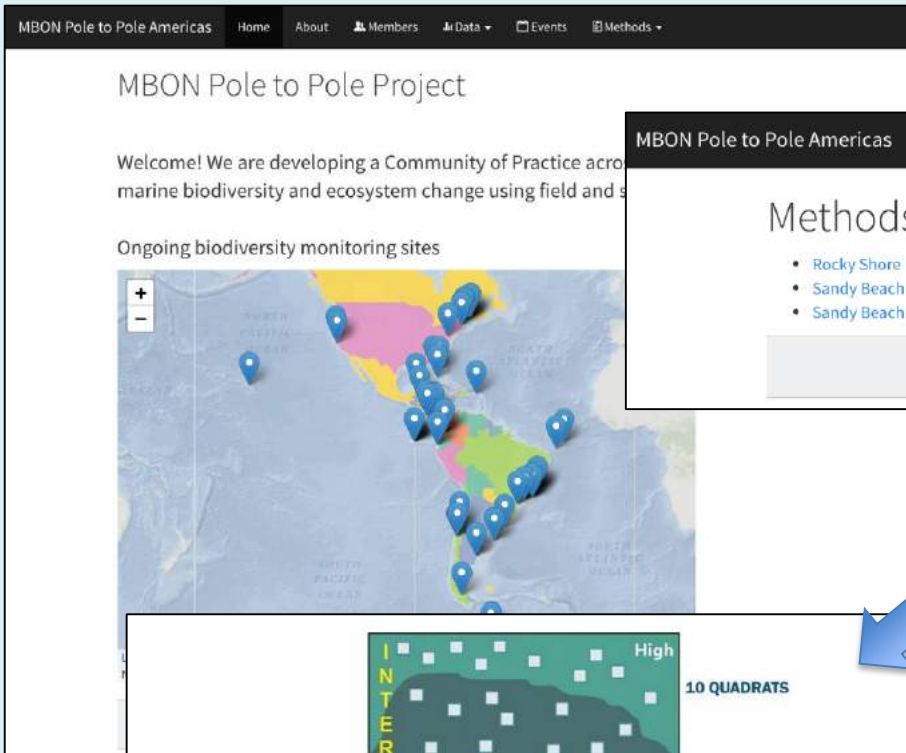
occurrenceID	eventID	eventDate	country	locality	site	strata	pictureID	replicateID
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Time series data of seascape area per class at monitoring sites

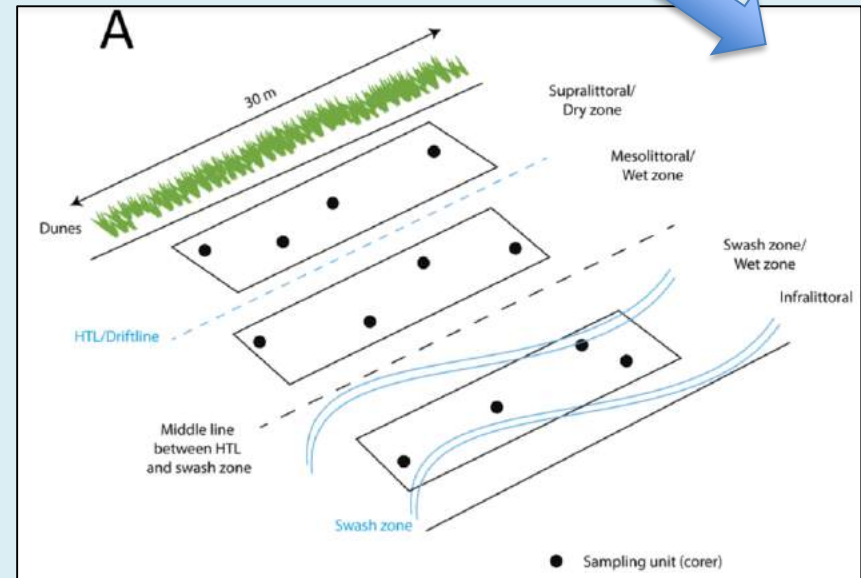
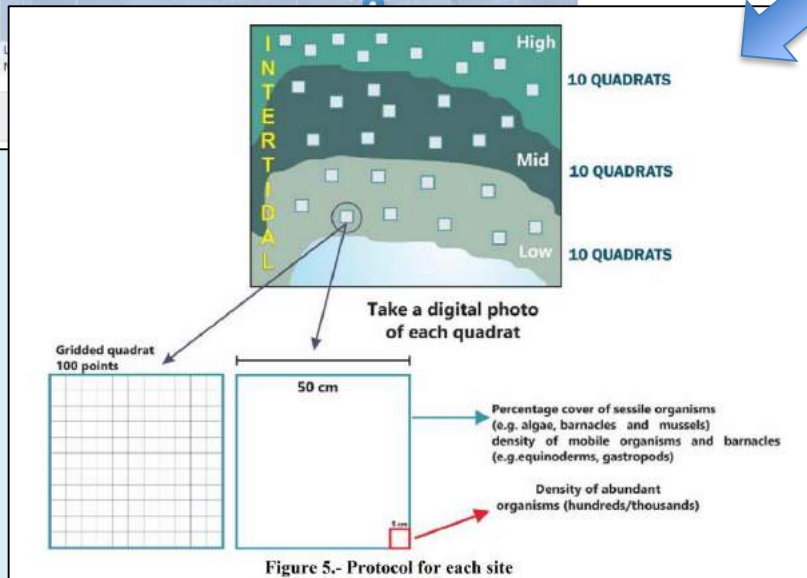


Outputs: standard field protocols



Rocky shores

Sandy beaches



Outputs: HOW TO data quality check WoRMS



A screenshot of the WoRMS Taxon match tool interface. The page title is 'WoRMS Taxon match'. Below the title, there is a brief description of the tool's purpose. The main section contains a 'File' upload area with a 'Choose File' button and a 'No file chosen' status. Below this, there are settings for 'Row delimiter' (set to 'Linefeed (LF)'), 'Column delimiter' (set to 'Tab'), and 'Match authority' (set to 'ScientificName'). There is also a 'Limit to' field and a 'Match upto' dropdown. At the bottom, there are checkboxes for 'Output' (AphiaID, LSID, TSN, ScientificName, Authority, Accepted name, Classification, Quality) and a 'Next >' button.

A screenshot of the WoRMS Taxon match tool showing a match preview. The page title is 'WoRMS Taxon match'. Below the title, there is a 'Match preview for the file 'spplist.csv' - matching: 100% [new match]' section. Below this, there is a table of matches. The table has two columns: the first column lists the taxa from the input file, and the second column lists the corresponding WoRMS taxa. The matches are as follows:

Input Taxon	Matched WoRMS Taxon
Chiton stokesii	Chiton stokesii Broderip, 1832
Ischnochiton dispar	Ischnochiton dispar (Sowerby in Broderip & Sowerby, 1832)
Axiidae sp.	Axiidae Huxley, 1879
Calcinus obscurus	Calcinus obscurus Stimpson, 1859
Eriphia squamata	Eriphia squamata Stimpson, 1860
Mithraculus denticulatus	Mithraculus denticulatus (Bell, 1836)
Uca sp. 1	Uca Leach, 1814 [exact]
Uca sp. 2	Uca Leach, 1814 [exact]
Chthamalus panamensis	Chthamalus panamensis Pilsbry, 1916
Tetracita squamosa panamensis	Tetracita squamosa panamensis Pilsbry, 1916
Holothuria (Selenothuria) portovallartensis	Holothuria (Selenothuria) portovallartensis Caso, 1954
Holothuria sp.	Holothuria Linnaeus, 1767 [exact]
Ophiactis savignyi	(ambiguous - select below)
Ophiocoma aethiops	Holothuria Linnaeus, 1767 [exact]
Ophiocometella alexandri	Holothuria Linnaeus, 1767 [exact]
Ophioneis annulata	Holothuria Linnaeus, 1758 accepted as Physalia Lamarck, 1801 [exact]

At the bottom of the page, there are checkboxes for 'Excel sheet (XLS)', 'Excel sheet (XLSX)', 'Text file', and 'SGML'. Below these, there are '< Back' and 'Download' buttons.

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 Associated 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

 **GBIF** INTEGRATED PUBLISHING TOOLKIT (IPT)

free and open access to biodiversity data

Logged in as [admin@gbif.org](#) | [Account](#) | [Logout](#) | [ENGLISH](#)

Home

Manage Resources

Administration

About

Overview: [test_p2p](#)

This is the overview page for the test_p2p resource.

Source Data

Your source data files and SQL sources for generating a Darwin Core Archive.

Browse...

No file selected.

Connect to database

Clear

Darwin Core Mappings

Your mapping between the source data and Darwin Core terms.

Metadata

Your resource metadata.

Edit

Published Versions

A preview of your pending published version compared with the current version if existing.

Version

Pending version

1.0

Preview

Visibility

Private

Data Licence

Published on

Auto-publishing

Select interval

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", progress = TRUE)
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

 **GBIF** INTEGRATED PUBLISHING TOOLKIT (IPT)
free and open access to biodiversity data

[ENGLISH](#)

[Home](#) [About](#)

Hosted resources available through this IPT

Filter:

Logo	Name	Organisation	Type	Subtype	Records	Last modified	Last publication	Next publication
--	MBON POLE TO POLE: SANDY BEACH BIODIVERSITY OF YUCATAN COAST	Caribbean OBIS Node	Sampling event	--	225	2019-05-10	2019-05-10	--

Showing 1 to 1 of 1

◀ previous next ▶



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

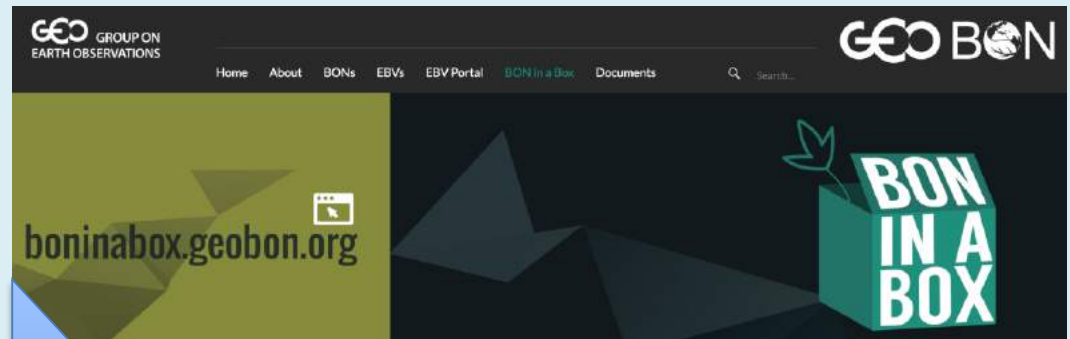
Updated 2019-05-15 10:14

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)

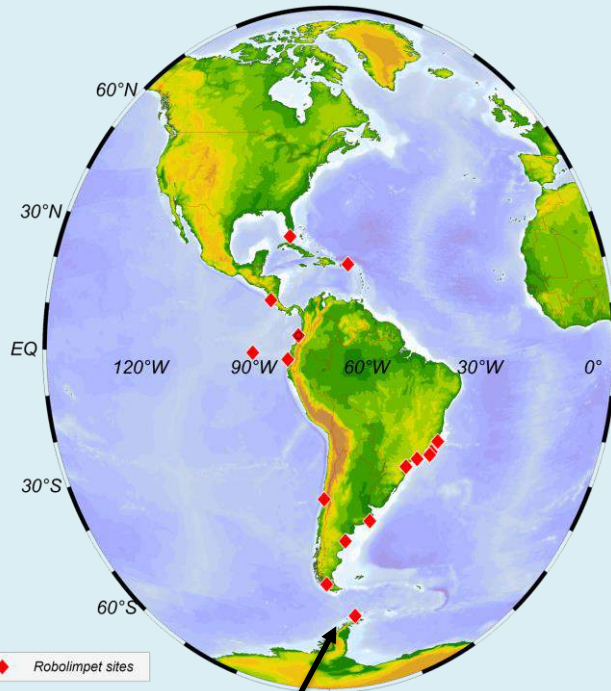
Citation Guerra-Castro E (2019): MBON POLE TO POLE: SANDY BEACH BIODIVERSITY OF YUCATAN COAST. v1.2. Caribbean OBIS Node. Dataset/Samplingevent.
http://ipt.iobis.org/mbon/resource?r=yucatan_sandybeach2018&v=1.2

MBON Pole to Pole handbook tools

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



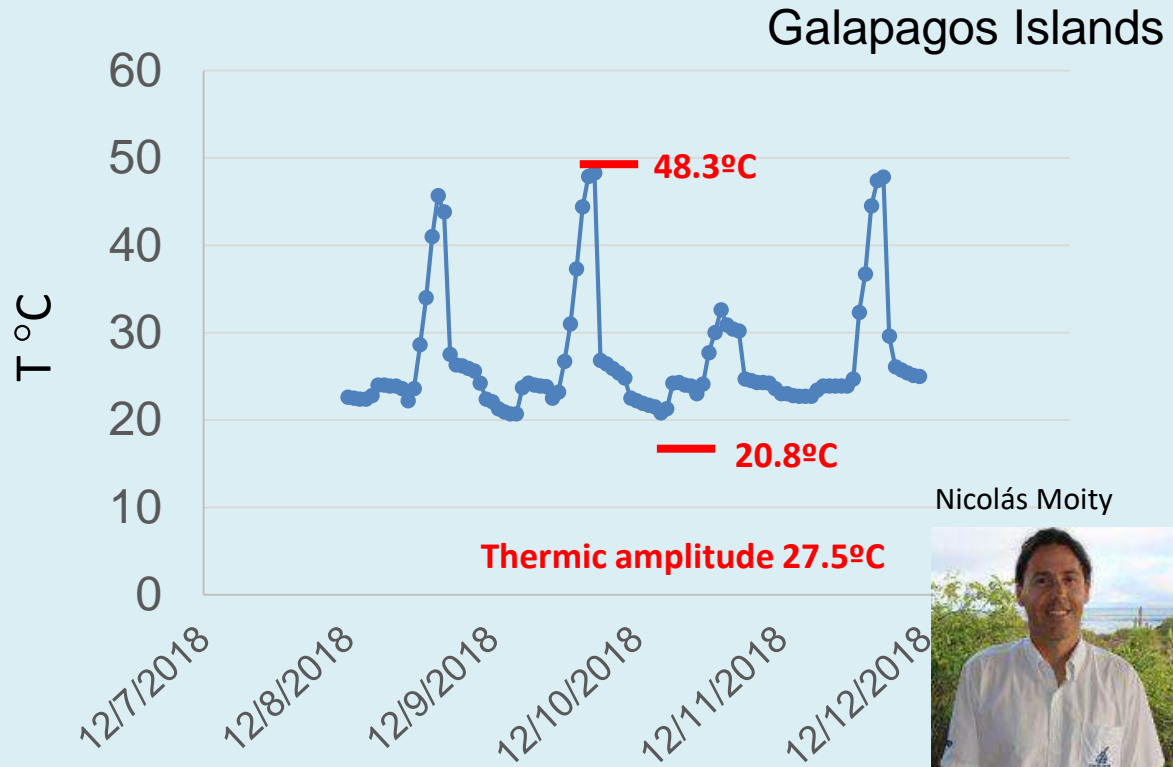
EnvLoggers network (temperature)



Antarctica



Erasmus Macaya



Nicolás Moity



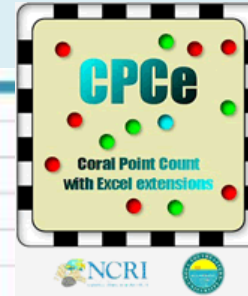
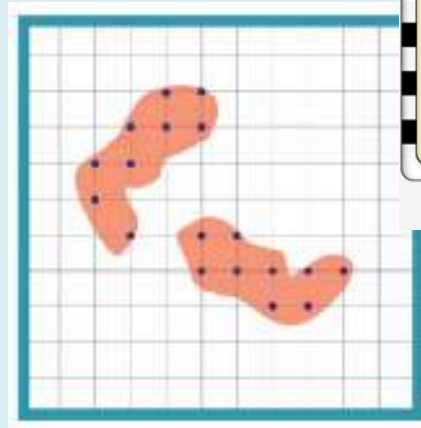
Photo-quadrat versus visual intercept records

Photoquadrats



VS

visual



nMDS

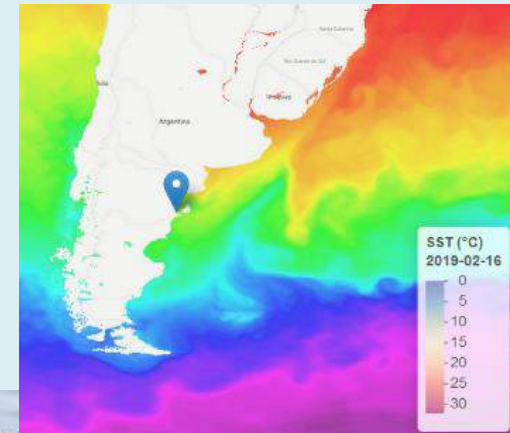
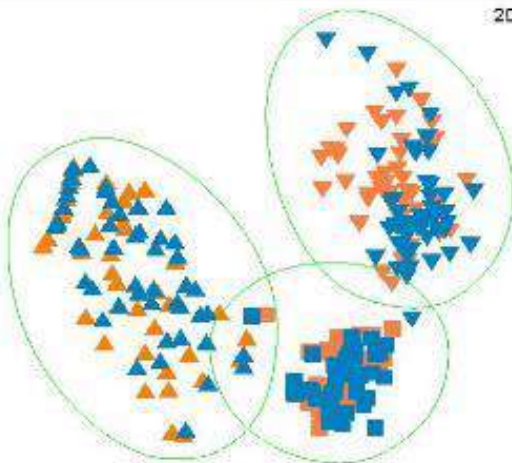
Transform: Square root
Resemblance: S17 Bray Curtis similarity (+d)

2D Stress: 0.14

Method Tidal Height

▲ PHOTOHIGH
■ PHOTOMID
▼ PHOTOLOW
▲ QUADRATHIGH
■ QUADRATMID
▼ QUADRATLOW

Similarity
42



Gregorio Bigatti – IBIOMAR-CONICET

MBON Pole to Pole species catalogs on iNaturalist

[Explore](#)
[Your Observations](#)
[Community](#)
[Identify](#)
[More](#)

Would you prefer to view common names used in the United States? [Yes](#) [No](#)

[Guides](#) / [Rocky Shore Species of the Americas](#)

Rocky Shore Species of the Americas

[Offline access enabled!](#)
[Print](#)

This is a curated list of species that occurs in rocky shores across the Americas as part of the Marine Biodiversity Observation Network Pole to Pole project (<https://marinebon.github.io/p2p/>), funded by NASA and NOAA.

[All](#)
157

TAXONOMY

[Animals](#)
122

[Kingdoms, Phyla, and Classes](#)
34

[Plants](#)
1

[Sort](#)
[Grid](#)
[Card](#)

*Acanthis brevidentata*¹

*Acanthis canadensis*¹

*Acanthispiza spinifera*¹

*Acanthispiza echinata*¹

*Acrostrophia roscoffensis*¹

*Adenocystis utricularis*¹

*Anadyomene stollata*¹

Annelidopsis durvilliei

Annelidopsis furcellata

[Explore](#)
[Your Observations](#)
[Community](#)
[Identify](#)
[More](#)

[Guides](#) / [Sandy Beach Species of the Americas](#)

Sandy Beach Species of the Americas

This is a curated list of species that occurs in rocky shores across the Americas as part of the Marine Biodiversity Observation Network Pole to Pole project (<https://marinebon.github.io/p2p/>), funded by NASA and NOAA.

All

20

Sort

Grid

Card

TAXONOMY

Annelids
Phylum Annelida

2

Arthropods
Phylum Arthropoda

11

Molluscs
Phylum Mollusca

6

Alaba incerta

Aruga holmsti

Common Caribbean Damae¹
Damae demicostata

Pacific Sand Crab²
Emerita analoga

Puerto Rican Sand Crab³
Emerita portoricensis

Atlantic Sand Crab⁴
Emerita talpensis

Excrolana braziliensis

Excrolana mayana

*Lysianopsis alba*⁵

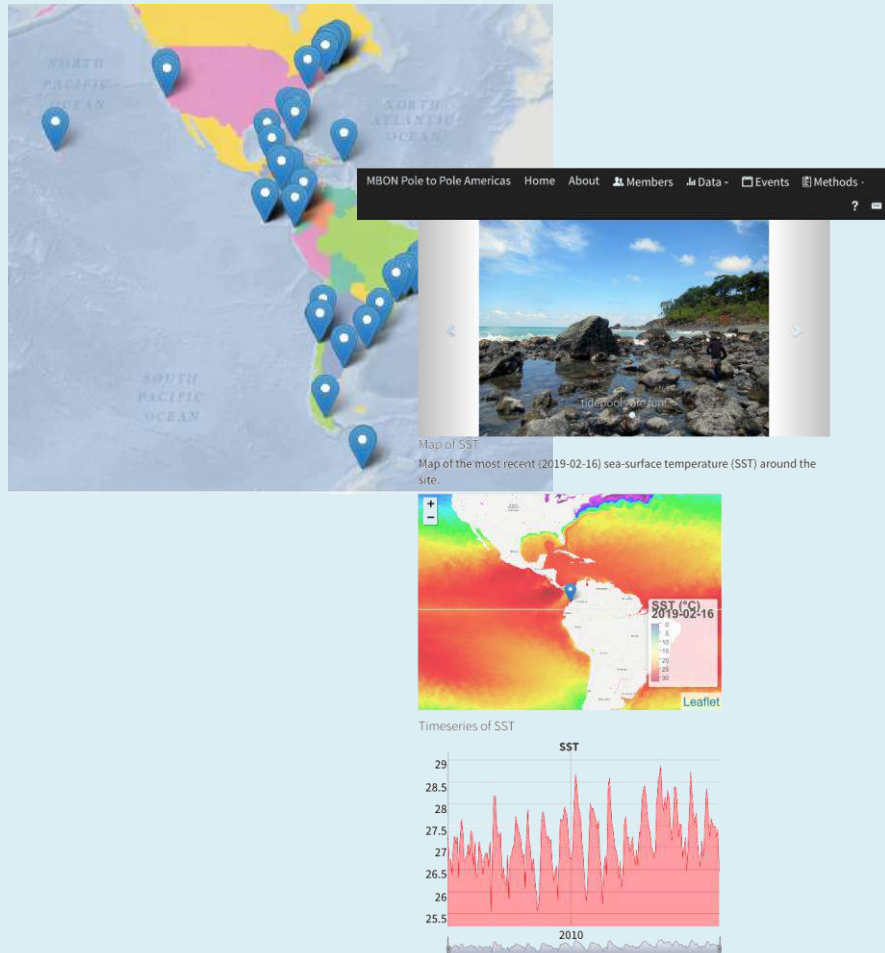
Meiocera nitidum

Mexorchestia carpenteri
*exilis*⁶

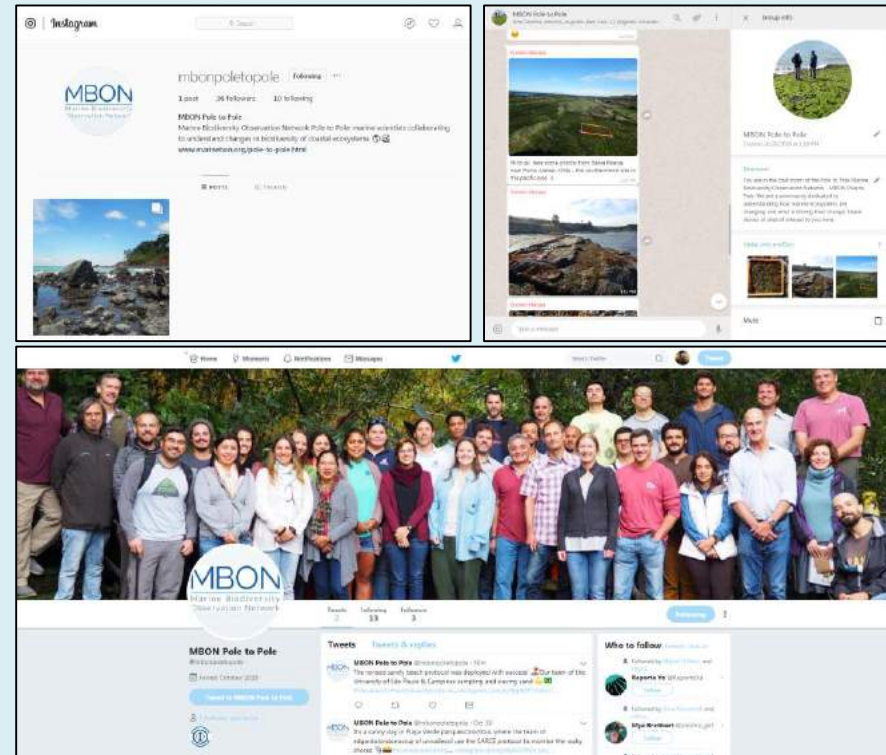
Biting Fiddler Crab³

Thank you!

Website



Follow us @mbonpoletopole



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