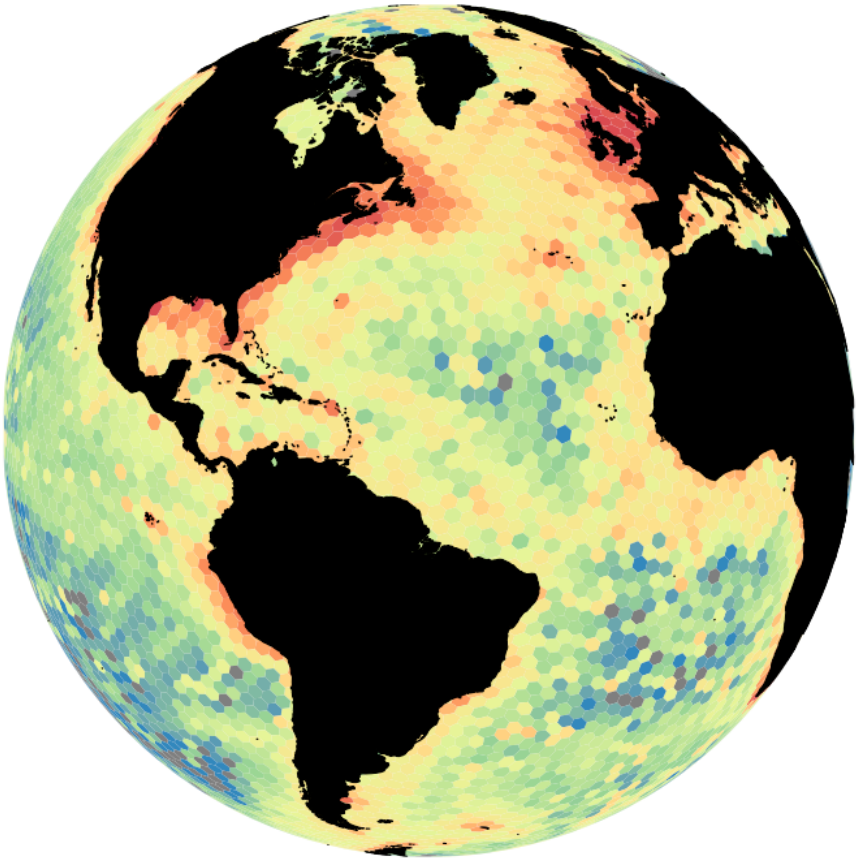


A global data sharing and clearinghouse for marine biodiversity data through the

Ocean Biogeographic Information System (OBIS)

Eduardo Klein
Sky Bristol
Ward Appeltans

OBIS
OCEAN BIOGEOGRAPHIC INFORMATION SYSTEM

UNESCO
United Nations Educational, Scientific and Cultural Organization

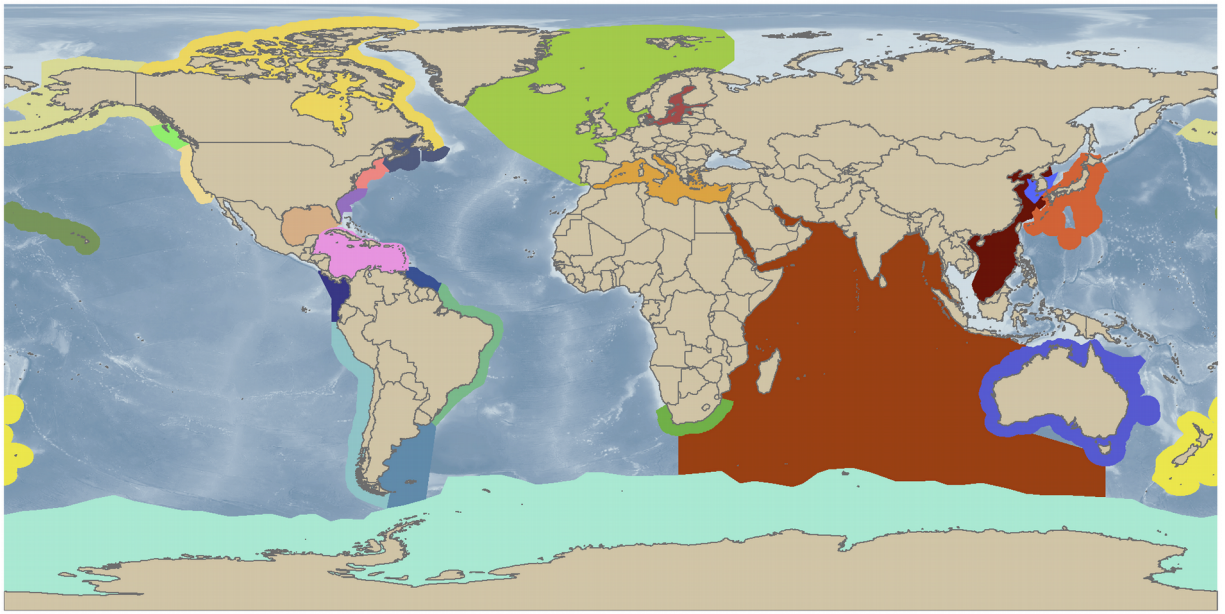
Intergovernmental Oceanographic Commission

A brief history of OBIS...

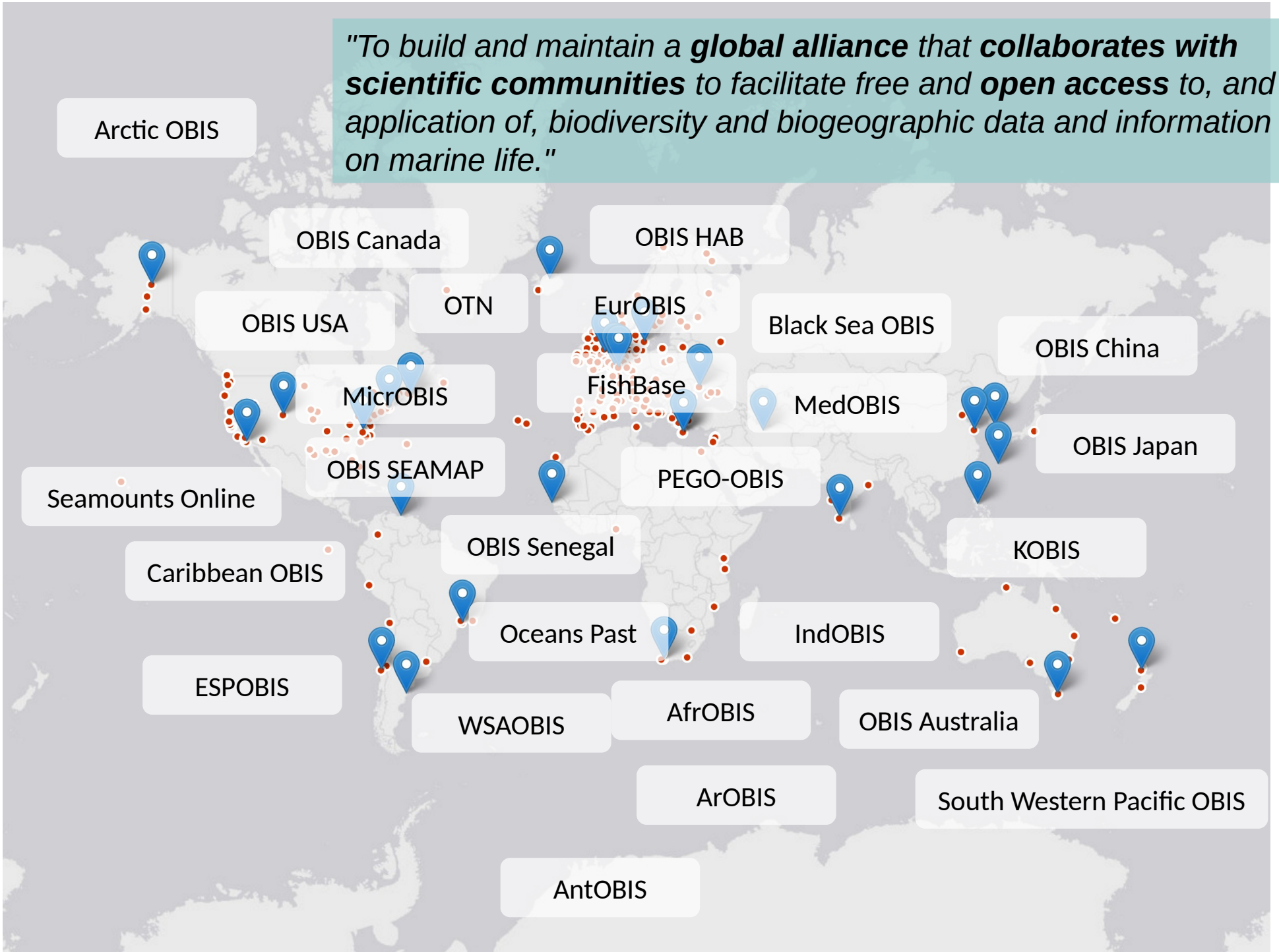
2000-2010: OBIS was created as data repository and information dissemination for the 16 projects of the CoML and the regional committees.

2009: the project was adopted by the IOC-UNESCO under the IODE programme (IOC Resolution XXV-4)

2011: the Secretariat and iOBIS was moved from Ruttgers University to Oostende, Belgium

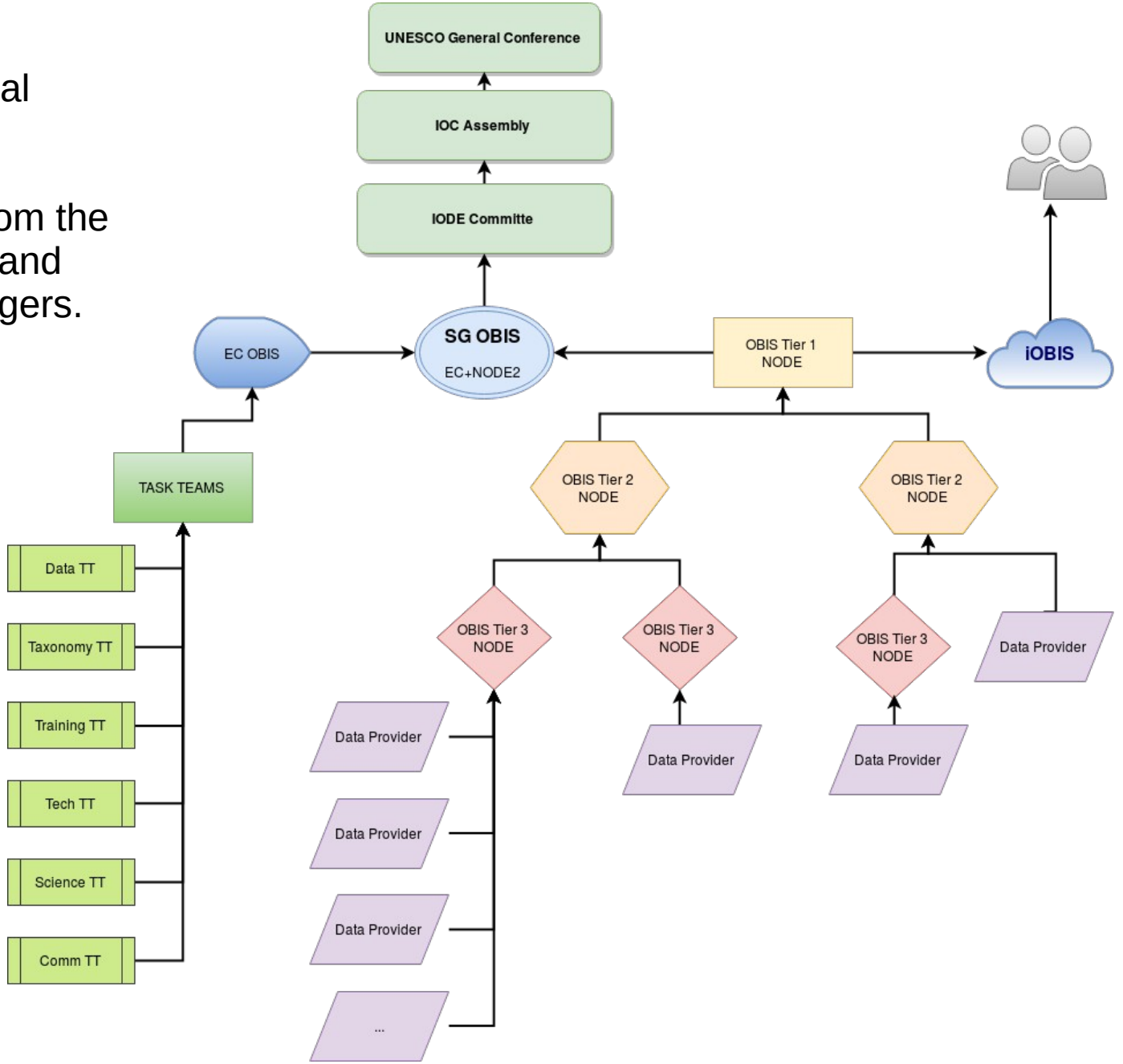


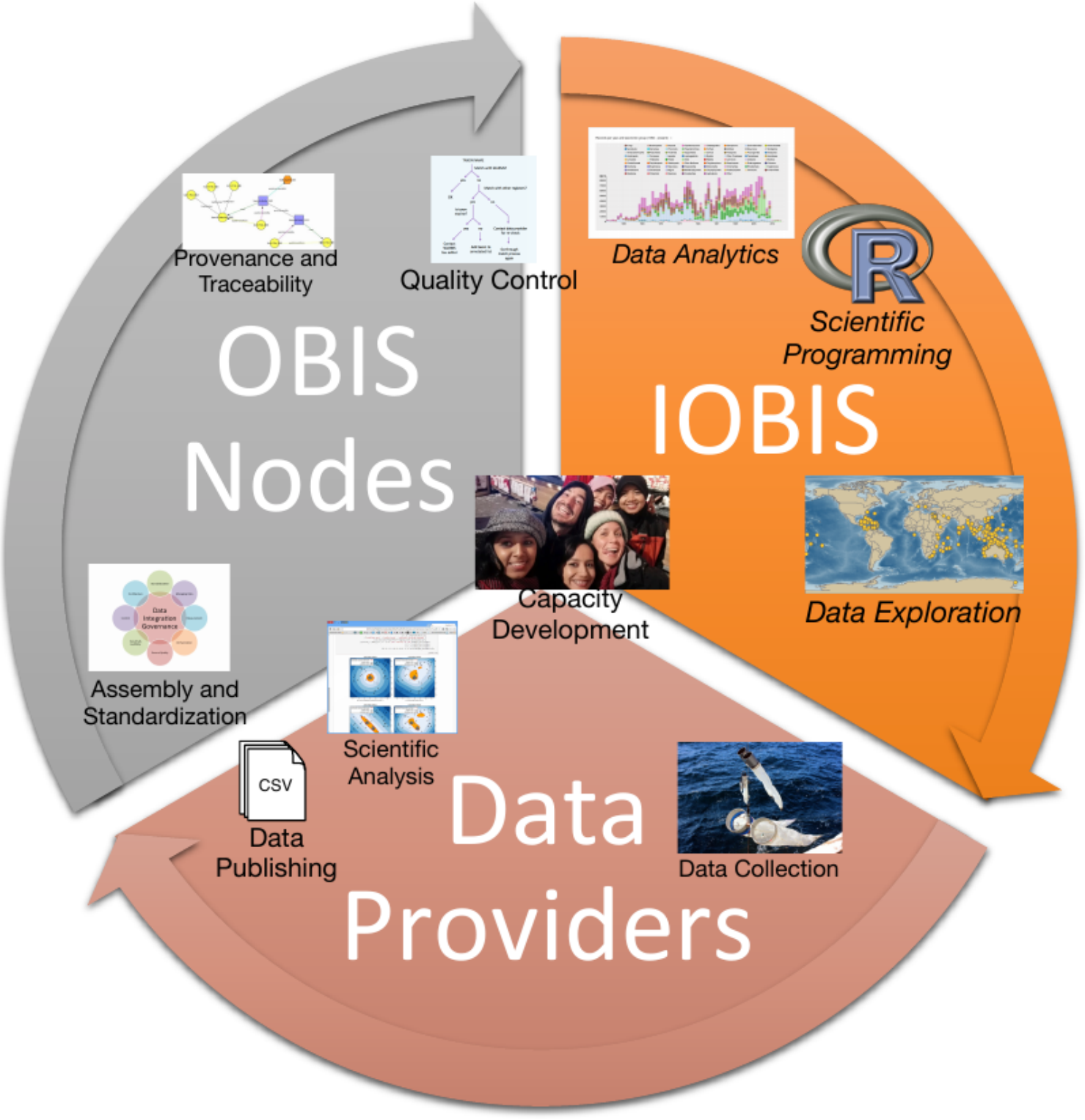
CENSUS OF MARINE LIFE


"To build and maintain a **global alliance** that **collaborates with scientific communities** to facilitate free and **open access** to, and application of, biodiversity and biogeographic data and information on marine life."
Arctic OBIS
OBIS Canada
OBIS HAB
OBIS USA
OTN
EurOBIS
Black Sea OBIS
OBIS China
MicrOBIS
FishBase
MedOBIS
OBIS Japan
OBIS SEAMAP
PEGO-OBIS
Seamounts Online
OBIS Senegal
KOBIS
Caribbean OBIS
Oceans Past
IndOBIS
ESPOBIS
WSAOBIS
AfrOBIS
OBIS Australia
ArOBIS
South Western Pacific OBIS
AntOBIS

OBIS has a hierarchical structure.

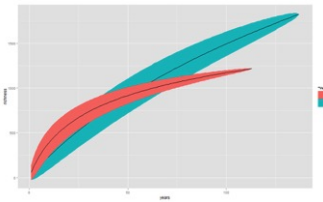
Governance comes from the Executive Committee and Nodes (TIER 2) Managers.

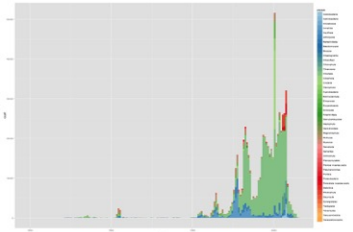



Provenance and Traceability
Quality Control
Data Analytics
Scientific Programming
OBIS Nodes
IOBIS
Capacity Development
Data Exploration
Assembly and Standardization
Scientific Analysis
CSV
Data Publishing
Data Collection
Data Providers

Capacity Development

Data cleaning
Data formatting
Data publication
Data access
Data visualization
Data analysis

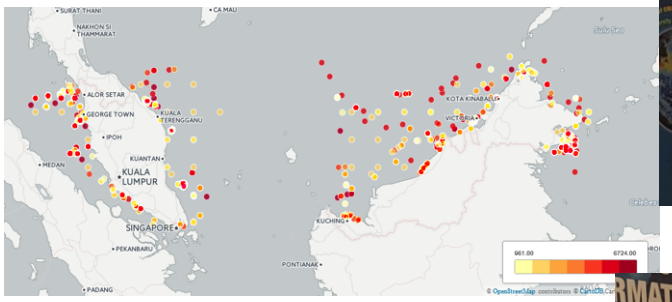




Tanzania

Ukraine

Mexico



Malaysia

USA

Malaysia

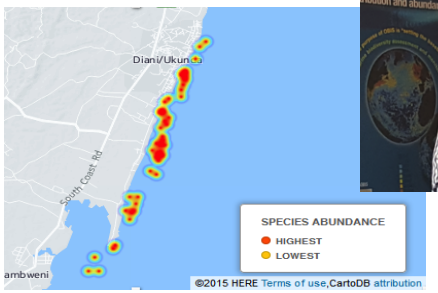
Indonesia

South Africa

Colombia

Venezuela

Argentina

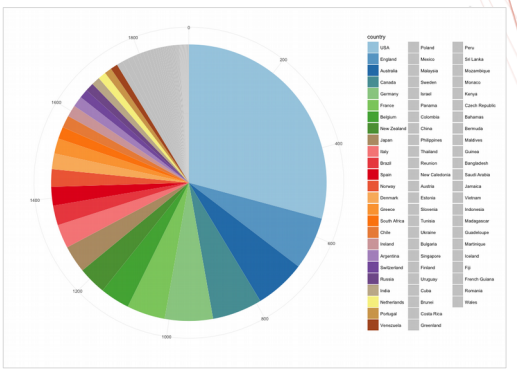


Kenya

Connecting People

Scientists from 73 countries used OBIS in research publications

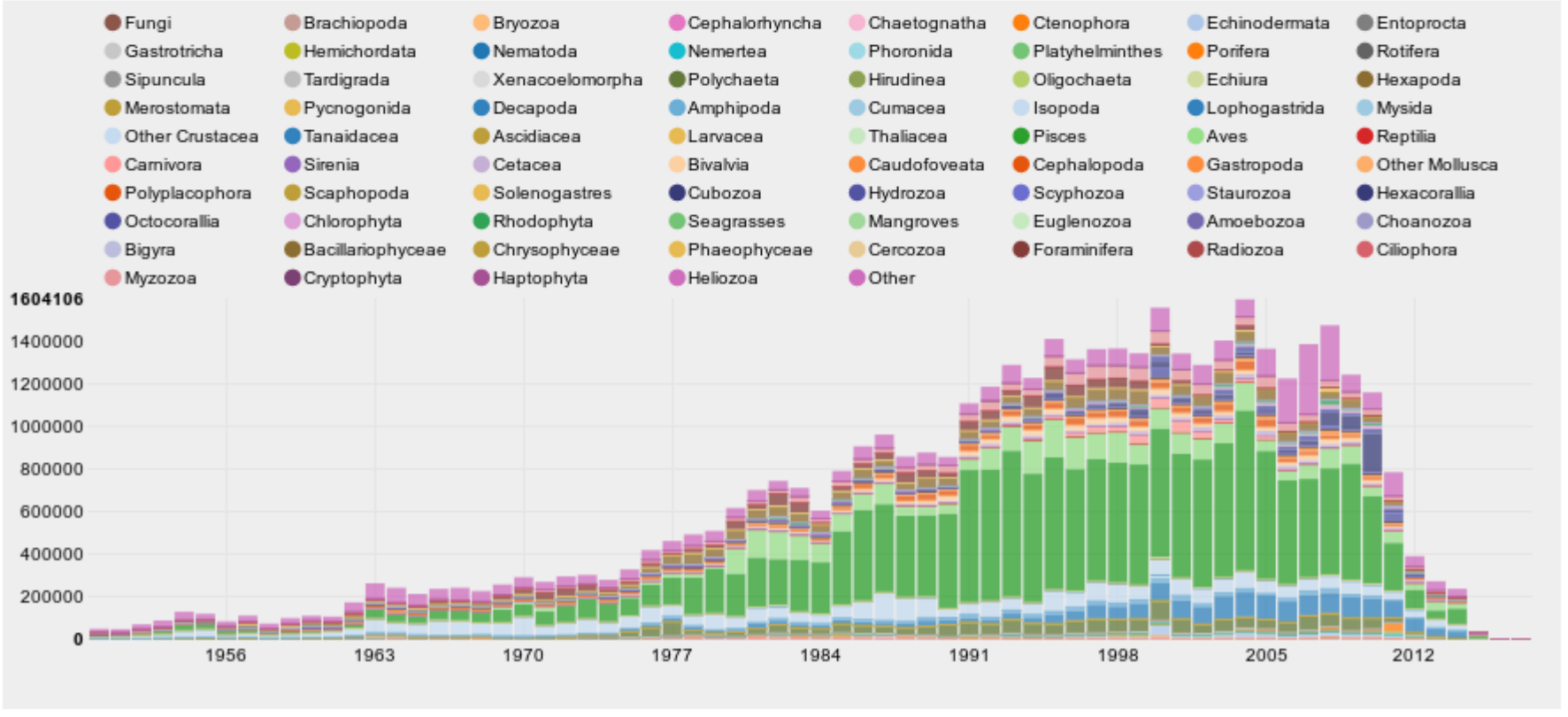
Connections of >500 co-authored papers citing OBIS (Web of Science)



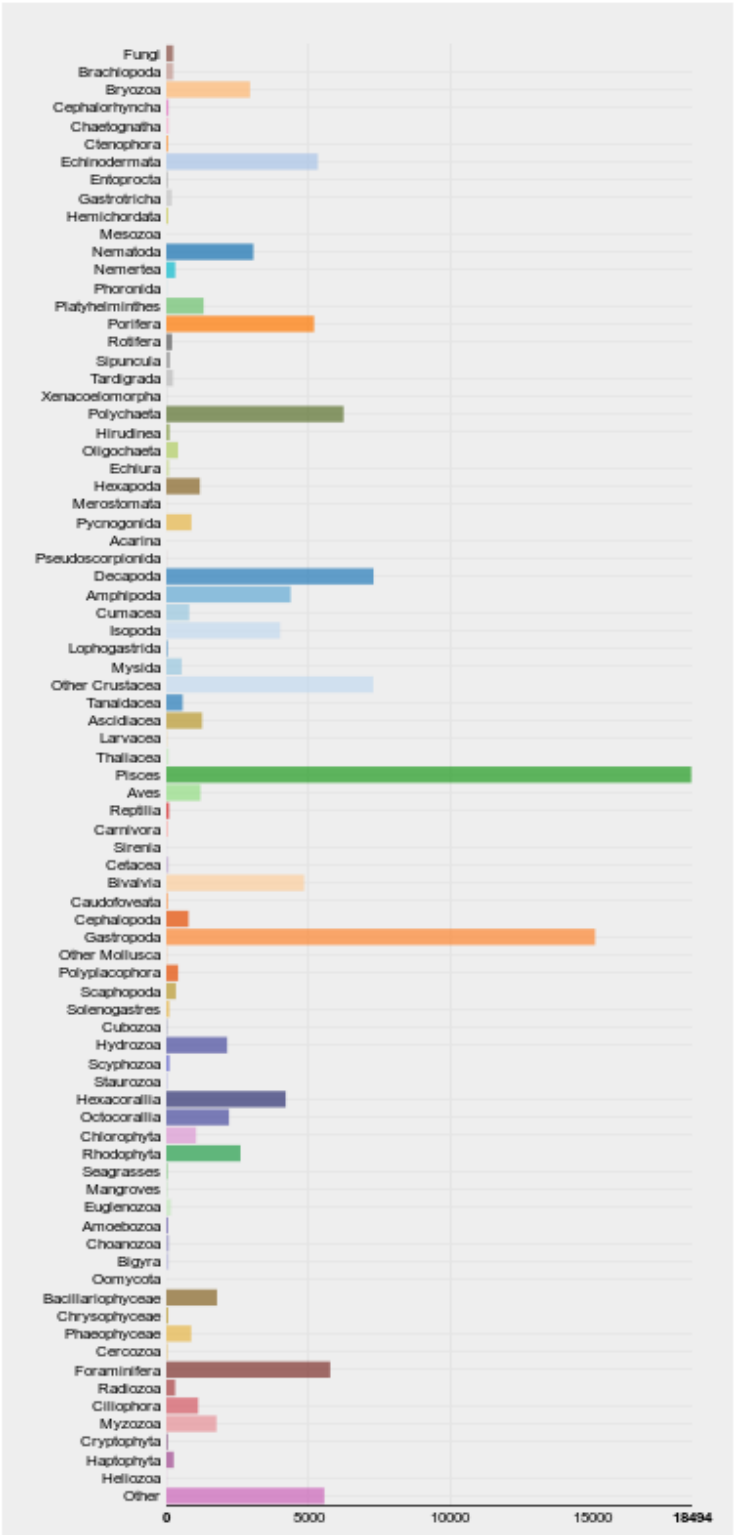
Overview

Records	47,777,791	
Datasets	2,182	
Contributing institutes	596	
Taxa	151,921	
Species	107,230	
Red List species	10,495	
Invasive species	212	
Harmful microalgae	142	
Only observed here	114,100	

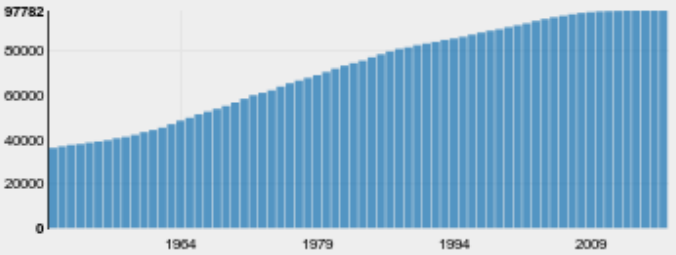
Records per year and taxonomic group (1950 - present)



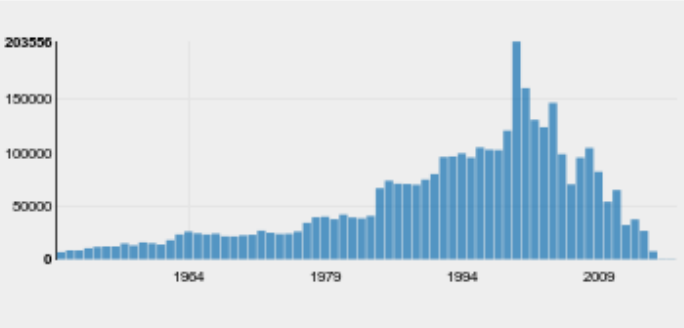
Species per taxonomic group



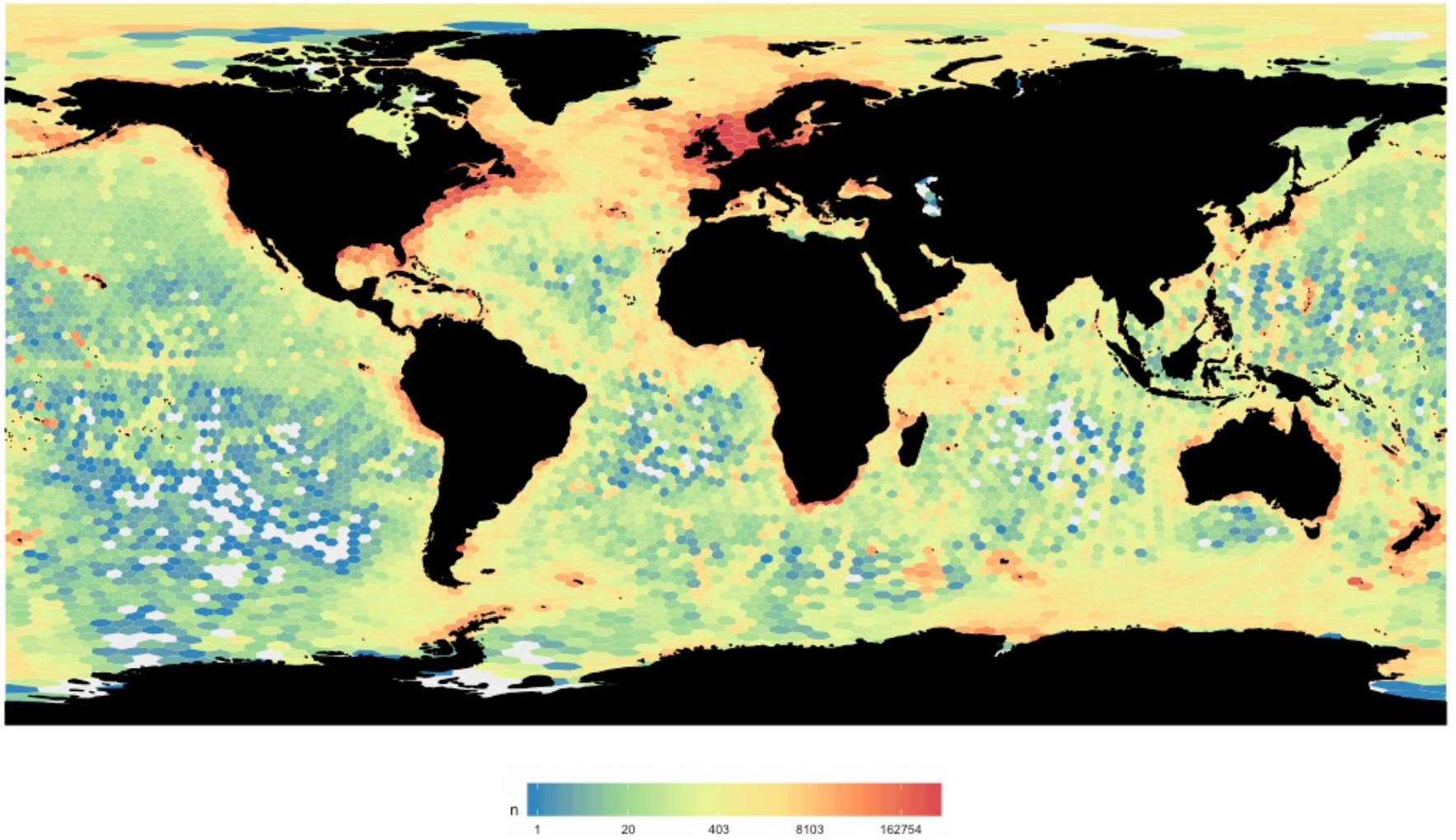
Species accumulation (1950 - present)



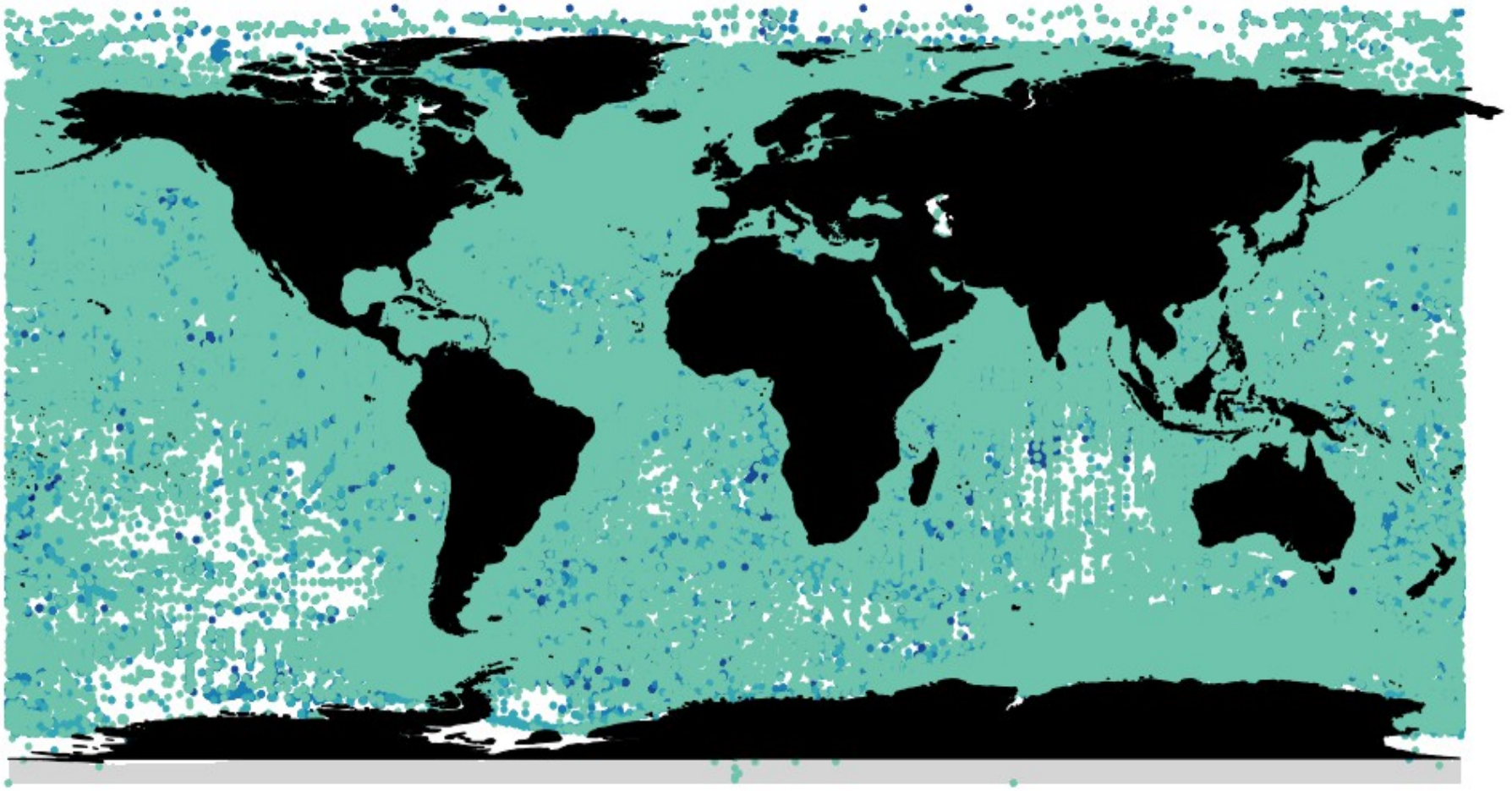
Sampling events (1950 - present)



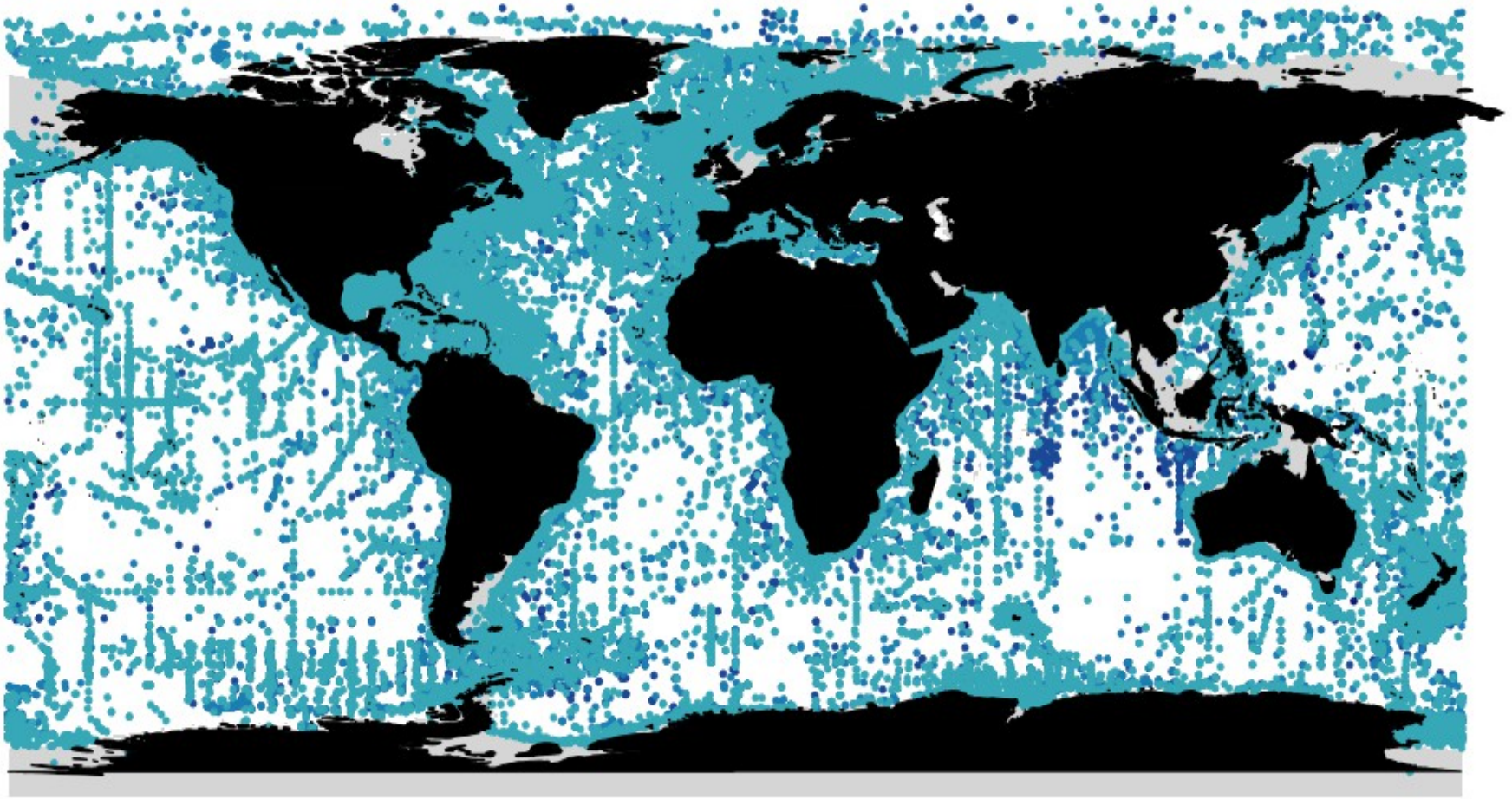
All OBIS records
47,000,000



all sampling locations
47,000,000

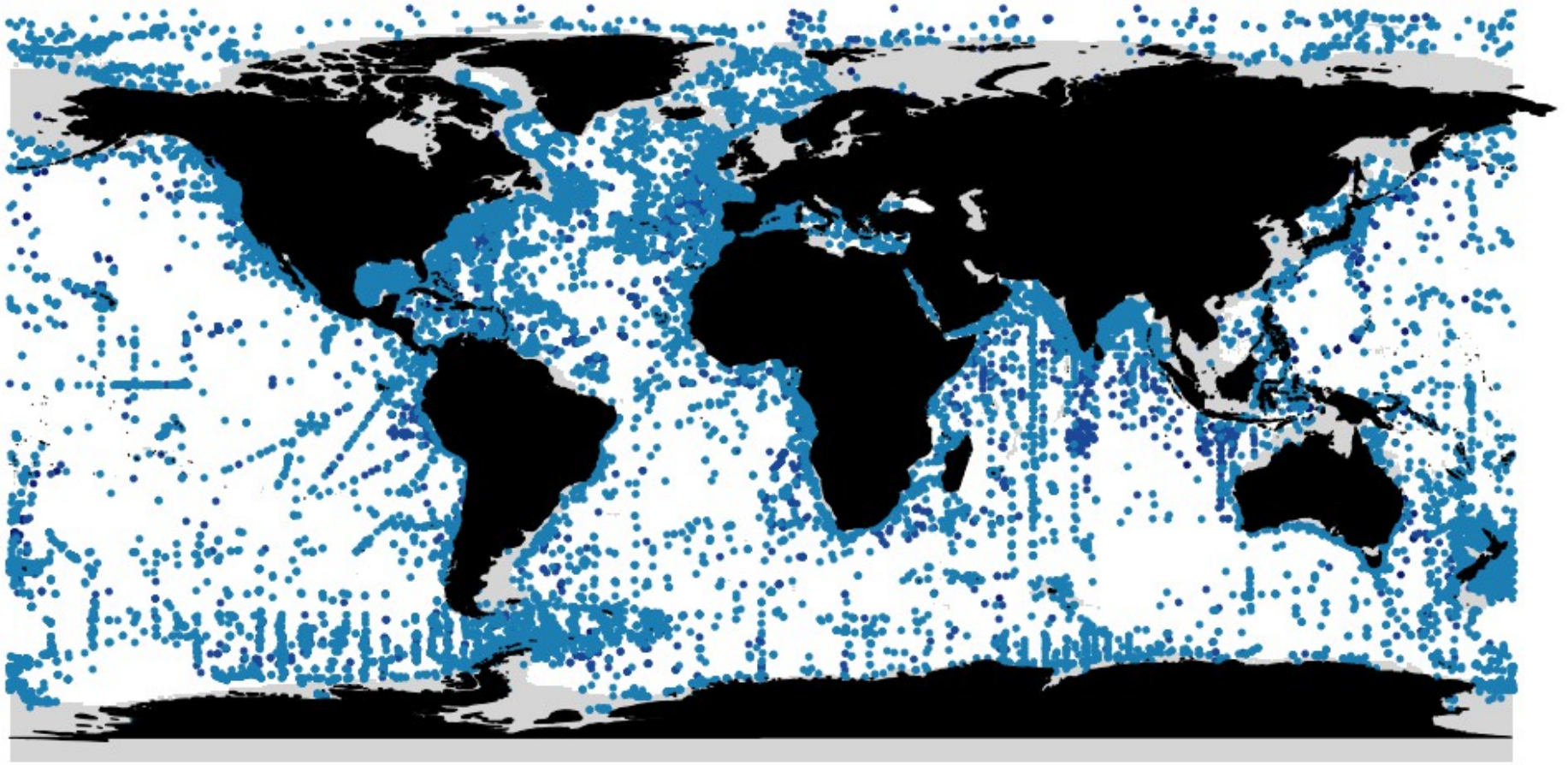


> 200 m depth
3,200,000



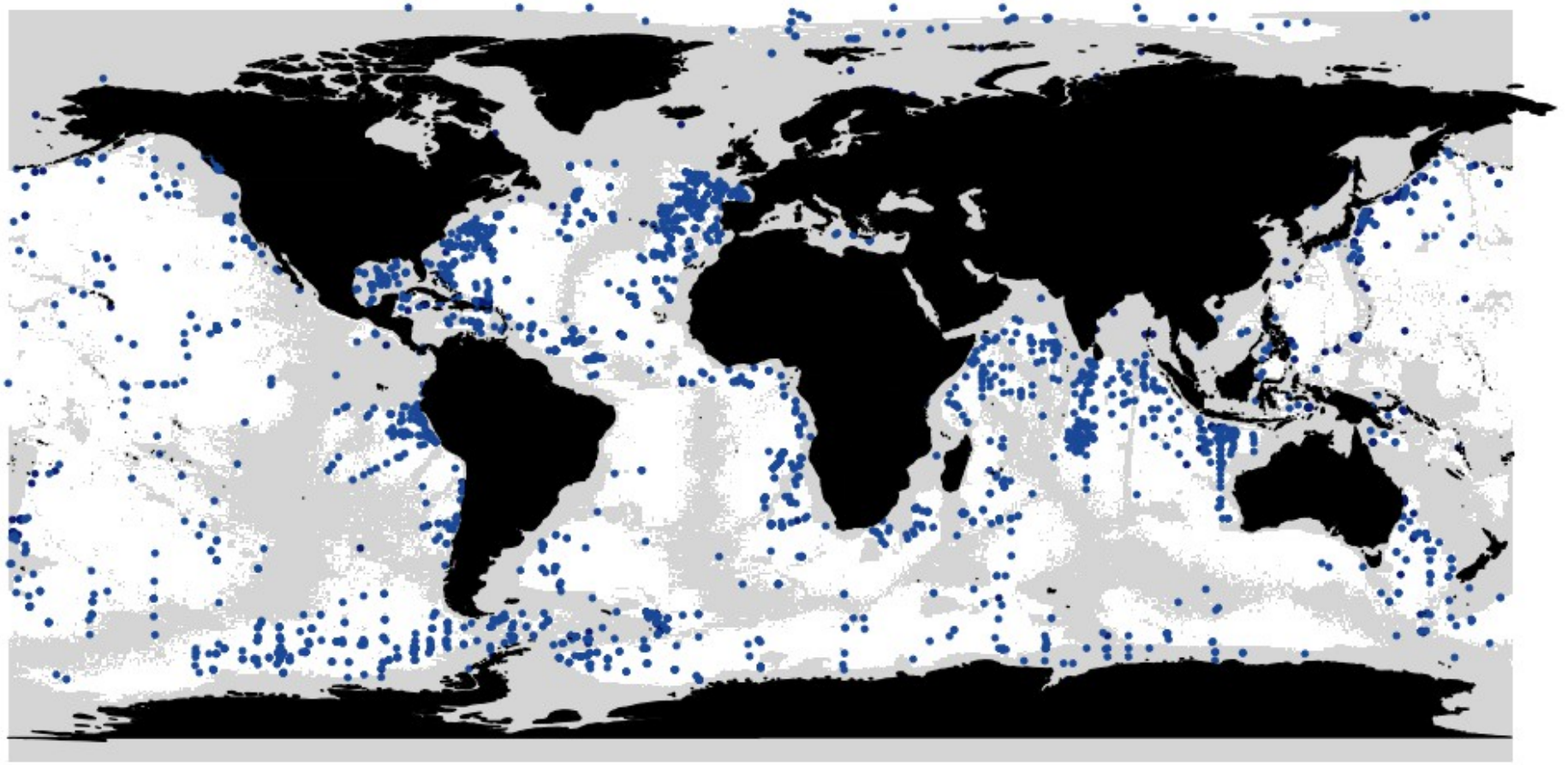
no depth information: **18,000,000**

> 1000 m depth
600,000



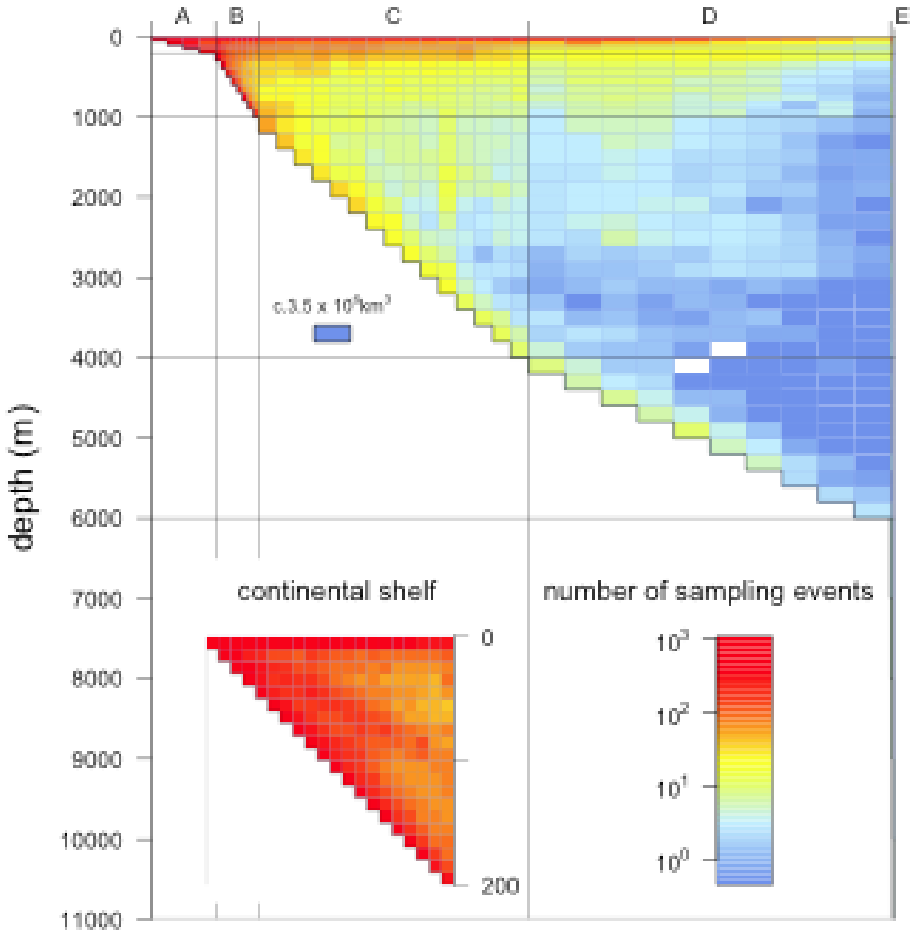
no depth information: **18,000,000**

> 4000 m depth
25,000



no depth information: **18,000,000**

Number of sampling days per depth volume



99% of ocean volume is still undersampled

Overview

Records	47,777,791
Datasets	2,182
Contributing institutes	596
Taxa	151,921
Species	107,230

Appeltans W., Dujardin F., Flavell M., Miloslavich P., Webb T. (2015). Biodiversity Baselines in the Global Ocean. In: Fischer A. et al (Eds). Open Ocean Technical Assessment Report for the GEF Transboundary Water Assessment Programme (TWAP). UNEP, IOC-UNESCO.

DATA standards

Biodiversity Information Standards TDWG

DATA

The Darwin Core is **body of standards**. It includes a **glossary of terms** (in other contexts these might be called properties, elements, fields, columns, attributes, or concepts) intended to **facilitate the sharing** of information about biological diversity by providing **reference definitions**, examples, and commentaries. The Darwin Core is primarily **based on taxa**, their occurrence in nature as documented by observations, specimens, samples, and related information.

META DATA

Ecological Metadata Language (EML) is a **metadata specification** developed by the ecology discipline and for the ecology discipline.

Modularity, Detailed Structure, Compatibility, Strong Typing

Data QC

Database (Oxford). 2015 Jan 28;2015. pii: bau125. doi: 10.1093/database/bau125. Print 2015.

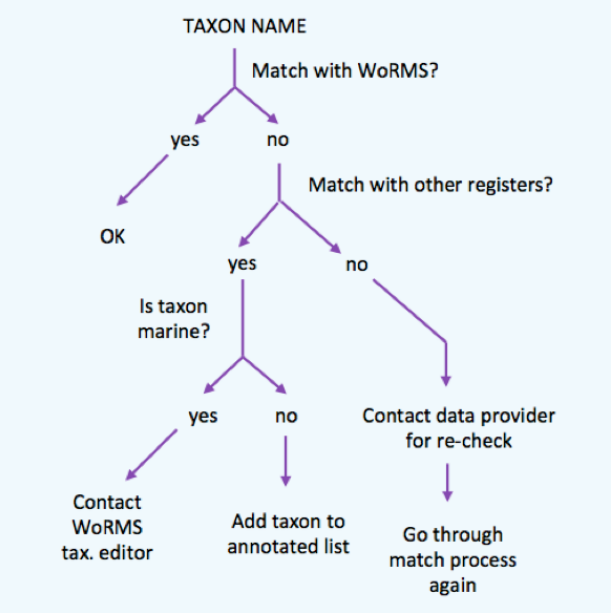
Fishing for data and sorting the catch: assessing the data quality, completeness and fitness for use of data in marine biogeographic databases.

Vandepitte L[1], Bosch S[2], Tyberghein L[3], Waumans F[3], Vanhoorne B[3], Hernandez F[3], De Clerck O[3], Mees J[3].

Author information

Abstract

Being able to assess the quality and level of completeness of data has become indispensable in marine biodiversity research, especially when dealing with large databases that typically compile data from a variety of sources. Very few integrated databases offer quality flags on the level of the individual record, making it hard for users to easily extract the data that are fit for their specific purposes. This article describes the different steps that were developed to analyse the quality and completeness of the distribution records within the European and international Ocean Biogeographic Information Systems (EurOBIS and OBIS). Records are checked on data format, completeness and validity of information, quality and detail of the used taxonomy and geographic indications and whether or not the record is a putative outlier. The corresponding quality control (QC) flags will not only help users with their data selection, they will also help the data management team and the data custodians to identify possible gaps and errors in the submitted data, providing scope to improve data quality. The results of these quality control procedures are as of now available on both the EurOBIS and OBIS databases. Through the Biology portal of the European Marine Observation and Data Network (EMODnet Biology), a subset of EurOBIS records--passing a specific combination of these QC steps--is offered to the users. In the future, EMODnet Biology will offer a wide range of filter options through its portal, allowing users to make specific selections themselves. Through LifeWatch, users can already upload their own data and check them against a selection of the here described quality control procedures. Database URL: www.eurobis.org (www.iobis.org; www.emodnet-biology.eu/).



WoRMS
World Register of Marine Species

Marineregions.org
towards a standard for georeferenced marine names

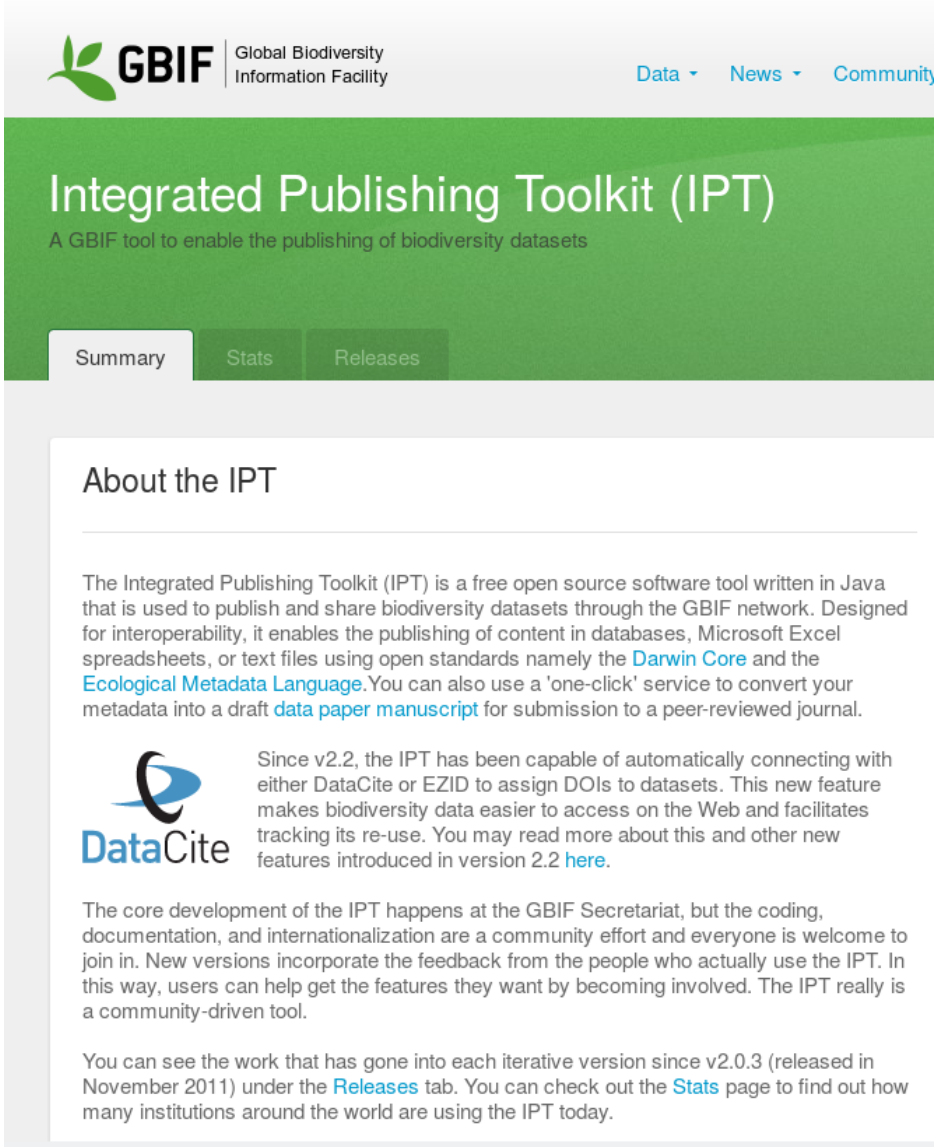
30 QC Flags

Taxonomy
Geography

OBIS nodes use IPT as a publishing tool

The IPT allows an easy translation from researcher data set to Darwin Core

IPT facilitates the upload of the metadata according to the EML



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

Logged in as eklein@usb.ve Account Logout ENGLISH

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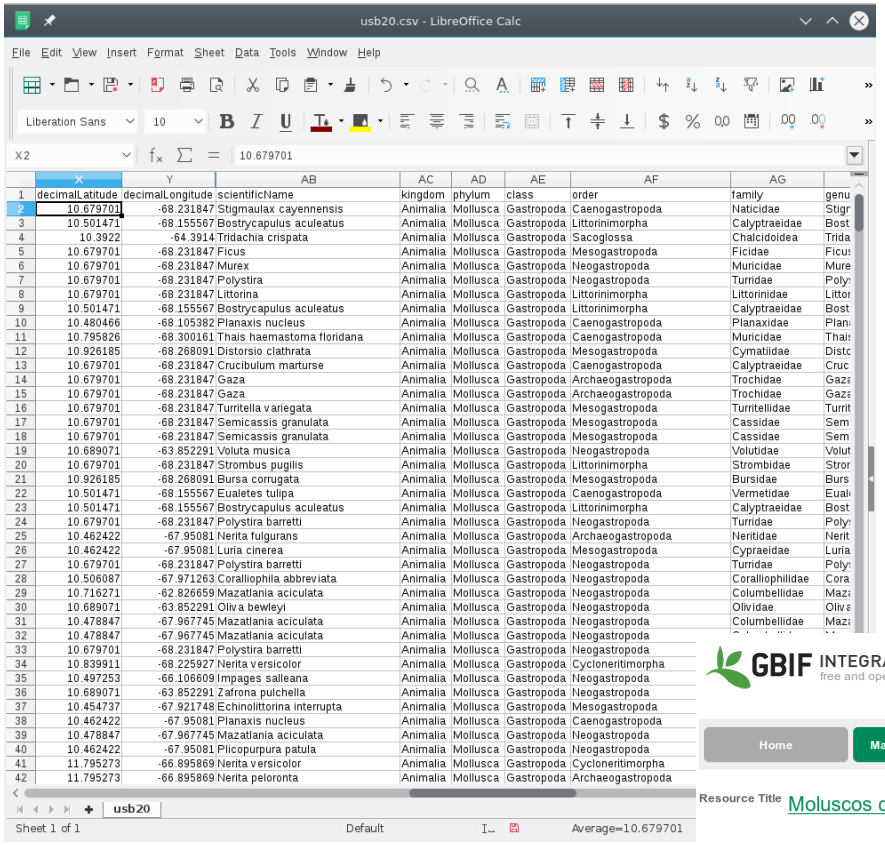
Resources you have rights to manage

Filter:

Name	Organisation	Type	Subtype	Records	Last modified	Last publication	Next publication	Visibility	Author
Moluscos del Museo de Ciencias Naturales de la Universidad Simón Bolivar	Not registered	Occurrence	--	586	2017-01-17	2014-07-22	--	Public	Cesar Paz
Crustaceos del Museo de Ciencias naturales de la Universidad Simón Bolívar	Not registered	Occurrence	--	7,638	2017-01-17	2014-07-22	--	Public	Cesar Paz
prueba	Not registered	Occurrence	--	0	2017-01-17	Not published	--	Private	Eduardo Klein
Echinoderms of Hispaniola Island	Not registered	Occurrence	--	185	2015-03-23	2015-03-23	--	Public	Cesar Paz
Pez león	Not registered	Occurrence	--	468	2015-02-18	2015-02-18	--	Public	Cesar Paz
Fishes from Madagascar Reef, Campeche Bank, México	Not registered	Occurrence	--	54	2015-01-29	2015-01-29	--	Public	Cesar Paz
Halophila stipulacea in the Caribbean Sea	Not registered	Occurrence	--	28	2015-01-28	2015-01-28	--	Public	Cesar Paz
NaGISA Project	Not registered	Occurrence	--	64,560	2014-11-04	2014-11-04	--	Public	Cesar Paz
Censo de biodiversidad marina Edo. Miranda	Not registered	Occurrence	--	1,391	2014-07-22	2014-07-22	--	Public	Cesar Paz



	X	Y	AB	AC	AD	AE	AF	AG
1	decimalLatitude	decimalLongitude	scientificName	kingdom	phylum	class	order	family
2	10.679701	-68.231847	Stigmaulax cayennensis	Animalia	Mollusca	Gastropoda	Caenogastropoda	Naticidae
3	10.501471	-68.155567	Bostrycapulus aculeatus	Animalia	Mollusca	Gastropoda	Littorinimorpha	Calyptraeidae
4	10.3922	-64.3914	Tridachia crispata	Animalia	Mollusca	Gastropoda	Sacoglossa	Chalcidoidea
5	10.679701	-68.231847	Ficus	Animalia	Mollusca	Gastropoda	Mesogastropoda	Ficidae
6	10.679701	-68.231847	Murex	Animalia	Mollusca	Gastropoda	Neogastropoda	Muricidae
7	10.679701	-68.231847	Polystira	Animalia	Mollusca	Gastropoda	Neogastropoda	Turridae
8	10.679701	-68.231847	Littorina	Animalia	Mollusca	Gastropoda	Littorinimorpha	Littorinidae
9	10.501471	-68.155567	Bostrycapulus aculeatus	Animalia	Mollusca	Gastropoda	Littorinimorpha	Calyptraeidae
10	10.480466	-68.105382	Planaxis nucleus	Animalia	Mollusca	Gastropoda	Caenogastropoda	Planaxidae
11	10.795826	-68.300161	Thais haemastoma floridana	Animalia	Mollusca	Gastropoda	Caenogastropoda	Muricidae
12	10.926185	-68.268091	Distorsio clathrata	Animalia	Mollusca	Gastropoda	Mesogastropoda	Cymatiidae
13	10.679701	-68.231847	Crucibulum marturse	Animalia	Mollusca	Gastropoda	Caenogastropoda	Calyptraeidae
14	10.679701	-68.231847	Gaza	Animalia	Mollusca	Gastropoda	Archaeogastropoda	Trochidae
15	10.679701	-68.231847	Gaza	Animalia	Mollusca	Gastropoda	Archaeogastropoda	Trochidae
16	10.679701	-68.231847	Turritella variegata	Animalia	Mollusca	Gastropoda	Mesogastropoda	Turritellidae
17	10.679701	-68.231847	Semicassis granulata	Animalia	Mollusca	Gastropoda	Mesogastropoda	Cassidae
18	10.679701	-68.231847	Semicassis granulata	Animalia	Mollusca	Gastropoda	Mesogastropoda	Cassidae
19	10.689071	-63.852291	Voluta musica	Animalia	Mollusca	Gastropoda	Neogastropoda	Volutidae
20	10.679701	-68.231847	Strombus pugilis	Animalia	Mollusca	Gastropoda	Littorinimorpha	Strombidae
21	10.926185	-68.268091	Bursa corrugata	Animalia	Mollusca	Gastropoda	Mesogastropoda	Bursidae
22	10.501471	-68.155567	Eualetes tulipa	Animalia	Mollusca	Gastropoda	Caenogastropoda	Vermetidae
23	10.501471	-68.155567	Bostrycapulus aculeatus	Animalia	Mollusca	Gastropoda	Littorinimorpha	Calyptraeidae
24	10.679701	-68.231847	Polystira barretti	Animalia	Mollusca	Gastropoda	Neogastropoda	Turridae
25	10.462422	-67.95081	Nerita fulgurans	Animalia	Mollusca	Gastropoda	Archaeogastropoda	Neritidae
26	10.462422	-67.95081	Luria cinerea	Animalia	Mollusca	Gastropoda	Mesogastropoda	Cypraeidae
27	10.679701	-68.231847	Polystira barretti	Animalia	Mollusca	Gastropoda	Neogastropoda	Turridae
28	10.506087	-67.971263	Coralliophila abbreviata	Animalia	Mollusca	Gastropoda	Neogastropoda	Coralliophilidae
29	10.716271	-62.826659	Mazatlania aciculata	Animalia	Mollusca	Gastropoda	Neogastropoda	Columbellidae
30	10.689071	-63.852291	Oliva bewleyi	Animalia	Mollusca	Gastropoda	Neogastropoda	Olividae
31	10.478847	-67.967745	Mazatlania aciculata	Animalia	Mollusca	Gastropoda	Neogastropoda	Columbellidae
32	10.478847	-67.967745	Mazatlania aciculata	Animalia	Mollusca	Gastropoda	Neogastropoda	
33	10.679701	-68.231847	Polystira barretti	Animalia	Mollusca	Gastropoda	Neogastropoda	
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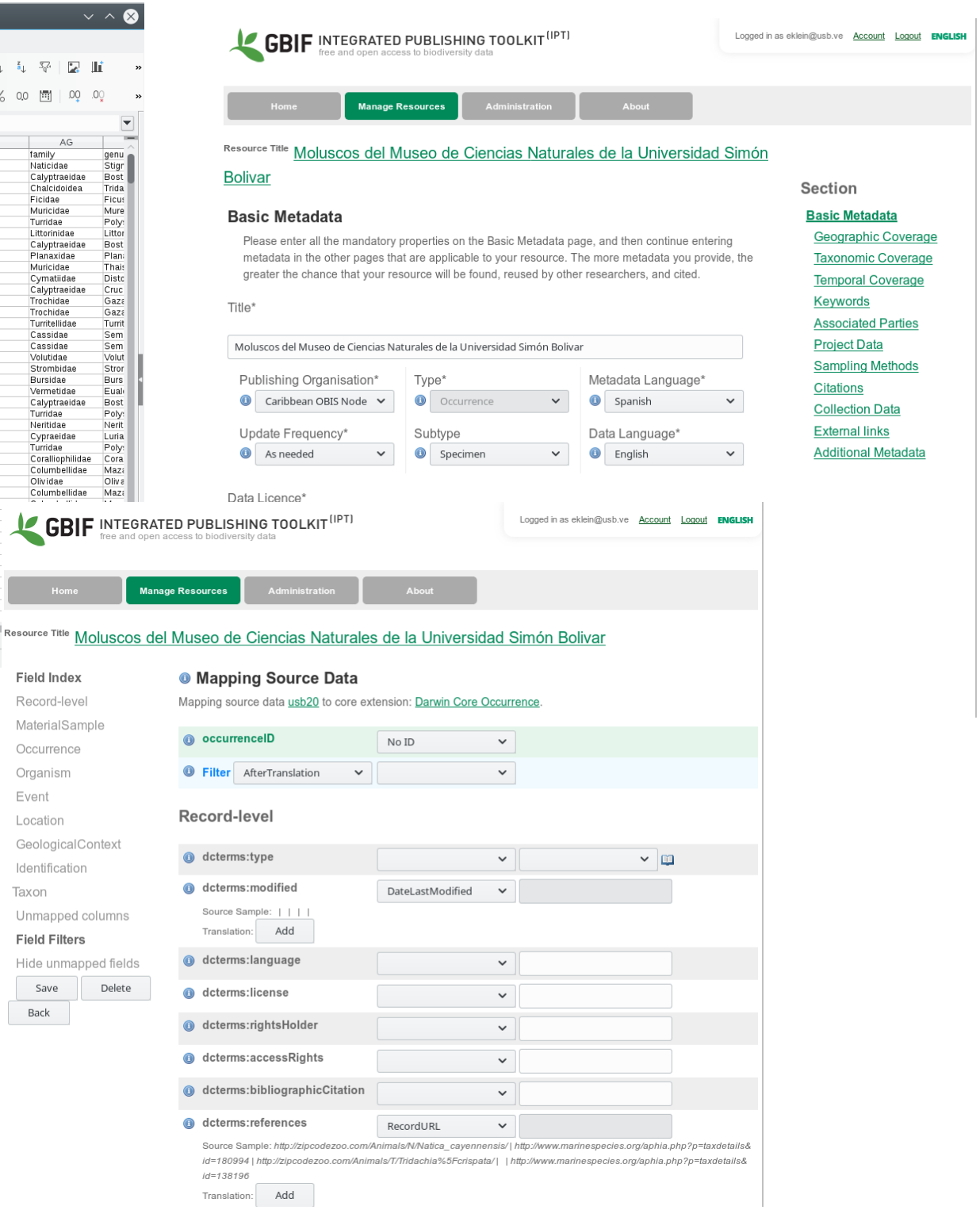
35	10.497253	-66.106609	Impages salleana	Animalia	Mollusca	Gastropoda	Neogastropoda	
36	10.689071	-63.852291	Zafrona pulchella	Animalia	Mollusca	Gastropoda	Neogastropoda	
37	10.454737	-67.921748	Echinolittorina interrupta	Animalia	Mollusca	Gastropoda	Mesogastropoda	
38	10.462422	-67.95081	Planaxis nucleus	Animalia	Mollusca	Gastropoda	Caenogastropoda	
39	10.478847	-67.967745	Mazatlania aciculata	Animalia	Mollusca	Gastropoda	Neogastropoda	
40	10.462422	-67.95081	Plicopurpura patula	Animalia	Mollusca	Gastropoda	Neogastropoda	
41	11.795273	-66.895869	Nerita versicolor	Animalia	Mollusca	Gastropoda	Cycloneritimorpha	
42	11.795273	-66.895869	Nerita peloronta	Animalia	Mollusca	Gastropoda	Archaeogastropoda	



Resource Title NaGISA Project

Source Data

Edit your source data format

Source Name

nagisa_project

Readable ✓
Columns 29

Analyze

Database System

PostgreSQL

Host

proteo.cbm.usb.ve

Database

nagisa

Database user

ipt

Database password

••••••••••••

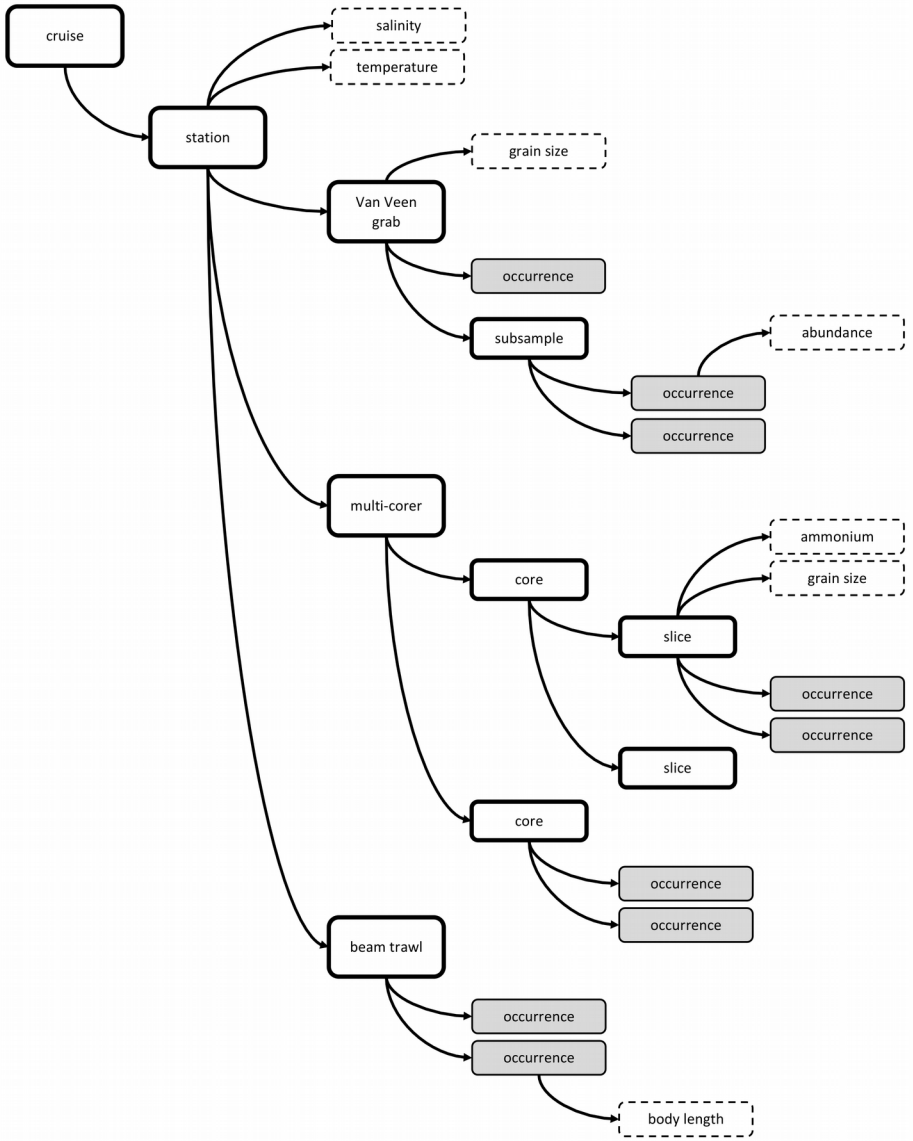
SQL Statement

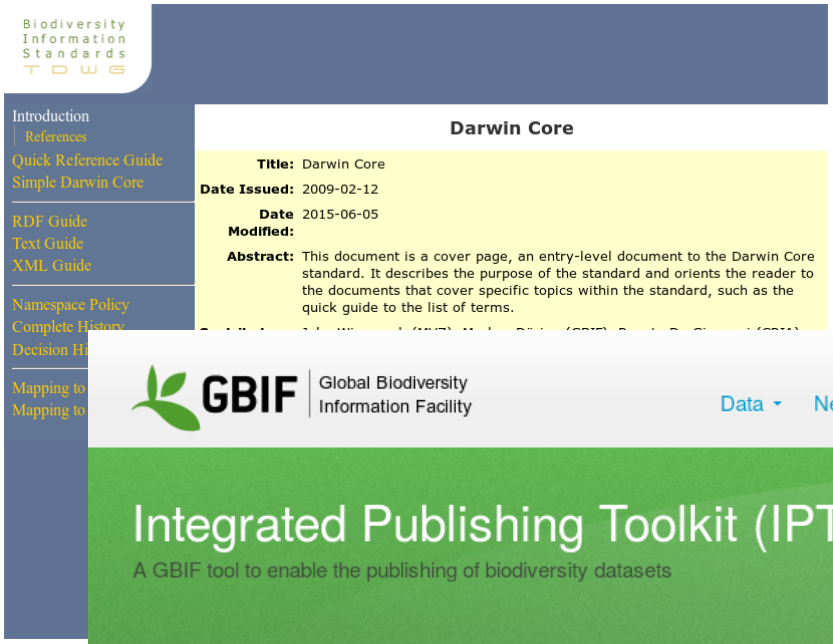
```
SELECT
  coalesce(nullif(replace(split_part(db_record.genus,' ',1),'sp.','') ||' '||
replace(replace(replace(animal_data.species,'sp.',''),'spp.',''),'Morpho2',''),'
'),nullif(replace(split_part(db_record.genus,'
',1),'sp.',''),''),nullif(animal_data.family,''),nullif(split_part(db_record."order",'
',1),''),nullif(animal_data.class,''),nullif(animal_data.phylum,''),nullif(animal_data.kingdom,'')) as "ScientificName",
```

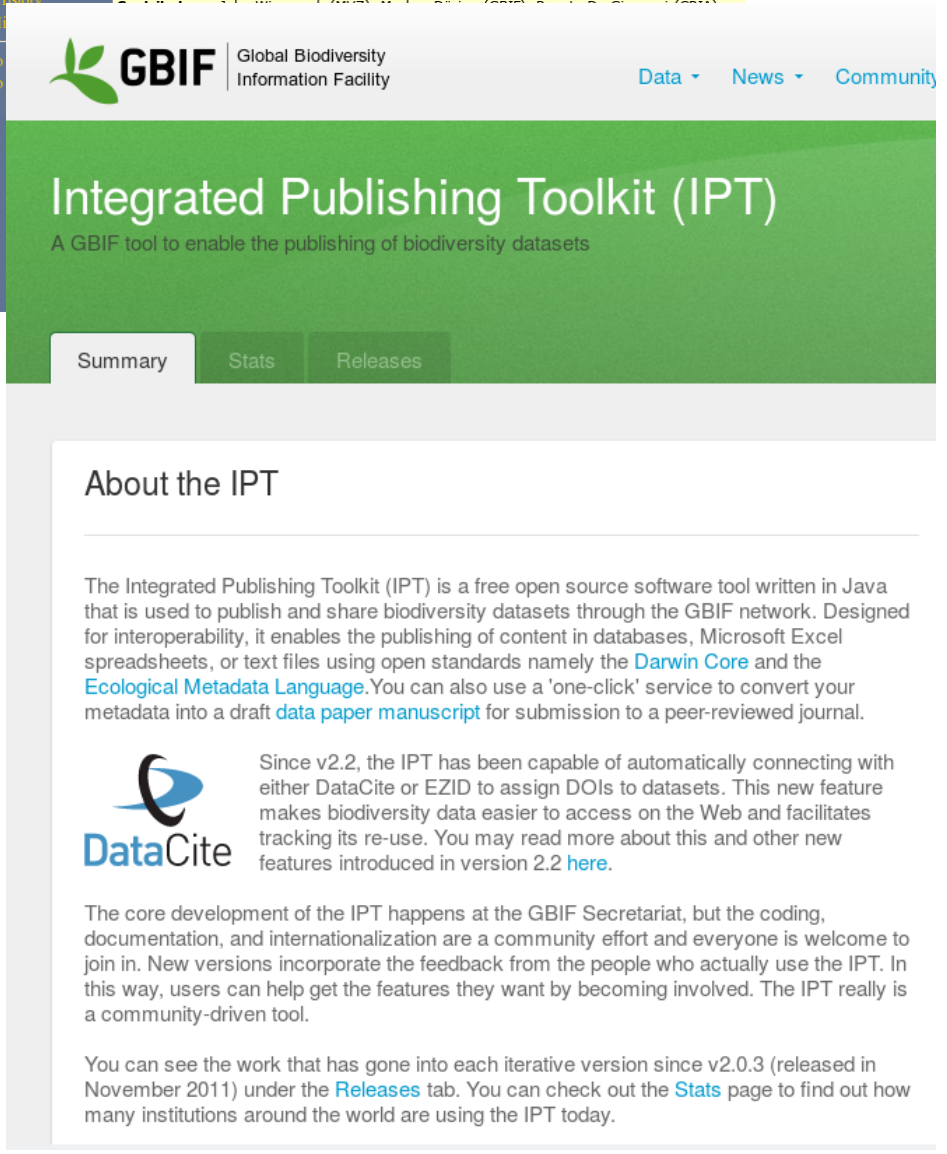
Generated SQL for previewing data

SELECT coalesce(nullif(replace(split_part(db_record.genus,' ',1),'sp.','') ||' '||
replace(replace(replace(animal_data.species,'sp.',''),'spp.',''),'Morpho2',''),' '),nullif(replace(split_part(db_record.genus,'
',1),'sp.',''),''),nullif(animal_data.family,''),nullif(split_part(db_record."order",'
',1),''),nullif(animal_data.class,''),nullif(animal_data.phylum,''),nullif(animal_data.kingdom,'')) as "ScientificName", db_record.author AS "scientificNameAuthorship", db_kingdom.name AS kingdom, db_record.phylum, split_part(db_record.klass,' ',1) as "class", split_part(db_record."order",' ',1) as "order", split_part(db_record.family,' ',1) as "family", replace(split_part(db_record.genus,' ',1),'sp.','') as "genus", replace(replace(replace(replace(split_part(db_record.species,' ',1),'cf.',split_part(db_record.species,'
',2)),'sp.',''),'spp.',''),'Morpho2','') as "specificEpithet", split_part(replace(db_record.species,'cf. ',''),' ',2) as "infraspecificEpithet", db_record.sex, db_record.life_stage AS lifestage, db_record.longitude AS "decimalLongitude", db_record.latitude AS

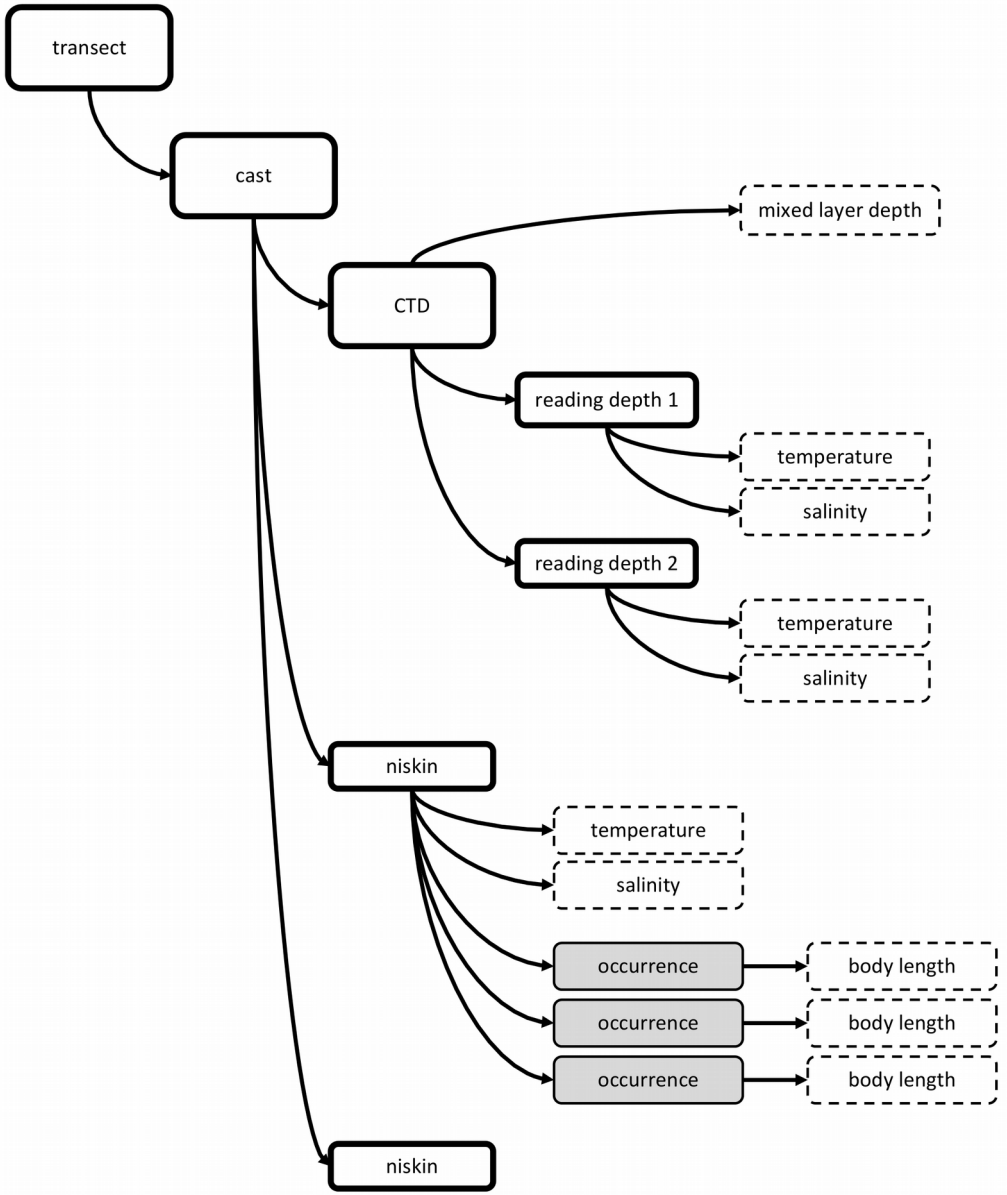
OBIS-ENV-DATA



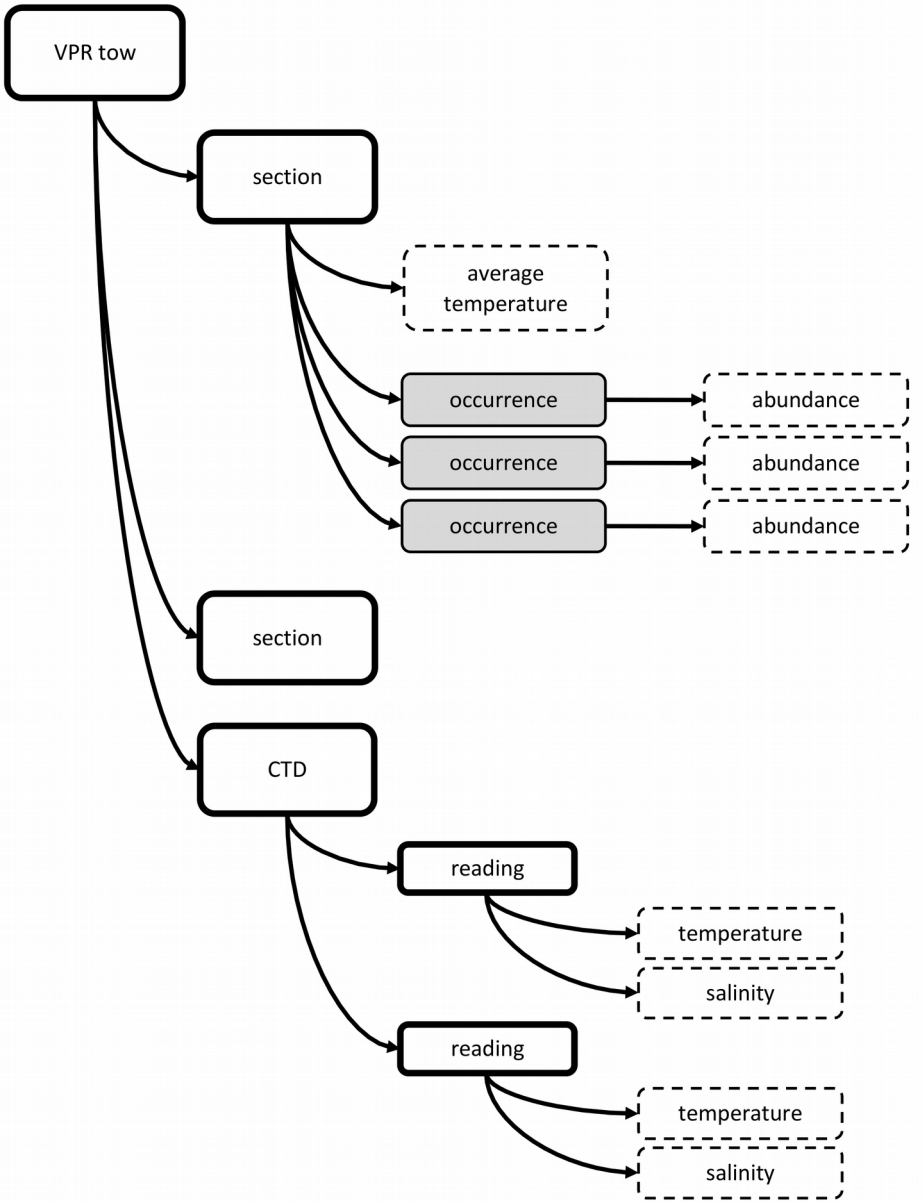




CTD cast



Video Plankton Recorder



Example

Event Core

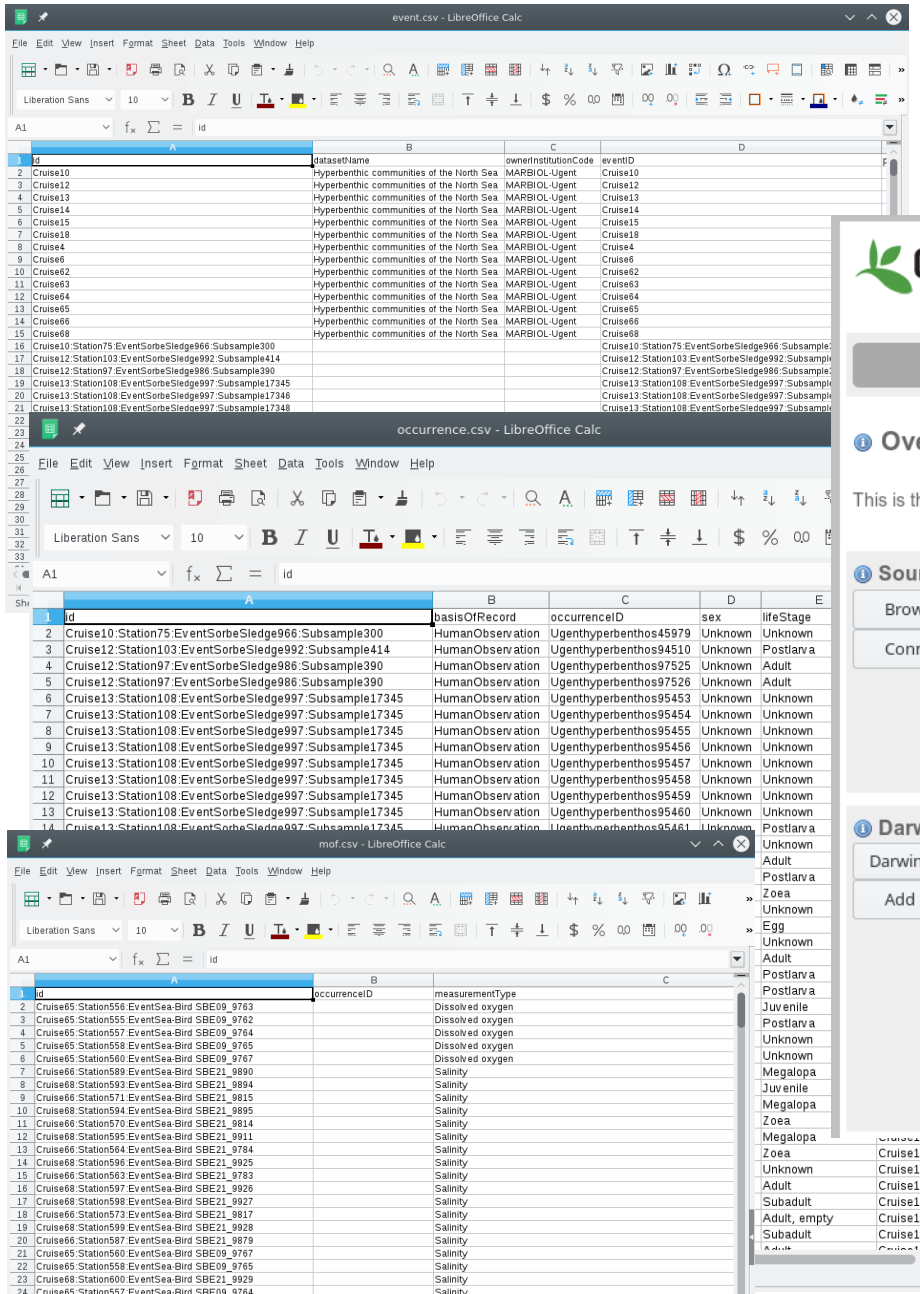
EventID	SamplingProtocol	EventDate	Latitude	Longitude	Depth
Sample1	Van-Veen grab, then sieved through a 250 µm mesh sieve	2013-05-08T12:15Z	51.4818	2.7795	15

Occurrence extension

EventID	OccurrenceID	ScientificName	ScientificNameID	BasisOfRecord	Lifestage
Sample1	Occurrence1	Macoma balthica	urn:lsid:marinespecies.org:taxname:141579	HumanObservation	Adult
Sample1	Occurrence2	Abra alba	urn:lsid:marinespecies.org:taxname:126436	HumanObservation	

eMoF extension

EventID	OccurrenceID	MoFtype	MoFValue	MoFUnit
Sample1		Proportion clay in sediment	5	%
Sample1		Proportion silt in sediment	10	%
Sample1	Occurrence1	Ash-free dry weight biomass	0,2	Kg/m²
Sample1	Occurrence1	Abundance	150	Individuals/m²
Sample1	Occurrence2	Ash-free dry weight biomass	0,5	Kg/m²
Sample1	Occurrence2	Abundance	1020	Individuals/m²



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

Logged in as eklein@usb.ve Account Logout ENG

Home | Manage Resources | Administration | About

Overview: Prueba event data

This is the overview page for the *Prueba event data* resource.

Source Data

Browse... No file selected.

Connect to database | Clear

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

Not modified since last publication

event [file]	99.7 KB, 726 rows, 13 columns. Feb 9, 2017	Edit
mof [file]	82 KB, 500 rows, 8 columns. Feb 9, 2017	Edit
occurrence [file]	111.2 KB, 500 rows, 8 columns. Feb 9, 2017	Edit

Darwin Core Mappings

Darwin Core Event

Add

Your mapping between the source data and Darwin Core terms.

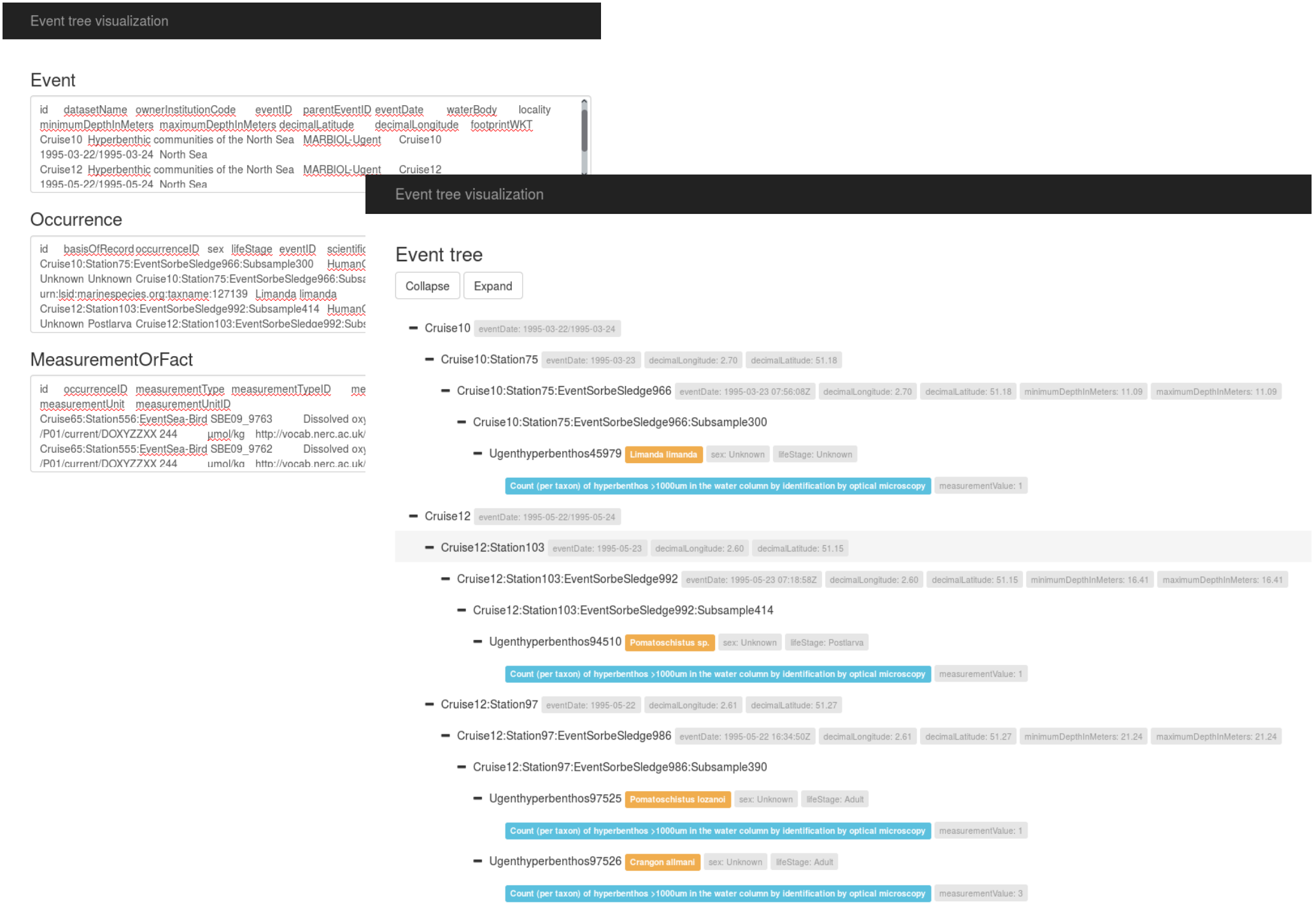
Not modified since last publication

Core

Darwin Core Event	12 terms mapped to event. Feb 9, 2017	Edit

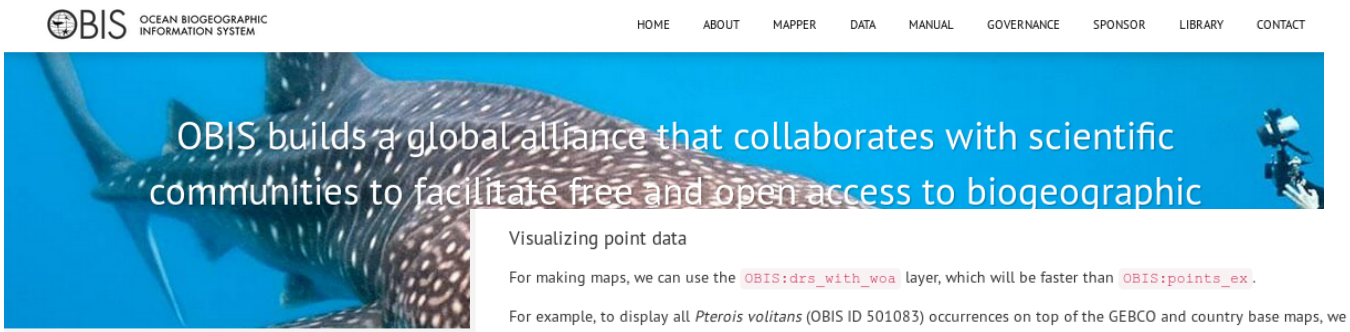
Extensions

Darwin Core Occurrence	7 terms mapped to occurrence. Feb 9, 2017	Edit
Extended Measurement Or Facts	7 terms mapped to mof. Feb 9, 2017	Edit



http://iobis.github.io/tree/

How to use OBIS



Explore OBIS

Taxon search

Enter taxon name

Dataset sea

Enter datas

Common name search

Enter common name

Institute se

Enter instit

News

6th OBIS Steering Group meeting, Okinawa, Japa

The 6th session of the IODE Steering Group for OBIS will
The meeting is kindly hosted by the Japanese OBIS node
(GODAC). Important topics for discussion are (i) representa
and data providers, (ii) agreement on a succession plan fo

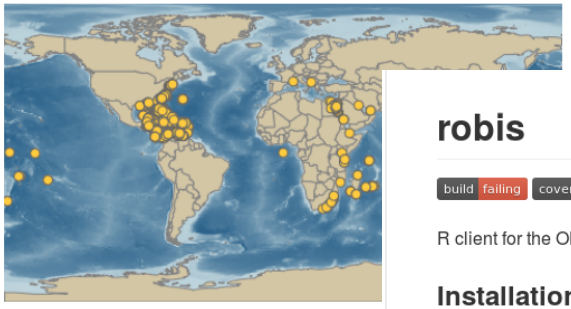
The Portal

Visualizing point data

For making maps, we can use the `OBIS:drs_with_woa` layer, which will be faster than `OBIS:points_ex`.

For example, to display all *Pterois volitans* (OBIS ID 501083) occurrences on top of the GEBCO and country base maps, we can do:

```
http://www.iobis.org/geoserver/wms?SERVICE=WMS&VERSION=1.1.1&REQUEST=GetMap&FORMAT=image/png&SRS=EPSG:4326&LAYERS=OBIS:GEBCO,OBIS:country,OBIS:drs_with_woa&VIEWPARAMS=where:valid_id=501083&BBOX=-180,-90,180,90&WIDTH=480&HEIGHT=256
```



Visualizing gridded data

Species distributions

For plotting species distributions, we can to use the `OI`

- where: filter on `valid_id` or `scientific`
- table: one of `dist_sp_5deg`, `dist_sp_1deg`,
- count_column: `nincl` (child taxa included) or `r`

For example:

```
http://www.iobis.org/geoserver/wms?SERVIC
try&VIEWPARAMS=where:valid_id=501083;coun
```

OGC services

The R packages

robis

build failing coverage 88%

R client for the OBIS API

Installation

```
install.packages("devtools")
devtools::install_github("iobis/robis")
```

Occurrence

Get occurrences by scientific name:

```
data <- occurrence("Abra alba")
```

Get occurrences by AphiaID:

```
data <- occurrence(aphiaid = 141433)
```

Restrict fields in result set:

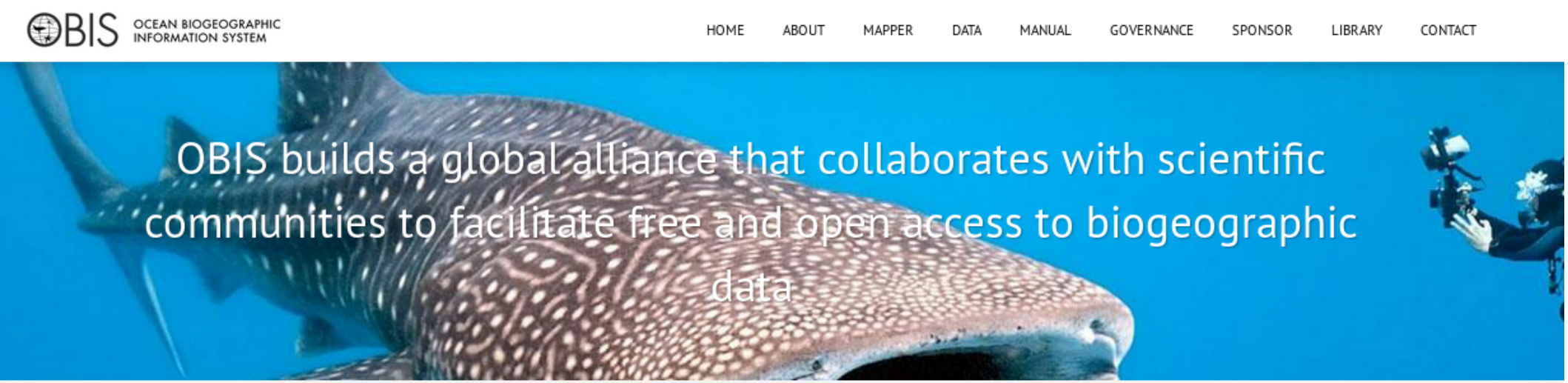
```
data <- occurrence("Abra alba", fields = c("decimalLongitude", "decimalLatitude"))
```

Filter occurrences by QC flags:

```
data <- occurrence("Abra nitida", qc = c(22, 23))
```

The PORTAL

http://iobis.org



Explore OBIS

Taxon search

Enter taxon name

Dataset search

Enter dataset name

Country statistics

Select area

Marine World Heritage Sites

Select area

Common name search

Enter common name

Institute search

Enter institute name

Select area
Albania
Algeria
Angola
Antarctica: South Atlantic
Antarctica: Southern Ocean
Antarctica: all
Antigua and Barbuda
Argentina
Australia

OBIS OCEAN BIOGEOGRAPHIC INFORMATION SYSTEM

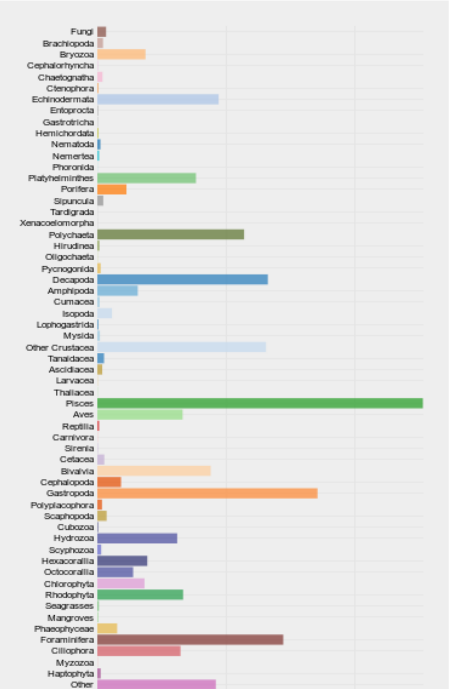
HOME

Mexico: North Atlantic

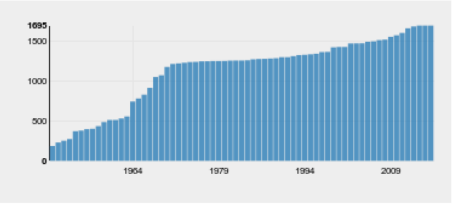
Overview

Records	85,254	
Datasets	82	
Contributing institutes	55	
Taxa	9,966	
Species	8,901	
Red List species	1,067	
Invasive species	58	
Harmful microalgae	0	
Only observed here	394	

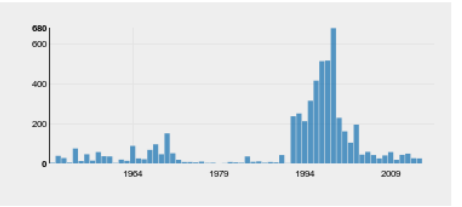
Species per taxonomic group



Species accumulation (1950 - present)



Sampling events (1950 - present)



IUCN Red List species

Name	Group	Status	Records	Datasets
Thunnus albacares	Pisces	NT	4,612	4
Xiphias gladius	Pisces	LC	3,101	3
Coryphaena hippurus	Pisces	LC	1,095	4
Acanthocybium solandri	Pisces	LC	712	6
Rhincodon typus	Pisces	VU	628	6
Montastraea cavernosa	Hexacorallia	LC	486	3
Thunnus obesus	Pisces	VU	358	3
Caretta caretta	Reptilia	EN	353	13
Eretmochelys imbricata	Reptilia	CR	346	11
Colpophyllia natans	Hexacorallia	LC	307	4

Previous 1 2 3 4 5 … 107 Next

Invasive species (from Global Invasive Species Database)

Name	Group	Records	Datasets
Chthamalus proteus	Other Crustacea	22	1
Pterois volitans	Pisces	17	1
Columba livia	Aves	12	1
Rangia cuneata	Bivalvia	9	1
Branta canadensis	Aves	9	1
Crepidula fornicata	Gastropoda	9	1
Anas platyrhynchos	Aves	9	1
Bubulcus ibis	Aves	9	1
Tubastraea coccinea	Hexacorallia	8	3
Alitta succinea	Polychaeta	7	2

Previous 1 2 3 4 5 6 Next

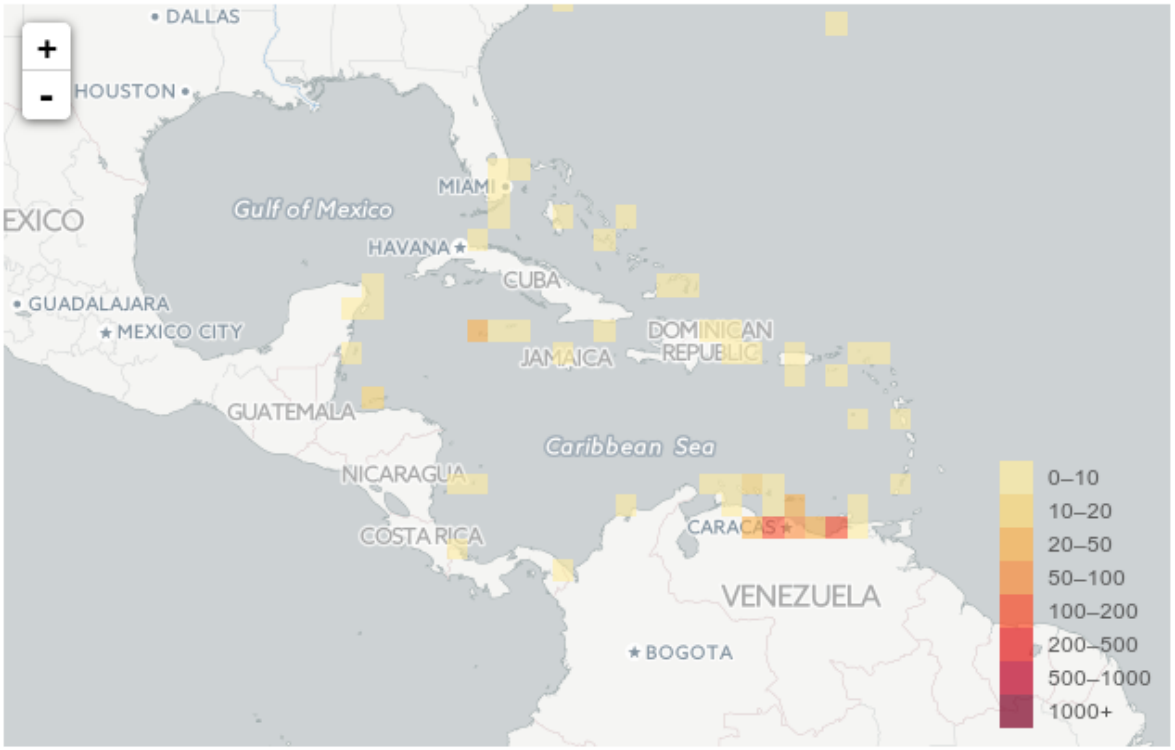
Records per area

Area	Records	%	Since
Venezuela	484	32	2009
Australia	368	24	1882
Egypt: Red Sea	125	8	1928
Indonesia	63	4	1758
Philippines	32	2	2004
United Kingdom: Cayman Islands	25	2	2011
Maldives	23	2	2000
Dominican Republic	17	1	2009
Mexico: North Atlantic	17	1	2010
Honduras: North Atlantic	16	1	2010

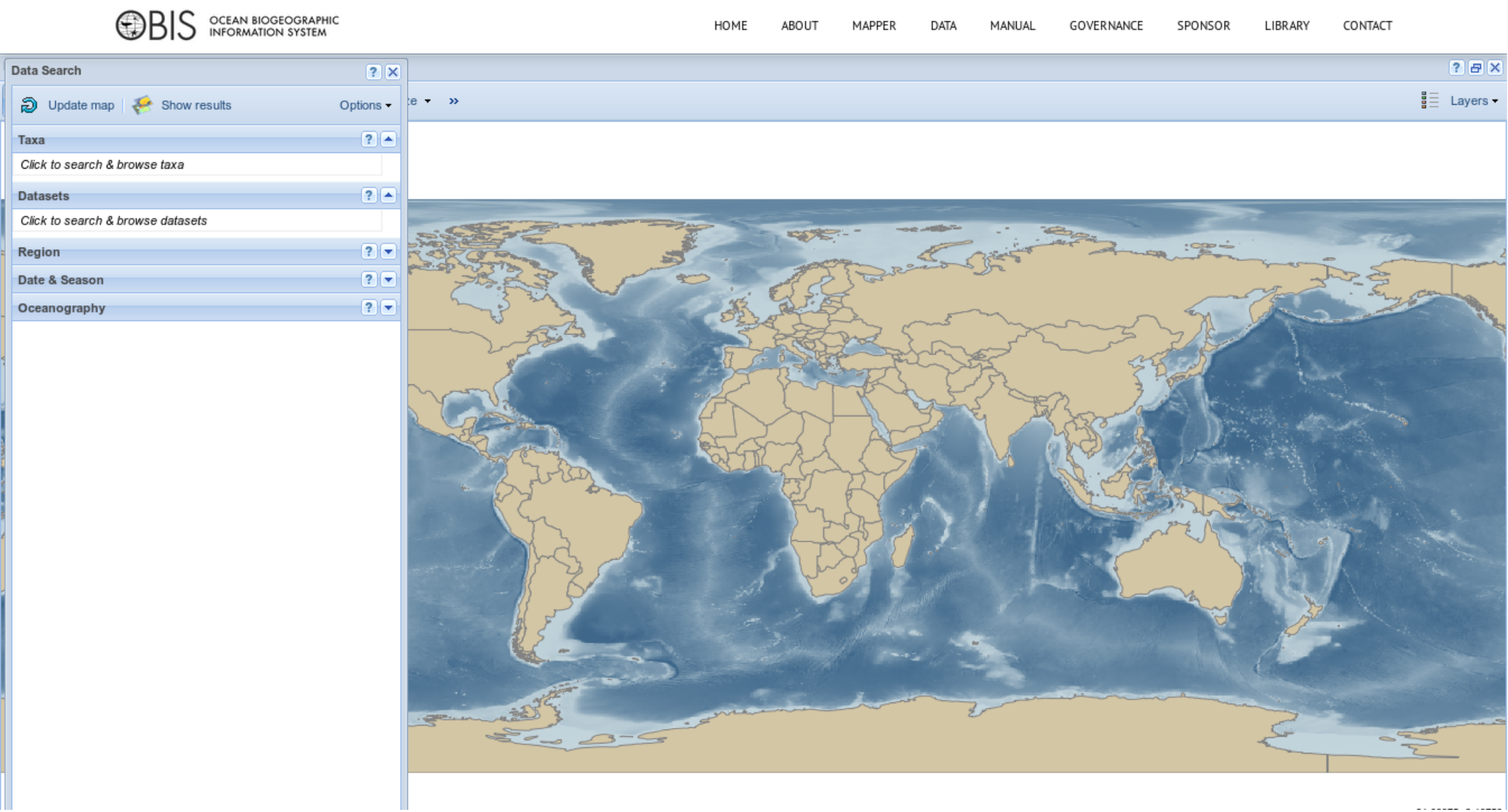
Previous 1 2 3 4 5 6 7 Next

Distribution

Distribution | First record | Last record | Occurrences



The MAPPER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Click to search & browse datasets
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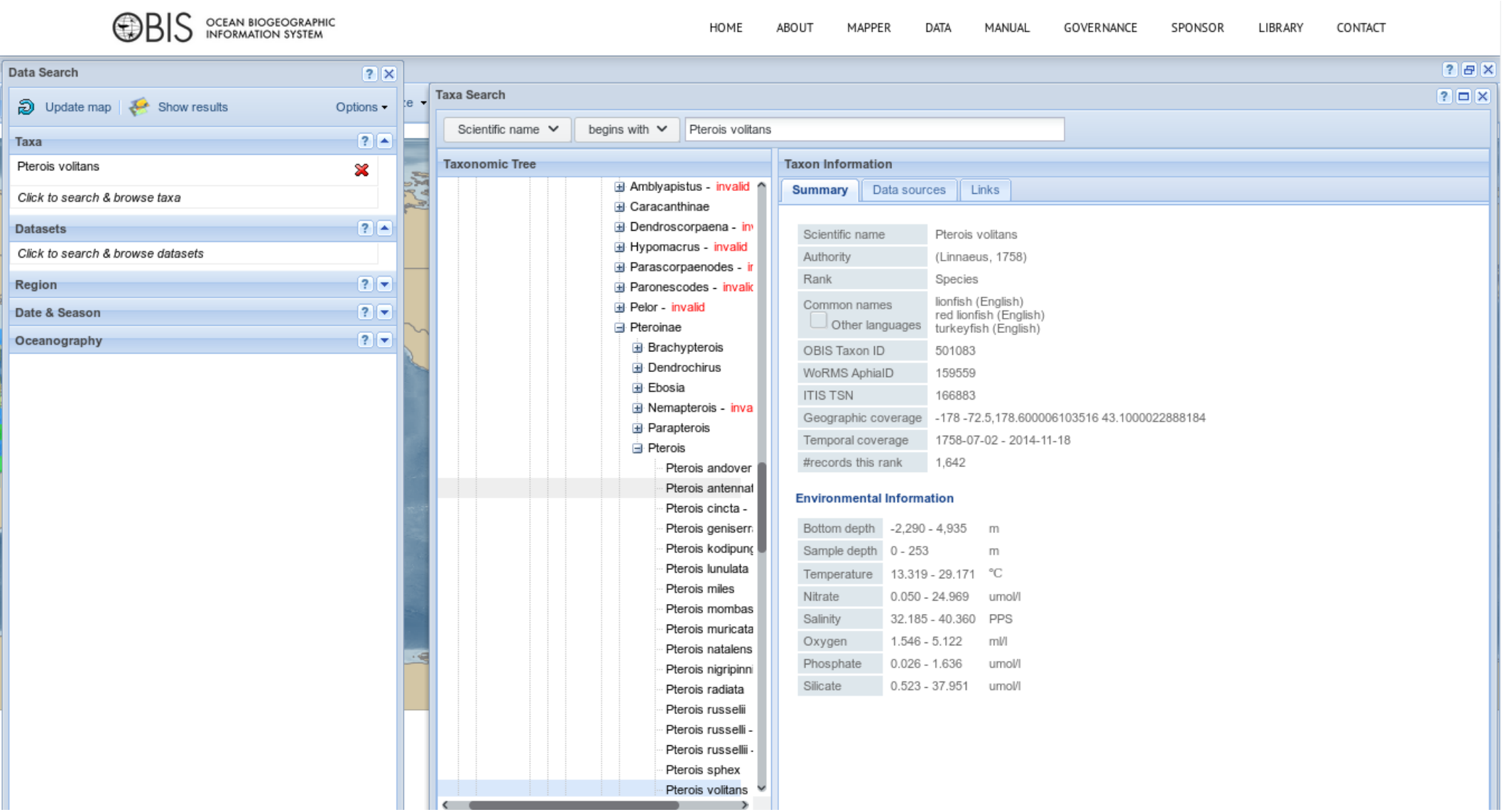
Date & Season
Oceanography

The MAPPER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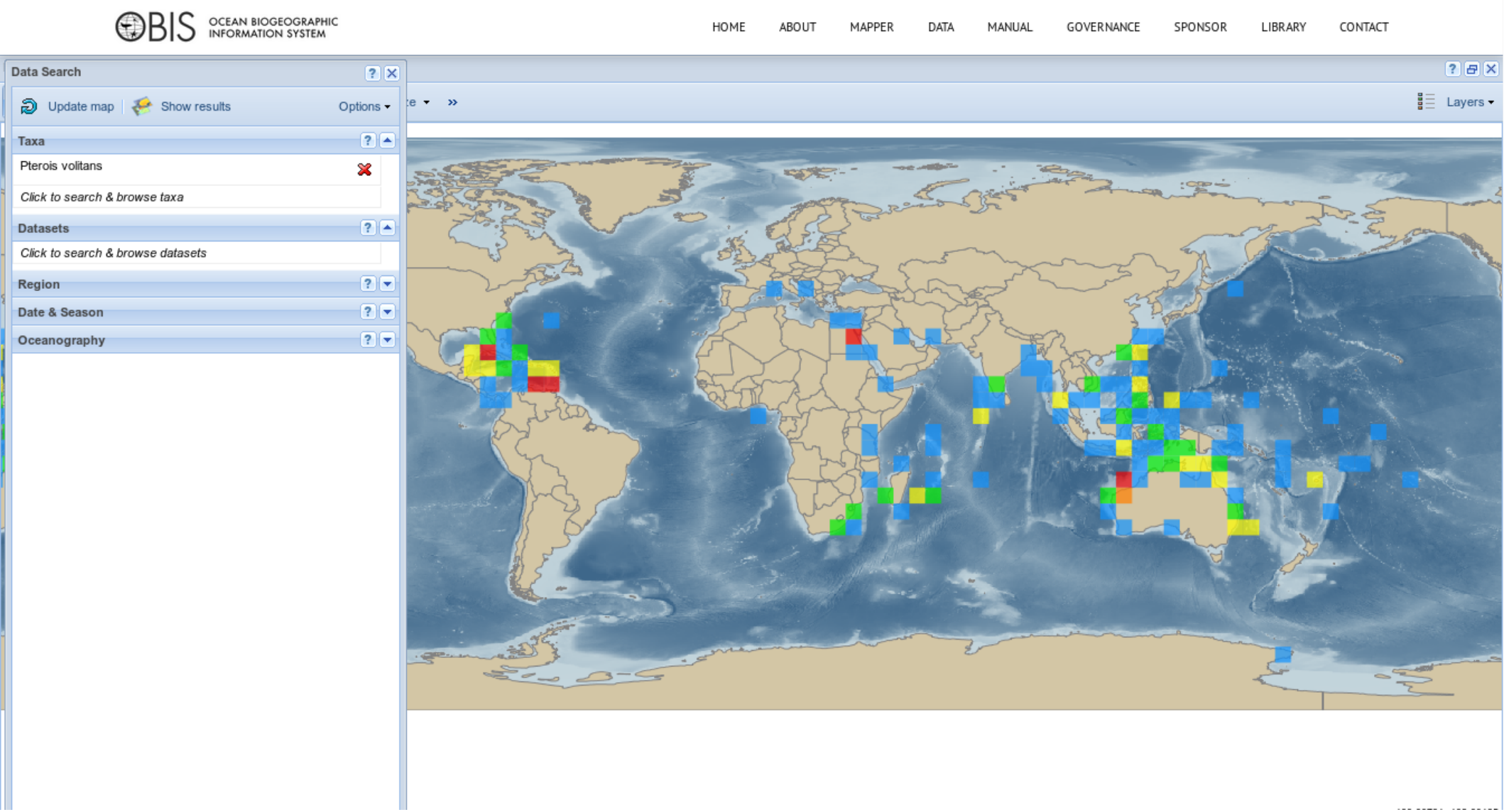
Datasets
Click to search & browse datasets
Region
Date & Season
Oceanography
Taxa Search
Scientific name
begins with
Pterois volitans
Taxonomic Tree
Amblyapistus - invalid
Caracanthinae
Dendroscorpaena - inv
Hypomacrus - invalid
Parascorpaenodes - in
Paronescodes - invalic
Pelor - invalid
Pteroinae
Brachypterois
Dendrochirus
Ebosia
Nemapterois - inva
Parapterois
Pterois
Pterois andover
Pterois antennat
Pterois cincta -
Pterois geniserr
Pterois kodipunc
Pterois lunulata
Pterois miles
Pterois mombas
Pterois muricata
Pterois natalens
Pterois nigripinn
Pterois radiata
Pterois russelii
Pterois russelli -
Pterois russellii -
Pterois sphex
Pterois volitans
Taxon Information
Summary
Data sources
Links
Scientific name Pterois volitans
Authority (Linnaeus, 1758)
Rank Species
Common names lionfish (English)
red lionfish (English)
turkeyfish (English)
Other languages
OBIS Taxon ID 501083
WoRMS AphiaID 159559
ITIS TSN 166883
Geographic coverage -178 -72.5,178.600006103516 43.1000022888184
Temporal coverage 1758-07-02 - 2014-11-18
#records this rank 1,642
Environmental Information
Bottom depth -2,290 - 4,935 m
Sample depth 0 - 253 m
Temperature 13.319 - 29.171 °C
Nitrate 0.050 - 24.969 umol/l
Salinity 32.185 - 40.360 PPS
Oxygen 1.546 - 5.122 ml/l
Phosphate 0.026 - 1.636 umol/l
Silicate 0.523 - 37.951 umol/l

The MAPPER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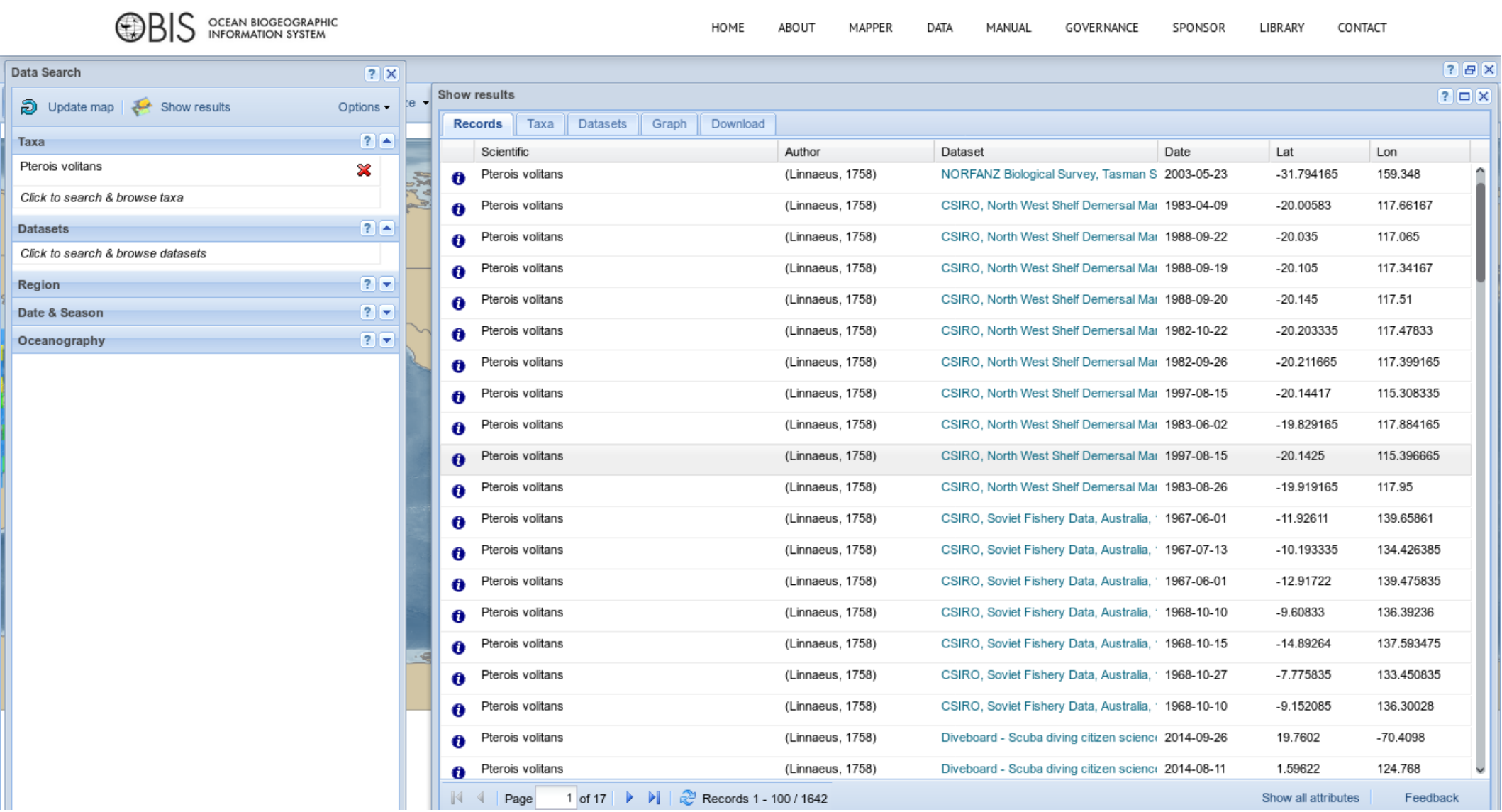
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Author
Dataset
Date
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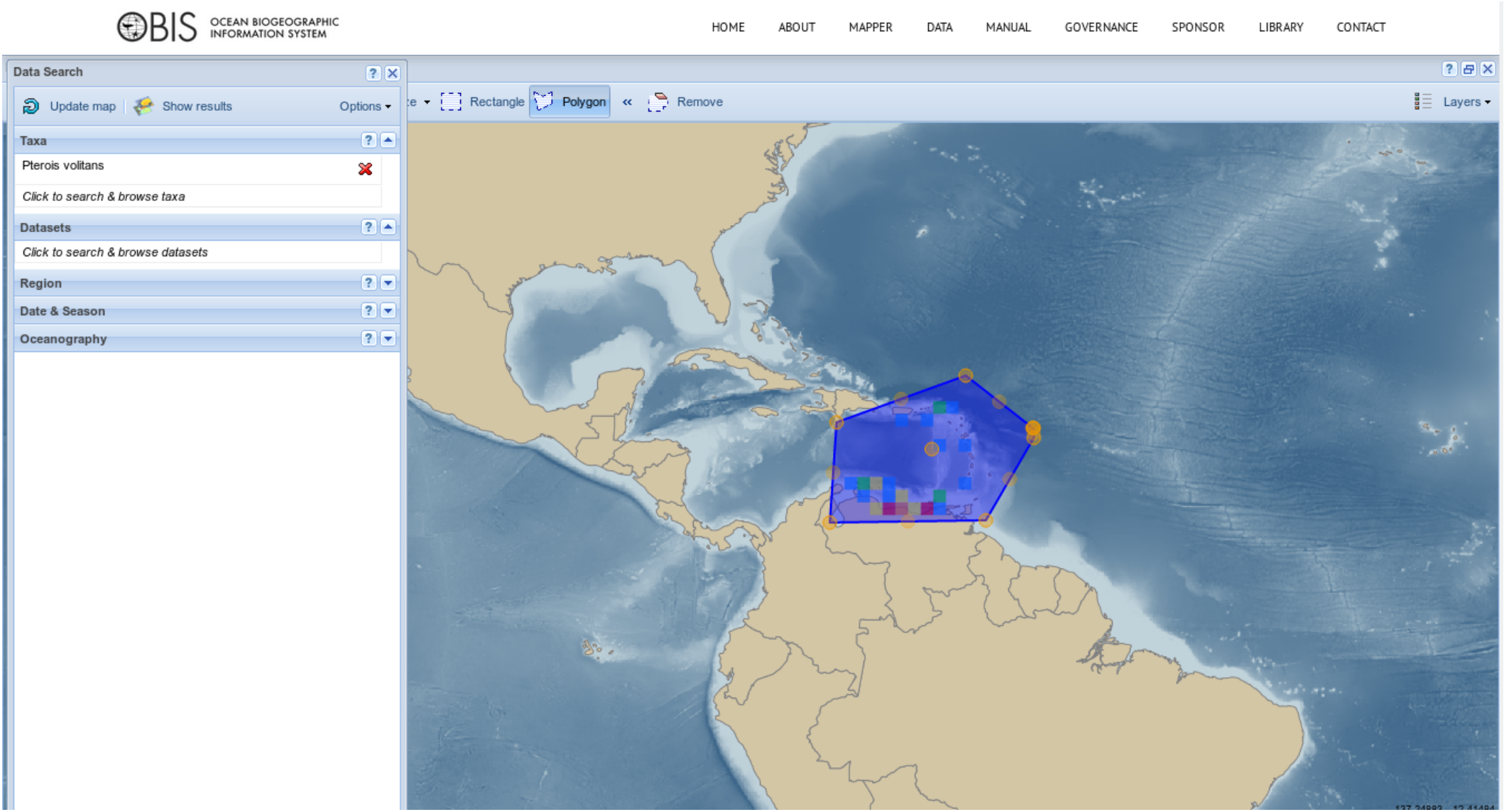
Lon
Pterois volitans (Linnaeus, 1758) NORFANZ Biological Survey, Tasman S 2003-05-23 -31.794165 159.348
Pterois volitans (Linnaeus, 1758) CSIRO, North West Shelf Demersal Mai 1983-04-09 -20.00583 117.66167
Pterois volitans (Linnaeus, 1758) CSIRO, North West Shelf Demersal Mai 1988-09-22 -20.035 117.065
Pterois volitans (Linnaeus, 1758) CSIRO, North West Shelf Demersal Mai 1988-09-19 -20.105 117.34167
Pterois volitans (Linnaeus, 1758) CSIRO, North West Shelf Demersal Mai 1988-09-20 -20.145 117.51
Pterois volitans (Linnaeus, 1758) CSIRO, North West Shelf Demersal Mai 1982-10-22 -20.203335 117.47833
Pterois volitans (Linnaeus, 1758) CSIRO, North West Shelf Demersal Mai 1982-09-26 -20.211665 117.399165
Pterois volitans (Linnaeus, 1758) CSIRO, North West Shelf Demersal Mai 1997-08-15 -20.14417 115.308335
Pterois volitans (Linnaeus, 1758) CSIRO, North West Shelf Demersal Mai 1983-06-02 -19.829165 117.884165
Pterois volitans (Linnaeus, 1758) CSIRO, North West Shelf Demersal Mai 1997-08-15 -20.1425 115.396665
Pterois volitans (Linnaeus, 1758) CSIRO, North West Shelf Demersal Mai 1983-08-26 -19.919165 117.95
Pterois volitans (Linnaeus, 1758) CSIRO, Soviet Fishery Data, Australia, 1967-06-01 -11.92611 139.65861
Pterois volitans (Linnaeus, 1758) CSIRO, Soviet Fishery Data, Australia, 1967-07-13 -10.193335 134.426385
Pterois volitans (Linnaeus, 1758) CSIRO, Soviet Fishery Data, Australia, 1967-06-01 -12.91722 139.475835
Pterois volitans (Linnaeus, 1758) CSIRO, Soviet Fishery Data, Australia, 1968-10-10 -9.60833 136.39236
Pterois volitans (Linnaeus, 1758) CSIRO, Soviet Fishery Data, Australia, 1968-10-15 -14.89264 137.593475
Pterois volitans (Linnaeus, 1758) CSIRO, Soviet Fishery Data, Australia, 1968-10-27 -7.775835 133.450835
Pterois volitans (Linnaeus, 1758) CSIRO, Soviet Fishery Data, Australia, 1968-10-10 -9.152085 136.30028
Pterois volitans (Linnaeus, 1758) Diveboard - Scuba diving citizen scienc 2014-09-26 19.7602 -70.4098
Pterois volitans (Linnaeus, 1758) Diveboard - Scuba diving citizen scienc 2014-08-11 1.59622 124.768
Page 1 of 17
Records 1 - 100 / 1642
Show all attributes
Feedback

The MAPPER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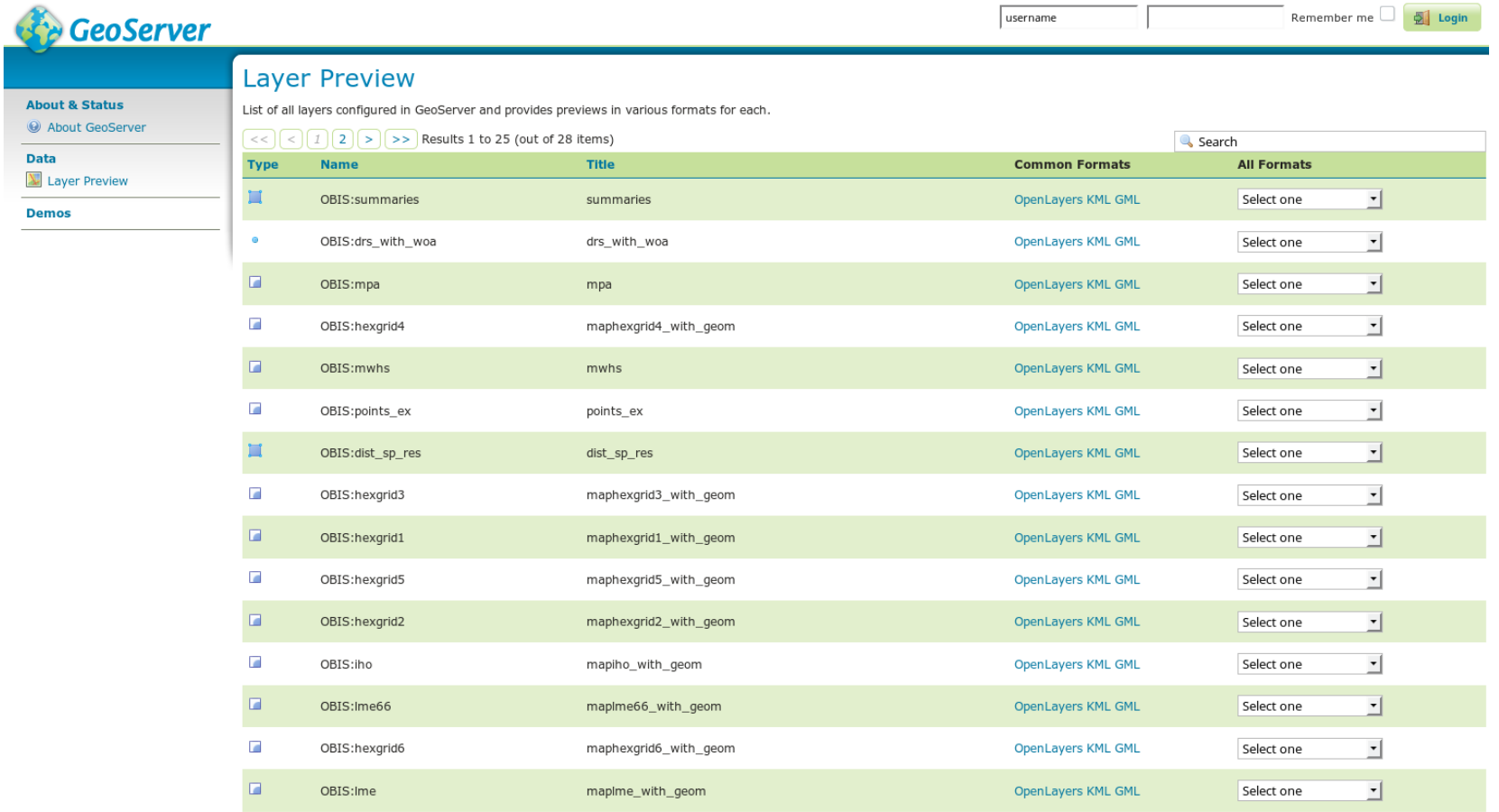
OGC services

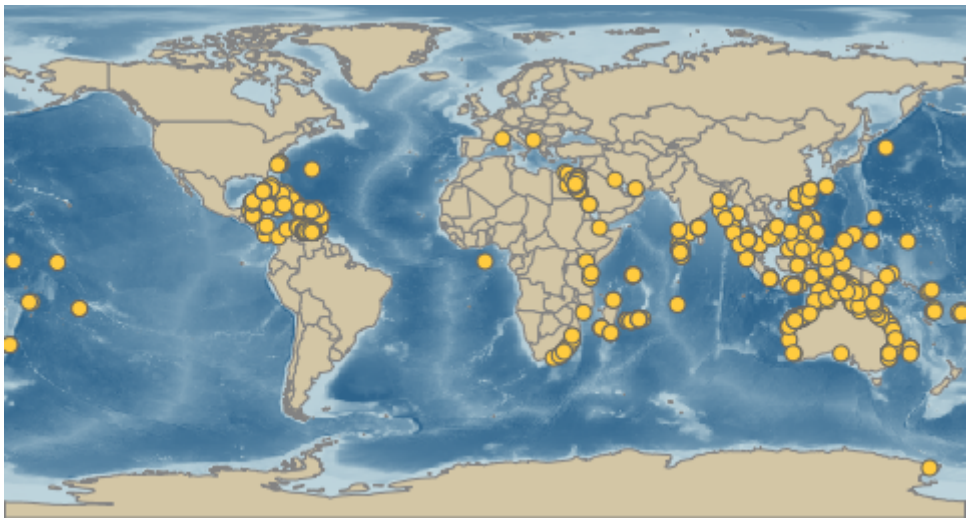
OBIS uses GeoServer to expose a number of tables or views as **WMS** (for raster data) or **WFS** (for vector data) services. These services can be used by third party applications such as desktop GIS applications or online maps to fetch OBIS data.



OGC services: WMS request

http://www.iobis.org/geoserver/wms?
SERVICE=WMS&VERSION=1.1.1&REQUEST=GetMap&FORMAT=image/png&SRS=
EPSG:4326&LAYERS=OBIS:GEBCO,OBIS:country,OBIS:drs_with_woa&VIEWPARAM
S=where:valid_id=501083&BBOX=-180,-90,180,90&WIDTH=480&HEIGHT=256

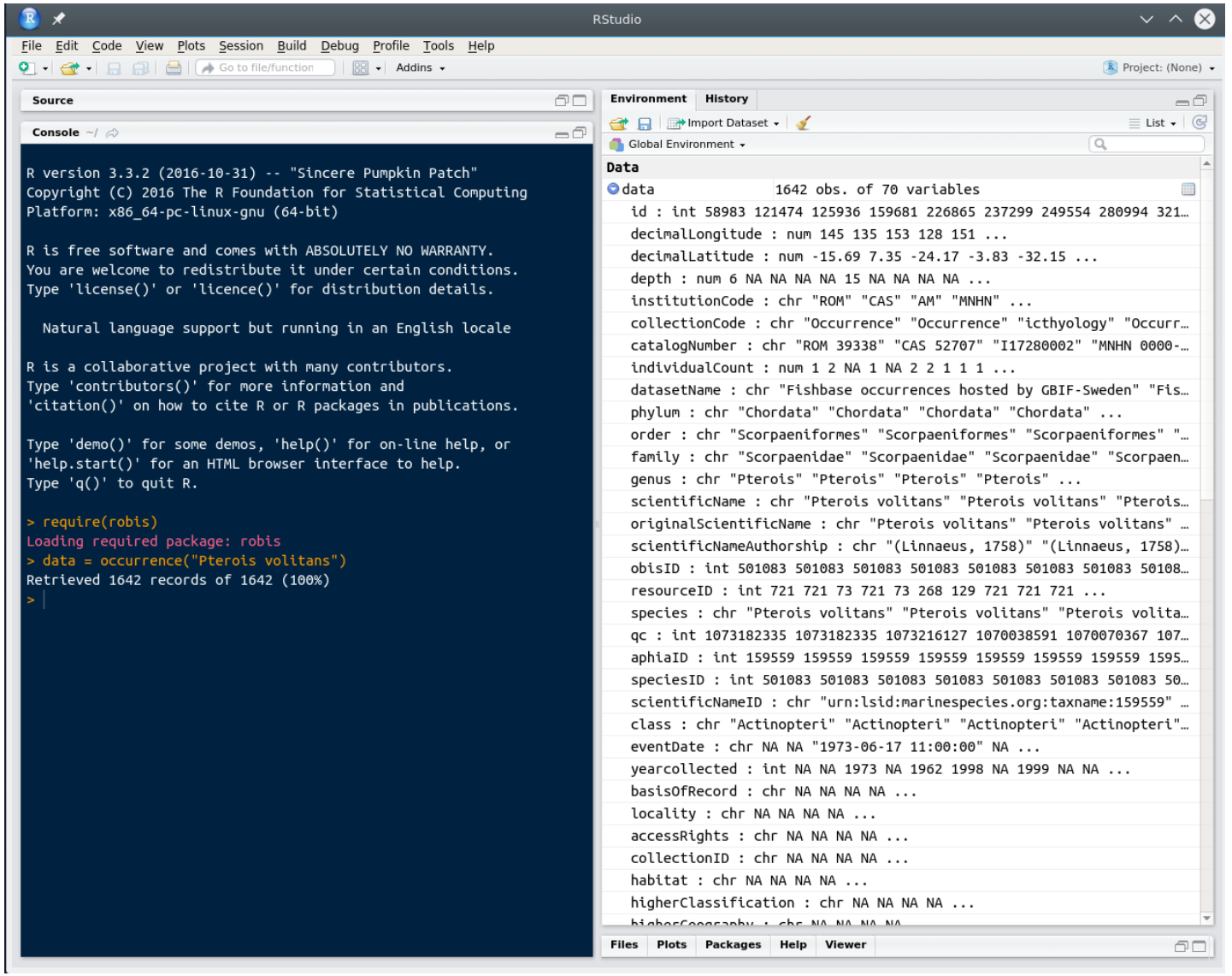
OBIS id for Pterois volitans = 501083



More examples at http://iobis.org/manual/webservices/

The R packages

https://github.com/iobis/robis



occurrence()
checklist()
leafletmap()

The R packages

https://github.com/iobis/robis

checklist(scientificname = NULL, year = NULL, obisid = NULL,
aphiaid = NULL, resourceid = NULL, startdate = NULL, enddate = NULL,
startdepth = NULL, enddepth = NULL, geometry = NULL, qc = NULL,
verbose = FALSE)

occurrence(scientificname = NULL, year = NULL, obisid = NULL,
aphiaid = NULL, resourceid = NULL, nodeid = NULL, startdate = NULL,
enddate = NULL, startdepth = NULL, enddepth = NULL, geometry = NULL,
qc = NULL, fields = NULL, verbose = FALSE)

Geometry = WKT like POINT or POLYGON

The R packages

Example: checklist for Venezuela EEZ (sensu marineregions.org)

```r
require(mregions)
require(wellknown)
require(jsonlite)
require(robis)


id = "eez.121"
print("Getting the geometry...")
jsonstr <- mr_features_get("MarineRegions:eez", id, format = "json", version = "1.0.0")
json <- fromJSON(jsonstr, simplifyVector = FALSE, simplifyDataFrame = FALSE)
wkt <- geojson2wkt(json$features[[1]]$geometry)
print("Getting the taxa checklist from OBIS...")
taxa <- checklist(geometry = wkt)
```

The R packages

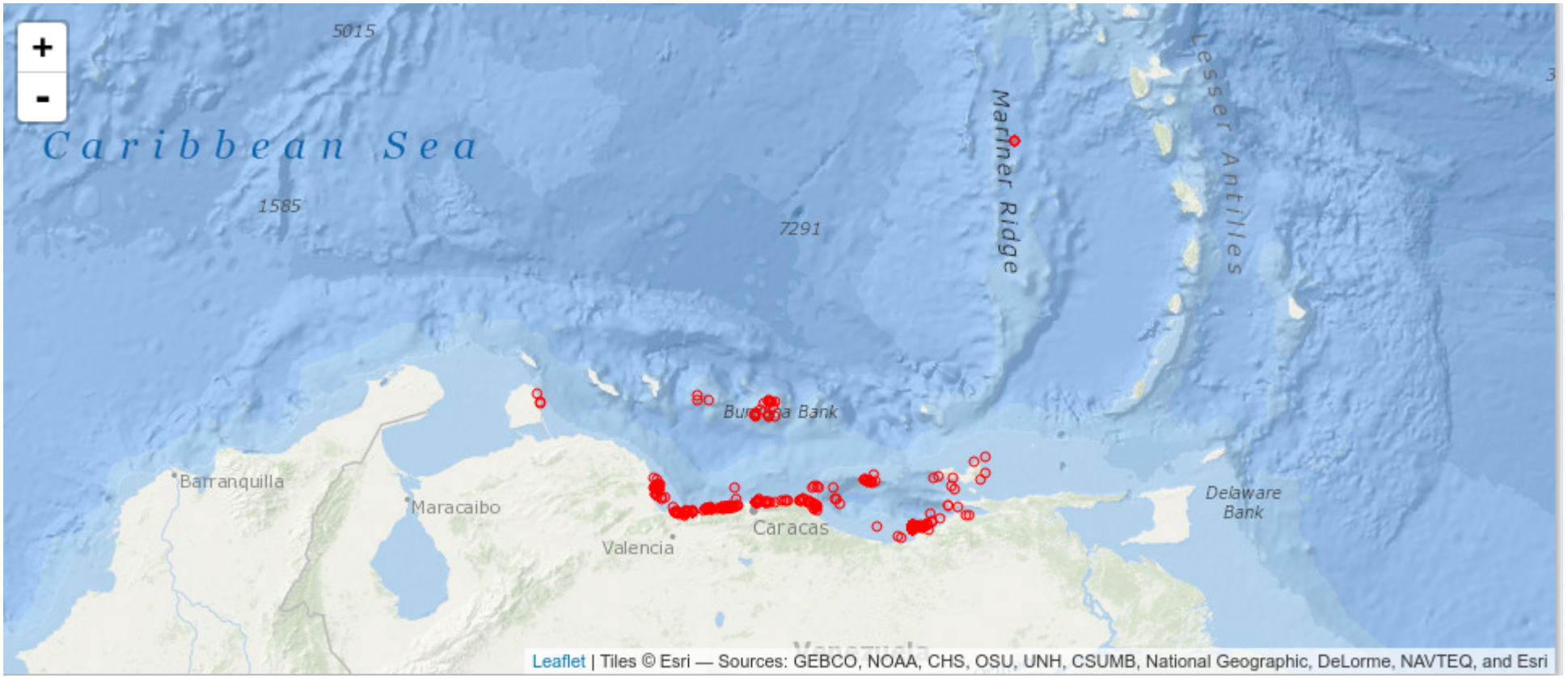
Example: checklist for Venezuela EEZ (sensu marineregions.org)

```
Retrieved 3011 records of 3011 (100%)
> str(taxa)
'data.frame':   3011 obs. of  19 variables:
 $ id       : int  501 395650 395657 395746 395747 395815 395911 396140 396851 396957 ...
 $ valid_id : int  501 395650 395657 395746 395747 395815 395911 396140 396851 396957 ...
 $ parent_id: int  812157 748828 774929 695236 695236 395814 769048 771138 396867 695290 ...
 $ rank_name: chr  "Species" "Genus" "Species" "Species" ...
 $ tname    : chr  "Metula (Agassitula) guppyi" "Acanella" "Acanthacaris caeca" "Acanthephyra acanthitelson
is" ...
 $ tauthor  : chr  "Olsson & Bayer, 1972" "Gray, 1870" "A. Milne-Edwards, 1881" "Spence Bate, 1888" ...
 $ worms_id : int  491115 125303 293250 240809 158347 158044 127014 151210 137616 104644 ...
 $ records  : int  1 6 6 4 2 1 39 36 16 1 ...
 $ datasets : int  1 2 1 1 1 1 2 1 2 1 ...
 $ phylum   : chr  "Mollusca" "Cnidaria" "Arthropoda" "Arthropoda" ...
 $ order    : chr  "Neogastropoda" "Alcyonacea" "Decapoda" "Decapoda" ...
 $ family   : chr  "Buccinidae" "Isididae" "Nephropidae" "Acanthephyridae" ...
 $ genus    : chr  "Metula" "Acanella" "Acanthacaris" "Acanthephyra" ...
 $ species  : chr  "Metula (Agassitula) guppyi" NA "Acanthacaris caeca" "Acanthephyra acanthitelsonis" ...
 $ class    : chr  "Gastropoda" "Anthozoa" "Malacostraca" "Malacostraca" ...
 $ redlist  : logi  NA NA TRUE NA NA NA ...
 $ status   : chr  NA NA "LC" NA ...
 $ gisd     : logi  NA NA NA NA NA NA ...
 $ hab      : logi  NA NA NA NA NA NA ...
```

The R packages

Example: map of the Lion Fish occurences in Venezuela

```
> lionfish = occurrence("Pterois volitans", geometry=wkt)
Retrieved 395 records of 395 (100%)
> leafletmap(lionfish)
```



The R packages

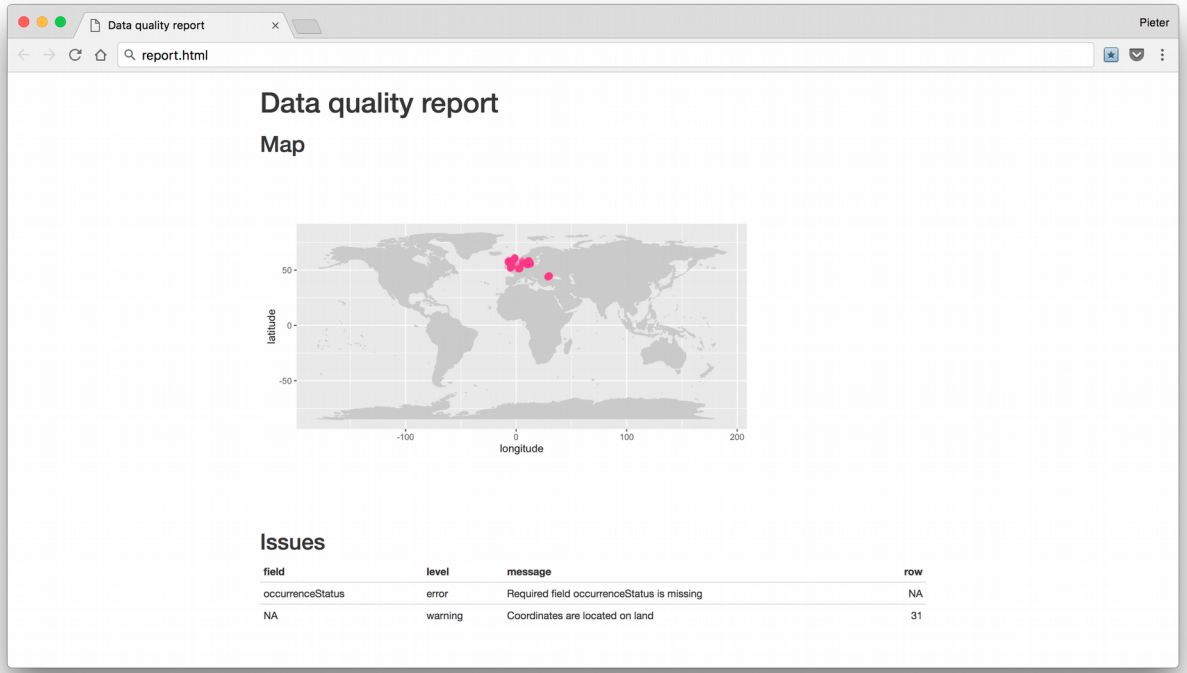
Example: map of the Lion Fish occurences in Venezuela

```
lionfish                    395 obs. of 41 variables
 id : int 367718400 367719401 367719851 367719853 367720922 391040178 391040179 391040180
 decimalLongitude : num -64.5 -66.8 -67.9 -67.9 -65.3 ...
 decimalLatitude : num 10.5 10.6 10.5 10.5 11 ...
 depth : num 18.5 3 6 6 5 NA NA NA 22 14 ...
 basisOfRecord : chr "Occurrence" "Occurrence" "Occurrence" "Occurrence" ...
 eventDate : chr "2014-04-26 10:00:00" "2013-02-24 11:00:00" "2014-01-11 11:00:00" "2014-0
 institutionCode : chr "Diveboard" "Diveboard" "Diveboard" "Diveboard" ...
 collectionCode : chr "Diveboard" "Diveboard" "Diveboard" "Diveboard" ...
 catalogNumber : chr "diveboard:130572_212303_0" "diveboard:122580_212303_0" "diveboard:12
 locality : chr "Isla El Mono, Parque Nacional Mochima" "El Velero, Caraballeda" "Isla Lar
 datasetName : chr "Diveboard - Scuba diving citizen science observations" "Diveboard - Sc
 phylum : chr "Chordata" "Chordata" "Chordata" "Chordata" ...
 order : chr "Scorpaeniformes" "Scorpaeniformes" "Scorpaeniformes" "Scorpaeniformes" ...
 family : chr "Scorpaenidae" "Scorpaenidae" "Scorpaenidae" "Scorpaenidae" ...
 genus : chr "Pterois" "Pterois" "Pterois" "Pterois" ...
 scientificName : chr "Pterois volitans" "Pterois volitans" "Pterois volitans" "Pterois vo
 originalScientificName : chr "Pterois volitans" "Pterois volitans" "Pterois volitans" "Pt
 scientificNameAuthorship: chr "(Linnaeus, 1758)" "(Linnaeus, 1758)" "(Linnaeus, 1758)" "(
 obisID : int 501083 501083 501083 501083 501083 501083 501083 501083 501083 501083 ...
 resourceID : int 3422 3422 3422 3422 3422 3207 3207 3207 3207 3207 ...
 yearcollected : int 2014 2013 2014 2014 2013 2009 2009 2009 2009 2010 ...
 species : chr "Pterois volitans" "Pterois volitans" "Pterois volitans" "Pterois volitans"
 qc : int 1070070911 1073216639 1073216639 1073216639 1073216639 1073217151 1073217151 107
 aphiaID : int 159559 159559 159559 159559 159559 159559 159559 159559 159559 159559 ...
 speciesID : int 501083 501083 501083 501083 501083 501083 501083 501083 501083 501083 ...
 minimumDepthInMeters : num 0 0 0 0 0 NA NA NA 22 14 ...
 maximumDepthInMeters : num 37 6 12 12 10 NA NA NA 22 14 ...
 continent : chr "isla el mono" "el velero" "Isla Larga" "Isla Larga" ...
 datasetID : chr "IMIS:dasid:4542" "IMIS:dasid:4542" "IMIS:dasid:4542" "IMIS:dasid:4542" .
 eventTime : chr "02:00:00" "02:00:00" "10:00:00" "10:00:00" ...
 modified : chr "2014-11-27 15:38:23" "2014-11-27 15:38:23" "2014-11-27 15:38:23" "2014-11
 occurrenceID : chr "diveboard:130572_212303_0" "diveboard:122580_212303_0" "diveboard:120
 recordedBy : chr "Antonio Enrique Dugarte Guedez" "Antonio Enrique Dugarte Guedez" "Carlo
 references : chr "http://www.diveboard.com/antonio-enrique-dugarte-guedez/D4ZmXxp" "http:
```

The R packages

Obistools: under development

Off-line tools



Taxon matching
Check required fields
Plot points on a map
Identify points on a map
Check points on land
Check eventID and parentEventID
Check eventID in an extension
Flatten event records
Flatten occurrence and event records
Calculate centroid and radius for WKT geometries
Map column names to Darwin Core terms
Check eventDate
Data quality report

What OBIS can’t do right now

Expose ENV data.

Have very recent records

Handle high traffic of queries

More sophisticated visualizations

DOI, private datasets...

What OBIS can’t do right now

Expose ENV data.

a) Now we’re harvesting ENV data. New OBIS 2.0 will expose the ENV to the API

b) New IODE project to involve programs with ENV-like data to test the system and provide insights of tools/indicators/visualizations

Have very recent records

Handle high traffic of queries

More sophisticated visualizations

DOI, private data sets

What OBIS can’t do right now

Expose ENV data.

Have very recent records.

a) new harvester. Data will be in OBIS central few moments after it was uploaded into node’s IPT.

b) New allainces. Many programs that are collecting biodiv info that are not aware of OBIS capabilities

Handle high traffic of queries

More sophisticated visualizations

DOI, private data sets

What OBIS can’t do right now

Expose ENV data.

Have very recent records

Handle high traffic of queries.

a) OBIS 2.0. New architecture.

b) Distributed cloud services

More sophisticated visualizations

DOI, private data sets

What OBIS can’t do right now

Expose ENV data.

Have very recent records

Handle high traffic of queries

More sophisticated visualizations.

Partnership with other programs/projects. Joint development of tools and visualizations

DOI, private data sets

What OBIS can’t do right now

Expose ENV data.

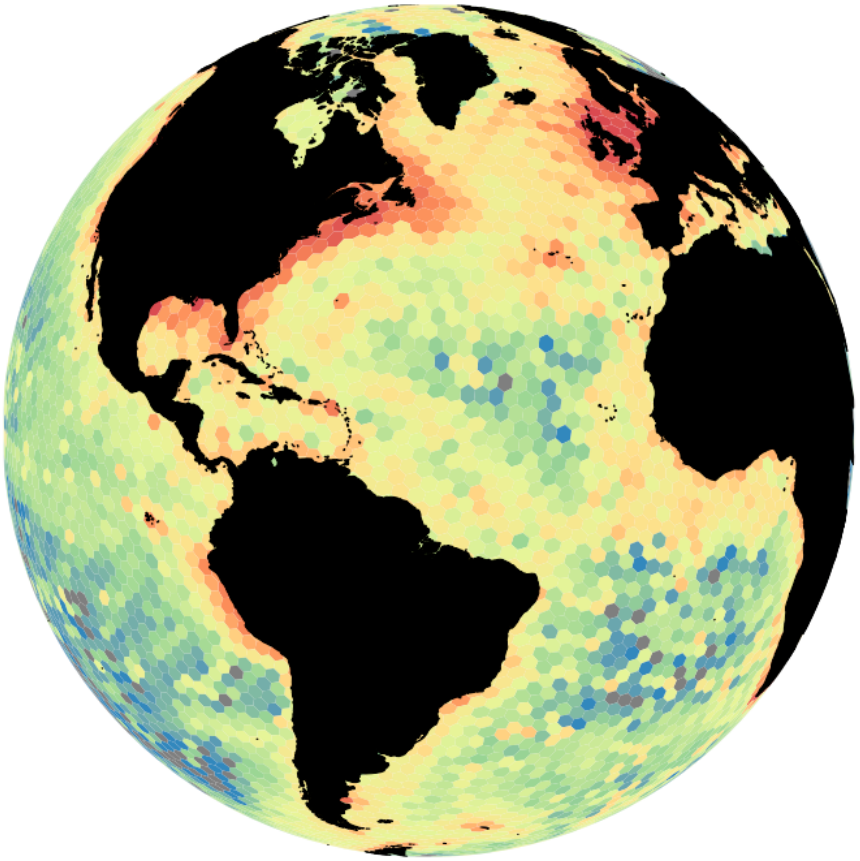
Have very recent records

Handle high traffic of queries

More sophisticated visualizations

DOI, private datasets…

OBIS 2.0, new architecture, quarantine on data sets



More info:

http://iobis.org

info@iobis.org

eklein@usb.ve

OBIS
OCEAN BIOGEOGRAPHIC INFORMATION SYSTEM

UNESCO
United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

Thank you!