Marine Regions: data sources and data usage

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Flanders Marine Institute (VLIZ)

ICAN Workshop 6: Expanding Participation in Coastal Web Atlas: Development and Use

16-17 June 2013, Victoria, Canada

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towards a standard for georeferenced marine names

Objectives presentation

- Introduction Marine Regions
- Content|use|users of Marine regions
- Link Marine Regions within ICAN prototype?
  - Webservices

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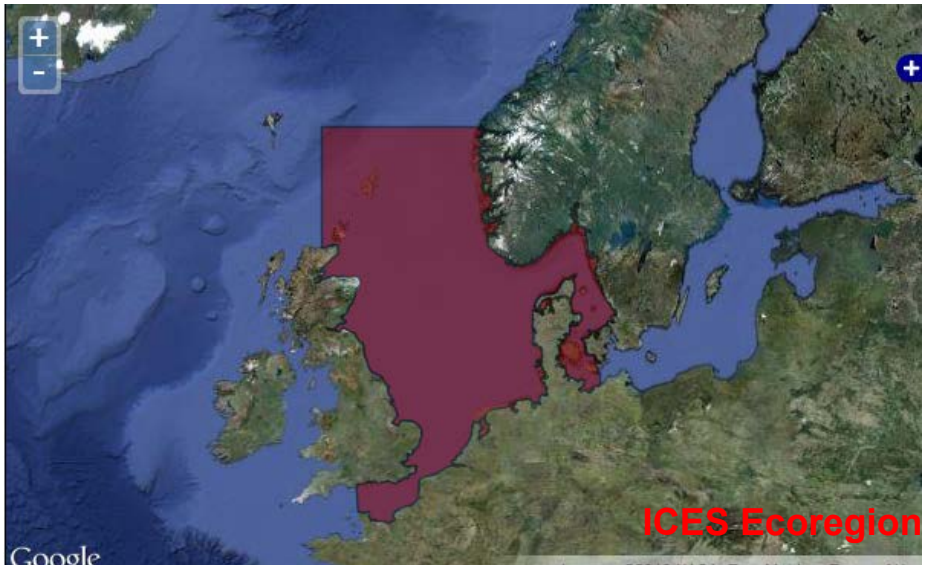
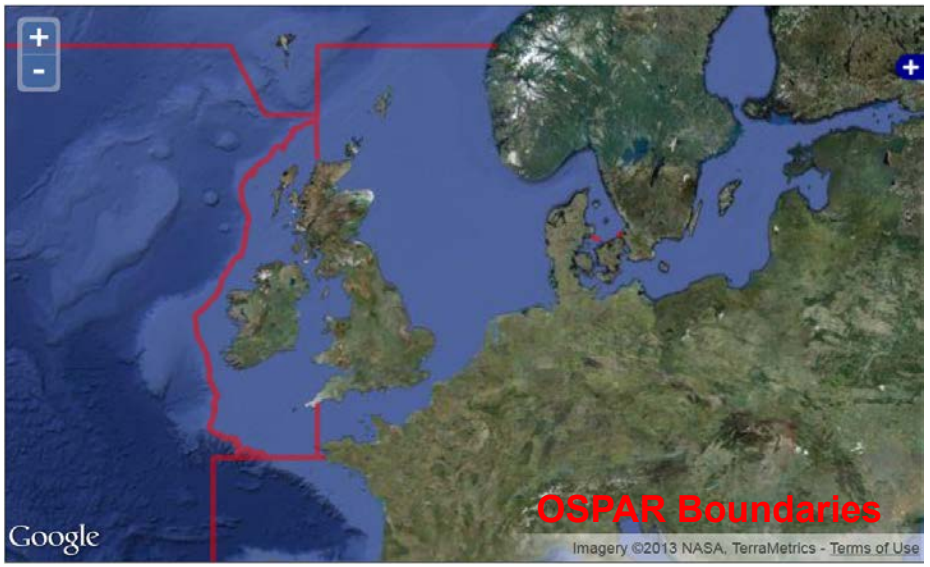
The North Sea?





Objectives

- Standard, hierarchical list of marine geographic placenames, and the coordinates of this placenames

Initiatives

- VLIMAR: Marine gazetteer (2004)
- MARBOUND: The world EEZ boundaries (2005)
- Towards one system: Marine Regions (2012)

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Database structure: one geographic entity (**geoobject**) has

- ✓ Coordinates (lat-long)
- ✓ Placetype
  - ✓ Physical: bay-trench-sandbank-sea…
  - ✓ Administrative: Territrorial sea, contiguous zone, EEZ
- ✓ But can have different names: name not unique!!
- ✓ Multiple relations between two geoobjects
  - ✓ North Sea part of NEA
  - ✓ Norh Sea adjacant to Norwegian Sea
  - ✓ North Sea is partly part of UK EEZ

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Parent classification of marine waters

- ✓ Physical: world seas of IHO
- ✓ Administrative: EEZ boundaries
- ✓ Combined: Marine regions

'Limits of Oceans and Seas' , IHO, 1953

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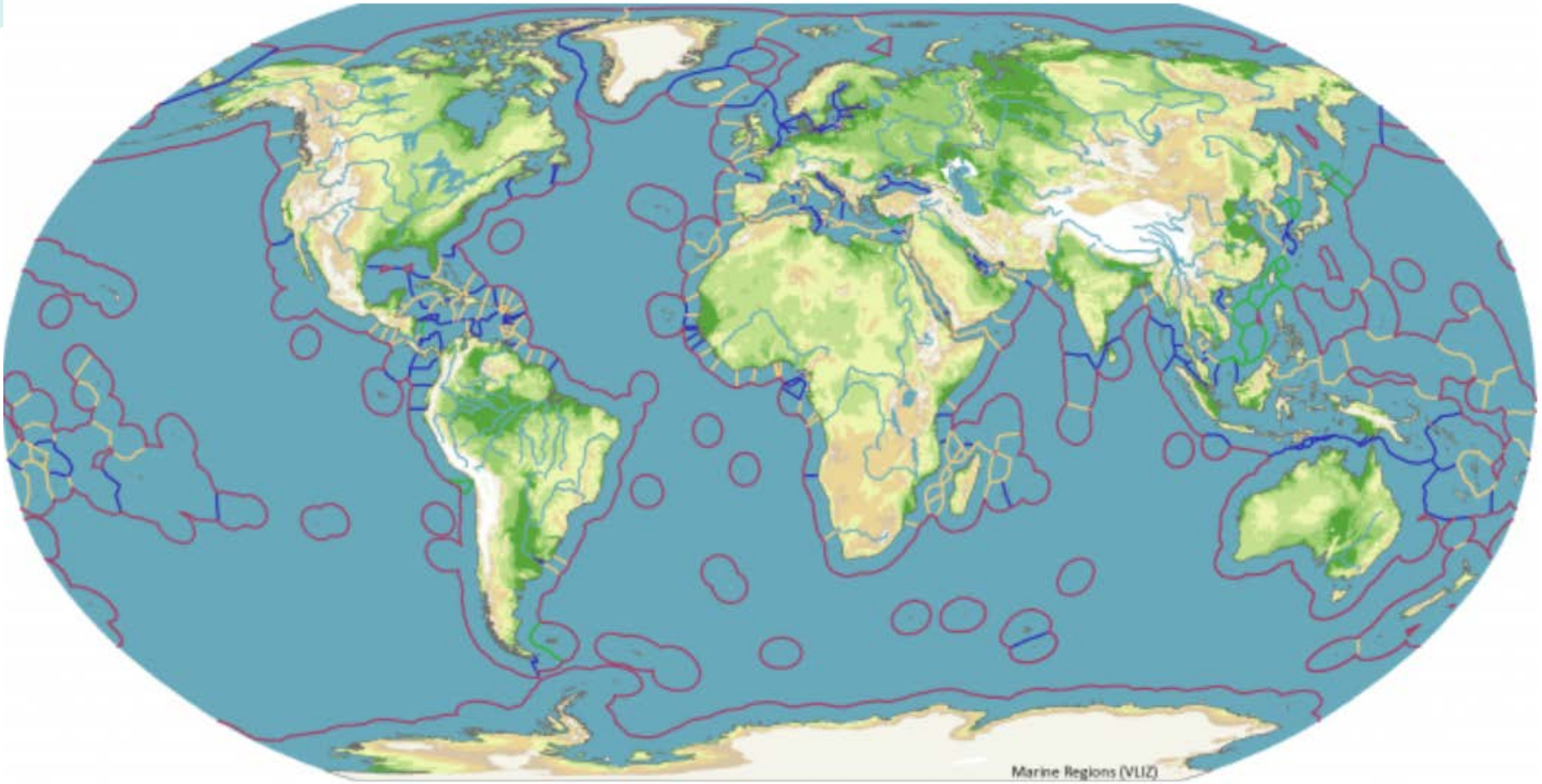
IHO Seas

IHO Sea Areas

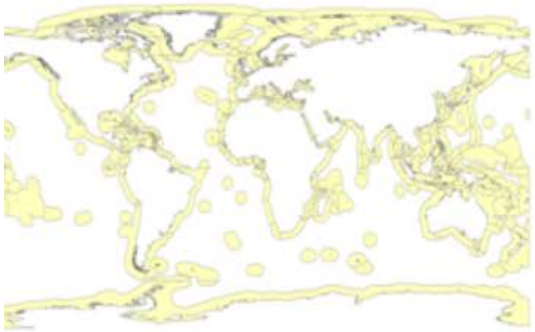
Exclusive Economic Zones (EEZ)



Exclusive Economic Zones Boundaries (EEZ)

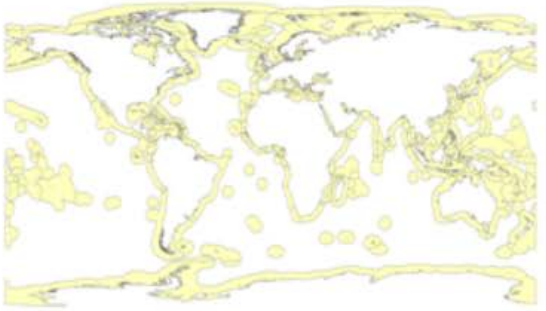
Marine Regions: intersect EEZ and IHO Seas

Intersect Tool



Erase EEZ and countries

Merge of both layers



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Marine Regions

Name	**Language**	**Name**	**Source**
	English	German part of the North Sea	

PlaceType Marine Region

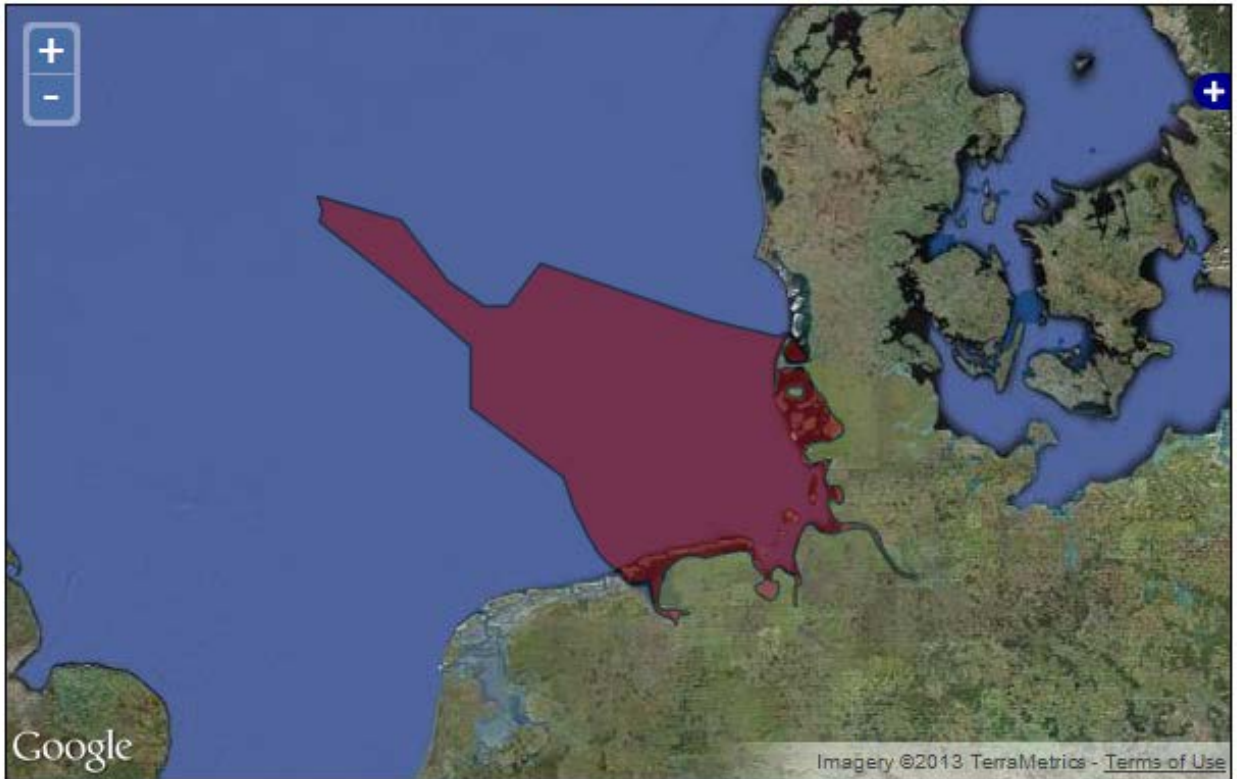
Latitude 54° 35' 34.2" N (54.59282°)

Longitude 6° 47' 0.5" E (6.78346°)

Source Maritime Boundaries Geodatabase, Flanders Marine Institute, *available online at* http://www.marineregions.org/eez.php

Relations Part of North Sea (IHO Sea Area) [view hierarchy]
Part of German Exclusive Economic Zone (EEZ) [view hierarchy]

Map



New product intersect EEZ|IHO Seas: Marine Regions

English High seas of the North Atlantic Ocean

PlaceType Marine Region

Latitude 30° 6' 31.3" N (30.108681°)

Longitude 38° 20' 38.8" W (-38.344124°)

Min. Lat 0° 0' 0" N (0°)

Min. Long 76° 58' 3.1" W (-76.9675°)

Max. Lat 63° 18' 48" N (63.3133°)

Max. Long 3° 14' 7.5" E (3.2354°)

Relation Part of North Atlantic Ocean (IHO Sea Area) [view hierarchy]

Map

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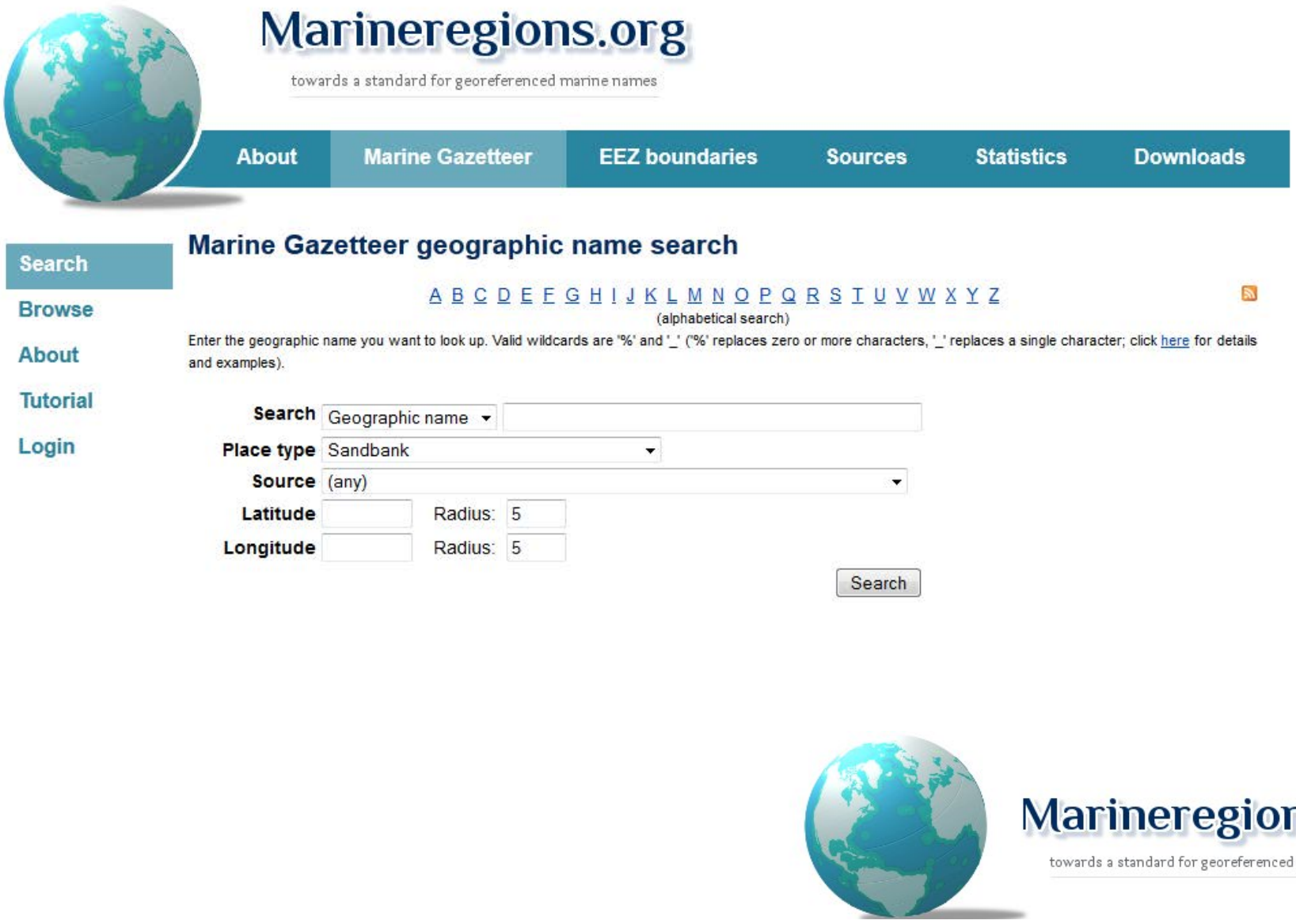
eferenced marine names

Marine Regions webinterface



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Marine Gazetteer Search results

Your search for '' returned 132 records, showing records 1-100

Aberdeen Bank (Sandbank)
Adlergrund (Sandbank)
Akkaert Bank (Sandbank)
Amrumbank (Sandbank)
Appelzak (Sandbank)
Bakkegrund (Sandbank)
Baland Bank (Sandbank)
Balgzand (Sandbank)
Ballastplaat (Sandbank)
Banc de Saint-Pol (Sandbank)
Banjaard (Sandbank)
Bank zonder Naam (Sandbank)
Bankje van Zoutelande (Sandbank)
Bergen Bank (Sandbank)

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Marine Gazetteer Placedetails

MRGID 2437
Status Proposed standard
Name

Language	Name	Source
Dutch	Akkaert Bank	ASFA thesaurus

PlaceType Sandbank
Latitude 51° 25' 22.6" N (51.42294°)
Longitude 2° 52' 37.1" E (2.876971°)
Precision 14280 meter
Min. Lat 51° 21' 17.8" N (51.3549°)
Min. Long 2° 42' 8.4" E (2.7023°)
Max. Lat 51° 29' 27.4" N (51.491°)
Max. Long 3° 3' 5.8" E (3.0516°)
Source ASFA thesaurus, *available online at* http://www4.fao.org/asfa/asfa.htm

hp

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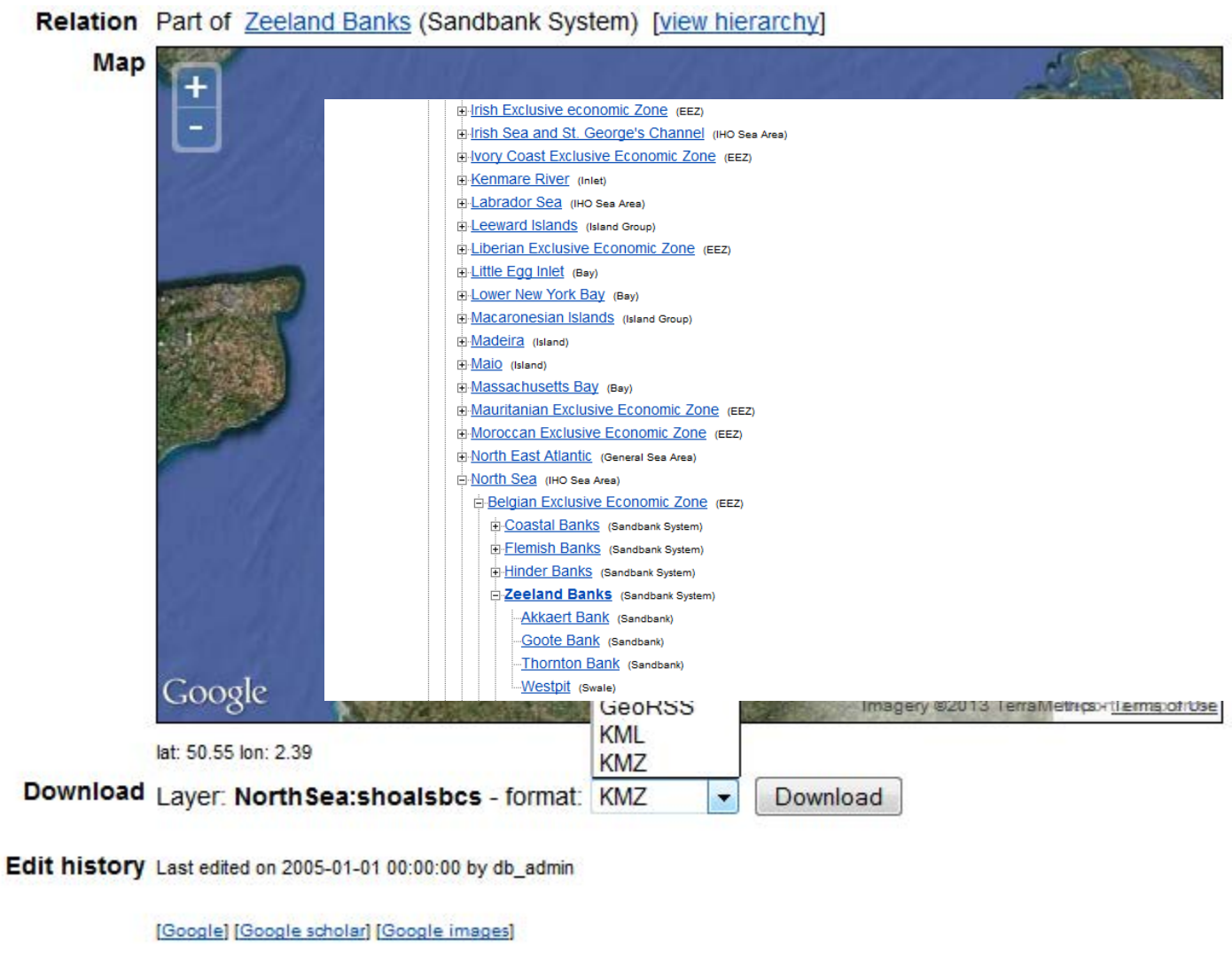
Marine Regions webinterface



Marine Regions: MRGID

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Standards

Place names change over time, and the same names may be used for different locations. Available gazetteers may find locations of some marine place names, but a truly global standard for marine place names is lacking. Marine Regions tries to establish for the first time a standardized list of georeferenced marine place names and marine areas. In order to preserve the identity of the marine geographic objects from the database, and to name and locate the geographic resources on the web, we promote the Marine Regions Geographic IDentifier, or the **MRGID**.

MRGID

Marine **R**egions **G**eographic **ID**entifier

- unique:
- persistent:
- identifier: to refer to a Geographic Object

For an identifier to be persistent, it requires the governing body to arrange for the identifier to be available for the long term. Use of the MRGID, as URI and persistent identifier has the commitment of the Flanders Marine Institute, issuing the identifier to maintain the http domain registration, and a strategy for managing the domain and the web servers.

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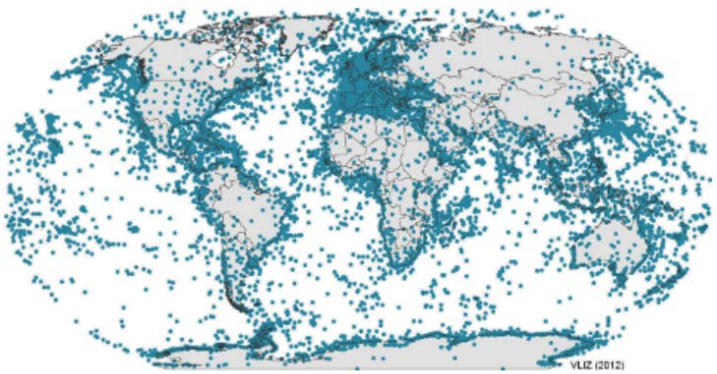
Data content Marine Regions

- 36,081 place names, representing 28,814 marine geographic places



- Regional checklists (Antarctic, Black Sea, North Sea…)
- Global checklists (SCUFN, UNESCO Marine Heritage Sites, ASFA, WoRMS….)
- Marine boundaries (EEZ, IHO, MEOW, LME, FAO Fishing zones, Seavox,Longhurst, ICES, Marine Regions, Natura2000 Sites)

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Marine regions works with an editorial board, responsible for the content and quality control of the data. Marine Regions. We have editors that are responsible for the content of a specific source and the update of that source within Marine Regions and regional editors, that are in charge of a specific geographic area. You can apply for membership by sending your contact details, interest and proposed contribution

- Mr. Fabio Carocci
  Fisheries and Aquaculture Resources Use and Conservation Division
  Food and Agriculture Organization (FAO)
  Quality control EEZ Boundaries & link between the FAO Marine Areas and Marine Regions

- Mr. Evan Centanni
  Political Geography Now
  Quality control by providing feedback on political maritime geography issues

- Mr. David Forcucci
  US Coast Guard
  Quality control of the EEZ boundaries and providing geographic information from the Arctic region to Marine Regions.

- Dr. Mario H. Londono-Mesa
  University of Antioquia, Medellin, Colombia
  Editor for the Colombian part of the Caribbean Sea

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Add a Gazetteer Item

MRGID	(Automatically generated)
Preferred Appellation*	
Appellation Source	(none)
Placetype*	
Language*	English
Parent Locality*	[help]
Latitude	[decimal degrees]
Longitude	[decimal degrees]
Minimum Latitude	[decimal degrees]
Minimum Longitude	[decimal degrees]
Maximum Latitude	[decimal degrees]
Maximum Longitude	[decimal degrees]

Create

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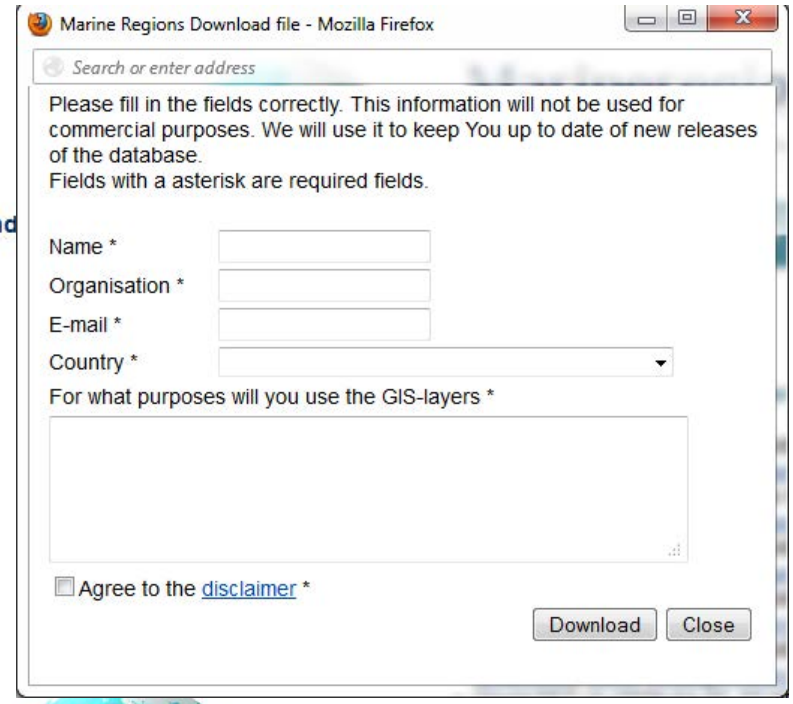
- Shapefiles
- Web services
- Static Maps

Shapefiles

- Exclusive Economic Zones Boundaries (EEZ)
- IHO Sea Areas
- Marineregions: intersect of EEZ's and IHO areas
- Marine and land zones: the union of world country boundaries and
- World Marine Heritage Sites
- FAO Fishing Areas
- Large Marine Ecosystems of the World
- Longhurst Biogeographical Provinces
- ICES Ecoregions
- OSPAR Boundaries
- Marine Ecoregions of the World, MEOW (Spalding et al., 2007)



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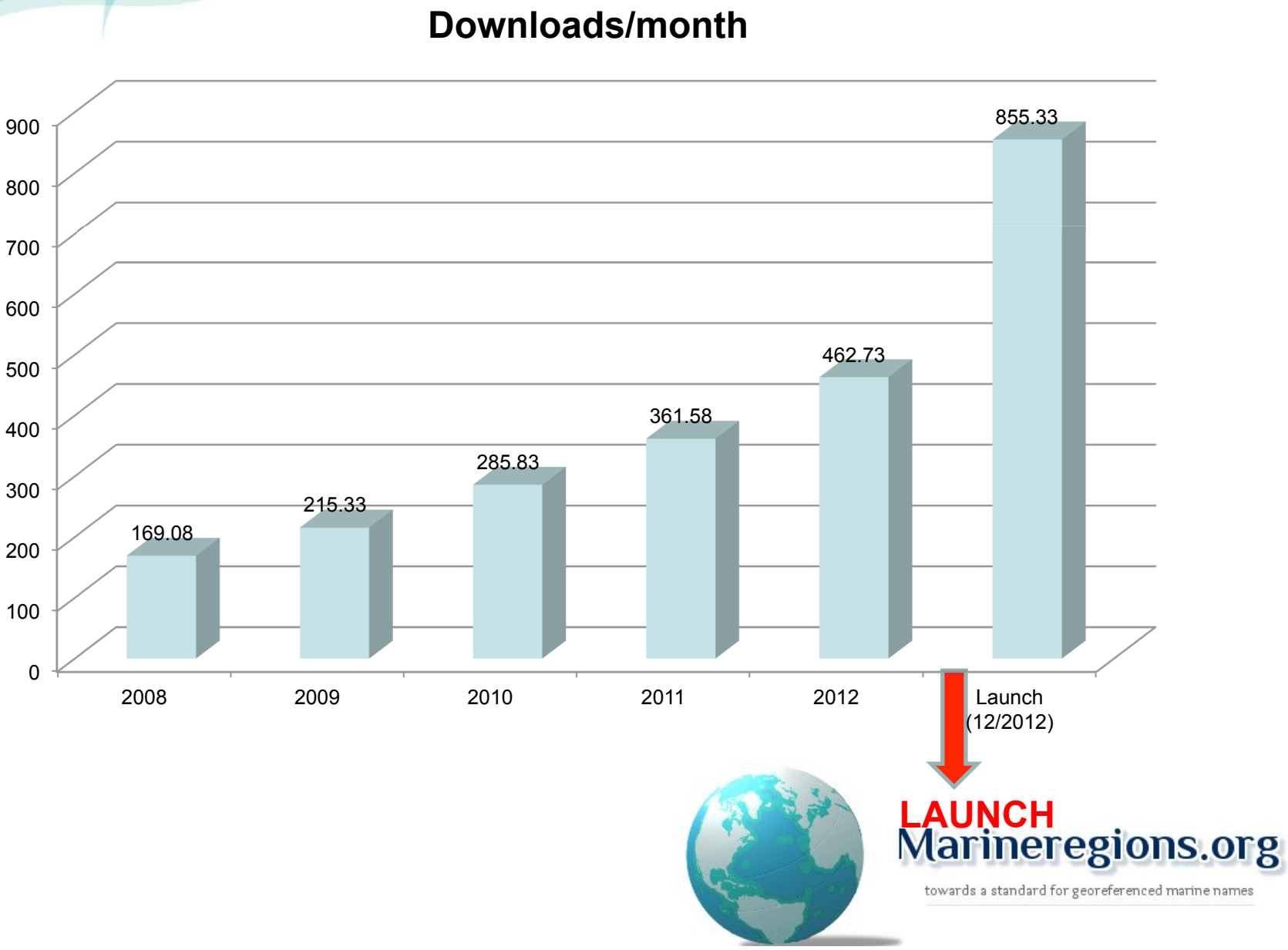
Users


Downloads/month
900
800
700
600
500
400
300
200
100
0
169.08
215.33
285.83
361.58
462.73
855.33
2008
2009
2010
2011
2012
Launch
(12/2012)
LAUNCH
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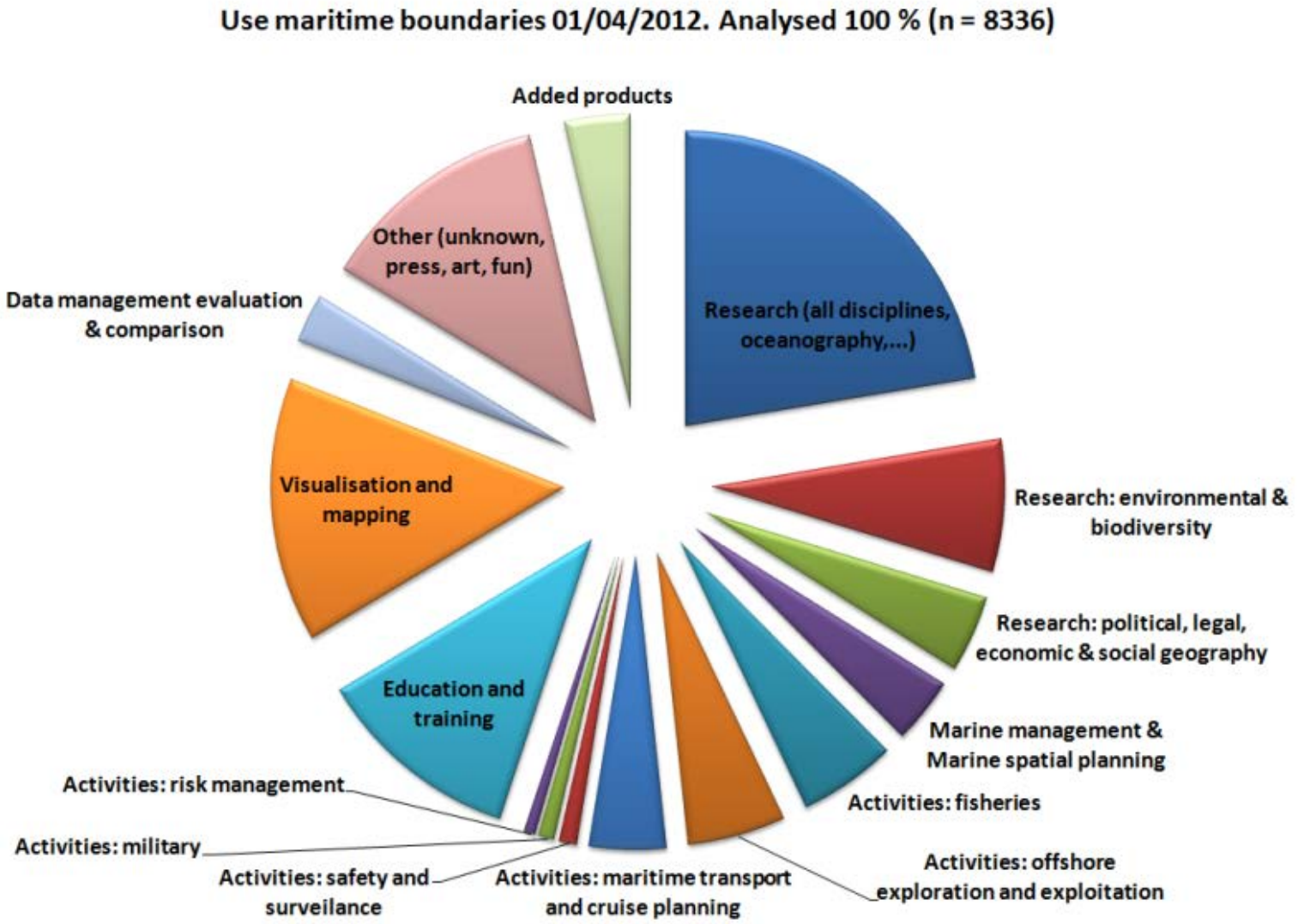
Users


Use maritime boundaries 01/04/2012. Analysed 100 % (n = 8336)
Added products
Other (unknown, press, art, fun)
Data management evaluation & comparison
Research (all disciplines, oceanography,...)
Visualisation and mapping
Research: environmental & biodiversity
Research: political, legal, economic & social geography
Education and training
Marine management & Marine spatial planning
Activities: risk management
Activities: fisheries
Activities: military
Activities: offshore exploration and exploitation
Activities: safety and surveilance
Activities: maritime transport and cruise planning

Web services

1. WMS|WFS services: retrieve maps|features

2. SOAP|Restful services: retrieve names, MRGID, coordinates, classifications

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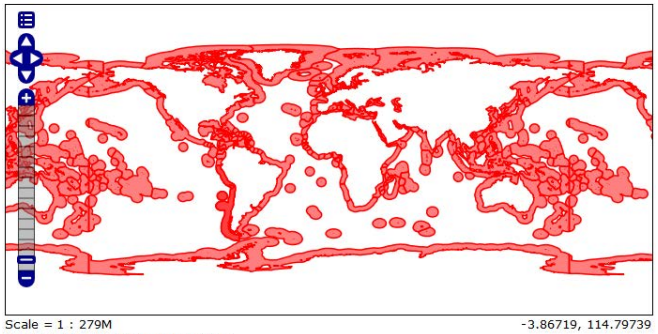
WMS/WFS Web services

http://geo.vliz.be/geoserver/MarineRegions/wms?Request=getCapabilities

http://geo.vliz.be/geoserver/MarineRegions/wfs?Request=getCapabilities



Scale = 1 : 279M -3.86719, 114.79739

Click on the map to get feature info

MRGID 29136

Status Proposed standard

Name	**Language**	**Name**	**Source**
	German	Seevogelschutzgebiet Helgoland	Natura 2000 Sites, European Environment Agency (EEA) 2011)

PlaceType Natura 2000 Special Protection Area (SPA, EU Birds Directive)

Latitude 54° 17' 17.2" N (54.288107°)

Longitude 8° 9' 12.5" E (8.153459°)

Source Natura 2000 Sites, European Environment Agency (EEA) (Updates 2011), *available online at* http://www.eea.europa.eu/data-and-maps/data/natura-2

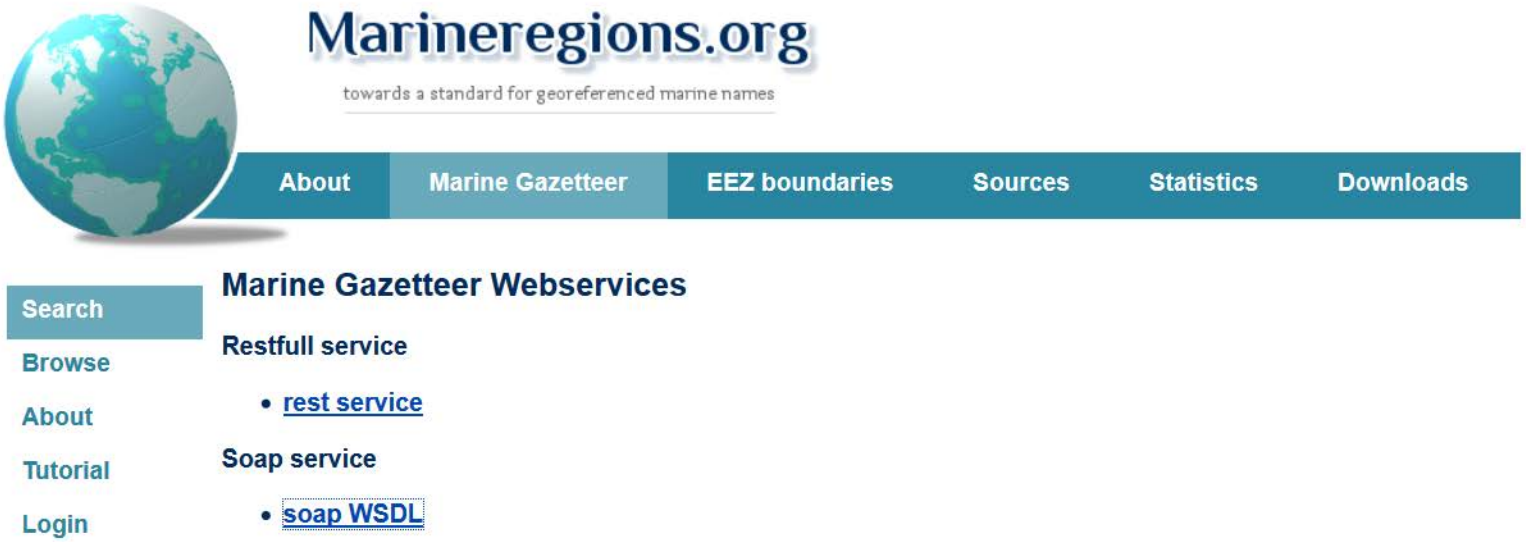
Links http://natura2000.eea.europa.eu/natura2000/SDFPublic.aspx?site=DE1813491

Relations Part of North Sea (IHO Sea Area) [view hierarchy]
Part of German Exclusive Economic Zone (EEZ) [view hierarchy]

Map

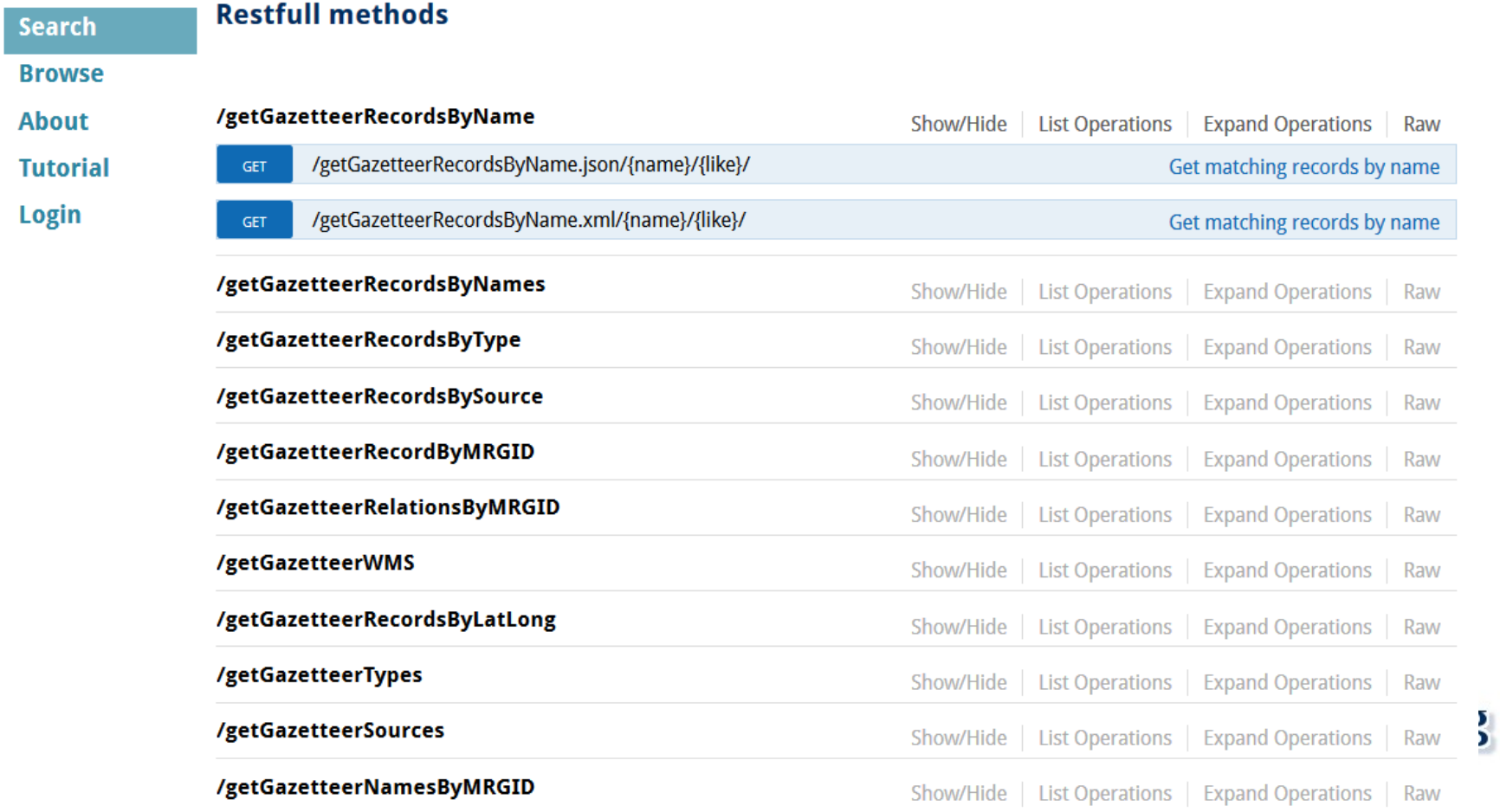
Web services

SOAP services| Rest services



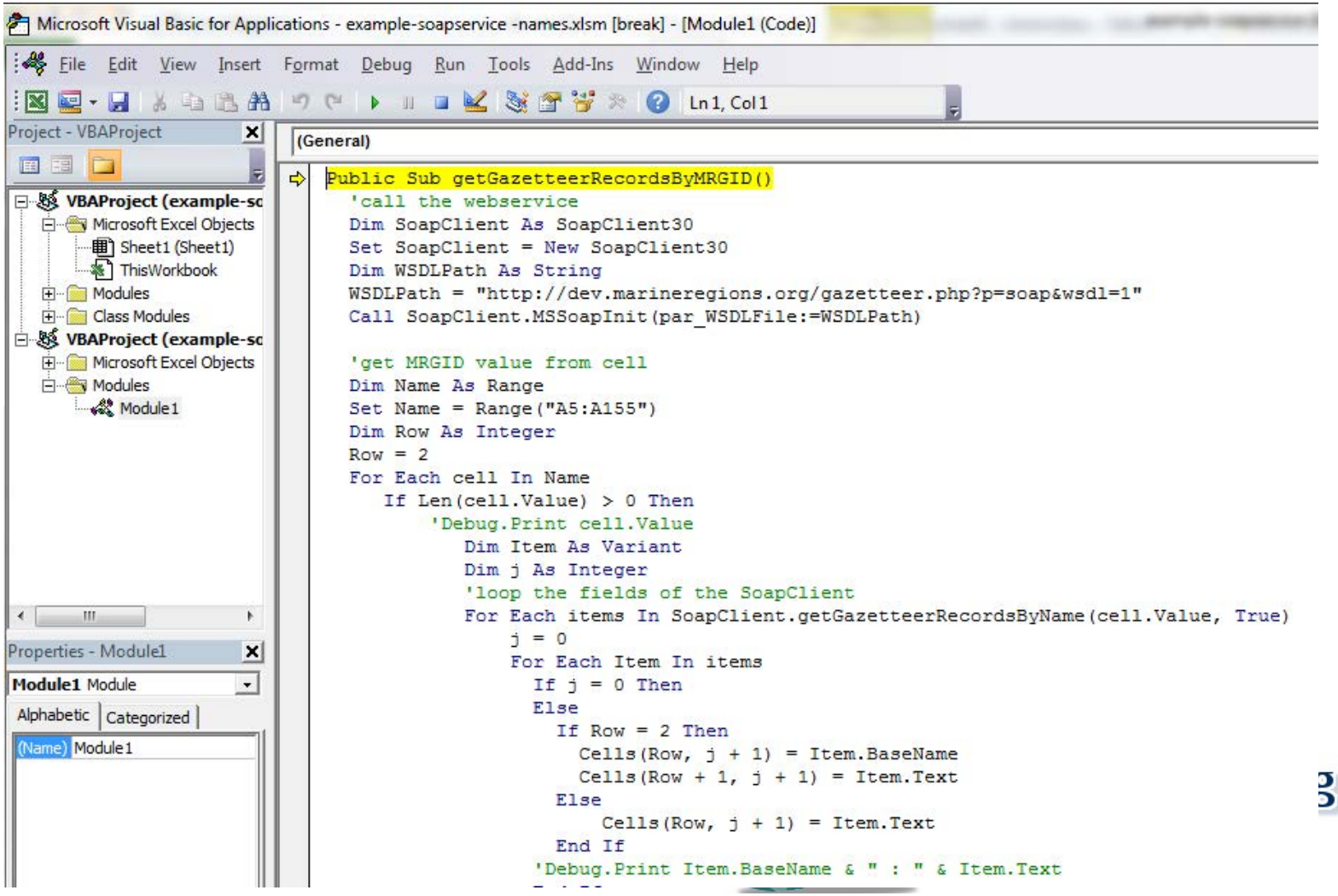
Web services

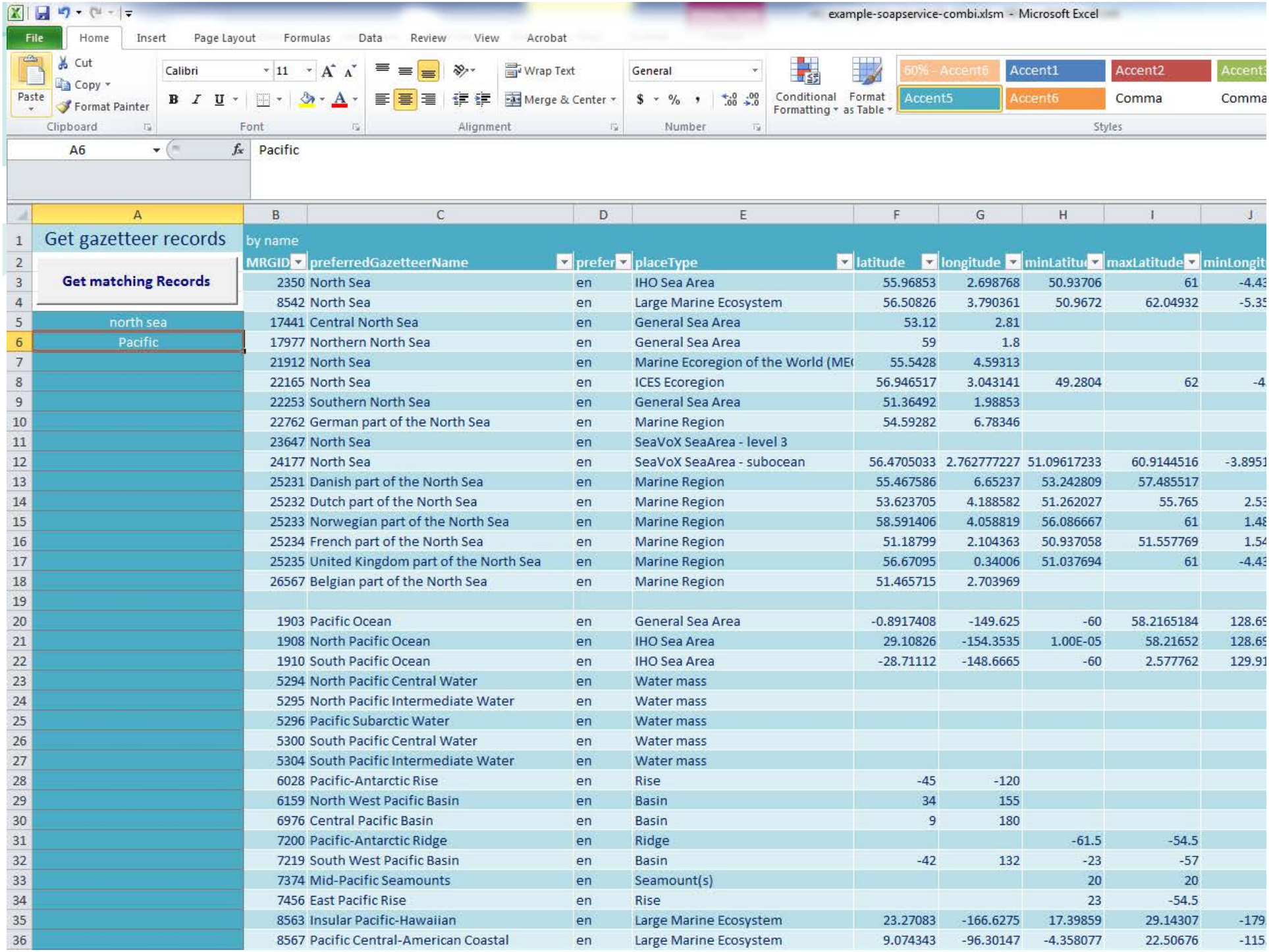
SOAP services | Rest services: methods



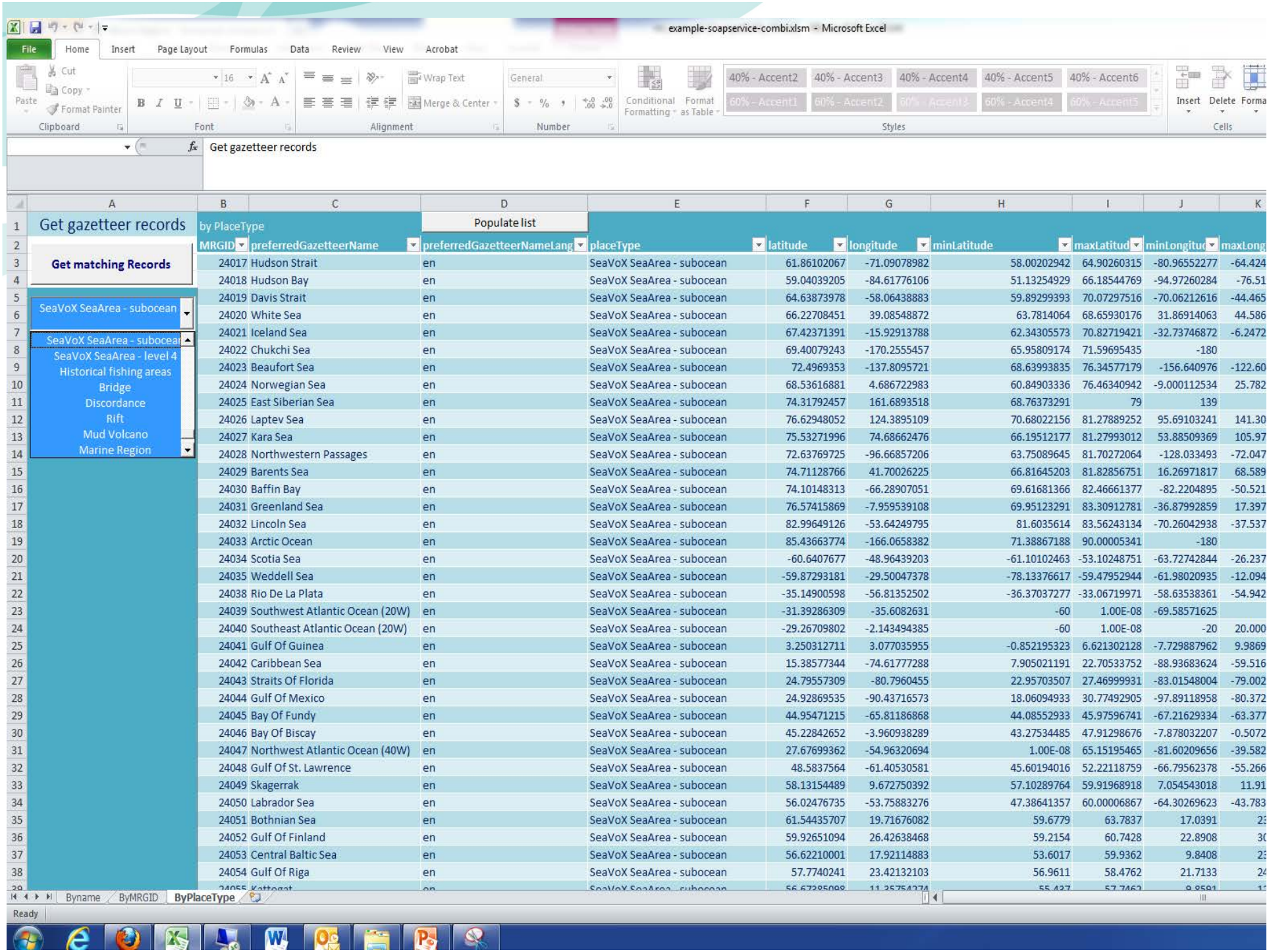
Web services

SOAP services: implementation for Excel





MRGID	preferredGazetteerName	prefer	placeType	latitude	longitude	minLatitu	maxLatitude	minLongit
2350	North Sea	en	IHO Sea Area	55.96853	2.698768	50.93706	61	-4.43
8542	North Sea	en	Large Marine Ecosystem	56.50826	3.790361	50.9672	62.04932	-5.35
17441	Central North Sea	en	General Sea Area	53.12	2.81			
17977	Northern North Sea	en	General Sea Area	59	1.8			
21912	North Sea	en	Marine Ecoregion of the World (ME	55.5428	4.59313			
22165	North Sea	en	ICES Ecoregion	56.946517	3.043141	49.2804	62	-4
22253	Southern North Sea	en	General Sea Area	51.36492	1.98853			
22762	German part of the North Sea	en	Marine Region	54.59282	6.78346			
23647	North Sea	en	SeaVoX SeaArea - level 3					
24177	North Sea	en	SeaVoX SeaArea - subocean	56.4705033	2.762777227	51.09617233	60.9144516	-3.8951
25231	Danish part of the North Sea	en	Marine Region	55.467586	6.65237	53.242809	57.485517	
25232	Dutch part of the North Sea	en	Marine Region	53.623705	4.188582	51.262027	55.765	2.53
25233	Norwegian part of the North Sea	en	Marine Region	58.591406	4.058819	56.086667	61	1.48
25234	French part of the North Sea	en	Marine Region	51.18799	2.104363	50.937058	51.557769	1.54
25235	United Kingdom part of the North Sea	en	Marine Region	56.67095	0.34006	51.037694	61	-4.43
26567	Belgian part of the North Sea	en	Marine Region	51.465715	2.703969			
1903	Pacific Ocean	en	General Sea Area	-0.8917408	-149.625	-60	58.2165184	128.65
1908	North Pacific Ocean	en	IHO Sea Area	29.10826	-154.3535	1.00E-05	58.21652	128.65
1910	South Pacific Ocean	en	IHO Sea Area	-28.71112	-148.6665	-60	2.577762	129.91
5294	North Pacific Central Water	en	Water mass					
5295	North Pacific Intermediate Water	en	Water mass					
5296	Pacific Subarctic Water	en	Water mass					
5300	South Pacific Central Water	en	Water mass					
5304	South Pacific Intermediate Water	en	Water mass					
6028	Pacific-Antarctic Rise	en	Rise	-45	-120			
6159	North West Pacific Basin	en	Basin	34	155			
6976	Central Pacific Basin	en	Basin	9	180			
7200	Pacific-Antarctic Ridge	en	Ridge			-61.5	-54.5	
7219	South West Pacific Basin	en	Basin	-42	132	-23	-57	
7374	Mid-Pacific Seamounts	en	Seamount(s)			20	20	
7456	East Pacific Rise	en	Rise			23	-54.5	
8563	Insular Pacific-Hawaiian	en	Large Marine Ecosystem	23.27083	-166.6275	17.39859	29.14307	-179
8567	Pacific Central-American Coastal	en	Large Marine Ecosystem	9.074343	-96.30147	-4.358077	22.50676	-115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Data
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View
Acrobat
Get gazetteer records
by PlaceType
Populate list
Get matching Records
SeaVoX SeaArea - subocean
SeaVoX SeaArea - level 4
Historical fishing areas
Bridge
Discordance
Rift
Mud Volcano
Marine Region
MRGID
preferredGazetteerName
preferredGazetteerNameLang
placeType
latitude
longitude
minLatitude
maxLatitud
minLongitud
maxLong
24017 Hudson Strait en SeaVoX SeaArea - subocean 61.86102067 -71.09078982 58.00202942 64.90260315 -80.96552277 -64.424
24018 Hudson Bay en SeaVoX SeaArea - subocean 59.04039205 -84.61776106 51.13254929 66.18544769 -94.97260284 -76.51
24019 Davis Strait en SeaVoX SeaArea - subocean 64.63873978 -58.06438883 59.89299393 70.07297516 -70.06212616 -44.465
24020 White Sea en SeaVoX SeaArea - subocean 66.22708451 39.08548872 63.7814064 68.65930176 31.86914063 44.586
24021 Iceland Sea en SeaVoX SeaArea - subocean 67.42371391 -15.92913788 62.34305573 70.82719421 -32.73746872 -6.2472
24022 Chukchi Sea en SeaVoX SeaArea - subocean 69.40079243 -170.2555457 65.95809174 71.59695435 -180
24023 Beaufort Sea en SeaVoX SeaArea - subocean 72.4969353 -137.8095721 68.63993835 76.34577179 -156.640976 -122.60
24024 Norwegian Sea en SeaVoX SeaArea - subocean 68.53616881 4.686722983 60.84903336 76.46340942 -9.000112534 25.782
24025 East Siberian Sea en SeaVoX SeaArea - subocean 74.31792457 161.6893518 68.76373291 79 139
24026 Laptev Sea en SeaVoX SeaArea - subocean 76.62948052 124.3895109 70.68022156 81.27889252 95.69103241 141.30
24027 Kara Sea en SeaVoX SeaArea - subocean 75.53271996 74.68662476 66.19512177 81.27993012 53.88509369 105.97
24028 Northwestern Passages en SeaVoX SeaArea - subocean 72.63769725 -96.66857206 63.75089645 81.70272064 -128.033493 -72.047
24029 Barents Sea en SeaVoX SeaArea - subocean 74.71128766 41.70026225 66.81645203 81.82856751 16.26971817 68.589
24030 Baffin Bay en SeaVoX SeaArea - subocean 74.10148313 -66.28907051 69.61681366 82.46661377 -82.2204895 -50.521
24031 Greenland Sea en SeaVoX SeaArea - subocean 76.57415869 -7.959539108 69.95123291 83.30912781 -36.87992859 17.397
24032 Lincoln Sea en SeaVoX SeaArea - subocean 82.99649126 -53.64249795 81.6035614 83.56243134 -70.26042938 -37.537
24033 Arctic Ocean en SeaVoX SeaArea - subocean 85.43663774 -166.0658382 71.38867188 90.00005341 -180
24034 Scotia Sea en SeaVoX SeaArea - subocean -60.6407677 -48.96439203 -61.10102463 -53.10248751 -63.72742844 -26.237
24035 Weddell Sea en SeaVoX SeaArea - subocean -59.87293181 -29.50047378 -78.13376617 -59.47952944 -61.98020935 -12.094
24038 Rio De La Plata en SeaVoX SeaArea - subocean -35.14900598 -56.81352502 -36.37037277 -33.06719971 -58.63538361 -54.942
24039 Southwest Atlantic Ocean (20W) en SeaVoX SeaArea - subocean -31.39286309 -35.6082631 -60 1.00E-08 -69.58571625
24040 Southeast Atlantic Ocean (20W) en SeaVoX SeaArea - subocean -29.26709802 -2.143494385 -60 1.00E-08 -20 20.000
24041 Gulf Of Guinea en SeaVoX SeaArea - subocean 3.250312711 3.077035955 -0.852195323 6.621302128 -7.729887962 9.9869
24042 Caribbean Sea en SeaVoX SeaArea - subocean 15.38577344 -74.61777288 7.905021191 22.70533752 -88.93683624 -59.516
24043 Straits Of Florida en SeaVoX SeaArea - subocean 24.79557309 -80.7960455 22.95703507 27.46999931 -83.01548004 -79.002
24044 Gulf Of Mexico en SeaVoX SeaArea - subocean 24.92869535 -90.43716573 18.06094933 30.77492905 -97.89118958 -80.372
24045 Bay Of Fundy en SeaVoX SeaArea - subocean 44.95471215 -65.81186868 44.08552933 45.97596741 -67.21629334 -63.377
24046 Bay Of Biscay en SeaVoX SeaArea - subocean 45.22842652 -3.960938289 43.27534485 47.91298676 -7.878032207 -0.5072
24047 Northwest Atlantic Ocean (40W) en SeaVoX SeaArea - subocean 27.67699362 -54.96320694 1.00E-08 65.15195465 -81.60209656 -39.582
24048 Gulf Of St. Lawrence en SeaVoX SeaArea - subocean 48.5837564 -61.40530581 45.60194016 52.22118759 -66.79562378 -55.266
24049 Skagerrak en SeaVoX SeaArea - subocean 58.13154489 9.672750392 57.10289764 59.91968918 7.054543018 11.91
24050 Labrador Sea en SeaVoX SeaArea - subocean 56.02476735 -53.75883276 47.38641357 60.00006867 -64.30269623 -43.783
24051 Bothnian Sea en SeaVoX SeaArea - subocean 61.54435707 19.71676082 59.6779 63.7837 17.0391
24052 Gulf Of Finland en SeaVoX SeaArea - subocean 59.92651094 26.42638468 59.2154 60.7428 22.8908
24053 Central Baltic Sea en SeaVoX SeaArea - subocean 56.62210001 17.92114883 53.6017 59.9362 9.8408
24054 Gulf Of Riga en SeaVoX SeaArea - subocean 57.7740241 23.42132103 56.9611 58.4762 21.7133
Byname
ByMRGID
ByPlaceType
Ready

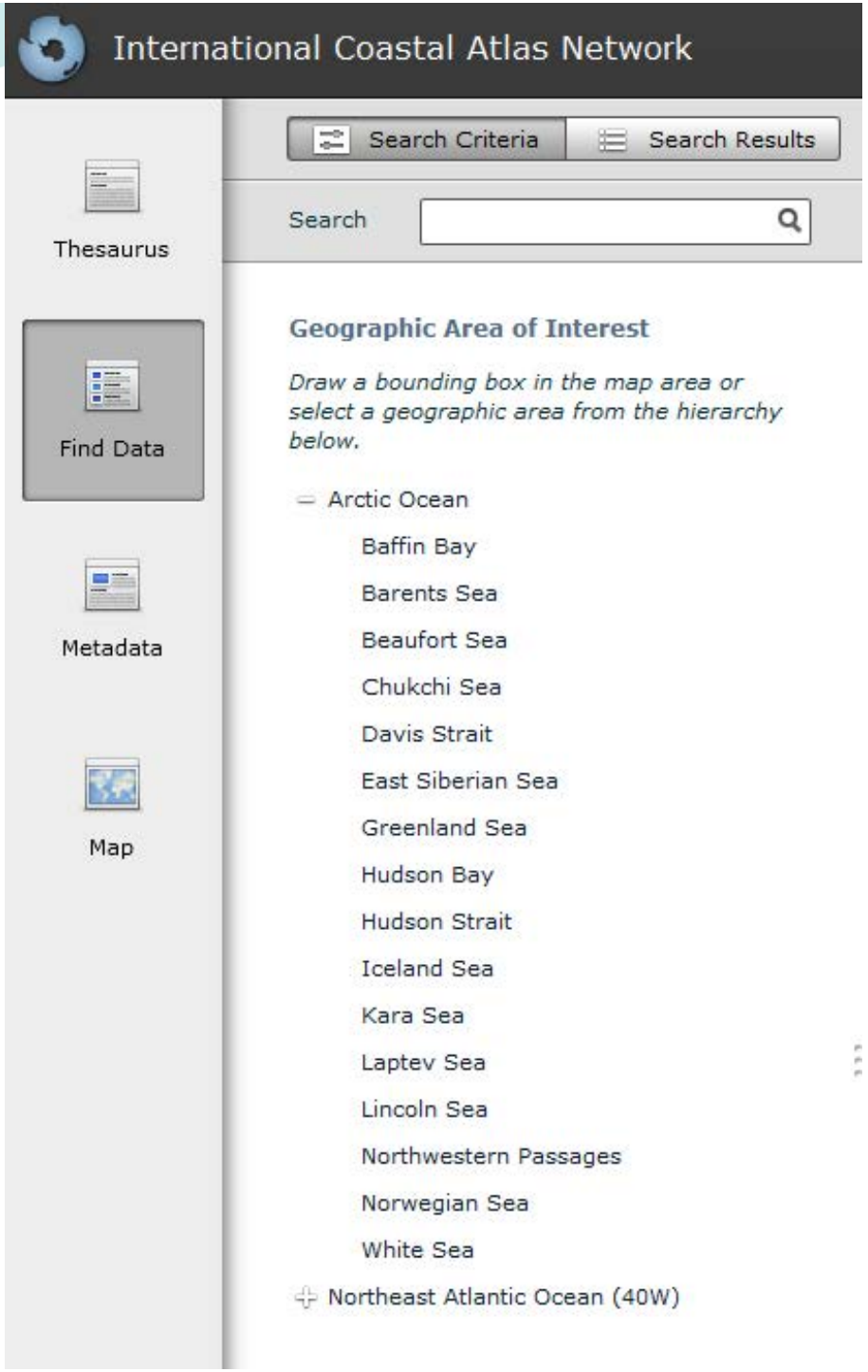
Web services

Include boundaries into

ICAN prototype (EEZ, Seas, Marine regions, MPA,…) via WMS

Marineregions.org

towards a standard for georeferenced marine names

Web services

Explore how prototype portal can use marineregions SOAP webservices to access standardized names of geographic areas