REPORT ON MARINE REGIONS ACTIVITIES

REPORT FOR SCUFN-30 MEETING, GENOA, OCTOBER 2017

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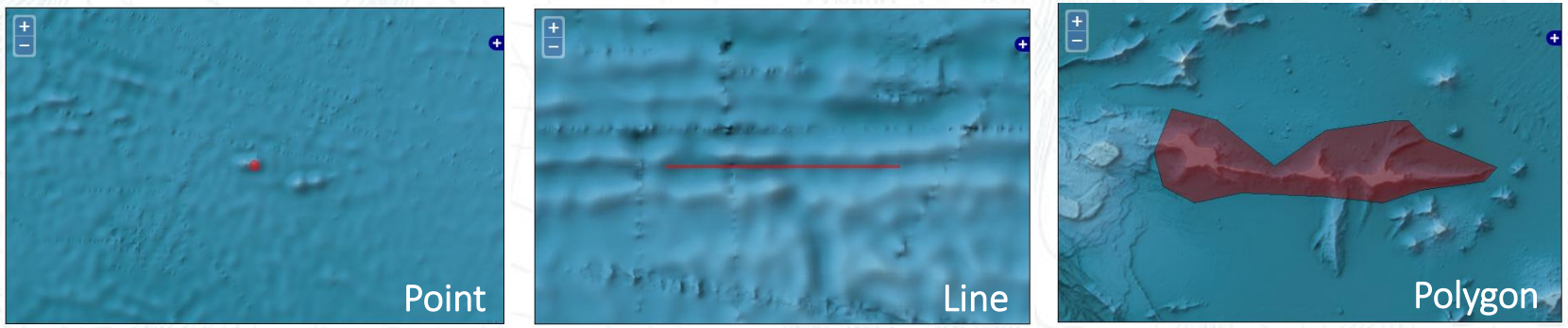
- Marine Regions is a standard list of marine georeferenced place names and areas.
- One of the data systems being developed and managed by VLIZ.
- Serves as the geographic backbone for large-scale integrated biogeographic databases.

Overview of the system

Marine Regions Geo-object

- The identity of each feature or geo-object in the database is given by a unique and persistent Marine Regions Geographic IDentifier: MRGID.
- Each geo-object is defined by a place type and its coordinates (vector) but can have multiple synonyms.

Geometry



Overview of the system

Hierarchical structure

- Each geographic unit in the database points to one or more other units applying different relation types.
- Such hierarchical structure is essential to integrate biogeographic data.

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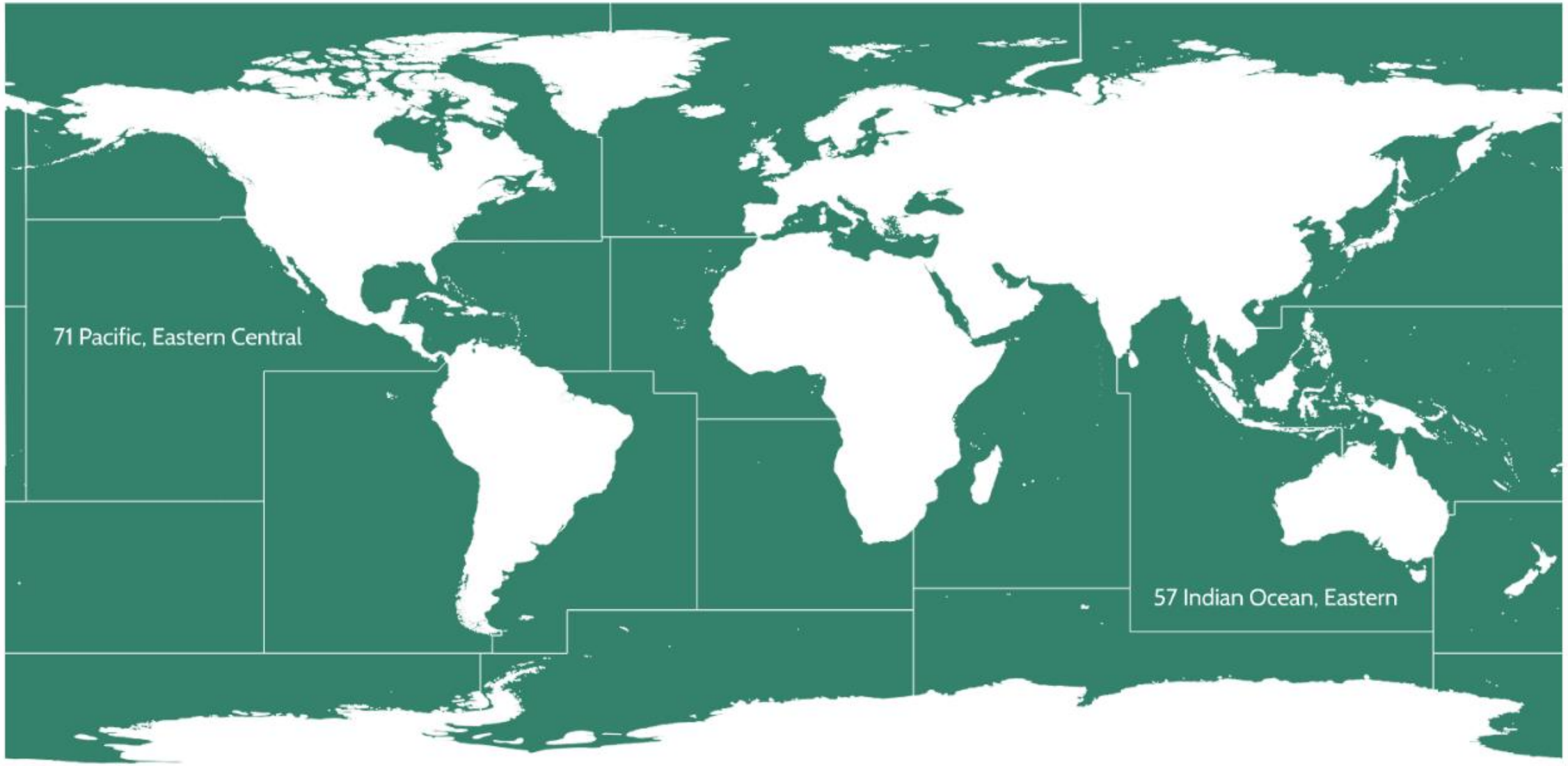
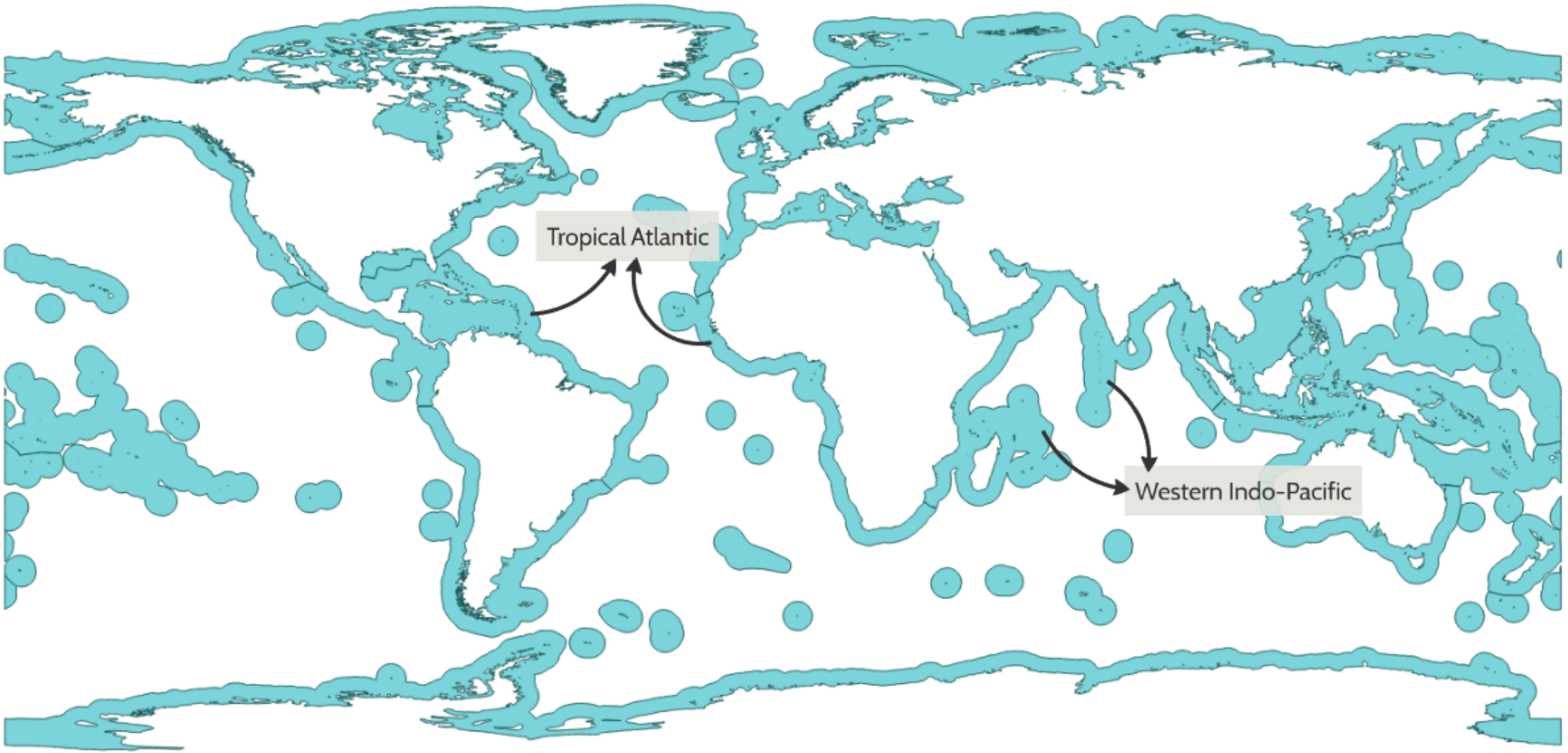
- **Thematic gazetteers**
  Natura 2000, UNESCO Marine Heritage, SCUFN, ACUF, ASFA
- **Administrative areas**
  EEZ, IHO Sea Areas, FAO Fishing Areas, NAFO, ICES, Seavox
- **Ecological classifications**
  (LME, Longhurst, MEOW, ICES)

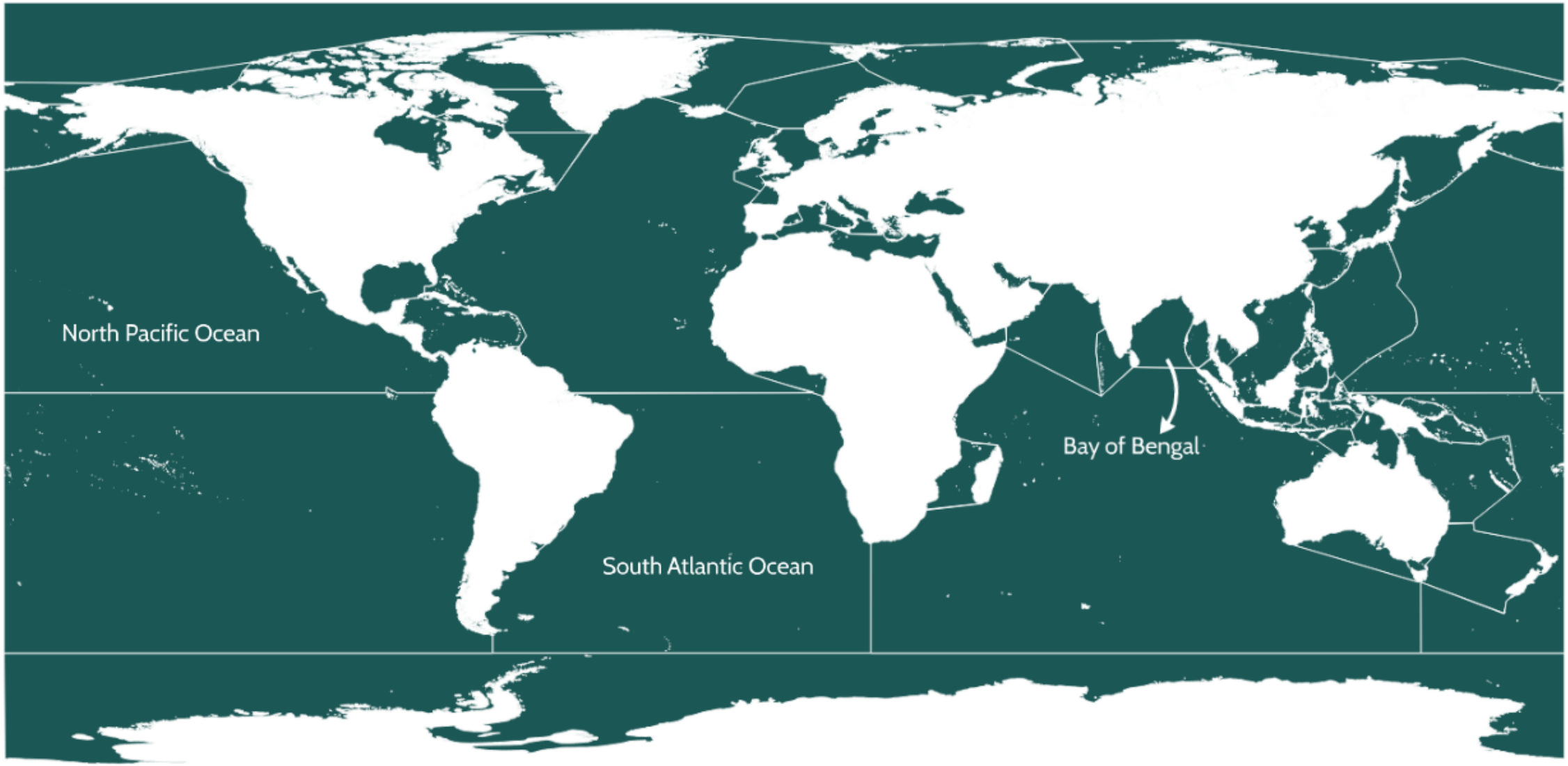
FAO Fishing Areas



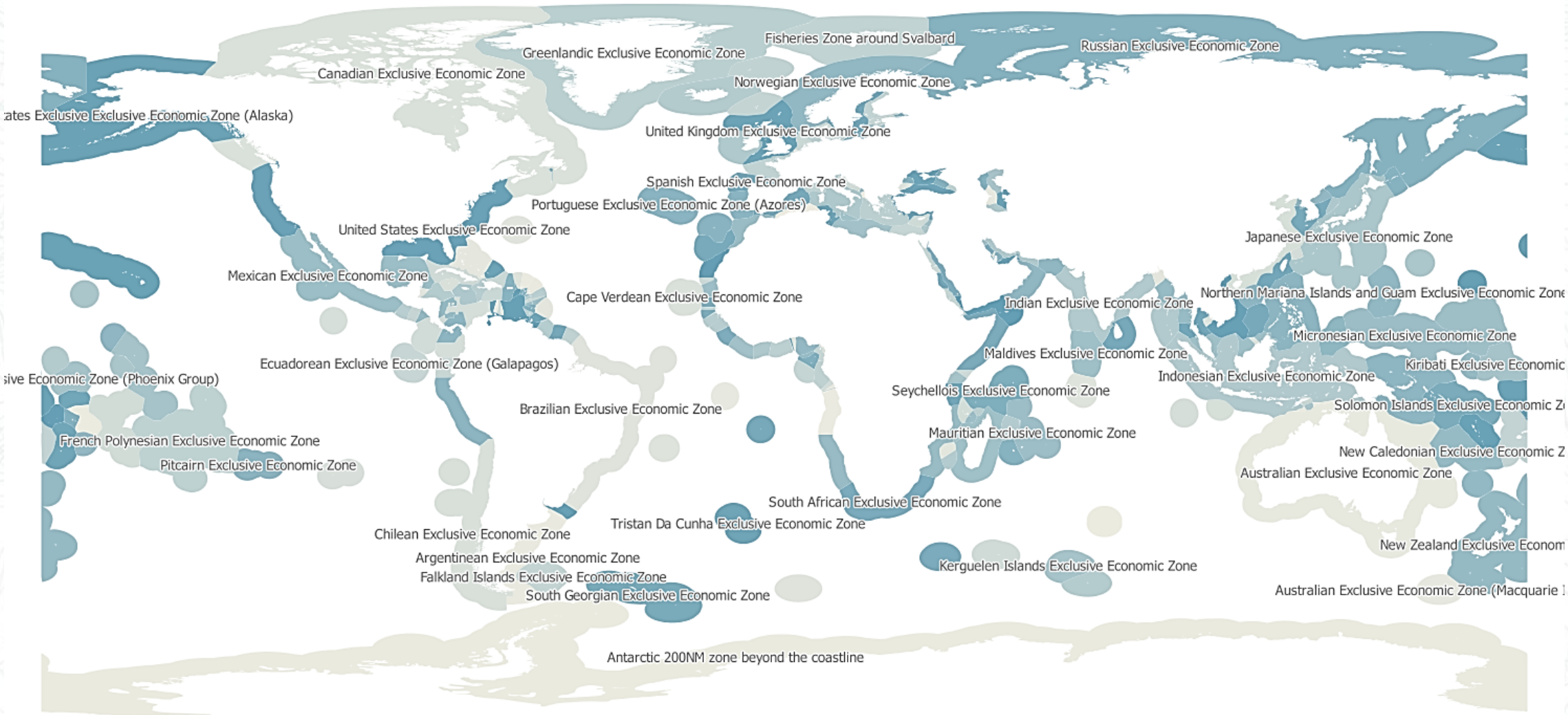
Marine Ecoregions of the World



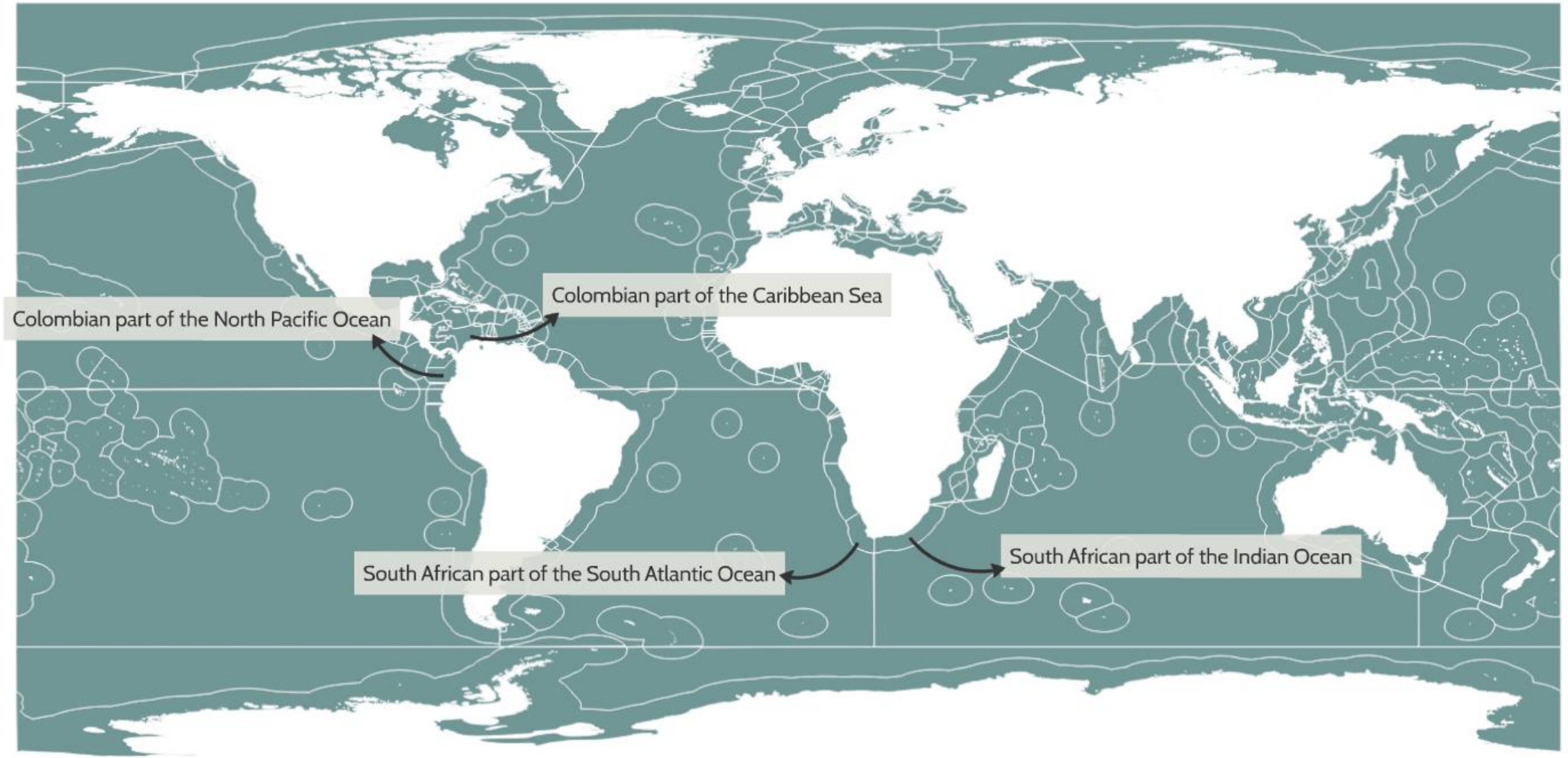
IHO Sea Areas



Exclusive Economic Zones (EEZs)



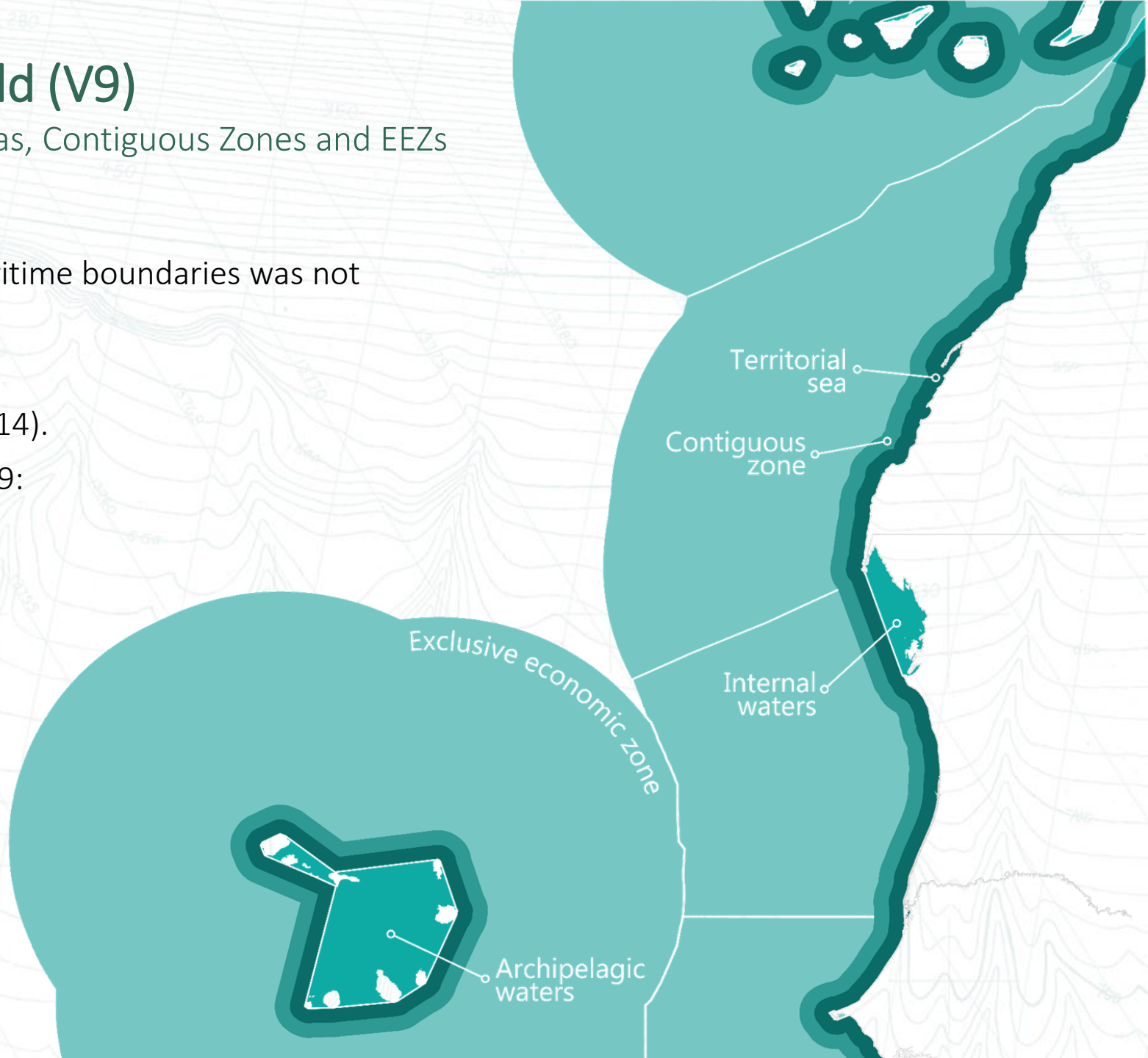
Marine Regions of the world (intersection EEZs & IHO)



Maritime boundaries of the world (V9)

Internal and Archipelagic Waters, Territorial Seas, Contiguous Zones and EEZs

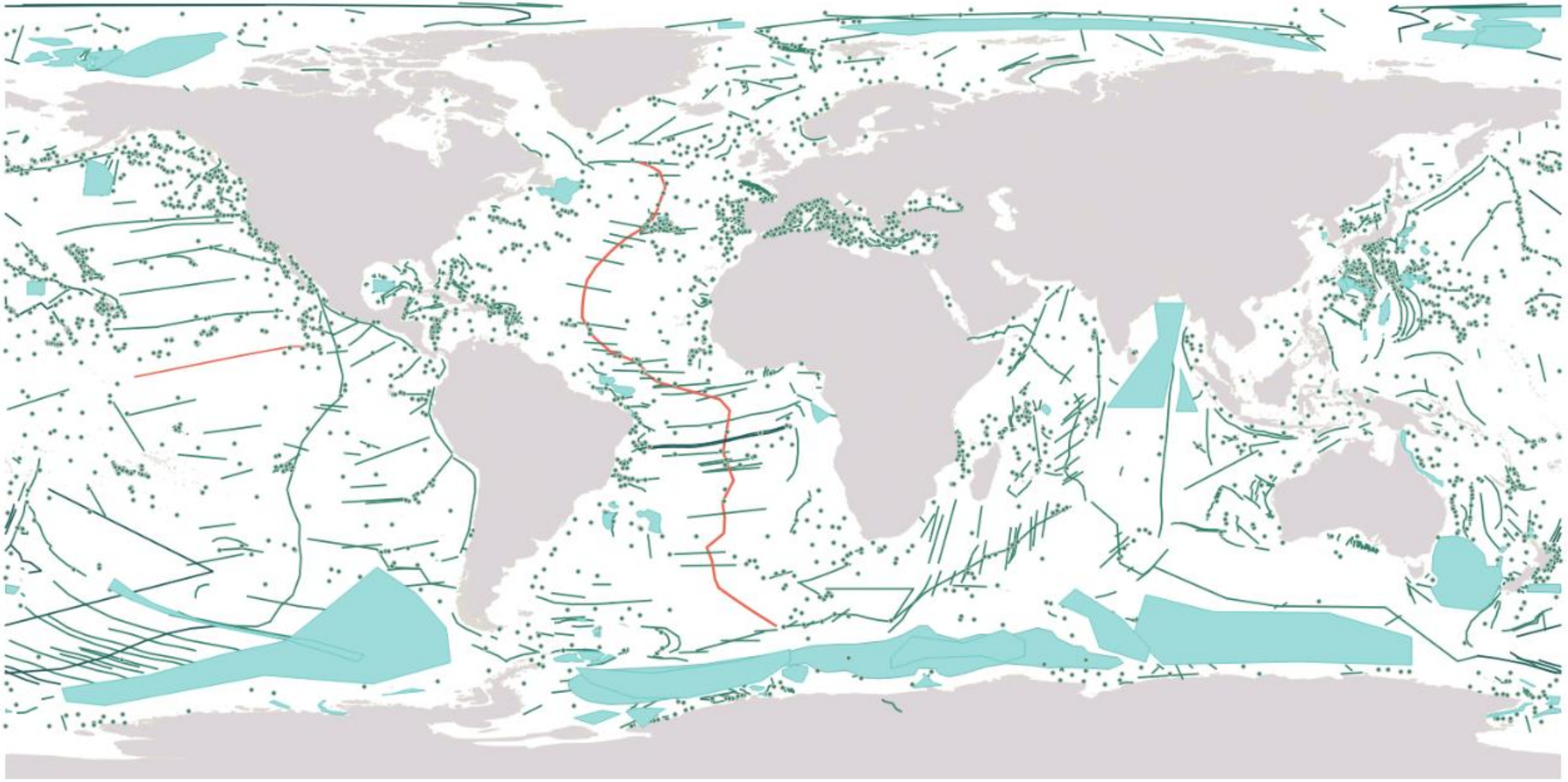
- Standard georeferenced product with maritime boundaries was not available at the global until 2006 (VLIZ).
- Product: EEZs areas and boundaries.
- Regular updates from V1 (2006) to V8 (2014).
- Major update and upgrade in 2016 with V9:
  - internal waters
  - archipelagic waters
  - territorial seas
  - contiguous zones
  - EEZs including joint regimes



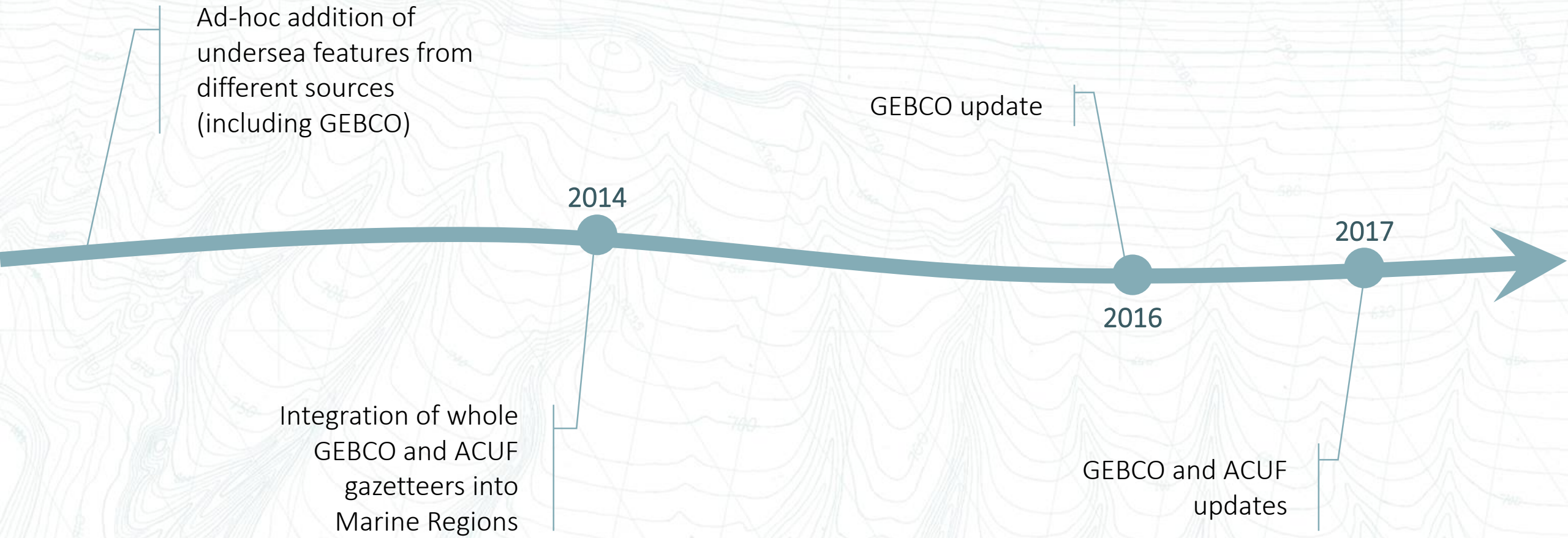
Maritime boundaries of the world (V9)

Internal and Archipelagic Waters, Territorial Seas, Contiguous Zones and EEZs

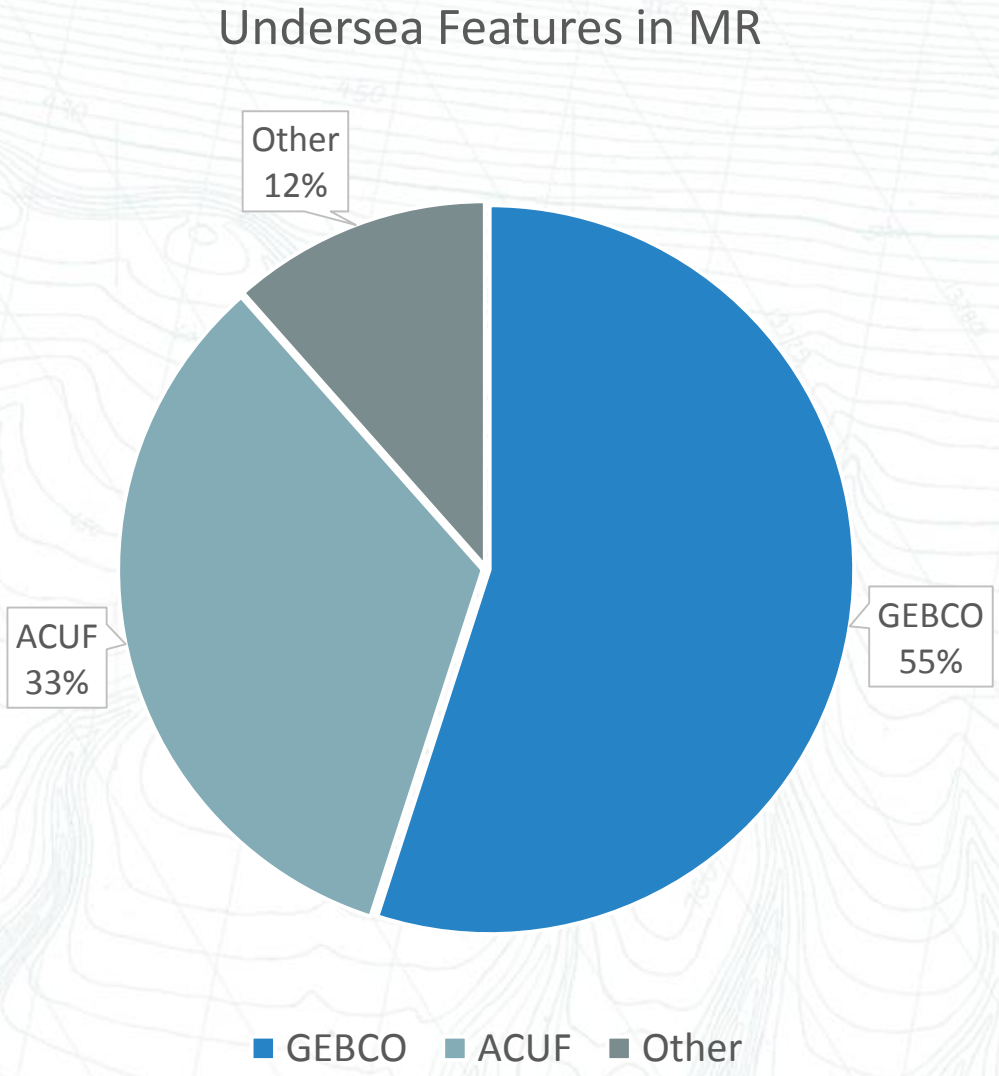
Undersea features

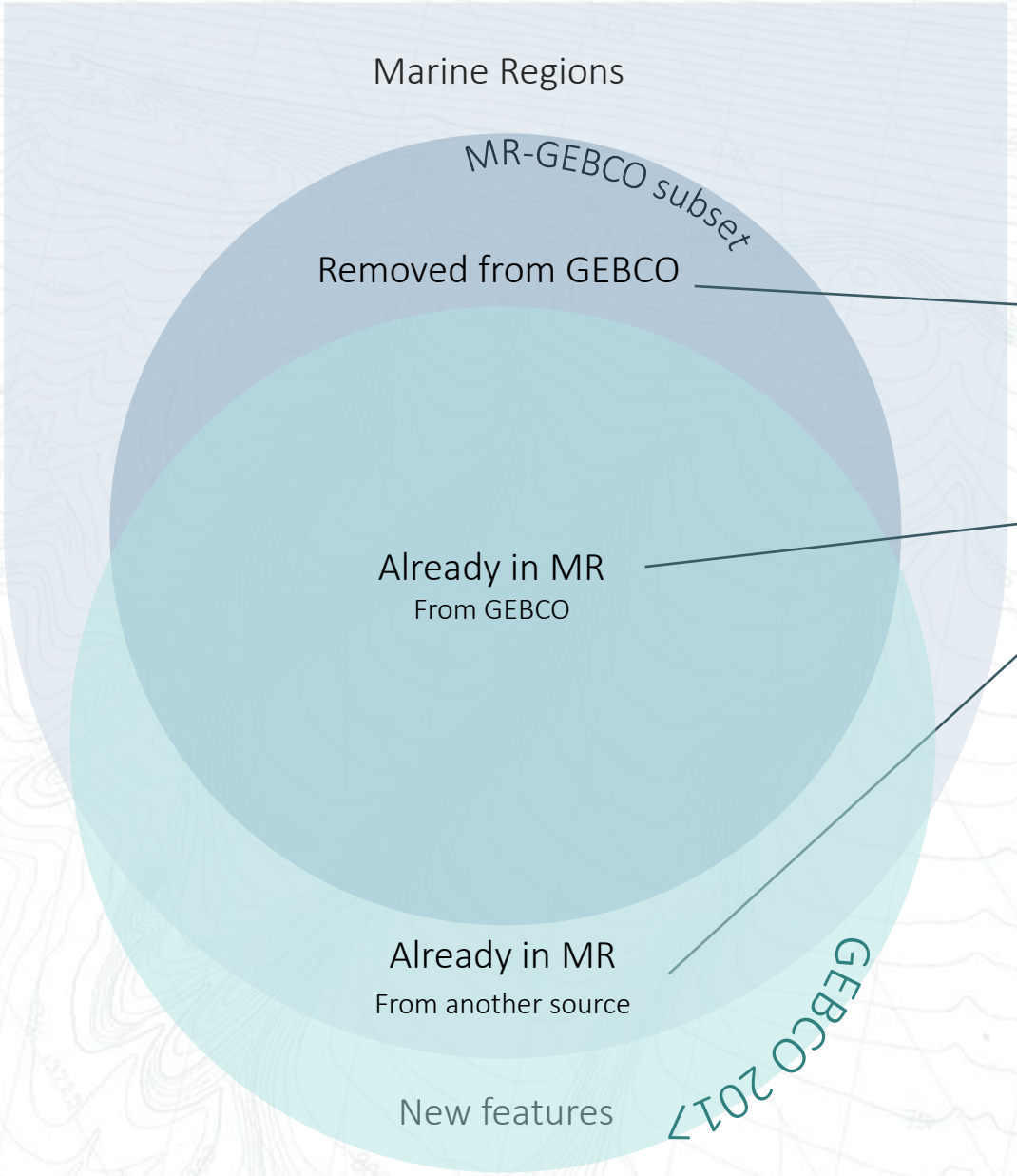


Undersea features



Total UF in MR: 7528





Marine Regions
MR-GEBCO subset
GEBCO

Removed from GEBCO → Don't delete

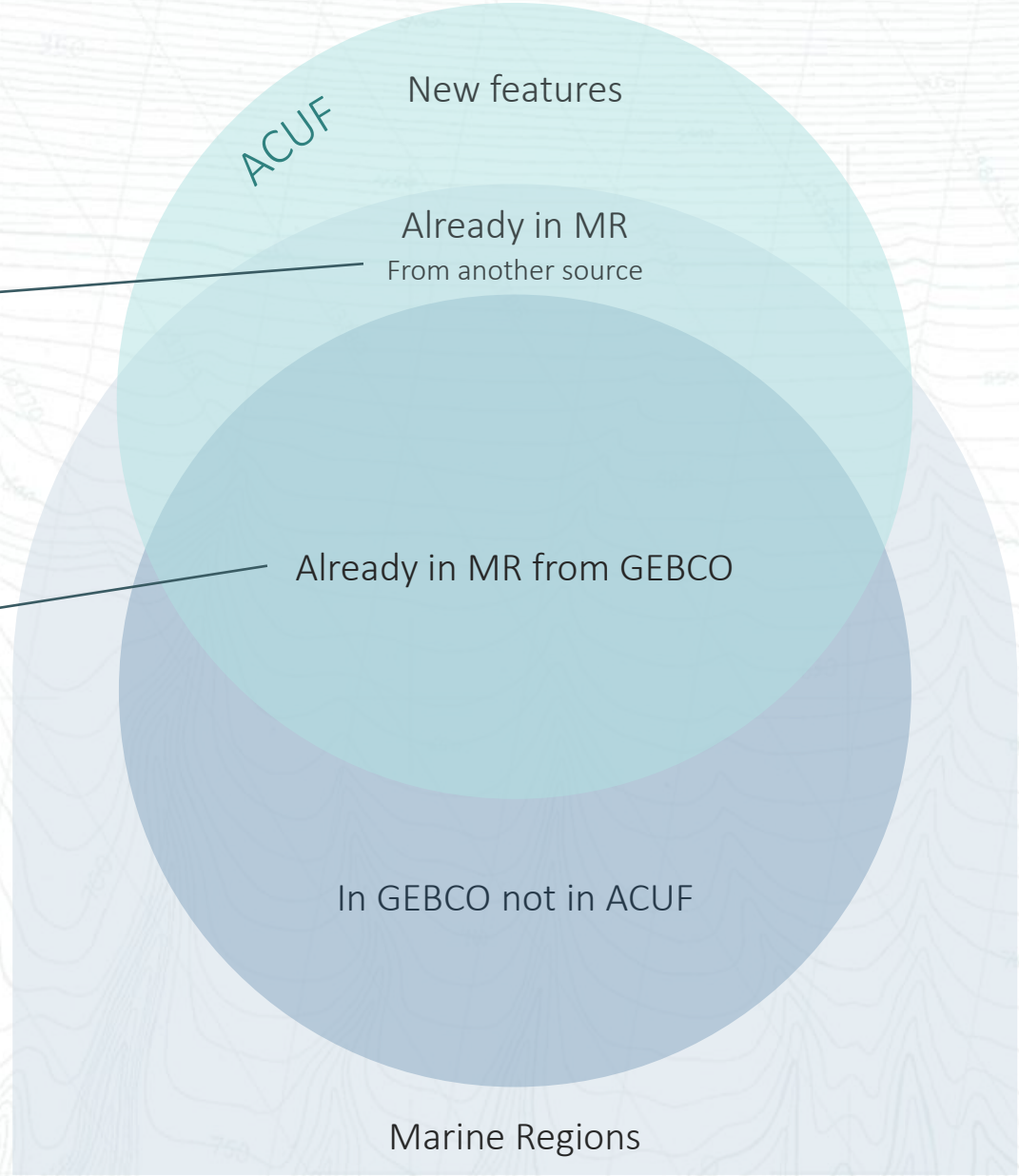
Already in MR (From GEBCO) → Update source to last GEBCO update

Already in MR (From another source) → All features get GEBCO tag

All features get ACUF tag

Update source to ACUF

Main synonym -> source remains GEBCO
Add synonyms with source = ACUF



Marine Regions
MR-GEBCO subset
ACUF

MRGID http://marineregions.org/mrgid/7457

Status Proposed standard

Names

Language	Name	Name source
English	Middle America Trench	IHO-IOC GEBCO Gazetteer of Undersea Feature Names (2017-08-01 - current version)
English	Acapulco Trench	US BGN Advisory Committee on Undersea Features (ACUF)
French	Fosse d'Acapulco	US BGN Advisory Committee on Undersea Features (ACUF)
English	Guatemala Deep	US BGN Advisory Committee on Undersea Features (ACUF)
English	Guatemala Trench	US BGN Advisory Committee on Undersea Features (ACUF)
Russian	Gvatemal'skaya Vpadina	US BGN Advisory Committee on Undersea Features (ACUF)
English	Mexican Acapulco Trench	US BGN Advisory Committee on Undersea Features (ACUF)
English	Mexican Trench	US BGN Advisory Committee on Undersea Features (ACUF)
English	Mexico Trench	US BGN Advisory Committee on Undersea Features (ACUF)
English	Trinchera de Mexico	US BGN Advisory Committee on Undersea Features (ACUF)
Russian	Tsentral'no-Amerikanskiy Zhelob	US BGN Advisory Committee on Undersea Features (ACUF)
Russian	Гватемальская Впадина	US BGN Advisory Committee on Undersea Features (ACUF)
Russian	Центрально-Американский Желоб	US BGN Advisory Committee on Undersea Features (ACUF)

PlaceType Trench

Latitude 15° 15' 52.5" N (15.26457051°)

Longitude 95° 46' 40.1" W (-95.77781243°)

Min. Lat 8° 45' 0" N (8.75°)

Min. Long 106° 30' 0" W (-106.5°)

Max. Lat 21° 15' 0" N (21.25°)

Max. Long 84° 45' 0" W (-84.75°)

Source IHO-IOC GEBCO Gazetteer of Undersea Feature Names (2017-08-01 - current version), *available online at* http://www.ngdc.noaa.gov/gazetteer/

Notes **GEBCO: associated meeting, proposer and year of proposal**: Proposer: John G. Heacock, University of Colorado, USA; and J. Lamar Worzel, Columbia University, USA. Year of proposal: 1955.

GEBCO: discoverer and year of discovery: Discoverer: U.S. Navy vessels en route Panama - California, 1920-1950. Year of discovery: 0. History: Named from its location in Central America.

Additional information: This extremely long, exceptionaly deep, seismically-active zone was first mapped in a series of geological-geophysical expeditions aboard SIO R/V "Horizon" (1954) and "Spencer F. Baird" (1953, 1954, 1956), following a 1952 reconnaissance by Fisher aboard

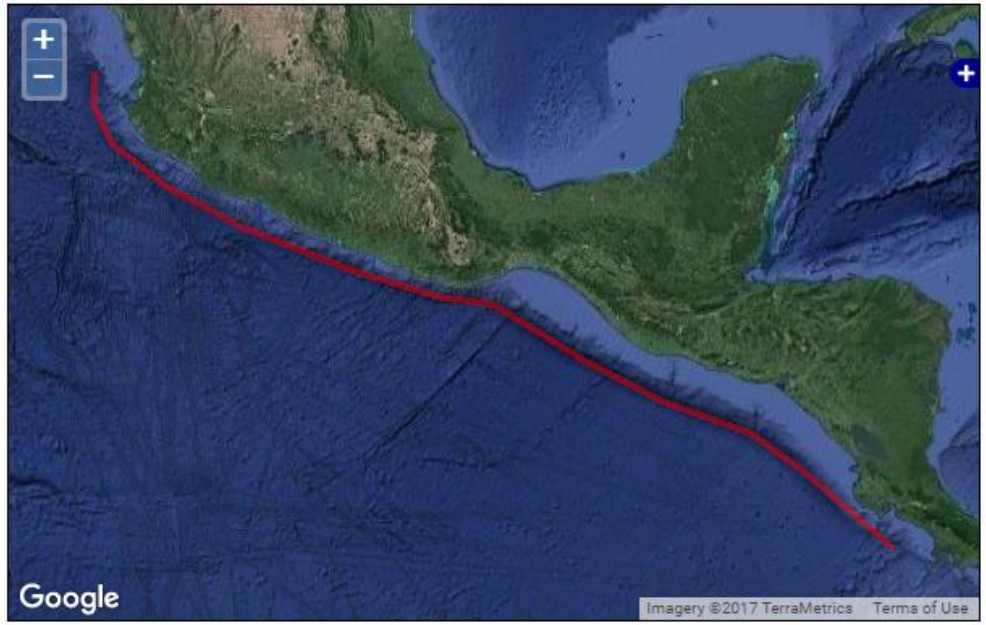
Coordinates in ACUF: Latitude: 15; Longitude: -95

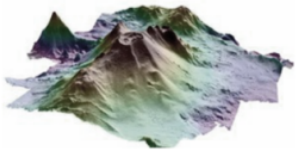
ACUF unique id (UFI): -154454

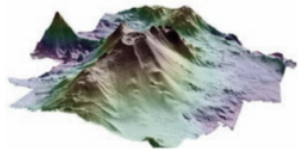
Relations

Part of	North Pacific Ocean (IHO Sea Area)	[view hierarchy]
Partly part of	Costa Rican Exclusive Economic Zone (EEZ)	[view hierarchy]
Partly part of	El Salvador Exclusive Economic Zone (EEZ)	[view hierarchy]
Partly part of	Guatemalan Exclusive Economic Zone (EEZ)	[view hierarchy]
Partly part of	Mexican Exclusive Economic Zone (EEZ)	[view hierarchy]
Partly part of	Nicaraguan Exclusive Economic Zone (EEZ)	[view hierarchy]

Map



	Coordinates		Place type		Place name(s)
Geo-object (MR)	 Lat=37.27° Long=-0.72°	+	 Seamount(s)	&	Águilas Seamount Aguilas Seamount Aguilas Bank
GEBCO	Exact		Exact		Exact
ACUF					

	Coordinates		Place type		Place name(s)
Geo-object (MR)		+		&	Águilas Seamount Aguilas Seamount Aguilas Bank
	Lat=37.27° Long=-0.72°		Seamount(s)		

MRGID http://marineregions.org/mrgid/3898 [check]

Status Proposed standard

Names

Language	Name	Name source
English	Xauen Bank	IHO-IOC GEBCO Gazetteer of Undersea Feature Names (2017-08-01 - current version) [edit] [delete]
French	Banc de Xauen	US BGN Advisory Committee on Undersea Features (ACUF) [edit] [delete]
Spanish	Banco Xauen	US BGN Advisory Committee on Undersea Features (ACUF) [edit] [delete]

[add]

PlaceType Bank [pick]

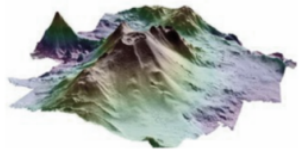
Latitude 35° 23' 0" N (35.383333°) [edit]

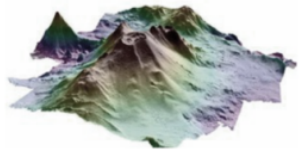
Longitude 4° 18' 0" W (-4.3°) [edit]

Notes **Previous coordinates**: Lat: 35.38333333; Long: -4.3 [edit] [delete]

ACUF unique id (UFI): -156153 [edit] [delete]

Coordinates in ACUF: Latitude: 35.383333; Longitude: -4.3 [edit] [delete]

	Coordinates	Place type	Place name(s)
Geo-object (MR)	Lat=37.27° Long=-0.72°	+  Seamount(s)	& Águilas Seamount Aguilas Seamount Aguilas Bank
GEBCO ↕ ACUF	Similar	Exact	Exact

Geo-object (MR)	Coordinates		Place type		Place name(s)
	Lat=37.27° Long=-0.72°	+	 Seamount(s)	&	Águilas Seamount Aguilas Seamount Aguilas Bank

MRGID http://marineregions.org/mrgid/2382 [check]

Status Proposed standard

Names

Language	Name	Name source
English	Porcupine Bank	IHO-IOC GEBCO Gazetteer of Undersea Feature Names (2017-08-01 - current version) [edit] [delete]
English	Porcupine Banks	US BGN Advisory Committee on Undersea Features (ACUF) [edit] [delete]
Russian	Pork'yupayn Banka	US BGN Advisory Committee on Undersea Features (ACUF) [edit] [delete]
Russian	Поркьюпайн Банка	US BGN Advisory Committee on Undersea Features (ACUF) [edit] [delete]

[add]

PlaceType Bank [pick]

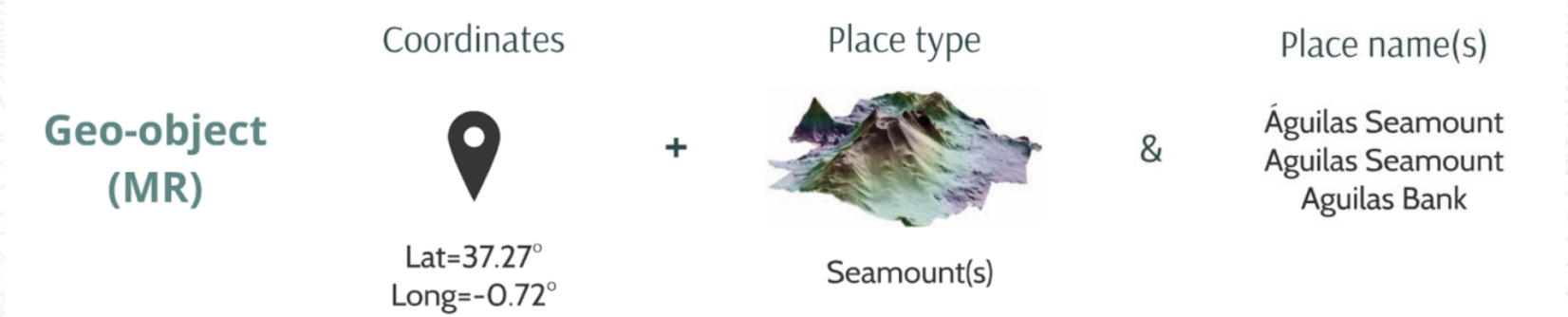
Latitude 53° 20' 0" N (53.333333°) [edit]

Longitude 13° 40' 0" W (-13.666667°) [edit]

Notes **Previous coordinates**: Lat: 53.33333333; Long: -13.66666667 [edit] [delete]

Coordinates in ACUF: Latitude: 53.333333; Longitude: -13.5 [edit] [delete]

ACUF unique id (UFI): -155030 [edit] [delete]

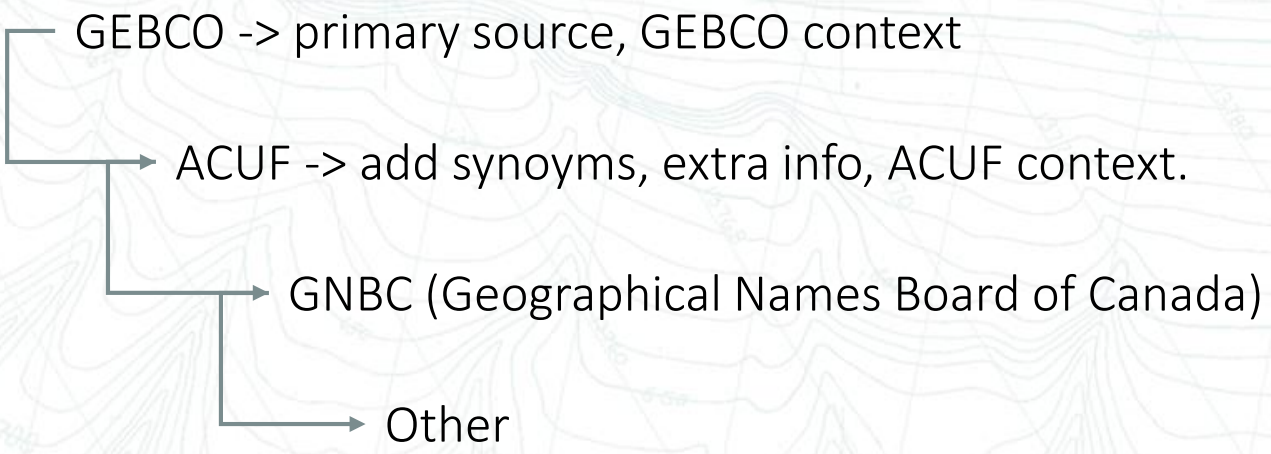


GeoObjectID	FULL_NAME	DSGName	Placetype	Diff_Lat	Diff_Lon
5748	Banco Jagua	Reef	Bank	0	0
3954	Spartacus Seamount	Hill	Seamount(s)	0	0
6840	Borchgrevink Canyon	Canyon	Trench	0	0

Other inconsistencies: added as new features

Diff_Lat	Diff_Lon	GeoName	DSGName	Placetype
0.333333333299997	0.5	**Cascadia Abyssal Plain**	Plain	Basin
5.00000000000007E-02	70.133333	**Almirante Leite Bank**	Knolls	Bank
1.916667	99.15	**Discovery Bank**	Knoll	Bank

Undersea features - summary



Inconsistencies between GEBCO and ACUF

- Added as synonyms or as new features
- Degree of subjectivity -> errors, duplicates?

Undersea features - issues

- Deleted features for both GEBCO and ACUF
  - Historical UF?
- GEBCO
  - Features without secondary geometry -> do not display via web services

featureId	MRGID	gebco_name	geometry	secondaryGeometry
6143	33622	Bounty Fan		POLYGON ((...))
6034	26675	Paul Melchior Seamount		POLYGON ((...))

- ACUF
  - Duplicates for new features
  - Synonym duplicates
  - Probable duplicates

Duplicates for new features

LAT	LONG	DSG	FULL_NAME	UFI	UNI	UFI_diff
25.25	-96.16667	SPRU	Matamoros Spur	13632225	17292707	-879865
25.25	-96.16667	SPRU	Matamoros Spur	12752360	16041502	
25.5	-95.96667	CNYU	Harlingen Canyon	13632210	17292692	-879865
25.5	-95.96667	CNYU	Harlingen Canyon	12752345	16041487	
25.58333	-95.25	ESCU	Perdido Escarpment	13632231	17292713	-879865
25.58333	-95.25	ESCU	Perdido Escarpment	12752366	16041508	
25.63333	-95.66667	RDGU	Brownsville Ridge	13632198	17292680	-879965
25.63333	-95.66667	RDGU	Brownsville Ridge	12752233	16041475	
…	…	….	…	…	…	…

Synonym duplicates

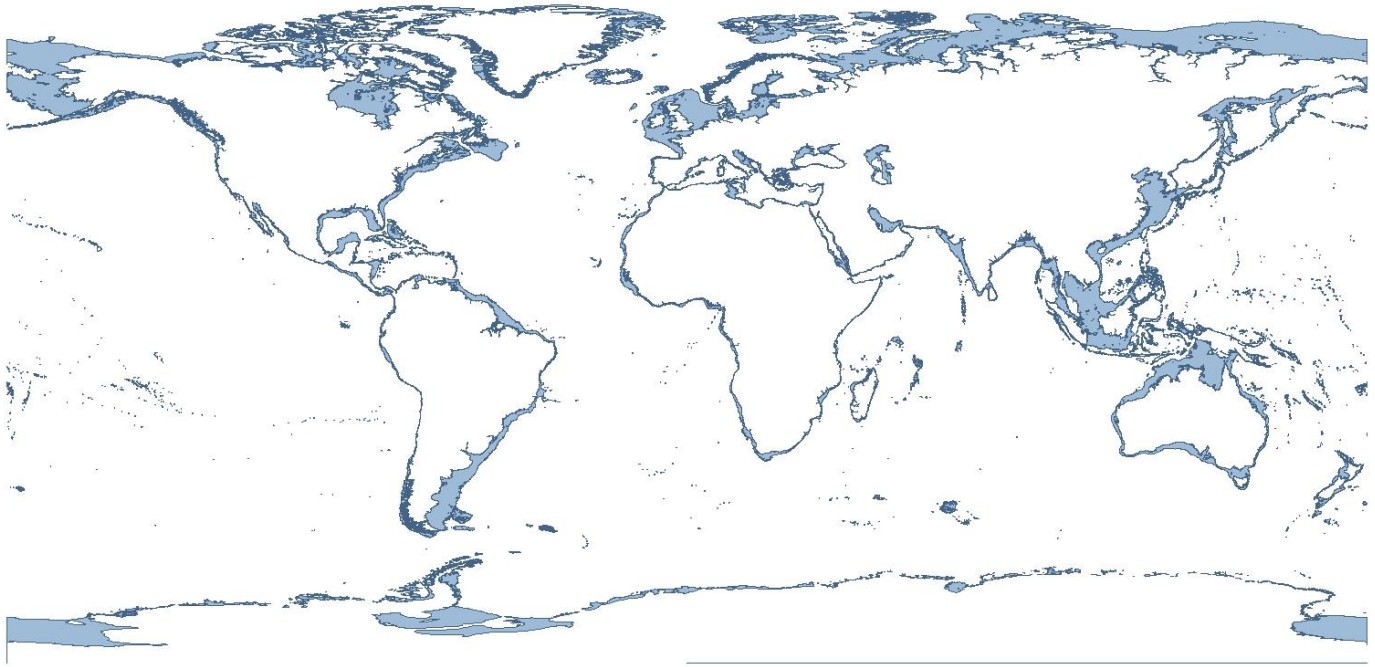
FULL_NAME	UFI	UNI	MRGID
Гора Дзимму	-153943	6596504	6049
Гора Дзимму	-153943	9312836	6049
Южная Котловина	-155601	9338976	7219
Южная Котловина	-155601	6596317	7219
Hai-Ma T’an	-155393	-238483	33978
Hai-ma T’an	-155393	14527823	33978
…	…	…	…

Probable duplicates

FULL_NAME	UFI	UNI	LAT	LONG	DSG	MRGID
Britannia Tablemounts	-152709	-236837	-28.25	155.5	TMSU	5848
Brittania Guyots	-152709	-236838	-28.25	155.5	TMSU	5848
Brittania Tablemounts	-152709	-236840	-28.25	155.5	TMSU	5848
North Tasman Seamounts	-152709	-240471	-28.25	155.5	TMSU	5848
Britannia Guyots	-152709	-236834	-28.25	155.5	TMSU	5848
Brittania Guyots	-152708	-236839	-28.33333	155.58333	TMTU	5848
Britannia Tablemount	-152708	-236836	-28.33333	155.58333	TMTU	5848
Britannia Bank	-152708	-236833	-28.33333	155.58333	TMTU	5848
Britannia Guyots	-152708	-236835	-28.33333	155.58333	TMTU	5848
Zenkevich Rise	-156191	-243017	51	161	RISU	7789
Hokkaido Rise	-153786	-238668	46	155	RISU	7789
Zenkevich Rise	-153786	-243016	46	155	RISU	7789
Cordillera de Colón	152989	13291459	2	-96	RDGU	24839
Ясменка	152989	12283217	2	-96	RDGU	24839
Yasmenka	152989	187356	2	-96	RDGU	24839
Colón Ridge	-152989	-237328	2	-96	RDGU	24839
Dorsal de Galápagos	-152989	13291452	2	-96	RDGU	24839
Galapagos Ridge	-152989	-238148	2	-96	RDGU	24839
Harrison Basin	13632303	17292872	26.58333	-94	BSNU	35677
Harrison Basin	-153685	-238521	27.416667	-91.016667	BSNU	35677

Planned activities for Marine Regions

- Undersea Features: Geographical Names Board of Canada
- Maritime Boundaries V10
  - Intersection IHO / EEZs
- Shallow waters of the world -> GEBCO bathymetry, > -50m.
- MPAtlas -> Marine Protected Areas of the World -> Standardization



Thank you!

@marineregions

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Nathalie De Hauwere
Francisco Hernandez
Paula Oset García
Francisco Souza Dias
Bart Vanhoorne