

# Report by NOAA/NCEI on maintenance issues to SCUFN

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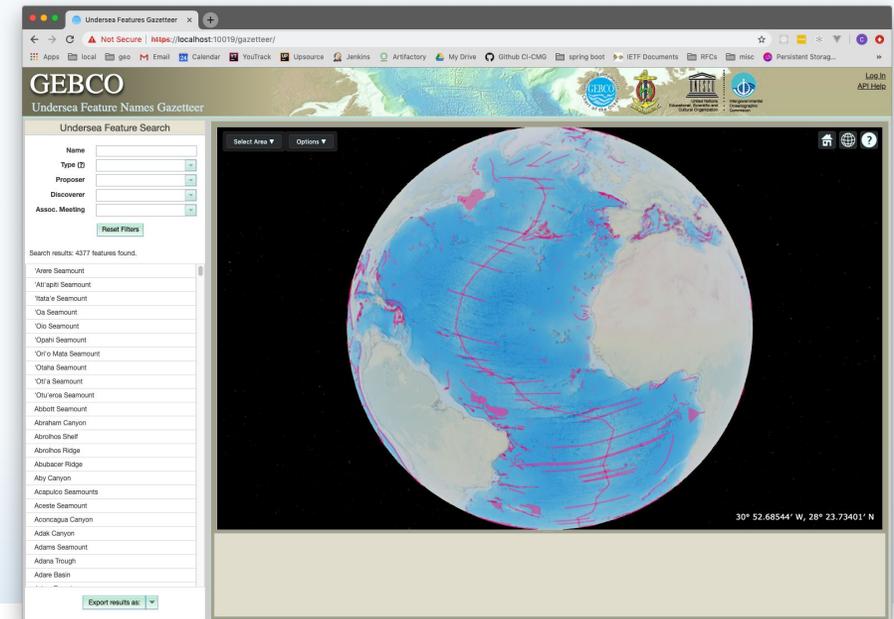
NOAA NCEI/CIRES

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# Introduction

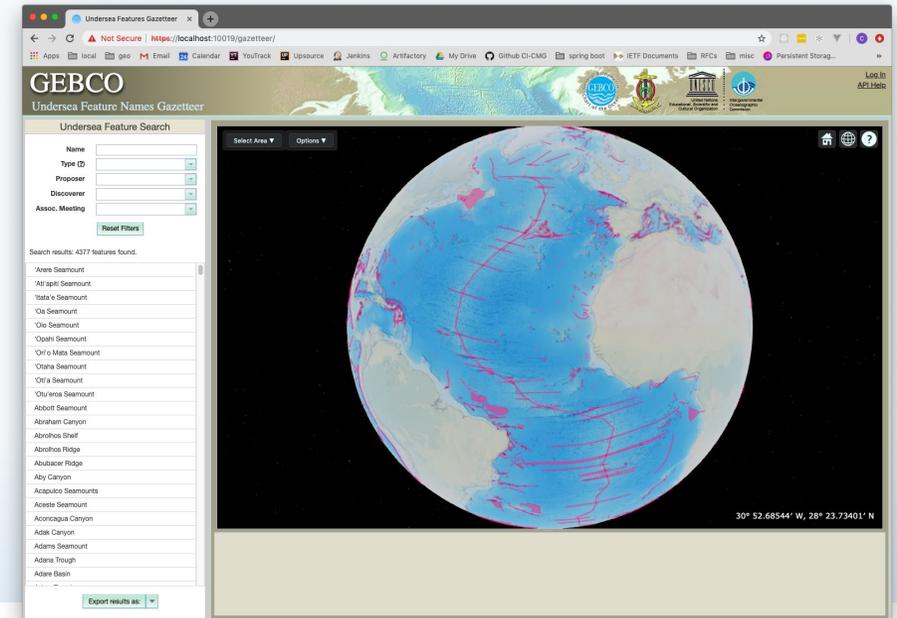
1. Two software developers have been addressing Gazetteer issues and enhancement requests since June, 2019.
2. Current updates can be tested here:  
<https://ccog.colorado.edu/gazetteer>.
3. An updated and enhanced Gazetteer application will be fully migrated from a testing to a production environment (ie: made LIVE) in Fall, 2019.
4. The current Gazetteer continues to be usable for consultation and editing during this time ([ngdc.noaa.gov/gazetteer/](http://ngdc.noaa.gov/gazetteer/)).



# What did we do?

*The updates made to the Gazetteer addressed many of the issues listed in SCUFN32-07.1A*

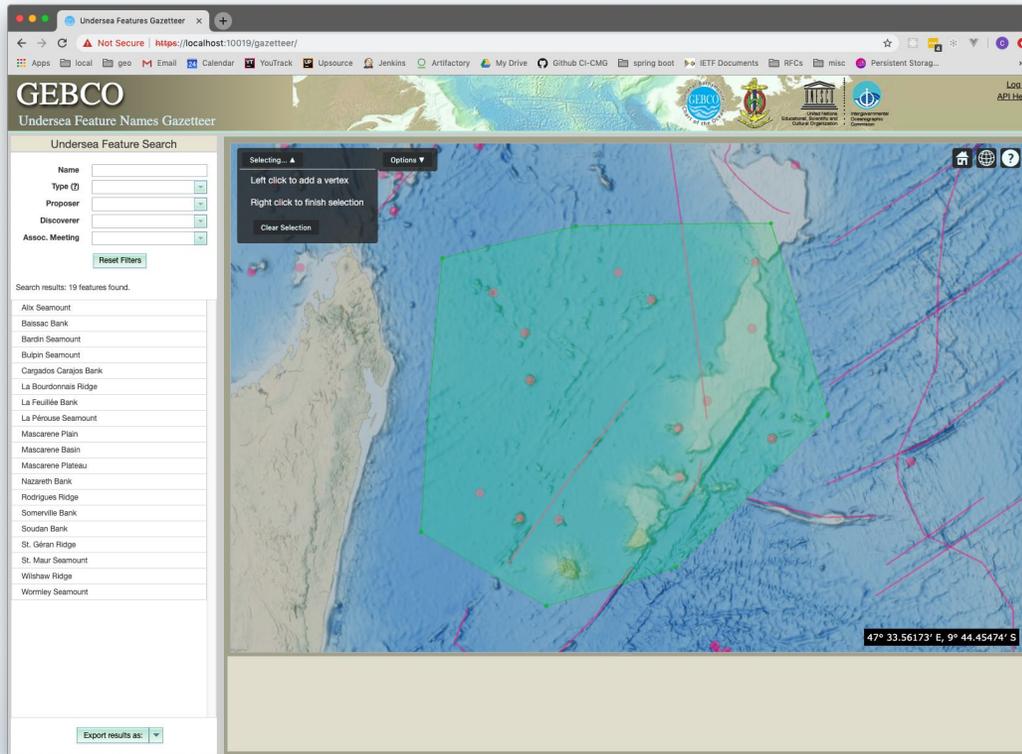
1. Refactored the Gazetteer from Groovy/Grails to Java/Spring Boot to improve maintainability and expandability
2. Incorporated a 3D global map viewer to improve usability and resolve map related defects
3. Resolved 16+ reported defects and enhancement requests
4. Added automated testing to provide quality assurance.



# Refactoring - Issue A.5-1: Export results functionalities.

User can export results as Excel, CSV or Shape files.

Exporting works if one single name is selected, if all names are selected, or if names are selected by drawing a rectangle.



Specific Term	Generic Term	Associated Meeting	Proposer	Year of Proposal	Discoverer
Alix	Seamount		Robert L. Fisher, Scripps Institution of Oceanography (SIO), USA	1970	U.S. research vessel "Argo"
Bajssac	Bank	SCGN-9	Robert L. Fisher, Scripps Institution of Oceanography (SIO), USA	1991	British vessel HMS "Owen"
Bardin	Seamount	SCUFN-15	I. M. Belousov, Institute of Oceanology of the Russian Academy of Sciences (IO RAS)	1961	Russian research vessel "Vityaz"
Bulpin	Seamount	SCGN-9	Robert L. Fisher, Scripps Institution of Oceanography (SIO), USA	1991	
Cargados Carajos	Bank				
La Bourdonnais	Ridge	SCUFN-12	Robert L. Fisher, Scripps Institution of Oceanography (SIO), USA	1997	
La Feuillée	Bank	SCUFN-12	Michel Le Gouic, French Hydrographic Office (SHOM)	1996	French oceanographic survey vessel "Edmond Belin"
La Pérouse	Seamount	SCUFN-13	Robert L. Fisher, Scripps Institution of Oceanography (SIO), USA	1998	French survey vessel "La Pérouse"
Mascarene	Plain				
Mascarene	Basin				
Mascarene	Plateau				
Nazareth	Bank				
Rodrigues	Ridge	SCGN-6			
Somerville	Bank		Robert L. Fisher, Scripps Institution of Oceanography (SIO), USA	1981	British survey vessel HMS "Sealark"
Soudan	Bank				
St. Gérân	Ridge		Robert L. Fisher, Scripps Institution of Oceanography (SIO), USA		
St. Maur	Seamount	SCGN-9	Robert L. Fisher, Scripps Institution of Oceanography (SIO), USA	1981	French research and supply vessel "Edmond Belin"
Wilshaw	Ridge		Robert L. Fisher, Scripps Institution of Oceanography (SIO), USA	1981	British cable ship "Edward Wilshaw"
Wormley	Seamount	SCUFN-13	Robert L. Fisher, Scripps Institution of Oceanography (SIO), USA	1980	British research vessel "Discovery I"

Specific Term	Generic Term	Associated Meeting	Proposer	Year of Proposal	Discoverer
Alix	Seamount		Robert L. Fisher, Scripps Institution of Oceanography (SIO), USA	1970	U.S. research vessel "Argo"
Bajssac	Bank	SCGN-9	Robert L. Fisher, Scripps Institution of Oceanography (SIO), USA	1991	British vessel HMS "Owen"
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Mascarene	Plain				
Mascarene	Basin				
Mascarene	Plateau				
Nazareth	Bank				
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St. Gérân	Ridge		Robert L. Fisher, Scripps Institution of Oceanography (SIO), USA		
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Wilshaw	Ridge		Robert L. Fisher, Scripps Institution of Oceanography (SIO), USA	1981	British cable ship "Edward Wilshaw"
Wormley	Seamount	SCUFN-13	Robert L. Fisher, Scripps Institution of Oceanography (SIO), USA	1980	British research vessel "Discovery I"



# Refactoring - Issue A-15: Undersea Feature Search NW window.

The search functionality will accept in the field "Name" words or group of letters which are part of the specific term.

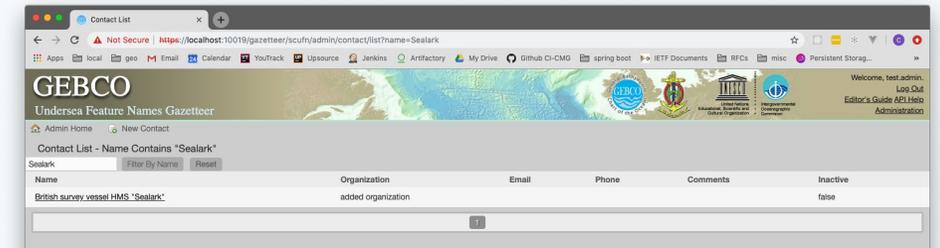
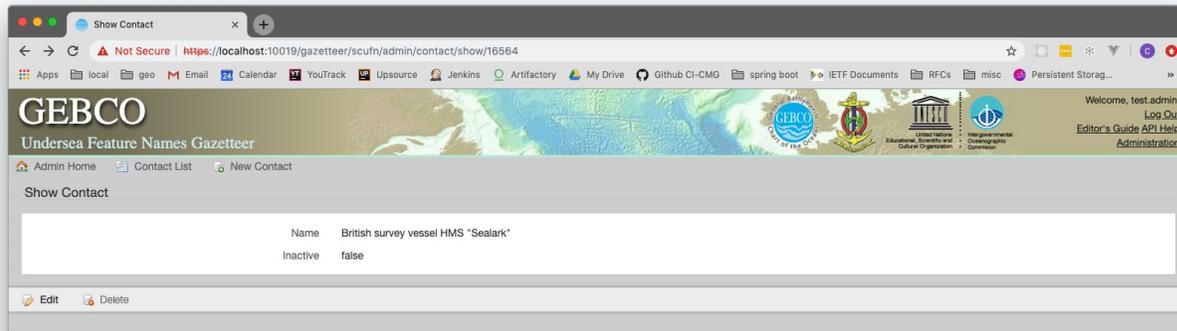
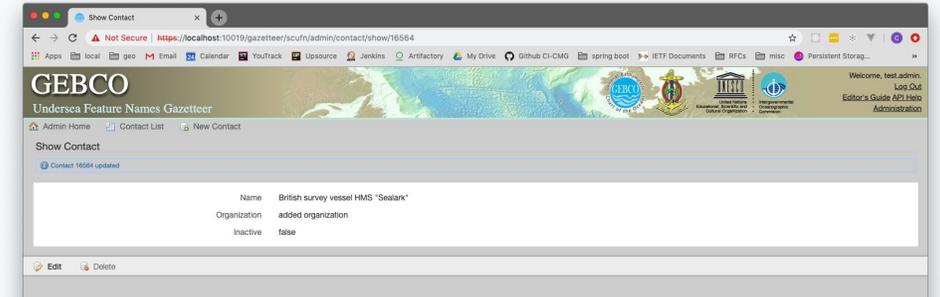
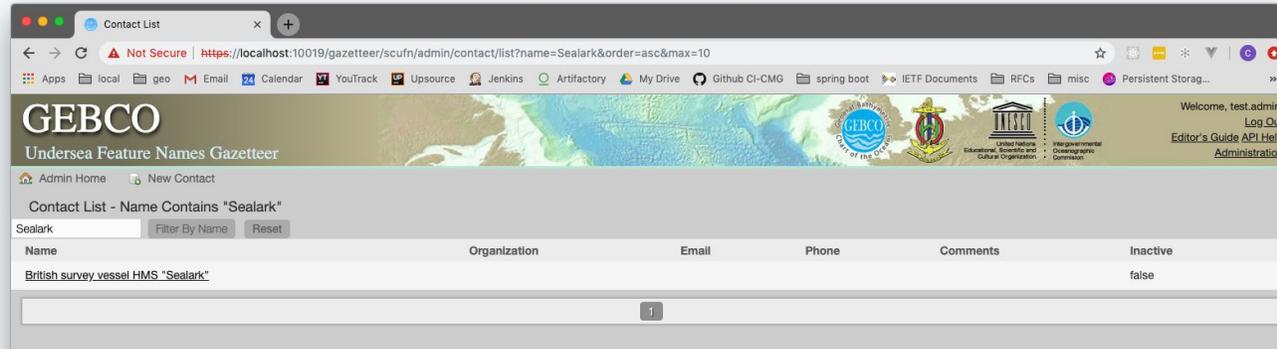
Eg: a user can get to "La Confiance Ridge" by entering "Confiance" only.

The screenshot shows a web browser window displaying the GEBCO Undersea Feature Names Gazetteer search interface. The search results show two features found: "Confiance Shoal" and "La Confiance Ridge". The "La Confiance Ridge" feature is highlighted. The map displays the ridge location with a red line and a red dot. The details panel for "La Confiance Ridge" includes: Proposed By, Discovered By, Last Updated (2015-05-01), Associated Meeting (SCUFN-15), and Origin of Name (Named from the French ship "La Confiance", a converted escort vessel which carried out hydrographic surveys in the area during the 1960s).



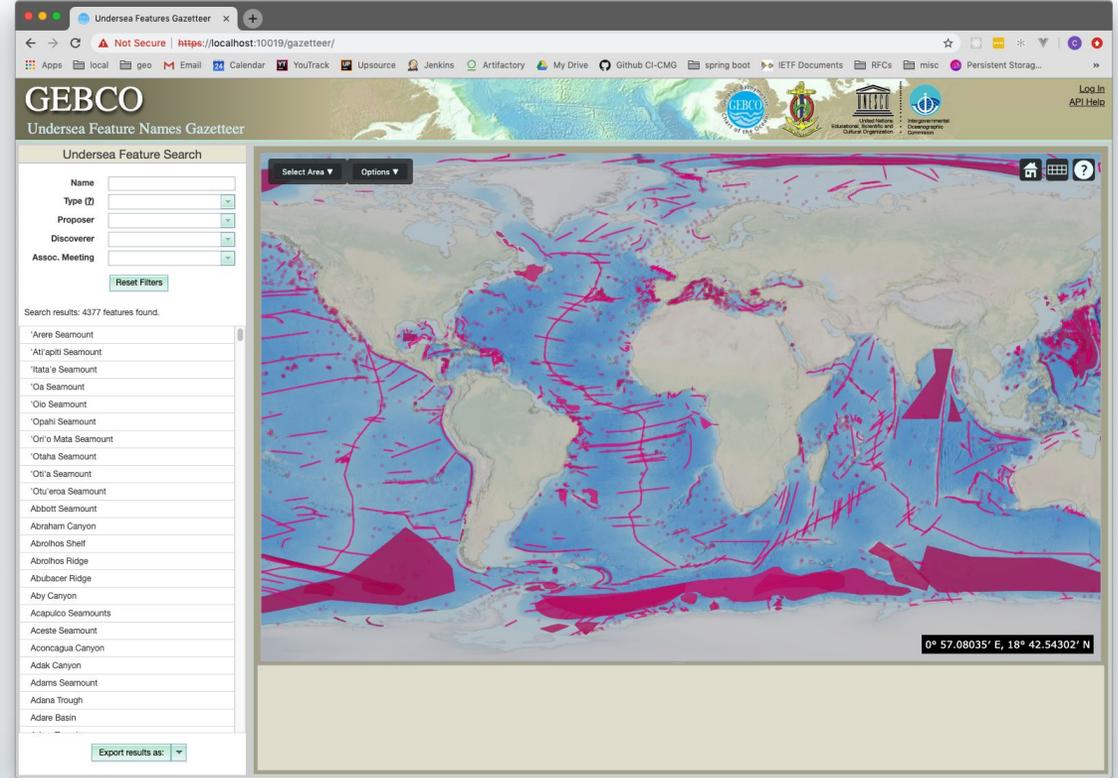
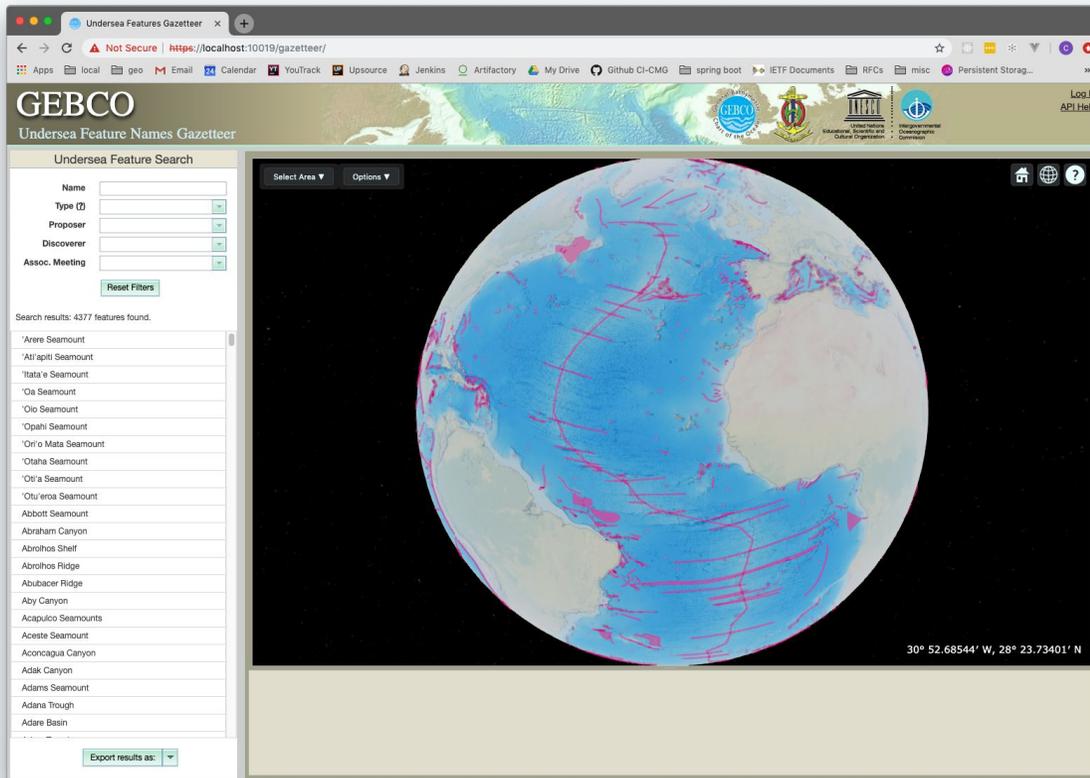
# Refactoring - Issue B-1: Contact List.

Existing contacts in the Contact List can be amended.



# New Global View

The Gazetteer can now be displayed as either a Mercator projection or global view. This was done using CesiumJS and an additional API endpoint that returns TopoJSON data.



# New Global View - Issue A.1: Moving the cursor on the chart background.

The names pop up correctly when moving the cursor on the map.

The screenshot shows the GEBCO Undersea Feature Names Gazetteer web application. The browser address bar displays `https://localhost:10019/gazetteer/`. The page header includes the GEBCO logo and navigation links for 'Log In' and 'API Help'. On the left, there is a search panel titled 'Undersea Feature Search' with input fields for Name, Type (T), Proposer, Discoverer, and Assoc. Meeting, along with a 'Reset Filters' button. Below the search panel, a list of search results is shown, with 'Sen'kov Seamount' highlighted. The main map area displays a bathymetric chart with a red line indicating a feature. A tooltip for 'Sen'kov Seamount' is visible over the map. The bottom right corner of the map shows coordinates: `142° 49.00809' W`.

The screenshot shows the same GEBCO Undersea Feature Names Gazetteer web application. The browser address bar displays `https://localhost:10019/gazetteer/`. The search panel on the left shows the same search criteria, but the search results list is scrolled down to 'Kulyndyshev Seamount', which is highlighted. The main map area displays the same bathymetric chart, but the red line indicates a different feature. A tooltip for 'Kulyndyshev Seamount' is visible over the map. The bottom right corner of the map shows coordinates: `141° 26.94365' W, 11° 32.20502' N`.



# New Global View - Issue A.2: Polygon or line crossing the date line.

Clicking on any feature with polygon geometry crossing the date line (Meridian 180°) no longer results in the centre of the basemap relocating to somewhere in the South Atlantic, around the Meridian 0° and at similar latitude.

Undersea Feature Names Gazetteer

Undersea Feature Search

Name

Type

Proposer

Discoverer

Assoc. Meeting

Reset Filters

Search results: 4377 features found.

- 'Arere Seamount
- 'Ati'apiti Seamount
- 'Itata'e Seamount
- 'Oa Seamount
- 'Oio Seamount
- 'Opahi Seamount
- 'Ori'o Mata Seamount
- 'Otaha Seamount
- 'Oti'a Seamount
- 'Otu'eroa Seamount
- Abbott Seamount
- Abraham Canyon
- Abrolhos Shelf
- Abrolhos Ridge
- Abubacer Ridge
- Aby Canyon
- Acapulco Seamounts
- Aceste Seamount
- Aconcagua Canyon
- Adak Canyon
- Adams Seamount
- Adana Trough
- Adare Basin

Export results as:

Select Area  Options

**Bounty Trough**

179° 38.71091' E, 45° 47.98173' S

**Name** Bounty Trough

**Proposed By** New Zealand Geographic Board (NZGB), in 2012

**Discovered By** Not provided

**Last Updated** 2018-01-05

**Associated Meeting** SCUFN-25

**Origin of Name** Named from the nearby Bounty Islands, first sighted by HMS Bounty.



# New Global View - Issue A.6: Cursor coord. on the Arctic & Antarct. basemaps.

The Arctic and Antarctic views have been replaced with a global view and coordinates are now visible at cursor location.

**GEBCO Undersea Feature Names Gazetteer**

Undersea Feature Search

Name:

Type:

Proposer:

Discoverer:

Assoc. Meeting:

Reset Filters

Search results: 4377 features found.

- 'Arere Seamount
- 'Ari'apiti Seamount
- 'Itata'e Seamount
- 'Oa Seamount
- 'Oio Seamount
- 'Opahi Seamount
- 'Ori'o Mata Seamount
- 'Otaha Seamount
- 'Oti'a Seamount
- 'Otu'era Seamount
- Abbott Seamount
- Abraham Canyon
- Abrothos Shelf
- Abrothos Ridge
- Abubacer Ridge
- Aby Canyon
- Acapulco Seamounts
- Aceste Seamount
- Aconcagua Canyon
- Adak Canyon
- Adams Seamount
- Adana Trough
- Adare Basin

**Name:** Bounty Trough  
**Proposed By:** New Zealand Geographic Board (NZGB), in 2012  
**Discovered By:** Not provided  
**Last Updated:** 2018-01-05  
**Associated Meeting:** SCUFN-25  
**Origin of Name:** Named from the nearby Bounty Islands, first sighted by HMS Bounty.

**GEBCO Undersea Feature Names Gazetteer**

Undersea Feature Search

Name:

Type:

Proposer:

Discoverer:

Assoc. Meeting:

Reset Filters

Search results: 4377 features found.

- 'Arere Seamount
- 'Ari'apiti Seamount
- 'Itata'e Seamount
- 'Oa Seamount
- 'Oio Seamount
- 'Opahi Seamount
- 'Ori'o Mata Seamount
- 'Otaha Seamount
- 'Oti'a Seamount
- 'Otu'era Seamount
- Abbott Seamount
- Abraham Canyon
- Abrothos Shelf
- Abrothos Ridge
- Abubacer Ridge
- Aby Canyon
- Acapulco Seamounts
- Aceste Seamount
- Aconcagua Canyon
- Adak Canyon
- Adams Seamount
- Adana Trough
- Adare Basin

**Name:** Bounty Trough  
**Proposed By:** New Zealand Geographic Board (NZGB), in 2012  
**Discovered By:** Not provided  
**Last Updated:** 2018-01-05  
**Associated Meeting:** SCUFN-25  
**Origin of Name:** Named from the nearby Bounty Islands, first sighted by HMS Bounty.



# New Global View - Issue A.11: Polygon or line crossing the date line.

A feature geometry crossing the date line (Meridian 180°) - line or polygon – will no longer split into two new geometries of same type, one of each side of the date line on the mapviewer.

However, the split will occur in the database (result being MULTILINESTRING or MULTIPOLYGON geometries), as is best practice.

Undersea Feature Names Gazetteer

Search results: 4377 features found.

- 'Arere Seamount
- 'Ati'apiti Seamount
- 'Itata'e Seamount
- 'Oa Seamount
- 'Oio Seamount
- 'Opahi Seamount
- 'Ori'o Mata Seamount
- 'Otaha Seamount
- 'Oti'a Seamount
- 'Otu'eroa Seamount
- Abbott Seamount
- Abraham Canyon
- Abrolhos Shelf
- Abrolhos Ridge
- Abubacer Ridge
- Aby Canyon
- Acapulco Seamounts
- Aceste Seamount
- Aconcagua Canyon
- Adak Canyon
- Adams Seamount
- Adana Trough
- Adare Basin

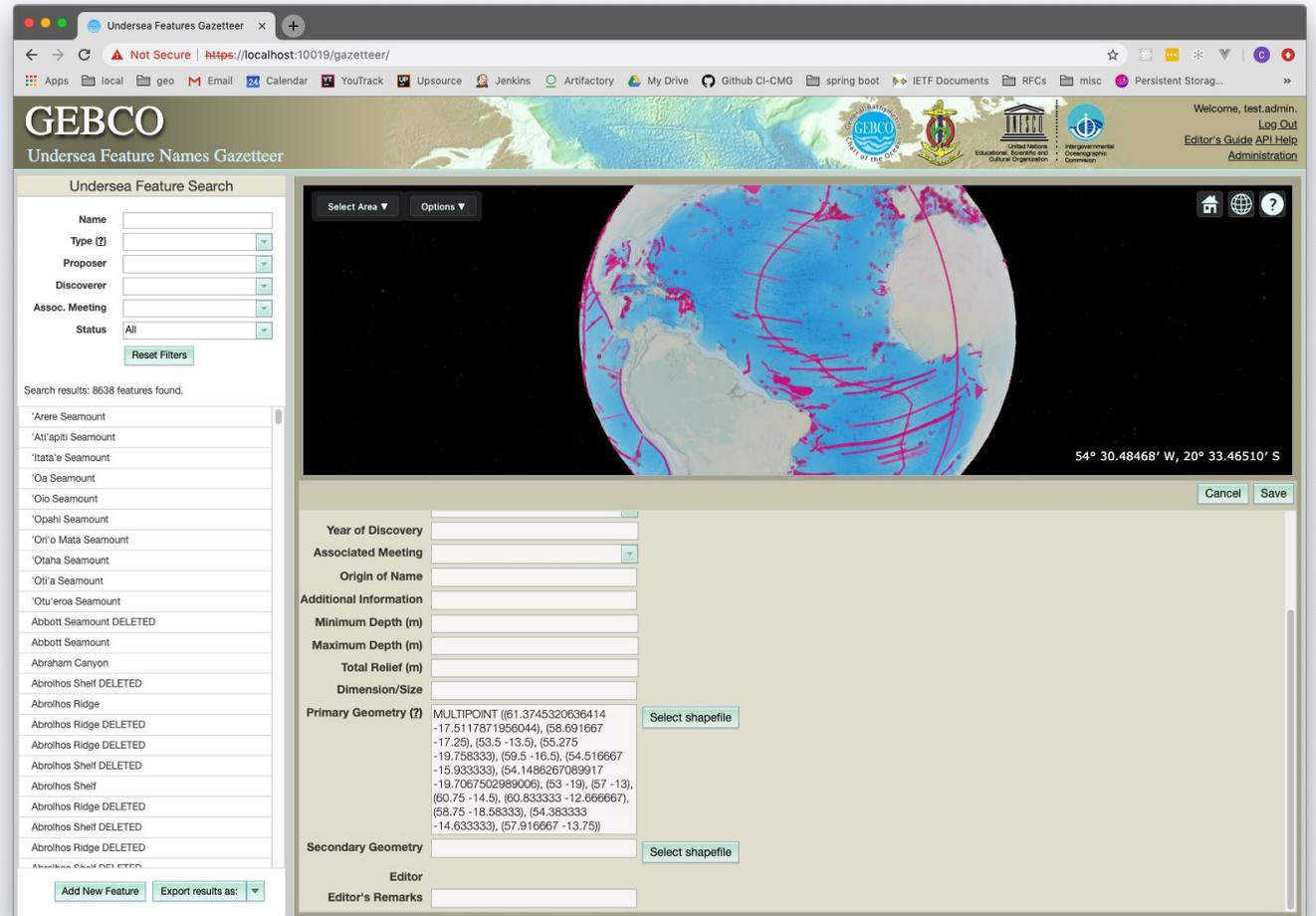
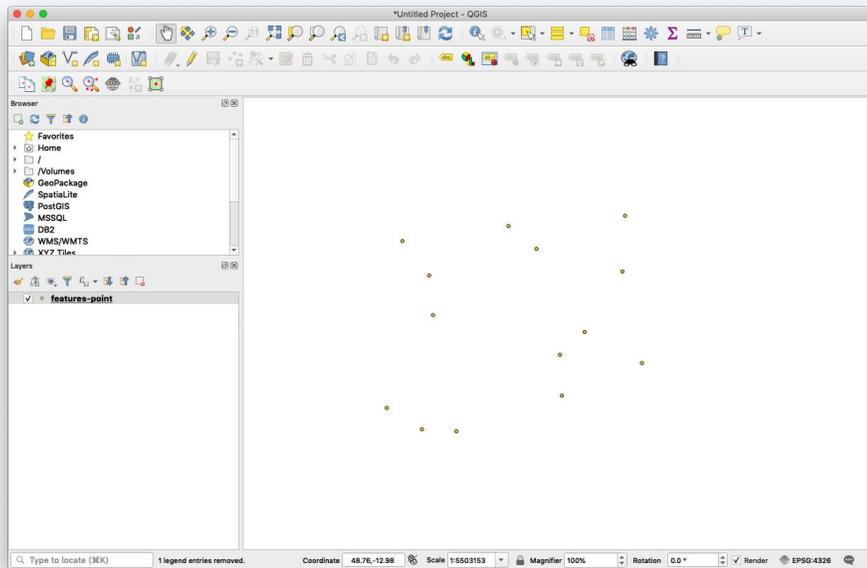
**Bounty Trough**

**Name** Bounty Trough  
**Proposed By** New Zealand Geographic Board (NZGB), in 2012  
**Discovered By**  
**Last Updated** 2018-02-06  
**Associated Meeting** SCUFN-25  
**Origin of Name** Named from the nearby Bounty Islands, first sighted by HMS Bounty.  
**Additional Information** A broad depression 800km long by 250km wide between the Chatham Rise and the Bounty Islands, and extending from the continental shelf, east of the South Island, to the deep ocean south of the Chatham Islands. References: Bounty Chart©, Krause & Cullen, 1970; and NZ Region Bathymetry©, CANZ 2008  
**Minimum Depth (m)**  
**Maximum Depth (m)**  
**Total Relief (m)**  
**Dimension/Size**  
**Primary Geometry:** MULTIPOLYGON (((179.99999 -46.95683, 179.99999 -45.03964, 179.63165 -44.97854, 172.64739 -45.01986, 172.17182 -46.70367, 178.73024 -46.82007, 179.99999 -46.95683)), ((-179.99999 -45.03964, -179.99999 -46.95683, -177.8933 -47.18374, -176.73459 -45.58124, -179.99999 -45.03964)))  
**Secondary Geometry:**



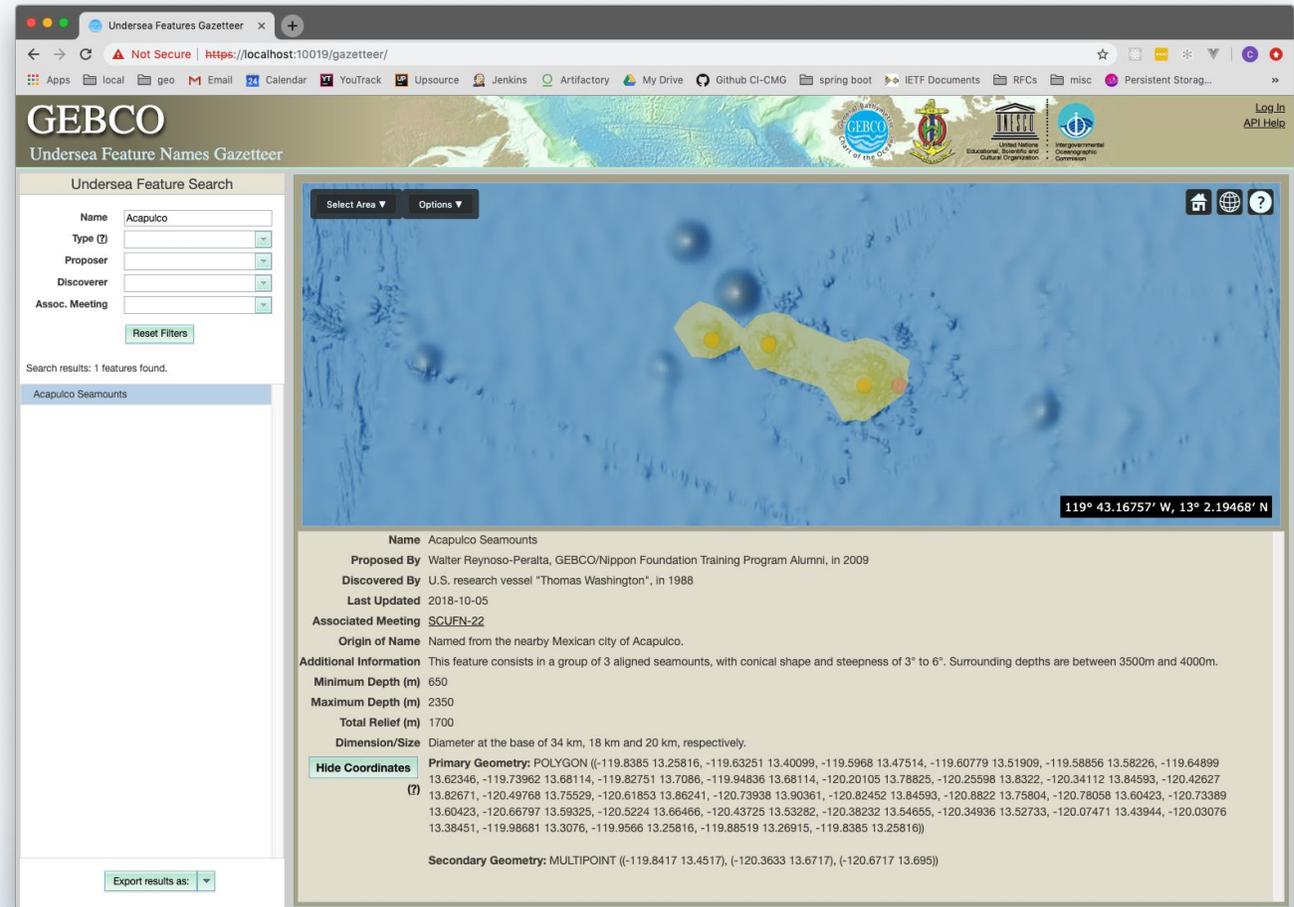
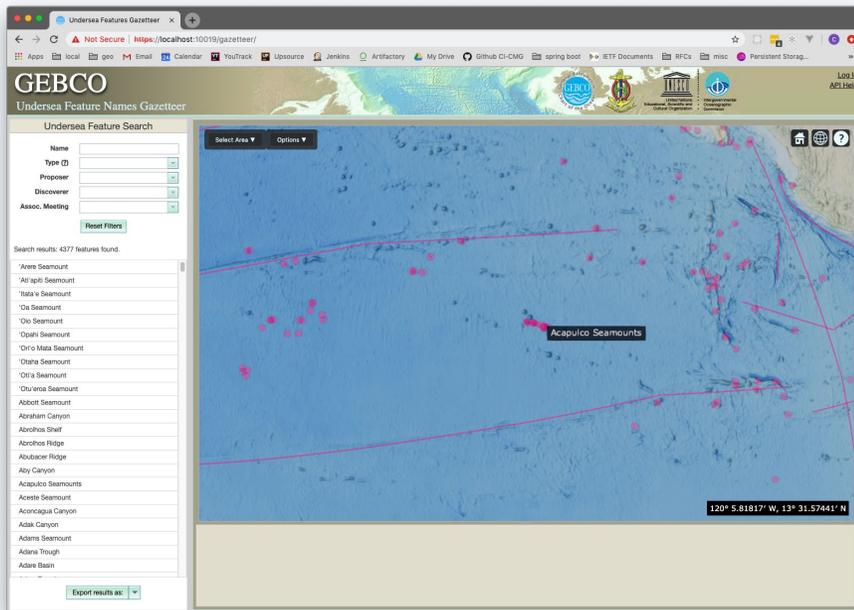
# Standalone - Issue A.3: Geometry entered from shapefiles.

If a shapefile package includes several geometries for a given name, all geometries are read by the Gazetteer interface.



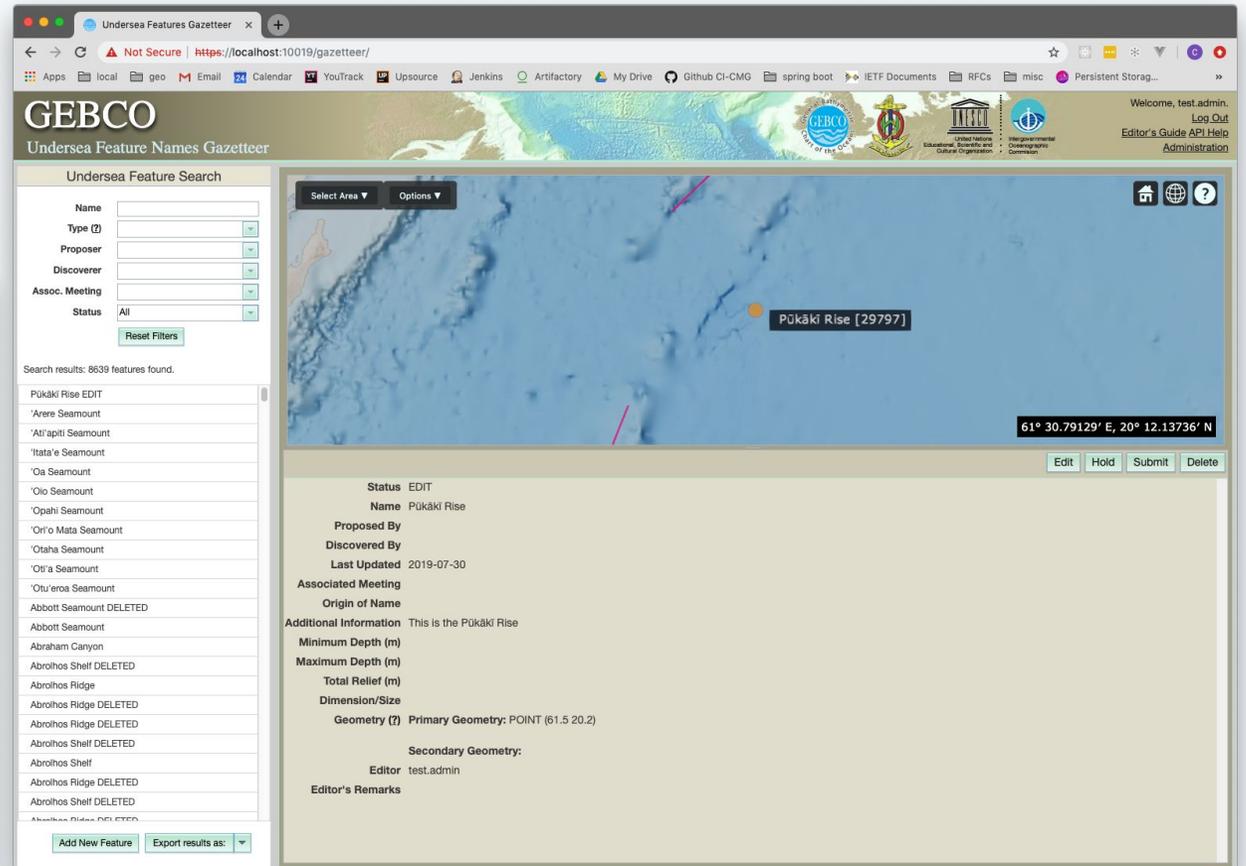
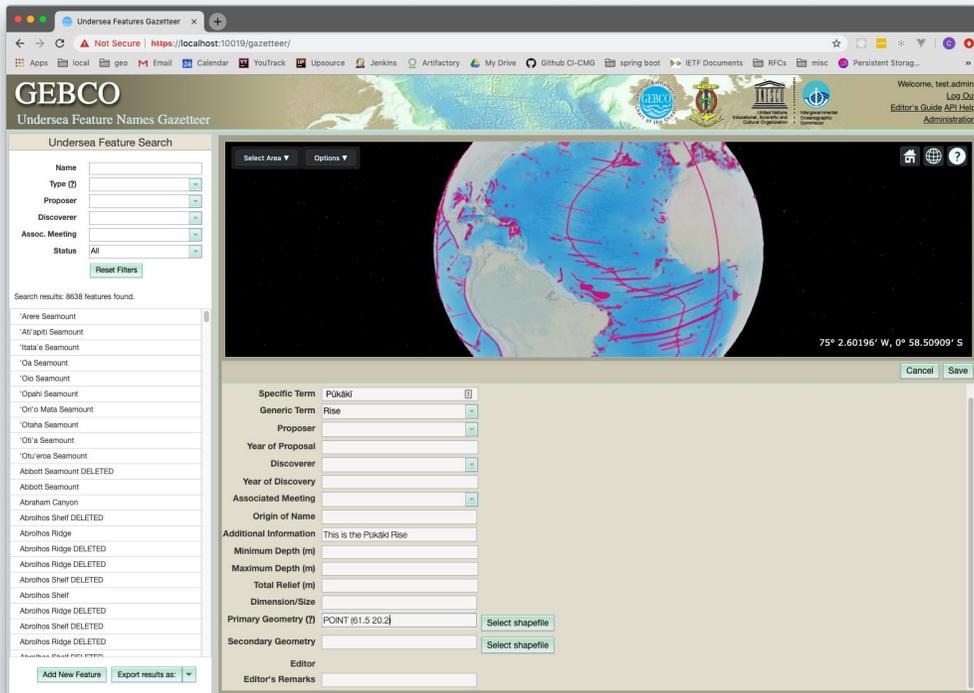
# Standalone - Issue A.4: Display of geometry on the basemap.

Both primary and secondary geometries are now visible on the map.



# Standalone - Issue A.5: Input & Display of Information – Diacritical Characters.

Diacritical characters (eg: ā, ē, ī, ō and ū) can be entered and displayed as part of a specific name or as part of the information in the fields “Origin of Name” and/or “Additional Information”.



# Standalone - Issue A.8: Display of information - Geometry.

The primary and secondary geometries are shown in the “information” window, below the basemap.

The screenshot displays the GEBCO Undersea Feature Names Gazetteer interface. On the left, a search form is filled with 'Acapulco' in the Name field. Below the search form, the results list shows 'Acapulco Seamounts'. The main area features a 3D bathymetric map of the seamounts. Below the map, a detailed information panel for 'Acapulco Seamounts' is visible, including its proposed date, discoverer, and primary/secondary geometries.

**Name:** Acapulco Seamounts

**Proposed By:** Walter Reynoso-Peralta, GEBCO/Nippon Foundation Training Program Alumni, in 2009

**Discovered By:** U.S. research vessel "Thomas Washington", in 1988

**Last Updated:** 2018-10-05

**Associated Meeting:** SCUEN-22

**Origin of Name:** Named from the nearby Mexican city of Acapulco.

**Additional Information:** This feature consists in a group of 3 aligned seamounts, with conical shape and steepness of 3° to 6°. Surrounding depths are between 3500m and 4000m.

**Minimum Depth (m):** 650

**Maximum Depth (m):** 2350

**Total Relief (m):** 1700

**Dimension/Size:** Diameter at the base of 34 km, 18 km and 20 km, respectively.

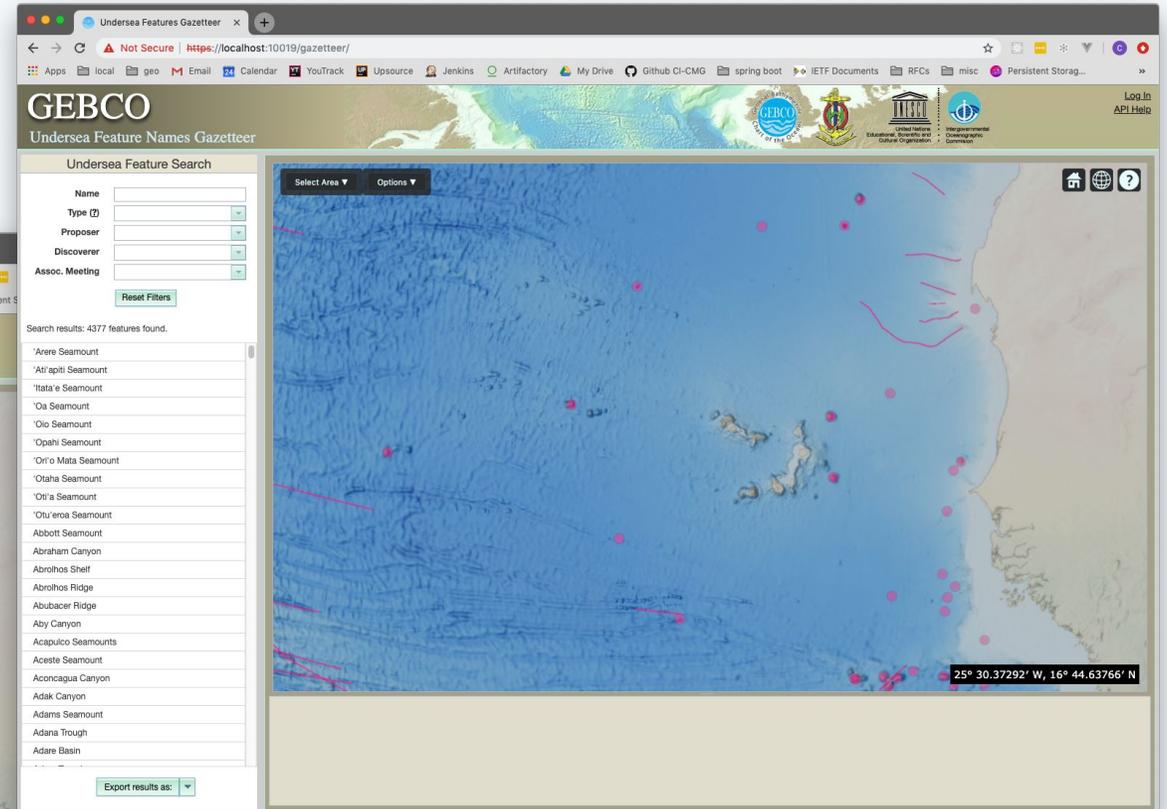
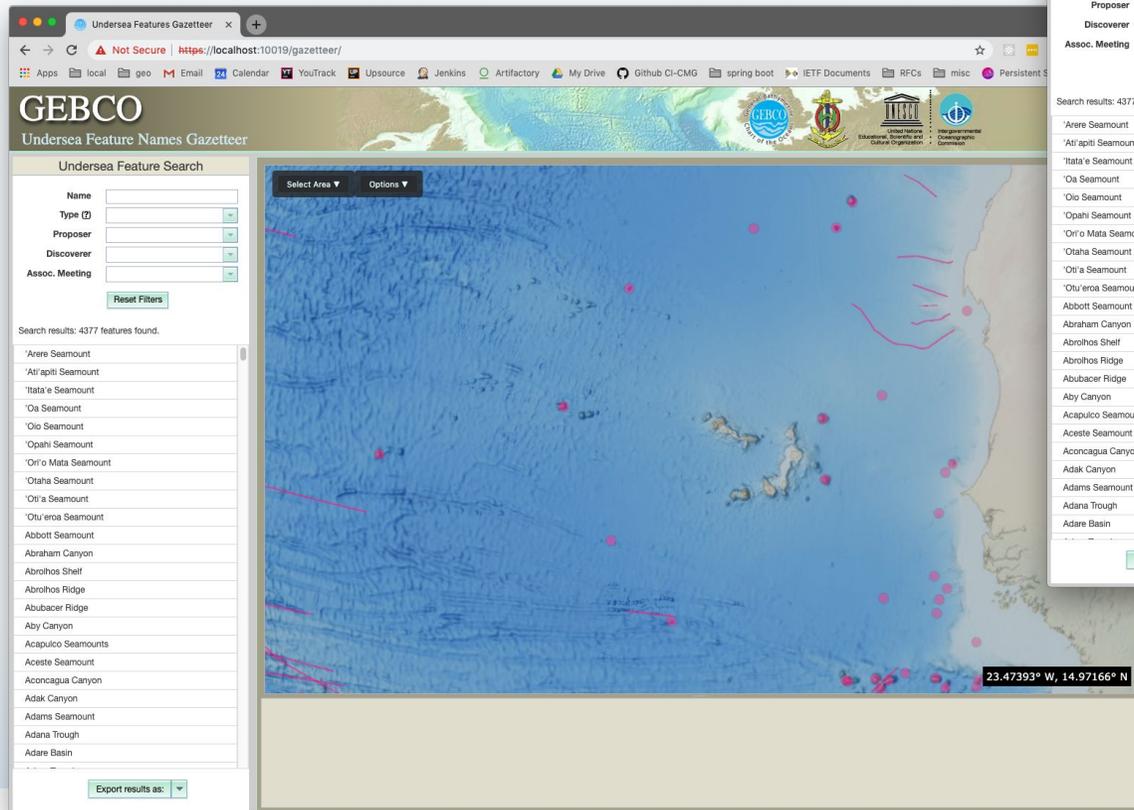
**Primary Geometry:** POLYGON ([-119.8385 13.25816, -119.63251 13.40099, -119.5968 13.47514, -119.60779 13.51909, -119.58856 13.58226, -119.64899 13.62346, -119.73962 13.68114, -119.82751 13.7086, -119.94836 13.68114, -120.20105 13.78825, -120.25598 13.8322, -120.34112 13.84593, -120.42627 13.82671, -120.49768 13.75529, -120.61853 13.86241, -120.73938 13.90361, -120.82452 13.84593, -120.8822 13.75804, -120.78058 13.60423, -120.73389 13.60423, -120.66797 13.59325, -120.5224 13.66466, -120.43725 13.53282, -120.38232 13.54655, -120.34936 13.52733, -120.07471 13.43944, -120.03076 13.38451, -119.98681 13.3076, -119.9566 13.25816, -119.88519 13.26915, -119.8385 13.25816])

**Secondary Geometry:** MULTIPPOINT ([-119.8417 13.4517], [-120.3633 13.6717], [-120.6717 13.695])



# Standalone - Issue A.9: Display of Position on the Chart Background.

Coordinates associated with the cursor's position on the basemap can be expressed as either Long, Lat with format  $\pm$ LLL.DDD,  $\pm$ lll.ddd, or Long, Lat with format LLL° MM.M'E/W, ll°mm.m'N/S



# Standalone - Issue A-12: Undersea Feature Search NW window.

Accented letters, such as é, è, à, ñ are recognized when used as part of the specific term in the field "Name".

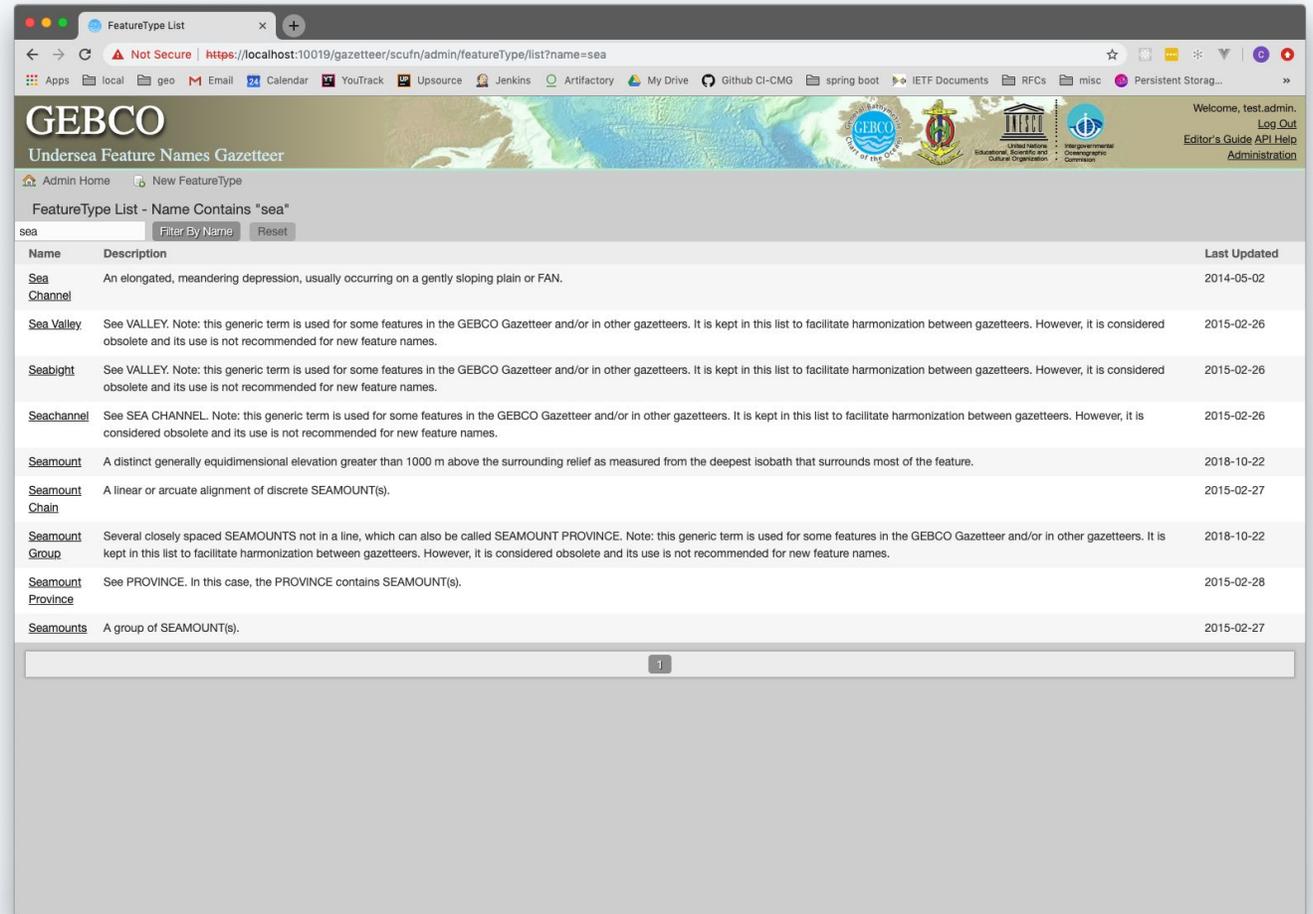
The screenshot displays the GEBCO Undersea Feature Names Gazetteer search interface. The search results show one feature found: Chiloé Basin. The details for this feature are as follows:

Name	Chiloé Basin
Proposed By	Chilean Hydrographic Office (SHOA), in 2002
Discovered By	
Last Updated	2018-09-12
Associated Meeting	SCUFN-15
Origin of Name	Named from the nearby Chiloé island, Chile.
Additional Information	
Minimum Depth (m)	
Maximum Depth (m)	
Total Relief (m)	



# Standalone - Issue B.2: Feature Type List and Contact List.

A given feature type or contact (eg: “Seamount” or “Survey Vessel”), can be reached directly by entering initial letters or a keyword (eg: “sea” for a feature type or “vessel” for a contact) in an additional small window “Filter by name”.



The screenshot shows a web browser window displaying the GEBCO Undersea Feature Names Gazetteer. The page title is "FeatureType List" and the URL is "https://localhost:10019/gazetteer/scufn/admin/featureType/list?name=sea". The page header includes the GEBCO logo and navigation links. The main content area shows a search filter for "sea" and a table of results.

Name	Description	Last Updated
<a href="#">Sea Channel</a>	An elongated, meandering depression, usually occurring on a gently sloping plain or FAN.	2014-05-02
<a href="#">Sea Valley</a>	See VALLEY. Note: this generic term is used for some features in the GEBCO Gazetteer and/or in other gazetteers. It is kept in this list to facilitate harmonization between gazetteers. However, it is considered obsolete and its use is not recommended for new feature names.	2015-02-26
<a href="#">Seabight</a>	See VALLEY. Note: this generic term is used for some features in the GEBCO Gazetteer and/or in other gazetteers. It is kept in this list to facilitate harmonization between gazetteers. However, it is considered obsolete and its use is not recommended for new feature names.	2015-02-26
<a href="#">Seachannel</a>	See SEA CHANNEL. Note: this generic term is used for some features in the GEBCO Gazetteer and/or in other gazetteers. It is kept in this list to facilitate harmonization between gazetteers. However, it is considered obsolete and its use is not recommended for new feature names.	2015-02-26
<a href="#">Seamount</a>	A distinct generally equidimensional elevation greater than 1000 m above the surrounding relief as measured from the deepest isobath that surrounds most of the feature.	2018-10-22
<a href="#">Seamount Chain</a>	A linear or arcuate alignment of discrete SEAMOUNT(s).	2015-02-27
<a href="#">Seamount Group</a>	Several closely spaced SEAMOUNTS not in a line, which can also be called SEAMOUNT PROVINCE. Note: this generic term is used for some features in the GEBCO Gazetteer and/or in other gazetteers. It is kept in this list to facilitate harmonization between gazetteers. However, it is considered obsolete and its use is not recommended for new feature names.	2018-10-22
<a href="#">Seamount Province</a>	See PROVINCE. In this case, the PROVINCE contains SEAMOUNT(s).	2015-02-28
<a href="#">Seamounts</a>	A group of SEAMOUNT(s).	2015-02-27



# Email Requests (July 10)

Several fracture zones in the South Pacific provided by files provided by DHN, Brazil did not display correctly in the Gazetteer - the linestrings were truncated.

These features display correctly in the upcoming version of the Gazetteer.

Undersea Feature Search

Name

Type (?)

Proposer

Discoverer

Assoc. Meeting

Search results: 7 features found.

- Saint Georges Canyon
- Saint Paul Fracture Zone
- Saint Rogatien Bank
- Saint-Exupéry Guyot
- Saint-Exupéry Fracture Zone
- Saint-Nazaire Canyon
- Saint-Tropez Canyon

Name Saint Paul Fracture Zone

Proposed By

Discovered By

Last Updated 2019-07-30

Associated Meeting

Origin of Name



# Email Requests (July 16)

A shapefile containing polygons for the Fletcher A.P. did not load correctly into the Gazetteer.

Upon investigation, some errors were detected in the polygons near the anti-meridian.

A corrected version was created, and successfully tested in the upcoming version of the Gazetteer.

The screenshot displays the GEBCO Undersea Feature Names Gazetteer web application. The interface is divided into several sections:

- Search Results:** A list of 8640 features found, including 'Pūkāki Rise EDIT', 'Arere Seamount', 'Ari'apiti Seamount', 'Itata'e Seamount', 'Oa Seamount', 'Oio Seamount', 'Opahi Seamount', 'Ori'o Mata Seamount', 'Otaha Seamount', 'Oti'a Seamount', and 'Otu'eroa Seamount'. The list also includes several 'Abrolhos Shelf DELETED' entries.
- Feature Details:** A detailed view of a feature, 'Fletcher Abyssal Plain', showing its status as 'EDIT', proposed by 'Fletcher Abyssal Plain', discovered by 'Fletcher Abyssal Plain', last updated on '2019-07-30', and associated meeting 'Origin of Name'. The geometry is listed as 'Primary Geometry: MULTIPOLYGON' with a list of coordinates.
- Map:** A map showing the location of the feature, with a coordinate box indicating '166° 22.58920' W, 85° 12.44653' N'. The map includes a 'Select Area' dropdown and an 'Options' dropdown.
- Navigation:** A 'Reset Filters' button and an 'Add New Feature' button are visible.



# Post SCUFN32 Work (2019)

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## ***Issue A-10: Display of Information - Geometry – Coordinates.***

The coordinates from imported shapefile geometries are limited to five decimal numbers (the fifth decimal being rounded).

## ***Issue A-13: SW search window, list of names.***

At present, all specific terms starting with ' (apostrophe), appear first in the list of names. They should appear in the appropriate alphabetic order, without taking any consideration to the apostrophe.

## ***Issue B-4: Feature Types List.***

The expression “Feature Type” should be replaced with “Generic Term”, the words “Name” and “Description” should be replaced with “Generic Term” and “Definition”, respectively. As a result, the words “Name” and “Type” in the Undersea Feature Search window of the Gazetteer Interface should be replaced with “Specific Term” and “Generic Term”.



# 2020 Work - Remaining “Wish List” items

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## ***Issue A-14: Editor name.***

The Editor name should be shown under “Editor” for all status, whether APPROVED, PENDING, EDIT or READY.

## ***Issue A-16: Display of Information – Associated Meeting.***

The ability to enter up to three associated meetings, shown on same line, in order to trace back the history of a name if needed.

## ***Issue A-17: Display of Depth on the Chart Background.***

Add depth display in meters as an option, that is, Long, Lat, Depth, using the GEBCO gridded bathymetry database.



# 2020 Work - Remaining “Wish List” items cont...

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## **Issue B-3: *Feature Type List.***

If, during the editing of a feature type, one clicks on the “return” key to start a new line, this change is not reflected in the updated text on display.

## **Issue B-5: *Feature Types List.***

When the description of a Feature Type is not provided because reference is made to another Feature Type, there should be a hyperlink from the relevant word to the actual description for that Feature Type.

## **Issue B-6: *Feature Types List.***

The following “Note” should be included at the top of each page: “NOTE: Terms written in CAPITALS in the definitions are themselves defined elsewhere in the list.”



# Recommendations

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1. SCUFN Members test the SCUFN32-07.1A improvements made to date and notify the IHO DCDB of any issues.

*<https://ccog.colorado.edu/gazetteer>.*

2. SCUFN Members review the remaining wish-list of improvements (SCUFN32-07.1A) and propose any changes as deemed necessary.
3. A discussion take place seeking clarity of the role of the IHO DCDB-hosted GEBCO Gazetteer and the KHOA Beta-Gazetteer Project and to agree upon a technical path forward for each.



# Justification & Impacts

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1. It should be understood that continued improvements and enhancements of the Gazetteer will remain incremental. Annual funding of 45K/year for the maintenance and enhancements of the Gazetteer has been secured and will be used to:
  - a. Perform annual maintenance and upgrades (when necessary)
  - b. Implement a limited number of requested enhancements
  
2. ***Without clarity on the role of the GEBCO Gazetteer and the Beta-Gazetteer, there remains concern that redundant efforts are taking place.***



# Actions required of SCUFN

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SCUFN is invited to:

- a.** note this paper;
- b.** consider the Recommendations and Impacts listed.

