

## Paper for Consideration by SCUFN

### Update on the progress to the GEBCO Gazetteer made with Actions and Decisions from SCUFN31

<b>Submitted by:</b>	Director of the IHO Data Centre for Digital Bathymetry
<b>Executive Summary:</b>	This document reports on the maintenance and enhancements made to the GEBCO Gazetteer application (including interface and underlying database) from all decisions and actions that were agreed at SCUFN-31, as well as on progressing other actions from SCUFN-31
<b>Related Documents:</b>	SCUFN32-07.1A, SCUFN32-07.3A
<b>Related Projects:</b>	N/A

### Introduction / Background

1. NOAA NCEI hired two software developers since SCUFN31. Both began addressing Gazetteer issues and enhancement requests in June, 2019.
2. Current updates can be accessed on a test server available here: <https://ccog.colorado.edu/gazetteer>. An updated and enhanced Gazetteer application will be fully migrated from a testing to a production environment Fall, 2019. The current Gazetteer continues to be usable for consultation and editing during this time ([ngdc.noaa.gov/gazetteer/](http://ngdc.noaa.gov/gazetteer/)).
3. The updates made to the Gazetteer address many of the issues listed in SCUFN32-07.1A.

### Analysis/Discussion

4. The GEBCO Gazetteer's underlying Grails web framework was refactored to a Java/Spring Boot framework to improve maintainability and expandability. The refactoring addressed three issues listed in SCUFN32-07.1A:
  - 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.
  - 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).
  - Issue B-1: *Contact List.*
    - Existing contacts in the Contact List can be amended.
5. The Gazetteer can now be displayed as either a plan or global view. This was done using CesiumJS and an additional API endpoint that returns TopoJSON data. The ability to view features on a globe addressed four SCUFN32-07.1A items.
  - Issue A.1: *Moving the cursor on the chart background.*
    - The names pop up correctly when moving the cursor on the map.
  - 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.
- Issue A.6: *Cursor coordinates on the Arctic and Antarctic basemaps.*
  - The Arctic and Antarctic views have been replaced with a global view and coordinates are now visible at cursor location.
- Issue A.11: *Polygon or line crossing the date line.*
  - A feature geometry crossing the Meridian 180° - line or polygon – will continue to be split in the database (result being MULTILINESTRING or MULTIPOLYGON geometries), as is best practice. However, a single feature will be displayed across the Meridian 180° on the mapviewer.

6. Seven additional issues listed in SCUFN32-07.1A were individually addressed:

- 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.
- Issue A.4: *Display of geometry on the basemap.*
  - Both primary and secondary geometries are now visible on the map.
- Issue A.5: *Input and 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”.
- Issue A.8: *Display of information - Geometry.*
  - The primary and secondary geometries are shown in the “information” window, below the basemap.
- 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 ±LLL.DDD, ±lll.ddd, or Long, Lat with format LLL°MM.M’E/W, ll°mm.m’N/S
- 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”.
- 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” somewhere at the top right of the page.

7. Two issues encountered by SCUFN members in preparation for SCUFN32 were addressed:

- Email (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.
- Email (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.

8. Three additional SCUFN32-07.1A items will be addressed immediately following SCUFN32:

- Issue A-10: *Display of Information - Geometry – Coordinates.*
  - The display of coordinates from imported shapefile geometries will be limited to five decimal numbers (the fifth decimal being rounded). However, the database will maintain full precision.
- Issue A-13: *SW search window, list of names.*
  - At present, all specific terms starting with ' (apostrophe), appear first in the list of names. Instead, they will appear in appropriate alphabetical order.
- Issue B-4: *Feature Types List.*
  - The expression “Feature Type” will be replaced with “Generic Term”, the words “Name” and “Description” will be replaced with “Generic Term” and “Definition”, respectively. The words “Name” and “Type” in the Undersea Feature Search window of the Gazetteer interface will be replaced with “Specific Term” and “Generic Term”.

9. Automated testing to provide quality assurance was added. This will provide (1) more complete testing of features than manual testing, (2) quantitative measurements of how well the application has been tested, and (3) help prevent regression of functionality when future changes are made to the application.

10. The remaining SCUFN32-07.1A items will be addressed in 2020:

- 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.
- 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**

It is recommended that:

11. SCUFN Members test the SCUFN32-07.1A improvements made to date and notify the IHO DCDB of any issues. Test server is available here: <https://ccog.colorado.edu/gazetteer>.
12. SCUFN Members review the remaining wish-list of improvements (SCUFN32-07.1A) and propose any changes as deemed necessary.
13. A discussion take place seeking clarity on 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 and Impacts**

14. It should be understood that continued improvements and enhancements of the Gazetteer will remain incremental. Annual funding of 45K/year has been secured and will be used to:
  - Perform annual maintenance and upgrades (when necessary)
  - Implement a limited number of requested enhancements
15. 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**

16. SCUFN is invited to:
  - a. note this paper;
  - b. consider the Recommendations and Impacts listed.