

Paper for Consideration by SCUFN

Report by NOAA/NCEI on Improvements Made to the GEBCO Gazetteer

Submitted by:	Director of the IHO Data Centre for Digital Bathymetry
Executive Summary:	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-33, as well as on progressing other actions from SCUFN-33
Related Documents:	SCUFN33-07.1, SCUFN35.1-07.2A, SCUFN33-07.3ARev, 1- SCUFN33-07.3B
Related Projects:	N/A

Introduction / Background

1. The NOAA/NCEI software development team, led by Chris Slater, began addressing Gazetteer issues and enhancement requests in March 2021.
2. Work included (1) resolving reported issues or enhancement requests, bringing the number of outstanding issues to zero, (2) providing maintenance releases and (3) began development on Gazetteer v5.0 which will provide interoperability with the Beta-Gazetteer developed by the Korean Hydrographic and Oceanographic Agency.
3. The GEBCO Undersea Features Name Gazetteer can be accessed here: ngdc.noaa.gov/gazetteer/

Analysis/Discussion

4. Updates were made to Gazetteer v4.3.0, addressing 5 issues or enhancements:
 - Request #1: Editor does not update when changing users
 - The editor now changes to the last user to make a change. Additionally, a new field, "Owner", represents the user that created the feature record and maintains the previous behavior.
 - Request #2: Display Gazetteer version information
 - The Gazetteer version is displayed in the lower left corner of the main page.
 - Request #3: Replace "Elevation" with "Depth" on chart background
 - Depth information from the GEBCO gridded bathymetry database is displayed as depth instead of elevation.
 - Request #4: Coordinate display in dec deg matches geometry
 - The coordinate display in decimal degrees matches the formatting of the geometry well known text. Positive and negative values are uses instead of N, S, E, W.
 - Request #5: IOC Logo Update
 - Updated the IOC logo.

5. Maintenance updates were made in the Gazetteer

- v4.3.1, v4.3.2, v4.3.3, v4.3.4, v4.3.5, v4.3.6
- 60 security vulnerabilities in 18 third-party libraries
- Includes Log4Shell (CVE-2021-44228)

6. Began development on Gazetteer v5.0.0.

- Gazetteer v5.0.0 will include an updated REST (Representational State Transfer) API which will allow for integration with the KHOA Beta-Gazetteer.
- Alpha version of the API deployed for review and testing:
 - ccog.colorado.edu/gazetteer5
- Enhancement feedback and bug reports to be addressed in 2022.
- Authentication
 - The Gazetteer v5 API uses OAuth 2.0 for authentication.
 - OpenID Connect is also enabled.
 - For the test environment, the token provider is located at ccog.colorado.edu/cas with the OpenID Connect well-known endpoint at:
 - ccog.colorado.edu/cas/oidc/.well-known
 - Fine grained access control can be enabled for users on the API endpoints.
 - Test users will be added to the test system as needed.
- Documentation:
 - The Gazetteer v5 API uses the OpenAPI 3.0 specification for documentation.
 - Programmatic documentation available:
 - ccog.colorado.edu/gazetteer5/feature-service/openapi/v3/api-docs.
 - Swagger UI provides human readable documentation from the OpenAPI documentation and allows for users to try the API from the documentation page.
 - This documentation is located:
 - ccog.colorado.edu/gazetteer5/view/admin/api-docs

7. Upcoming work (Spring 2022)

- Significant changes are needed in the current GEBCO Gazetteer in order to support the KHOA Beta-Gazetteer integration and simplify future development.
- Face-to-face meeting between GEBCO Gazetteer developers and KHOA Beta-Gazetteer developers at SCUFN 35.1
- The goals for the upcoming development cycle include:
 - Supporting KHOA's developers as they develop and test the Beta-Gazetteer integration using well known authentication and integration standards (OAuth, REST APIs)
 - Updating the API, fixing reported bugs and adding requested enhancements
 - In-depth testing
 - Updating the user interface to use a modern and more maintainable framework, Vue.js

Recommendations

It is recommended that:

9. SCUFN Members continue to test the improvements made to date and notify the IHO DCDB of any issues.

10. SCUFN members provide support and feedback when needed during development of the GEBCO Gazetteer and KHOA Beta-Gazetteer integration.

Justification and Impacts

11. It should be understood that continued improvements and enhancements of the Gazetteer will remain incremental. Annual funding of 40K/year has been secured and will be used to:

- Perform annual maintenance and upgrades (when necessary)
- Implement a limited number of requested enhancements
- Progress the development of the GEBCO Gazetteer and KHOA Beta-Gazetteer integration

Actions required of SCUFN

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