

Paper for Consideration by SCUFN

Report by NOAA/NCEI on maintenance of the GEBCO Gazetteer (NOAA) & interoperability with SCUFN Operational Web Services

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-35, as well as on progressing other actions from SCUFN-35 and earlier.
Related Documents:	SCUFN35.1-07.1A, SCUFN36-07.3A, SCUFN36-07.3C
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 April 2022.
2. Work included (1) updating Gazetteer v4.3.7, (2) addressing three enhancement requests, (3) testing the environment created for GEBCO Gazetteer and KHOA OWS interoperation and (4) releasing Gazetteer v5.0.0 for testing
3. The GEBCO Undersea Features Name Gazetteer can be accessed here: ngdc.noaa.gov/gazetteer/

Analysis/Discussion

4. Updates were made to Gazetteer v4.3.7, addressing 3 enhancements:
 - Enhancement #1: The behavior for editing a feature in the PENDING state has changed.
 - Previous Behavior: Users other than the owner were allowed to edit a feature in the PENDING state
 - New Behavior: Only the owner or an administrator can edit a feature in the PENDING state
 - Enhancement #2: Feature export now includes minimum depth, maximum depth, total relief, and dimension
 - Enhancement #3: The base map was updated to “GEBCO_basemap_NCEI_wgs84”
5. Continued development on Gazetteer v5.0.0.
 - The Gazetteer v5 code base and deployment artifacts were restructured to better support application deployment at NOAA / NCEI
 - Single project code base ⇒ Easier to maintain
 - Single application module ⇒ Less resources to deploy
 - A restructured application and database were deployed to <https://ccog.colorado.edu/gazetteer5> to allow for testing between KHOA OWS and the GEBCO Gazetteer

- KHOA test API Token:
 - Functionality was added to v5 to support use of an API token, a secret authentication identifier.
 - An API authentication token was generated in the GEBCO Gazetteer test environment and given to KHOA OWS software developers for testing.
- New feature API endpoints were added to support the PATCH action for feature state changes.
 - Allows for only the state of a feature to be changed between: APPROVED, PENDING, READY, DELETED, EDIT
 - User authority rules for changing state can be configured separately from feature edit rules.
- v5 API now supports creating, reading, updating, and deleting non-feature data.
 - Users, Meetings, Contacts, Generic Terms
 - This API powers the user interface
- API fine-grained access control
 - Allows permissions to be assigned to users for every action available in the API, not just global editor or admin roles.
 - This is a required feature for KHOA OWS and GEBCO Gazetteer interoperability.
- Modernized user interface framework
 - v5 uses a single user interface framework, Vue.js + Typescript.
 - Updates to the UI are now easier and less prone to errors.
 - A single front end technology makes the UI more coherent.
- UI refresh - v5 uses Google Material Design styling.
 - Same styling used for Google web applications; user experience inspired by Google Maps
- Test environment database refresh
 - Improvements made to make refreshing the v5 test database at <https://ccog.colorado.edu/gazetteer5> simpler and faster.
 - Allows for updates made to the production Gazetteer database to be added to the test database more frequently.
 - Also allows for easier software developer testing during development cycles.
- OIDC authentication
 - v5 uses Open ID Connect and a central authentication service to authenticate users.
 - In production, Login.gov will be used and will allow users to manage their own credentials and password changes.
- Outdated base maps removed
 - Many of the map layers in v4 have become unmaintained and were removed.
 - Only the GEBCO base layers are now available.
- Zooming issue with UN map labels fixed
 - In v4, zooming in with the UN place labels would display a UN logo.
 - v5 allows zooming to any level with UN place labels enabled.
- Cesium globe update
 - Cesium is the library used to power the map in the Gazetteer.
 - v5 now uses Cesium v1.102.0.
 - A custom adapter was created to make interaction with the map reactive with the new Vue.js framework.
 - Making development updates to the map is now easier and less error prone.
- UI Feature approval workflow
 - v5 feature approval workflow added to the new user interface.
 - Powered by the new features added to the API.
 - This is the same API that will be used by the KHOA OWS + GEBCO Gazetteer

interoperability initiative.

- Using this same API in the UI serves as a test and example of how KHOA OWS will interact with the GEBCO Gazetteer.
- Polar views in Gazetteer v4 and new Google Material Design controls were added to v5.

6. Gazetteer v5.0.0 Production Deployment

- Feedback on necessary enhancements for v5.0 continues to be collected.
- Two test environments are currently being used to evaluate Gazetteer v5.0: a NOAA internal deployment for testing authentication with Login.gov, and <https://ccog.colorado.edu/gazetteer5> for SCUFN and KHOA testing.
- As enhancements are added to the Gazetteer, these test environments will be updated for review.
- Once all issues are resolved to the satisfaction of SCUFN, v5.0 will be made live at <https://ngdc.noaa.gov/gazetteer>.

7. Upcoming work (Spring 2024)

- Continue to test GEBCO Gazetteer v5.0
- Address all issues identified with GEBCO Gazetteer v5.0, including, but not limited to:
 - Removing unnecessary search options for non-SCUFN users
 - Fix general user interface errors
 - Measure tool enhancements
 - Optimize display of feature information
 - General feature approval workflow enhancements
 - Fix feature export functionality
 - User role management improvements in the UI
 - Improve login flow
 - General improvements on the look and feel of the UI
- Support KHOA software developers as needed for KHOA OWS interoperation

Recommendations

8. It is recommended that:

- SCUFN Members test Gazetteer v5 and notify the IHO DCDB of any issues.
- SCUFN members provide support and feedback when needed during development of the GEBCO Gazetteer and KHOA OWS integration.
- KHOA OWS developers continue to test with the Gazetteer v5 test environment and let GEBCO Gazetteer developers know of any issues, changes, or questions.
- SCUFN Members let GEBCO Gazetteer developers know when an upgrade to Gazetteer v5 is appropriate.

Justification and Impacts

9. It should be understood that continued improvements and enhancements of the Gazetteer will remain incremental. Annual funding of 50K/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

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