

Conference Abstract

Mapping Marine Biodiversity: Using Open Source GIS Tools to Visualise and Extract Collection Data

Brent Wood[‡], Sadie Mills[‡], Jane Robbins[§]

[‡] National Institute of Water & Atmospheric Research, Wellington, New Zealand

[§] National Institute of Water & Atmospheric Research, Auckland, New Zealand

Corresponding author: Sadie Mills (sadie.mills@niwa.co.nz)

Received: 13 Apr 2018 | Published: 04 Jul 2018

Citation: Wood B, Mills S, Robbins J (2018) Mapping Marine Biodiversity: Using Open Source GIS Tools to Visualise and Extract Collection Data. Biodiversity Information Science and Standards 2: e25787.

<https://doi.org/10.3897/biss.2.25787>

Abstract

The National Institute of Water and Atmospheric Research (NIWA) in Wellington manages one of New Zealand's Nationally Significant Taxonomic Collections and Databases. The NIWA Invertebrate Collection (NIC) maintains data for over 125,000 (and growing) marine invertebrate specimens from over 46,000 localities in New Zealand, the Ross Sea portion of the Antarctic and the wider South West Pacific. This data is managed using a Specify Software database. NIC managers are often requested to provide large data extracts from specific regions of the New Zealand zone for a variety of uses, from biodiversity checklists of benthic protected areas, to the environmental impact assessment of commercial activities on areas of seabed.

Using a built-in query to extract relevant records based on geographic coordinates is straightforward for data constrained in a single square box, but requests for data are usually from within multiple polygons and require significant data grooming and refining once extracted to become useful. Using the open source GIS program Quantum-GIS (QGIS), we present a flexible and generic approach to map based access to collection databases. A direct OpenGIS Simple Features Reference Implementation Virtual Data Source (OGRVRT) link from the Specify database into QGIS was established so that a user can visualise the entire current collection holdings on a map. As changes are made to object data or new records are added these will update instantly on the map, which assists

with immediate validation of data and prevents the need to re-export data. Collection object data fields can be added as required and labelled differentially to visualise patterns, and the data can either be exported to a file from selected areas using map tools, or can be used to produce publication quality maps. This is an ideal collection management tool for mapping and visualisation, which will improve the accuracy, access and use of the data.

Keywords

QGIS, maps, open source, database, data extract, tools, Specify

Presenting author

Sadie Mills