Progress Report CF 2018-075

Spatial data management

Remote Sensing and Spatial Analysis

Project Core Team

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Project status as of July 12, 2021, 10:54 a.m.

Update requested

Document endorsements and approvals as of July 12, 2021, 10:54 a.m.

Project Team	granted
Program Leader	granted
Directorate	granted

Spatial data management

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Context

This core function manages spatial data sets by creating metadata, cleaning the data to a corporate standard and saving or migrating data in a secure and accessible corporate data repository - the Spatial Data Library. Many of the data sets in the Spatial Data Library are identified though departmental project requirements. Large data sets include imagery and digital elevation models captured for general use across the department or for specific projects and have multiple uses such as time series analysis, spatial analysis, modelling, and decision making for management, monitoring, planning and policy. Departmental collaborations also produce key data sets that are important but may not be ready to use or need a license arrangement in place to be utilised by the department. Making fundamental data sets accessible to all staff through corporate GIS software is an effective way of communicating what science is being undertaken and also assists with determining management priorities and actions.

Aims

- Identify and manage fundamental data sets created internally and externally that have value to the department and have multiple uses.
- Collate, clean and metadata final spatial data sets developed by science and science collaborations, and migrate this data into Corporate GIS applications and the Spatial Data Library.

Progress

- A copy of the spatial corporate data for the coastal Kimberley region including: aerial and satellite imagery and marine data sets, including resulting data sets from Western Australian Marine Science Institute (WAMSI) were supplied to the marine vessel Worndoom to assist with operations, navigation and research trips. Positive feedback was received from DBCA staff on the first trip with the data, where they were able to navigate through uncharted waters with imagery provided and set up two new anchorages and adjust patrol routes.
- The Terrain data set (DEM/LiDAR) Index was updated to include new data sets available to the department on corporate systems.
- Software and scripts were implemented to enable access and process satellite imagery maintained on the National Computing Infrastructure.
- Provided feedback to Department of Transport to enable sharing of bathymetry lidar data captured by the Commonwealth.
- Three bathymetry data loggers were purchased to install on three Kimberley vessels to contribute data to a crowd sourcing bathymetry program run by Geoscience Australia's AusSeabed program to assist with improving coastal bathymetry in the Kimberley.

Management implications

- Appropriate access and curation of corporate data and imagery means that staff, particularly Kimberley Marine Park coordinators and rangers, are now able to use this data and knowledge to support management, operations and monitoring in Kimberley Marine Parks.
- Feedback to other state agencies, with regards to departmental requirements for high resolution imagery and bathymetry (respectively), is important to ensure future fundamental data sets provided to DBCA fill geographical or temporal gaps, are relevant, and can inform staff adequately to assist with our operational, monitoring, research and management needs.
- Continued development and migration of user-friendly spatial data sets will support the department's need to improve the discoverability and accessibility of science data for all staff.

- Improved coastal bathymetry will assist DBCA regional staff in navigation, management and monitoring operations in Kimberley Marine Parks waters.
- Access to the National Computing Infrastructure leverages super computing resources for departmental requirements.

Future directions

- Identify terrestrial and marine spatial data sets of corporate value to be migrated to the Corporate Data menu.
- Facilitate the delivery of web mapping service for Land Monitor products to the Corporate Data menu in ArcGIS and QGIS.
- Continue to update satellite imagery, LiDAR and DEM catalogues.
- Continue to develop scripts and functions to utilise satellite imagery on the National Computer Infrastructure
- Install NMEA smartlog loggers on Kimberley vessels and supply bathymetry data to Geoscience Australia's AusSeabed program to improving coastal bathymetry in the Kimberley and feed updated bathymetry models back to the Kimberley.