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# The Arctic Biodiversity Data Service

April 2017

Progress Report



# Arctic Biodiversity Data Service

## Progress report: 2015-2017

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## 1. What is the Arctic Biodiversity Data Service (ABDS)?

The ABDS is the online, interoperable data management system for biodiversity data generated via the Conservation of Arctic Flora and Fauna (CAFF), the Arctic Council's biodiversity working group. Its goal is to facilitate access, integration, analysis and display of biodiversity information for scientists, practitioners, managers, policy makers and others working to understand, conserve and manage the Arctic's wildlife and ecosystems.

The ABDS ensures that biodiversity data provided to CAFF are organized to guarantee a lasting legacy in a manner that facilitates: data discovery; increased understanding; more informed and rapid decision-making; and ongoing research. Each time a new report or product is released by CAFF the datasets involved are archived and made accessible via the ABDS. This document provides an overview of ABDS and progress during the 2015-17 Arctic Council Ministerial period.

## 2. Architecture

The ABDS is built using open source solutions designed to facilitate sharing of information i.e. GeoServer<sup>1</sup>; GeoNetwork<sup>2</sup> and an Integrated Publishing Toolkit (IPT)<sup>3</sup>. Sitting atop a Postgre SQL PostGIS database<sup>4</sup> this framework (Figure 2) provides an easy to use web interface to search geospatial data across multiple catalogues, combine distributed map services, publish geospatial data and schedule metadata harvesting from other catalogues.

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<sup>1</sup> GeoServer is a Java-based software server that allows users to view and edit geospatial data. Using open standards set forth by the Open Geospatial Consortium (OGC), GeoServer allows for great flexibility in map creation and data sharing.

<sup>2</sup> GeoNetwork is a catalog application to manage spatially referenced resources. It provides powerful metadata editing and search functions as well as an embedded interactive web map viewer. It is currently used in numerous Spatial Data Infrastructure initiatives across the world.

<sup>3</sup> The Integrated Publishing Toolkit (IPT) is a free open source software tool written in Java that is used to publish and share biodiversity datasets through the GBIF

<sup>4</sup> Postgre SQL PostGIS is an object-relational database supporting geographic objects and allowing location queries to be run in SQL.

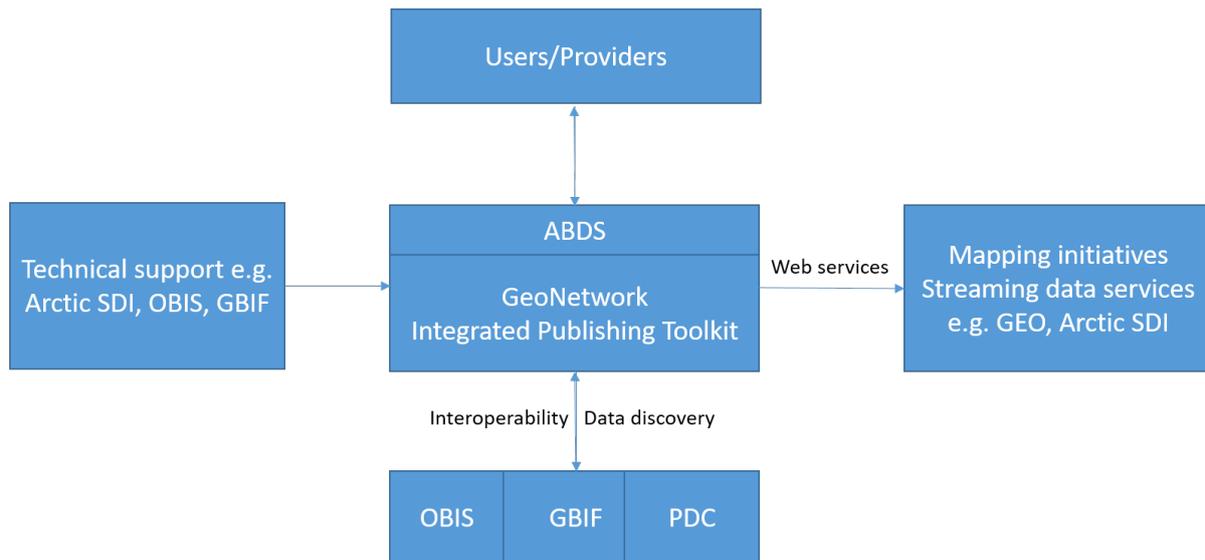


Figure 1: ABDS Architecture

### 3. Data management

Key data management services include supporting network data management; assigning metadata; establishing interoperable links via the ABDS with relevant data portals; hosting relevant datasets that are not accessible elsewhere; rescuing datasets and working to ensure that the appropriate standards are applied.

### 4. Partners

CAFF works with a range of partners to further develop cooperation, access to and management of biodiversity data. Partners include the Arctic Spatial Data Infrastructure<sup>5</sup> (Arctic SDI); Global Biodiversity Information Facility (GBIF); Ocean Biogeographic Information System (OBIS); Group on Earth Observations Biodiversity Observation Network (GEOBON); and the Polar Data Catalogue (PDC).

### 5. Data

The ABDS contains datasets from CAFF’s monitoring and assessment activities with new data being regularly added. Key data sources include data generated by CAFF’s Circumpolar Biodiversity Monitoring Programme (CBMP). Examples of recently added datasets include data generated by the *State of the Arctic Marine Biodiversity Report* (CAFF 2017); the Land Cover Change Index and the Protected Areas indicator. External parties are also welcome to make their data available via the ABDS.

As of December 2016, 299,465 data records are accessible on the ABDS (Figure 2). The jump in records accessible in 2015 reflects when ABDS became Arctic Nodes within GBIF and OBIS.

<sup>5</sup> The Arctic SDI is an initiative led by the National Mapping Agencies of Arctic Council member states to share spatial data across organizations, working groups and countries. CAFF facilitates the initiative within the Arctic Council.

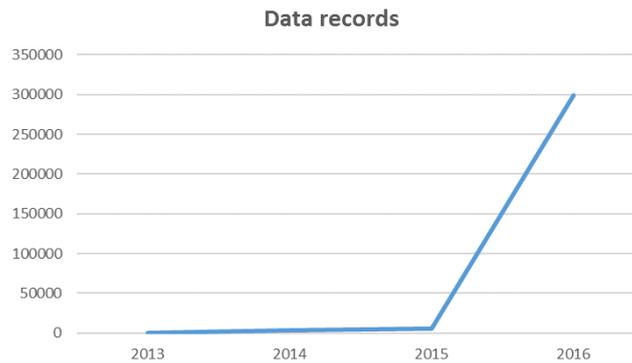


Figure 2: Data records available on the ABDS (December 2016)

## 6. Progress 2015-17

During 2015-2017 key achievements include:

- The ABDS IPT became operational and became Arctic nodes within GBIF and OBIS allowing data to be harvested from ABDS.
- ABDS harvested and linked to the Global Earth Observation System of System (GEOSS) Common Infrastructure.
- The Postgre SQL PostGIS database became operational and integrated within the ABDS.
- CAFF and the Arctic SDI developed a means of facilitating access to remote sensed data developed via the Land Cover Change Index.
- Development of a data delivery system for information from the CBMP expert networks, for example, to the State of the Arctic Marine Biodiversity Report data and graphics holdings.
- ABDS became interoperable with Arctic SDI, and now streams the first Arctic Council Working Group data into the [Arctic SDI GeoPortal](#).
- CAFF was a member of the International Advisory Committee for the 2016 Polar Data Forum II and organised an ABDS session.
- CAFF advised Arctic SDI on development of an Arctic Spatial Data Pilot being developed by the Open Geospatial Consortium (OGC) for the U.S. Geological Survey and Natural Resources Canada.

## 7. Next steps 2017-18

Activities during the Arctic Council 2017-2019 ministerial period will include:

- Further developing the work process via which users can contribute data for use in ABDS, in particular, continuing to work with the CBMP to facilitate data transfer and publishing from the CBMP monitoring groups and headline indicators available on ABDS;
- Continuing work on developing ABDS to ensure system integrity, security and interoperability;
- Increase the understanding and profile of the ABDS amongst target audiences and partners;
- Expanding partnerships to ensure integration and interoperability with ABDS;
- Expanding the funding base to ensure sustainability; and
- Increased decision maker support for the ABDS including engagement in identifying partners with complimentary mandates for cost and benefit sharing.