Community feedback collected between June 2019 and February 2020 on how researchers search and access new data for research as well as feedback on potential enhancements to help improve BCO-DMO's service to the research community.

Website: https://www.bco-dmo.org/dataset/825238
Data Type: Other Field Results
Version: 1
Version Date: 2020-09-22

Project
» BCO-DMO: Accelerating Scientific Discovery through Adaptive Data Management (BCO-DMO)

Contributors	Affiliation	Role
Haskins, Christina	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	Principal Investigator, BCO-DMO Data Manager
Soenen, Karen	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	Co-Principal Investigator
Biddle, Mathew	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	Scientist
Copley, Nancy	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	Scientist
Kinkade, Danie	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	Scientist
Rauch, Shannon	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	Scientist
Saito, Mak A.	Woods Hole Oceanographic Institution (WHOI)	Scientist
Shepherd, Adam	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	Scientist
Wiebe, Peter H.	Woods Hole Oceanographic Institution (WHOI)	Scientist
York, Amber D.	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	Scientist

Abstract
Oceanographic data, when well-documented and stewarded toward preservation, have the potential to accelerate new science and facilitate our understanding of complex natural systems. The Biological and Chemical Oceanography Data Management Office (BCO-DMO) is funded by the NSF to document and manage marine biological, chemical, physical, and biogeochemical data, ensuring their discovery and access, and facilitating their reuse. The task of curating and providing access to research data is a collaborative process, with associated actors and critical activities occurring throughout the data's life cycle. BCO-DMO supports all phases of the data life cycle and works closely with investigators to ensure open access of well-documented project data and information. Supporting this curation process is a flexible cyberinfrastructure that provides the means for data submission, discovery, and access; ultimately enabling reuse. Based upon community feedback, this infrastructure is undergoing evaluation and improvement to better meet oceanographic research needs. This poster will introduce the repository and describe some of the strategic enhancements coming to BCO-DMO, and presents an opportunity for you to provide feedback on enhancements yet to come. We invite you to think about your own research workflow of searching and accessing new data for research, and to provide your feedback through the poster's interactive sections. Your input can help BCO-DMO improve its service to the research community.

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Coverage

Temporal Extent: 2019-06-24 - 2020-02-21

Dataset Description

We conducted a stakeholder needs study during three oceanographic meetings to determine potential enhancements the BCO-DMO repository could make to improve its service to the research community.

Methods & Sampling

We conducted a stakeholder needs study during three oceanographic meetings to determine potential enhancements the BCO-DMO repository could make to improve its service to the research community. For each question, participants were directed to use corresponding stickers to indicate their first, second and third choices in response to the following questions:

1. Accessing data: What file formats do you use?
2. Searching for data: What search facets (categories) are most important to you?
3. Data tools: What programming languages and tools do you use?
4. New requests: What new tools and features would be useful to you?

The poster was presented at:

- The Ocean Carbon & Biogeochemistry (OCB) Summer Workshop in Woods Hole, MA June 24-27 2019.
- The Ocean Obs'19 Meeting in Honolulu, HI September 16-20 2019. Updates were made to the poster based on feedback received during the OCB meeting. The "Searching for data" section's geospatial response option was split into geospatial by region and geospatial by point location. Additionally, the response option "Searching by Award number" was removed.
- The Ocean Sciences Meeting in San Diego, CA February 16-21 2020. Additional changes were made to the poster based on feedback received during the Ocean Obs'19 meeting. The option for xls/xlsx was added as a response choice to the "Accessing data" question.

Remarks on data acquisition:

Updates were made to the poster prior to the OceanObs'19 Meeting, based on feedback received during the OCB meeting. The "Searching for data" section's "Geospatial" response option was split into "Geospatial by region" and "Geospatial by point location" options. The response option "Searching by Award number" was removed. An additional change was made to the poster based on feedback received during the OceanObs'19 meeting by adding a response choice for .xls/.xlsx file formats to the "Accessing data" question.

It should be noted that on occasion a sticker that was not mapped as the first, second, or third choice option was used erroneously. We noted these errors in a comments field. It was also noticed that some participants only provided us with their first choice answers.

Data Processing Description

These data represent raw participant responses resulting from their engagement with the interactive posters. Data were processed with Excel.

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Data Files

File
thoughts.csv (Comma Separated Values (.csv), 8.10 KB) MD5:90cc93632eb6cee9ebdfcf3baabc9619 Primary data file for dataset ID 825238

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Supplemental Files

File
Community data format preferences filename: accessing-plot_2022-06-14.pdf (Portable Document Format (.pdf), 62.91 KB) MD5:7d21438d56229f12f4b26719cab4cb42 Graph showing study results related to preferred data formats (e.g., CSV vs MAT vs NetCDF, etc.). Responses are further broken down by first choice, second choice, third choice, etc per data format.
Community data tool preferences filename: data-tools-plot_2022-06-14.pdf (Portable Document Format (.pdf), 65.95 KB) MD5:9e38288be7bee3fab98f47c459005965 Graph showing study results related to preferred tools used for working with data. Responses are further broken down by first choice, second choice, third choice, etc per data tool or language.
Community preferences for data facets filename: searching-plot_2022-06-14.pdf (Portable Document Format (.pdf), 74.66 KB) MD5:bfb4f4bb57658c56a781905d79233cc8 Graphed survey results showing community preferences for searchable facets of datasets.
Community requests for new features filename: requests-plot_2022-06-20.pdf (Portable Document Format (.pdf), 3.84 MB) MD5:639f44671c02d1c79367a5bc042c090d Graph showing survey results indicating which new features are of interest to community members. Responses are further broken down by first choice, second choice, third choice, etc.

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Related Publications

Haskins, C., Biddle, M., Copley, N., Rauch, S., Soenen, K., York, A., … Wiebe, P. (2020). Share Your Thoughts [poster]. doi:10.1575/1912/26174
Results

Kinkade, D., Shepherd, A., Biddle, M., Copley, N., Haskins, C., Schloer, C., … Wiebe, P. (2019). Share Your Thoughts. doi:10.1575/1912/24630
Results

Soenen, K., Biddle, M., Copley, N., Haskins, C., Schloer, C., … Wiebe, P. (2019). Share Your Thoughts [poster]. doi:10.1575/1912/24295
Results

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Parameters

Parameter	Description	Units
Meeting	Name of the meeting poster was presented at	dimensionless
Date	Date range over which the meeting was held.	YYYY/MM/DD - YYYY/MM/DD
Location	City and state (USA) where the conference took place	unitless
Topic	General topic the question relates to	unitless
Category	Possible response choice	unitless
First_Choice	Voters first choice under a specific category	unitless
Second_Choice	Voters second choice under a specific category	unitless
Third_Choice	Voters third choice under a specific category	unitless
Unclassified	Vote that used an unclassified sticker meaning we do not know what their choice was.	unitless
Total_Votes	Total number of votes	unitless
Comment	Any comments pertaining to a specific category topic.	unitless

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Project Information

BCO-DMO: Accelerating Scientific Discovery through Adaptive Data Management (BCO-DMO)

NSF Award Abstract:

Scientific research is intrinsically reliant upon the creation, management, analysis, synthesis, and interpretation of data. Once generated, data are essential to demonstrating the veracity and reproducibility of scientific results, and existing data hold great potential to accelerate scientific discovery through reuse. The Biological and Chemical Oceanography and Data Management Office (BCO-DMO) was created in 2006 to assemble, curate, and publicly serve all data and related products resulting from grants funded by the NSF core programs for Biological and Chemical Oceanography, and Office of Polar Programs. BCO-DMO provides limnological and marine chemical, biological, and physical data inventories from several large and intermediate-sized programs, as well as single-investigator projects to support cross-disciplinary collaboration to address pressing environmental questions, problems, and challenges that are exacerbated with the increasing pace of climate change. BCO-DMO is committed to data management capacity building efforts, improving data literacy and increasing science engagement in data management topics through education, training, and outreach. The project collaborates with academic institutions and teachers, where the BCO-DMO database is leveraged for oceanographic curricula, and engages in targeted training of informatics students, cross-pollinating their knowledge with geoscience domain data management.

BCO-DMO's goal is to facilitate the integration of its diverse datasets to enable researchers to achieve a deeper understanding of ocean ecological and biogeochemical systems. As a domain repository, BCO-DMO adds value and improves interoperability of data to support activities such as synthesis and modeling, and the reuse of oceanographic data for new research. Open access to the BCO-DMO database lowers barriers to allow economically challenged countries to gain access to research quality data for field decision support, policy-relevant issues, and educational purposes. The project takes an active role in the exchange of knowledge at national and international geoscience and informatics meetings and workshops, where standards development and adoption occur. BCO-DMO also participates in the development and use of open-source, standards-based technologies that enable interoperable data systems to exchange data and information that will foster next-generation research in all disciplines. While continuing to perform its core mission of data management, BCO-DMO will reconstitute its data infrastructure to mobilize a new adaptive data management strategy for addressing the evolutionary change coinciding with the big data revolution. Leveraging data semantics BCO-DMO will construct a knowledge graph for sustainably operating an adaptive data repository. This infrastructure will support dataset-level and repository-level metrics, an improved data submission experience and new data and metadata access capabilities. Through declarative workflows, the processing of contributed data will increase in efficiency, and result in actionable provenance records for complete transparency of data curation practices. Taking a holistic perspective on education, outreach and community engagement, formalized programs will be developed to promote data reuse and interest in oceanographic science.

This award reflects NSF's statutory mission and has been deemed worthy of support through evaluation using the Foundation's intellectual merit and broader impacts review criteria.

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1924618

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