

SECTION 1. PROJECT ADMINISTRATIVE INFORMATION

CDI Science Support Category to which the proposal is responding:

CDI SSF Categories: Computational Tools & Services; Data & Information Assets; Management, Policy, and Standards

Project title: Enhance existing web resources to support aspects of the data management process for multiple research and monitoring programs and projects

Name of lead USGS cost center requesting funding: USGS Northwest Region/PNAMP

Name of USGS principal investigator, mailing address, telephone, fax, and email

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Short description

Enhance existing web resources to support aspects of the data management process for multiple research and monitoring programs and projects that operate at local to national scales. Develop tools and web resources to promote discoverability, accessibility, usability, novel reuse of scientific data, minimizing duplication of efforts, and making it possible for a variety of users to retrieve and understand datasets.

Anticipated Deliverables

- 1-3 fully developed and published API services functioning between existing web resources

SECTION 2. PROJECT SUMMARY

This project is intended to support current national efforts to better manage data such that it is documented, understood, accessible, and preserved. We will develop and apply technologies that support consistent data collection and management protocols and that enable best practices to describe, organize, curate, and facilitate access to scientific data. Documentation of data collection protocols, methods and designs is essential to ensuring that data are well managed and available for decision making and future science. Specifically, we have identified tasks that will support design and implementation of local, regional and national monitoring programs and to improve collaboration among monitoring programs, including publication and exchange of the following: master samples; design/sample creation (GRTS algorithm); design documentation; event/site location documentation; methods documentation; and protocol documentation. The goals are to (1) provide best practices and improved tools to support science data management for research activities within USGS (e.g., at the project or Center level), and (2) provide capacity and leadership for information management within other DOI Bureaus (e.g., USFWS, NPS) charged with implementing regional to national-scale monitoring activities..

Monitoring Resources (www.MonitoringResources.org), was developed by the Pacific Northwest Aquatic Monitoring Partnership (PNAMP) to provide online public structured documentation of protocols, methods and designs in a consistent format to improve data documentation, discovery and collaboration among partners in the Pacific Northwest. However, the tools may be accessed and used by any entity or individual seeking sustained public documentation; thus reuse of this existing tool efficiently offloads part of entities' data management needs to a public registry. This contributes to data usability with respect to data management mandates, while saving money by reusing existing tools (not new development); meeting program needs more quickly; promoting inter-program coordination (for planning); improving data discovery (to facilitate data reuse); and improving data reuse through better documentation and enhanced metadata .

We propose to establish web interfaces between existing electronic resources, including PNAMP's Monitoring Resources.org tool set and individual monitoring program's resources. Specifically, we will develop, publish, and apply application programming interfaces (API) for protocol, method, design documentation web services between Monitoring Resources and specific programs' web resources. We have identified a number of potential use cases for this work; however, we will not be able to fully address needs for all cases in a single year due to funding limitations. Therefore, we propose a phased approach which allows time to work with potential partners (BPD, NFHP,, etc.) to outline services they need from an API; fully scope and prioritize development of 1-3 API services; develop API services in order of priority; and publish the APIs via USGS (documentation, metadata, and code in a repository. The following partners have signaled interest in pursuing this collaboration:

- The Bat Population Database (BPD) is an international bat data warehouse that allows data owners to contribute and manage their bat population data. By design, BPD data owners organize and distribute their data through "data projects," which contain basic, project-level metadata elements that describe the project and its data. The BPD's data project management would be improved by expanding this basic project-level documentation model to incorporate PNAMPs methods and protocol documentation features. To do this, PNAMP would need to develop, publish and expose API services that allow BPD data project managers to describe, upload and retrieve their projects method and protocol documentation, as well as to update or delete that documentation within PNAMP. This would allow the BPD to utilize PNAMP's methods and protocol features and database while retaining the BPD user interface features familiar to its users.
- The National Fish Habitat Partnership (NFHP) Data System is being enhanced to better leverage existing data

from monitoring programs to inform assessment. Discovering what data exists is key but can often be challenging and time consuming. To advance this concept, PNAMP and NFHP have initiated a demonstration to showing the potential of connecting the “who, where, and what” of conservation activities and monitoring efforts in one web application. Additional work to complete APIs and data exchange standards for site locations will enable these information exchanges.

- The NFHP Project Tracking Database project has proposed to incorporate use of Monitoring Resources as a repository for protocol and method documentation for NFHP projects. Specifically, this will support NFHP’s desire to measure progress consistently. Method and protocol documentation will contribute towards tracking whether projects have been implemented correctly and accounting for the effectiveness of restoration projects so that future funds can be spent on the most efficient projects.
- The USGS Ecosystems/Fisheries Program has initiated a pilot to inform the establishment of a consistent geospatial framework to promote its portfolio, facilitate interdisciplinary data synthesis efforts and research at multiple spatial scales. Focused on eDNA research funded by this program, this project is already funding work to evaluate use of Monitoring Resources for protocol and method documentation and is a potential partner to use APIs to bring method and protocol documentation to a USGS data management system (to be determined in the future).

Specific tasks

Task	Timeline	Who	Funding
Work with potential partners (BPD, NFHP, etc.) to outline services they need from an API	January - February 2016	-USGS/PNAMP staff -partner staff	-in-kind cost shared via existing funding so work can begin before CDI funds are available (staff time)
Scope and prioritize development 1-3 API services	March 2016	-USGS/PNAMP staff -partner staff -Development Contractor	-requested CDI funding for USGS/PNAMP staff & contractors -in-kind for partner staff
Develop API services in order of priority	April - September 2016	-USGS/PNAMP staff -partner staff -Development Contractor	-requested CDI funding for USGS/PNAMP staff & contractors -in-kind for partner staff
Publish the API via USGS (documentation, metadata, and code in a repository	October -December 2016	USGS/PNAMP staff	-requested CDI funding for USGS/PNAMP staff -in-kind cost shared (staff time)

SECTION 3. ESTIMATED BUDGET

Budget Category Federal Funding "Requested" Matching Funds "Proposed"

1. SALARIES (including Benefits):

Personnel Total:	\$13,501	\$ 16,675
Contract Personnel Total:	\$23,250	\$ 7,500
Total Salaries:	\$36,751	\$ 40,850

2. TRAVEL EXPENSES:

Travel Total (Per Diem, Airfare, Mileage/Shuttle) x # of Trips:

*Travel for 2 staff from Cook, WA to Denver, CO (1 trip of 4 days) and 1 staff from Bozeman, MT to Denver (1 trip of 4 days)

	\$ 4500	\$ 0
Other travel expense (Registration fees):	\$ 0	\$ 0
Total Travel Expenses:	\$ 4500	\$ 0

3. OTHER DIRECT COSTS: (itemize)

Equipment (inc. software, hardware):	\$ 0	\$ 0
Publication Costs:	\$ 0	\$ 0
Office supplies, Training, Other expenses:	\$ 0	\$ 0
Total Other Direct Costs:	\$ 0	\$ 0

Total Direct Costs: \$ 0 \$ 0

Indirect Costs (21.158% for reimbursable funds on federal salaries):
\$ 8,728 \$

GRAND TOTAL: \$ 49,978 \$ 40,850

USGS staff have checked with and received confirmation from the Contracting Officer's Representative (COR) that their contracting staff can participate in sending funds outside USGS.