

Fact Sheet: Web Services

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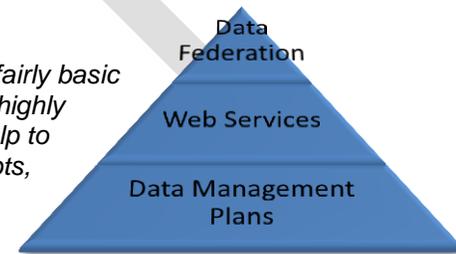
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Enhancing Data Sharing through Web Services

In September 2015, the Delta Stewardship Council's white paper [Enhancing the Vision for Managing California's Environmental Information](#) offered a broadly shared vision for the advancement of environmental data sharing. Associated with the paper's recommendations are key concepts that we hope to explain further in a series of "fact sheets." These brief documents each address a different mechanism within a broader data-sharing strategy: [Data Management Plans](#), [Web Services](#), and [Data Federation](#).

We invite you to review each of these fact sheets, recognizing the range of subjects from fairly basic in sophistication (Data Management Plans) to moderately complicated (Web Services) to highly complex and coordinated (Data Federation). Working together, these technologies can help to modernize public data distribution. But our shared understanding of the underlying concepts, and of their respective value, is vital.



What is a web service?

- A *web service* is a function or set of functions designed to interact with another data system over the web. It relies on machine-to-machine communication between systems.
- A *web mapping service* is a type of web service designed to convey geospatial information, such as points and polygons, and attribute information for display or editing.
- A *File Transfer Protocol (FTP)* is different from a web service since it transfers files directly between a person and a computer server. Also, currency of the data is more complicated to measure, whereas a web service often connects directly to the authoritative source.

What are the benefits of web services?

Benefits associated with *providing web services* include the ability to:

- Maintain individual business practices
- Perform own QA/QA data procedures
- Respond to data requests more efficiently

Benefits associated with *using web services* include:

- **Cost savings.** Web services are vendor agnostic, meaning that multiple platforms can connect without complicated and exclusive requirements, and eliminate the need to deploy a server or purchase special infrastructure or systems.
- **Increased efficiencies.** Data are accessible for visualizations and QA/QC data management performed by data stewards.
- **Greater ease of integration.** Web services permit data to be easily consumed by visualization and analytical applications, making dynamic integration easier, feasible, and less labor intensive
- **Non-duplication of data** with only one authoritative source.
- **Improved accessibility** to data from separate organizations for policy decisions.
- **Better transparency** of data sources.
- **Critical stepping stone** to highly advanced data integration through data federation.

How would web services help promote better decision-making?

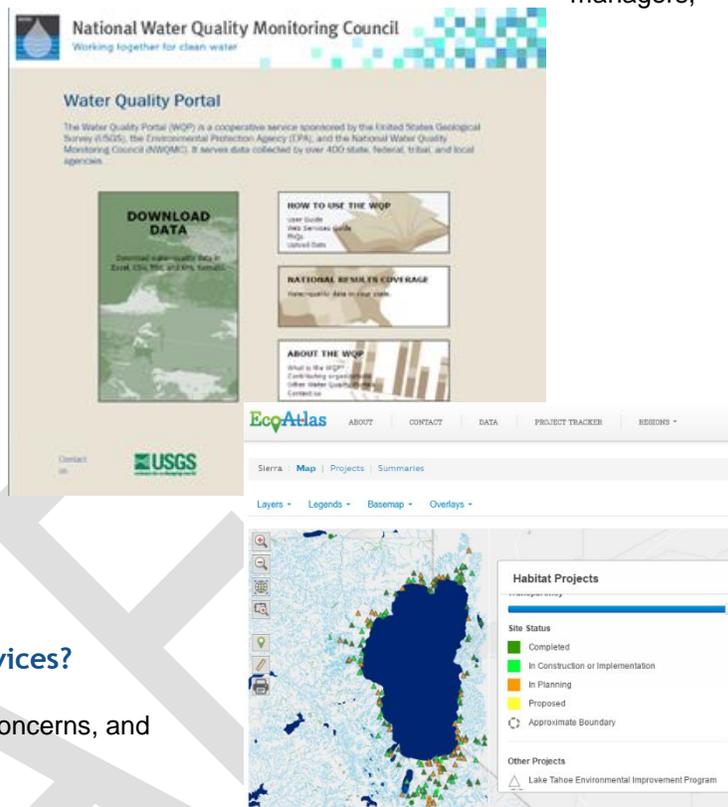
Web services provide better transparency and accessibility to data from separate organizations and sources. Aggregation of these data will help scientists, agency staff, resource and legislators make more informed decisions.

What are the steps to make a web service work?

- Create the web service
- Consume the web service source feed
- Build object to use web service
- Pass appropriate parameters to the web service
- Display web service

What are some examples of web services at work?

- National Water Quality Data Portal
- Display of CRAM and project data in Central Coast Action Tracker
- Display of Lake Tahoe Environmental Improvement Program projects in EcoAtlas



What are important considerations for using web services?

- Institutional barriers, such as data accuracy, privacy concerns, and reliability of service
- Frequency of data structure updates
- Application development expertise
- Change in executive priorities

In addition to these, there are several additional considerations when providing web services, including:

- Costs and resources for increased bandwidth
- Hosting on site or in the cloud
- Security (unauthenticated public service or secure service requiring registration)

However, adopting [Service Level Agreements](#) between organizations will help formalize commitments by web service providers and users for sustained funding, allocated resources, and maintenance of a web service.

As a decision-maker, what can I do to support the use of web services?

In order to be a strong advocate for using web services, familiarize yourself with the following points:

- Understand the benefits and efficiencies of web services for accessing data.
- Recognize overall proposed costs of using web services are less than using outdated data sharing methods.
- Support development of consistent metadata and OGC supported services to prevent orphaned or lost data.
- For more information on the different types of web services, see the Web Services Technical Appendix.

Additional information regarding web services is located in the [Appendix](#).

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