

Puget Sound Ecosystem and Information Framework: A System to Support Management Decisions

1.0 Background

The Puget Sound Federal Caucus was formed in March 2007 as a collaborative effort across federal agencies to help support the recovery of the Puget Sound Ecosystem and work with the Puget Sound Partnership.

Amongst other objectives, the Caucus recognized a need, at objective 4, to “Develop a Puget Sound ecosystem information framework in cooperation with other partners”.

This document is a discussion paper about the Puget Sound ecosystem information framework. It is intended to initiate and promote early discussion with the Puget Sound Partnership and other partners about an ecosystem information framework.

In offering the discussion paper at this time it is recognized that an information framework is a prerequisite before many other needed actions can be fully effective. Therefore an early start is highly desirable.

It is important to understand that the development of an information framework does not presume any particular technical outcome such as “a single database for all data”. Instead, it would be a prescription for a shared information management environment that provides for efficient collection of high quality information, open-sharing and access, and sound analysis and use.

1.1 Why is an Information Framework needed?

Before we can protect and restore Puget Sound¹, decision makers and the community must know with confidence: what recovery and restoration actions are under way, what recovery actions are the most effective, and what are the impacts of our ongoing activities. Scientific and other disciplines such as information management can contribute much to this understanding but we also need a framework to help “connect the dots” between the many efforts.

The recovery of the Puget Sound Ecosystem is a major institutional, scientific and public policy challenge. To make the most of available recovery resources our managers must be informed about the choices they need to make, the risks involved and probable outcomes of decisions.

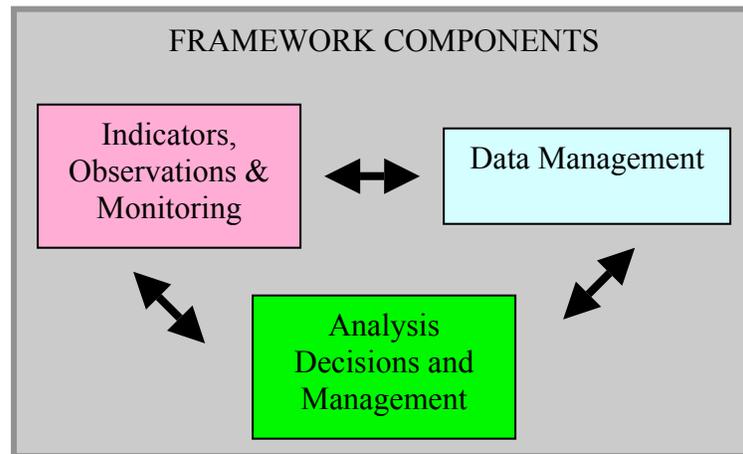
Currently much ecosystem information is collected across multiple programs and efforts, using many different methods and is maintained in many different technical systems.

¹ Including the Puget Sound watersheds.

The result is that it is difficult, and in some cases practically impossible to assemble the data into ecosystem level views that crossing geographic and administrative boundaries.

To be well informed and to make difficult ecosystem level decisions, managers will most probably need:

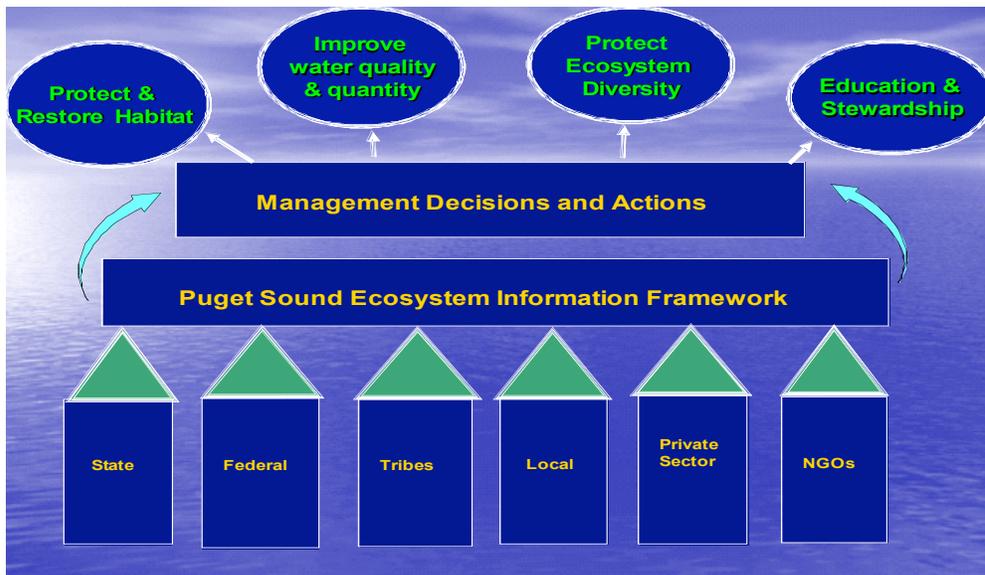
- access to significantly more high quality information than they have now, including cross boundary and organizational information;
- readily available information about the projects they manage and the projects managed by others, and;
- flexibility to adapt as needs change and more is known and understood.



Framework components to meet these needs are likely to include:

- details about the critical questions that must be answered
- indicators and benchmarks
- a shared understanding about information collection, handling and distribution needs
- a common language for information exchange
- analytical tools, and
- a framework to pull it all together.

A carefully designed framework will be able to serve multiple groups, goals and content areas.



A framework will need to understand and meet the information management needs of the Puget Sound Partnership (currently described below in 1.2) and be consistent with the organizational and technical arrangements for information management in Washington state (described briefly below in 1.3), and for other federal, tribal and local partners.

1.2 Puget Sound Partnership Legislation

The Partnership has not yet defined its information needs however the Puget Sound Partnership Legislation² recognizes the need for an ecosystem level program that includes the following elements: indicators, monitoring, data management and research (5372 at Section 9).

The legislation creates a Science Panel whose functions and duties include: updating the action agenda; developing an ecosystem level strategic science program that addresses monitoring, modeling, data management and research; identifying science gaps and recommending research priorities....etc (5372 at Section 10).

The Science program may include, continuation and development of monitoring programs, recommendations regarding data collection and management to facilitate easy access and use of data by all participating agencies and the public, and a list of critical research needs (5372 at Section 11).

The panel has a separate but related task, by July 31 2008, to identify environmental indicators measuring the health of Puget Sound and recommend benchmarks that need to be achieved to meet the goals of the action agenda (5372 at Section 10 (1)).

² Puget Sound Partnership Bill 5372 <http://apps.leg.wa.gov/billinfo/summary.aspx?bill=5372&year=2007>

The Panel is expected to collaborate with other scientific groups and consult with other scientists in conducting its work and to the maximum extent possible integrate the state-sponsored Puget Sound science program with the Puget Sound science activities of federal agencies, including working toward an integrated research agenda and Puget Sound science work plan. (5372 at Section 10 (2)).

1.3 Core Washington State Information Management Organizational Arrangements and Goals

1.3.1 Information Service Board (ISB)

Within the state of Washington, there is one formal information technology committee that has review, and approval authority for all major IT projects, services and acquisitions and associated assets of the cabinet agencies. The Information Service Board is made up of members from the governor's office, higher education, state agency CIO's, legislators, and the private sector. It is committed to the effective and efficient delivery of information services to constituents and businesses.

1.3.2 Information Services Board's Committee on Geographic Information Technology (ISB/GIT)

ISB/GIT represents the strategic interest of a coordinated, enterprise approach to utilizing geographic information technology and, provides leadership for implementation of cost effective, collaboratively developed, spatial data management solutions. The Committee provides executive leadership to:

- Promote geographic information technology coordination and statewide integration.
- Develop strategies for state, local, regional, federal and tribal jurisdiction participation.
- Develop policy and standards recommendations regarding geographic information technology for consideration and adoption by ISB as state policy.
- Develop strategy and process to accelerate implementation of the fundamental, commonly needed, statewide geographic data themes.
- Seek funding support for an enterprise wide, coordinated approach to geographic information acquisition, management, access and distribution

1.3.3 Washington Geographic Information Council (WAGIC)

WAGIC is recognized as the statewide body responsible for coordinating and facilitating the use and development of Washington State's geospatial information and is the working subcommittee of ISB-GIT.

This cross-governmental partnership deals with environmental, transportation, public safety and other multi-jurisdictional problems through a common vision for geographic information technology.

- Develop a common vision and architecture for GIT deployment across state agencies with the long-term goal of linking to federal and local architectures.
- Leverage GIT Investments through enhanced access to data and applications.
- Integrate state GIT activities with federal and local interests and needs through enhanced collaboration and initiatives that cross jurisdictions.

1.3.4 Washington Salmon & Watershed Information Management Technical Advisory Committee (SWIMTAC)

SWIMTAC was established in 2000 to enhance the States investment in natural resource data and to facilitate data sharing and coordination. Its goal is to facilitate communication and coordination between agencies and organizations on matters relating to salmon recovery and watershed information management. Its primary role is:

- Determine existing information capabilities & needs;
- Recommend information technology policy & standards;
- Identification of issues, recommended priorities & solutions; and to
- Educate users

SWIMTAC is the standing data management subcommittee of the Governor’s Forum on Monitoring

2.0 Developing a Puget Sound Ecosystem Information Framework.

People working on parts of an information framework, the information collectors, the data managers and analysts and decision makers are usually from different disciplines and backgrounds, so a multidisciplinary process is an essential.

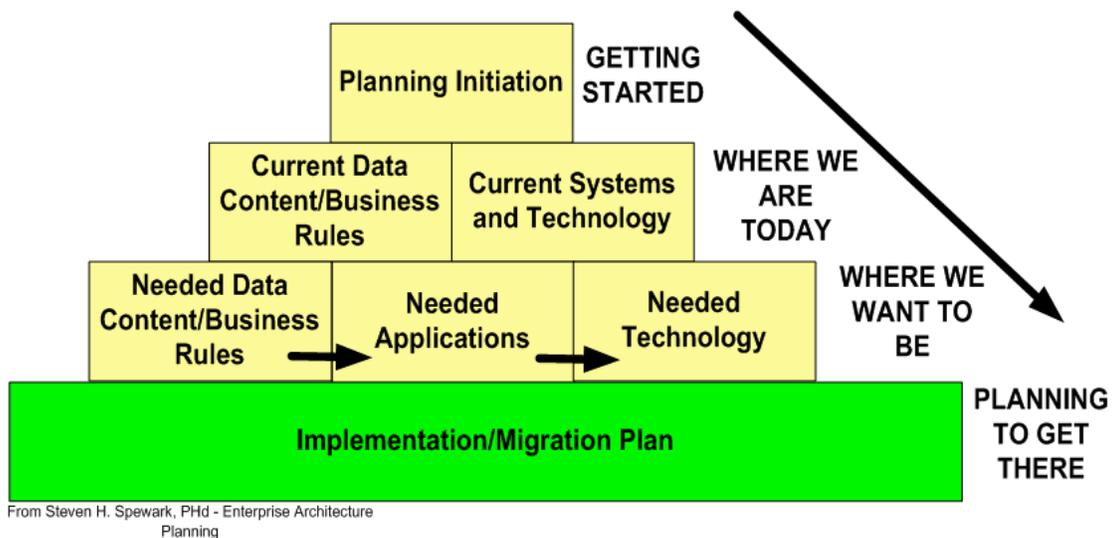
A successful outcome depends on active participation from all these groups – and this involves executive level commitments to the joint activity.

Information Management involves multiple partners, entities, interests, needs and technologies so a model process can help to work through this complexity.

The “Wedding Cake” model³ is a step-by-step way to systematically identify, design and deploy a framework. The model provides for development of end-to-end understanding of the information management needs from monitoring and observations through data management to decision tools to decisions and a systematic way to address those needs.

The model has four levels (see Figure below).

³ From Steven H. Spewark – Enterprise Architecture Planning



At Level one “**Getting Started**”, there is a necessary commitment by project sponsors to systematically address the information, data management and decision making needs with a framework approach.

Level two describes “**Where we are today**”. What data is currently collected and what business rules apply to that collection? What information system applications (software) and technologies (hardware) are currently used?

Level three describes “**Where do we want to be**”. This includes future needed data content, business rules, applications and technology. It defines future needs in relation to future decisions that must be answered. The difference between level two and level three is commonly called gaps.

Level four describes how to get from “**where we are today**” to “**where we want to be**”. This task includes defining necessary content, business rule, application and technology needs. Level four is a plan that describes who will do what, when and where and with what resources, agreements and technology.

Use of a process model, like the “wedding cake” model referenced here, is critical for framework development involving as it does for the Puget Sound multiple partners, objectives and disciplines.

3.0 Next Step

The next step in working towards a Puget Sound Ecosystem Information Framework is to share this discussion paper with regional partners to identify mutual interest in working collaboratively on this task.