

DEPARTMENT OF ECOLOGY
Environmental Assessment Program

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SUBJECT: Recommendations for Data Management for Data Collected Under the Municipal Stormwater Permit
EA Activity Tracker Code: 12-008

Background

The Puget Sound Stormwater Work Group has defined a Stormwater Monitoring and Assessment Strategy for the Puget Sound Region. The Stormwater Work Group is a coalition of federal, tribal, state, and local governments; along with, business, environmental, agriculture, and research interests. This coalition was convened at the request of the Puget Sound Partnership and Department of Ecology. The strategy is intended to provide a coordinated, integrated approach to quantifying the stormwater problem in Puget Sound in order to efficiently and effectively reduce stormwater harm to the ecosystem.

In June 2010, the work group delivered the [2010 Strategy](#) and [key consensus recommendations](#) to the Partnership and Ecology for establishing the Stormwater Assessment and Monitoring Program for Puget Sound, or SAMPP. The SAMPP provides the scientific framework for future monitoring and assessment activities and an implementation plan for conducting the activities in a coordinated, efficient manner with standardized methods.

In October 2010, the work group delivered additional [Recommendations for Municipal Stormwater Permit Monitoring](#) to Ecology, building on the 2010 Strategy. The recommendations specify what monitoring activities should be funded and conducted by NPDES municipal stormwater permittees in Puget Sound during the next permit term.

As Ecology’s Water Quality Program (WQP) prepares to issue the next round of municipal stormwater permits, they are considering data management needs for the data collected under this strategy. The WQP requested assistance from the Environmental Assessment Program (EAP) and the Information Technology Services Office (ITSO) to ensure there is a viable data management framework for the various types of data anticipated to be collected and to estimate associated costs. This memo provides the requested recommendations and cost estimates.

Recommended Data Management Framework for the Stormwater Assessment and Monitoring Program for Puget Sound

The Stormwater Monitoring and Assessment Strategy consists of three major areas, each with unique data management needs:

D) Status and Trends Monitoring in Small Streams and in Marine Nearshore Areas.

Data Management for this area is the most straight-forward of the three. Data collection elements are laid out in the strategy and in two QAPPs (under preparation).

Data repositories exist for most of the data to be collected in this area. The recommended repository for each element is listed in the table below.

| <i>Parameters</i> | <i>Data Repository</i> |
|---|--|
| Small Streams | |
| <i>Biological and Habitat Parameters</i> | |
| Aquatic benthic macroinvertebrate assemblage | Data entered into the Puget Sound Stream Benthos system (http://pugetsoundstreambenthos.org/default.aspx) and passed to Ecology’s EIM system (http://www.ecy.wa.gov/eim/) |
| Physical habitat, as per protocols defined in Ecology (2006). To include slope, bearing, wetted width, bar width, substrate size, substrate depth, shade, human influence, riparian vegetation, and large woody debris. | Status and Trends: Riverine Ecology Assessment and Monitoring (STREAM) database (public website under development); 60 metrics also included in EIM. |
| Instantaneous streamflow | EIM |
| Sediment metals, PAHs, total organic carbon, and grain size | EIM |
| <i>Water Quality Index Parameters</i> | |
| Instantaneous streamflow | EIM |
| Total phosphorus and nitrogen, turbidity, total suspended solids, specific conductivity, pH, chloride, fecal coliform, temperature, dissolved oxygen. | EIM |
| Periphyton | EIM |
| Marine Near-Shore Areas | |
| Sediment Chemistry, TOC, and grain size | EIM |
| FC sampling (monthly at 50 sites in UGAs, to be compared to WaDOH sampling locations in rural shellfish growing areas) | EIM or WaDOH system; integration needed. |
| Mussel Watch | WDFW system – current system used for mussel watch data. |

Although these data repositories exist, there is a lack of integration of the various repositories to allow the data to be readily accessed and analyzed in a comprehensive manner. There is a need for a ***Coordinated Stormwater Monitoring Data Access Portal***, as illustrated in Figure 1, to enable these data to be used efficiently and effectively to reduce potentially-harmful stormwater effects on the ecosystem.

Note: ITSO has provided cost estimates for developing the Stormwater Monitoring Data Access Portal, but has not committed to implement the solution. Work by ITSO on the Portal implementation will need to be requested as part of IT Project Planning prior to the implementation deadline (for the FY13-15 biennium).

II) Effectiveness Studies

Specific effectiveness studies will be proposed under a Request for Proposal (RFP) approach. They may be quite variable in the type of data to be collected.

Data types matching those described in the Status and Trends area types should use the same repositories as those identified above. All environmental water-related data collected should be entered into EIM.

Data types for which a current satisfactory repository may not exist include data related to practices undertaken to reduce stormwater impacts, such as structures and land practices.

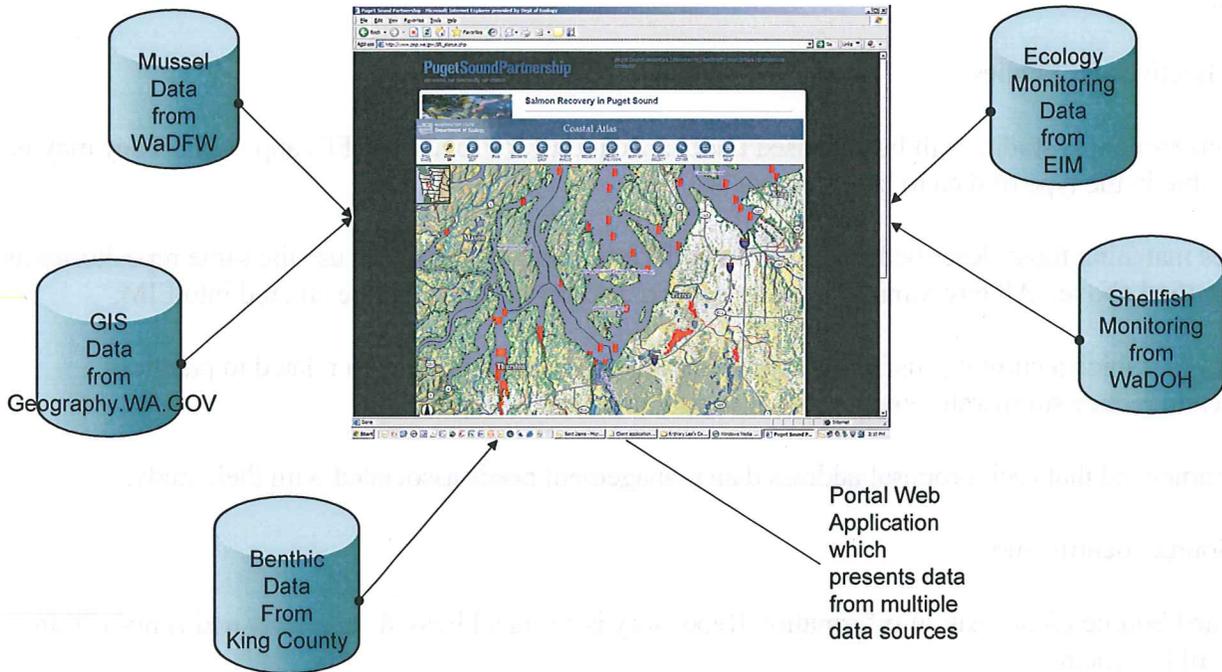
It is recommended that each proposal address data management needs associated with their study.

III) Source Identification

The planned Source Identification Information Repository is being addressed separately and is not within the scope of this memo.

Figure 1. Coordinated Stormwater Monitoring Data Access Portal.

Coordinated stormwater monitoring data will be distributed among several agencies and databases. A single point of access to these distributed data will make analysis and reporting much easier. The Coordinated Monitoring Data Access Portal will provide this access.



Estimated Costs

- I) Status and Trends Monitoring in Small Streams and in Marine Nearshore Areas.

Small Streams Status and Trends Monitoring

Data entry costs for loading data into the existing repositories identified above are not included in this memo.

Estimated costs for building and maintaining the new **Coordinated Stormwater Monitoring Data Access Portal** are presented below. There may be additional costs incurred to modify WaDOH, WDFW, and King County data systems. These additional costs will be determined during the permit review period.

| Task | Initial Cost | Ongoing Annual Cost |
|--|------------------|---------------------|
| Build Portal query and aggregation services, and modify each of the data sources to allow access from the portal. (0.5 fte – ITS6) | \$80,800 | |
| Build a Map interface and map services. (0.25 fte ITS4; 0.1 fte ITS3; 0.05 fte ITS6) | \$46,175 | |
| Initial Investment Hardware/Software | \$20,000 | |
| Total initial costs | \$146,975 | |
| Annual portal maintenance (0.2 fte ITS6) | | \$32,000 |
| Annual map interface maintenance (0.05 fte ITS4) | | \$ 6,500 |
| Annual Software and Hardware Support | | \$10,000 |
| Total ongoing costs | | \$48,500 |

- II) Effectiveness Studies

No costs are presented for the Effectiveness Studies area.

- III) Source Identification

No costs are presented for the Source Identification area.

Other Recommendations

We recommended that Phase 1 permittees currently collecting stormwater data be required to submit their data electronically in the standard EIM loader format, to be loaded by Ecology staff into EIM.

References

Ecology, 2006. Status and Trends Monitoring for Watershed Health and Salmon Recovery Quality Assurance Monitoring Plan. Washington State Department of Ecology, Olympia, WA. Publication number 06-03-203.

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