

DRAFT Recommendations for Municipal Stormwater Permit Monitoring

STORMWATER WORK GROUP REPORT TO ECOLOGY OCTOBER 27~~29~~, 2010

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INTRODUCTION

On June 30, 2010 the Puget Sound Stormwater Work Group (SWG) finalized the *2010 Stormwater Monitoring and Assessment Strategy for the Puget Sound Region* (2010 Strategy) and submitted it to the Washington State Department of Ecology (Ecology) and Puget Sound Partnership. The 2010 Strategy included 55 Key Recommendations for establishing a new Stormwater Assessment and Monitoring Program for Puget Sound (SWAMPSS), and indicated that much work remained to be accomplished to implement such a program.

Since the 2010 Strategy was finalized, the SWG has worked to address remaining key issues including:

- Costs, and allocation of funding among participating entities.
- Establishing an administrative entity to support collective regional stormwater-related monitoring and assessment efforts.
- Linking the types of monitoring.
- Detailed experimental designs.

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- How monitoring proposed in the 2010 Strategy fits into NPDES municipal stormwater permits.
- A process to select regional effectiveness studies.

We have not addressed how to address other land uses, other water bodies, and other NPDES permits. In the coming months we will develop a new work plan for 2011 and beyond.

This report presents our next set of recommendations to Ecology. These recommendations are specific to writing monitoring requirements for the 2012-2017 NPDES Phase I and II municipal stormwater permit term. Further context, detail, and background information are provided in the sections following the recommendations.

SEARCH AND REPLACE 2012-2017 WITH NEXT??

RECOMMENDATIONS

The SWG has endorsed 33 new recommendations for Ecology to consider in writing and issuing the next round of NPDES municipal stormwater permits. These recommendations fall into two major categories: recommendations for a “pay-in option” to pool permittees’ and others’ resources to support and conduct SWAMPSS; and specifically which elements of SWAMPSS should be funded by permittees and the context within which permittee-funded monitoring should be implemented. The latter category of recommendations is further broken down into specific recommendations for each of the three categories of monitoring proposed in the 2101 Strategy: status and trends (in small streams and nearshore areas), source identification and diagnostic monitoring, and effectiveness studies.

Recommendations for a “Pay-In Option”

By consensus, the SWG recommends:

1. Create a pay-in option for the NPDES Municipal Stormwater Permit monitoring requirements.
2. The administrative entity that handles the money contributed by municipalities and others to support and conduct regional monitoring should have the following key characteristics:
 - a. It can ensure that funds collected are dedicated to monitoring and cannot be redirected to other activities.
 - b. It allows for the future expansion of the coordinated monitoring to other geographic areas, other types of permits, other types of organizations (*e.g.*, NGOs, tribes, etc.).
 - c. It is able to demonstrate that it is accountable and credible with transparent processes.
 - d. It has the capacity to manage contracts and funds in an efficient manner following all appropriate rules and laws.

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3. For monitoring funded by municipalities, the pay-in option should be implemented via contractual arrangements between each municipality and the administrative entity.
4. Require all municipal stormwater permittees to pay-in for infrastructure (SOPs and data bases for all three categories of monitoring (status and trends, source identification, and effectiveness), literature reviews, analyses).
5. Require all municipal stormwater permittees to pay-in for status and trends monitoring.
6. Write the permit in a manner that states that participating in the pay-in option (entering into the contractual arrangement and paying the invoices) would satisfy the requirements in section S8 (monitoring) in the permit.
7. There should be an independent review of the administrative entity in advance of the 2017-2022 permit term; the review should include a survey of participants as to their satisfaction with ~~Ecology as the service provider~~administrative entity, in meeting the characteristics noted in #2 above. ~~and~~There might also be an evaluation of the readiness of ~~another organizations~~ to serve as the entity.
8. If the Ecology is the administrative entity (see #11 below), then AWC and WSAC should pass resolutions endorsing this option.
9. The administrative entity should leverage existing capacities, including capacities at local municipalities and of other organizations, to conduct the monitoring.
10. Regardless of the final selection of the administrative entity, an oversight board should be created with broad representation to oversee the financial and technical aspects of the monitoring conducted. We further recommend that the SWG serve in this role.

~~10.-~~

The SWG endorsed but did not come to consensus on the following recommendations. The SWG considered numerous options for proceeding with this, and focused on evaluating the Stormwater Technical Resource Center, the Center for Urban Waters, the Association of Washington Cities, and the Washington State Department of Ecology. For further explanation of the discussion of these recommendations, see the Context and Details section that follows:

11. If the permit reissuance schedule remains as currently anticipated, then Ecology should serve as the administrative entity for the 2012-2017 permit term. If the schedule is extended, then other options should be reevaluated and reconsidered. The SWG agreed that Ecology is the only viable option to serve as the administrative entity at this time.
12. Allow a “go it alone” option for permittees to conduct effectiveness studies.

Recommendations for Municipal Stormwater Permit Monitoring Elements and Context

The SWG came to consensus on the following recommendations for monitoring requirements to be included in the 2012-2017 NPDES municipal stormwater permits:

Overall:

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1. Permittees who conduct monitoring themselves should be required to apply all QAPPs, SOPs, reporting methods, etc. associated with SWAMPPS. The purpose of this requirement is to provide standardization and consistency, and to facilitate regional understanding of stormwater management impacts and effectiveness of management actions.
- ~~1~~2. Existing Phase I permit requirements should evolve into the 2012-2017 permit term and transition from individually-conducted monitoring to regionally-conducted monitoring activities. Consensus agreement

Status and Trends Monitoring in Small Streams:

1. The permit should allow three years to conduct ramp-up activities (site selection, QAPP development, training, equipment purchases, etc.) in preparation for full implementation of the monitoring program in the fourth and fifth years of the permit. In year 1 of the 2012-2017 permit term, permittees will not be required to contribute funding for these activities; although Ecology and others will likely conduct ramp-up activities to move the monitoring program forward without permittee funding support. In years 2-3 of the 2012-2017 permit term, all permittees should contribute equitably to ramp-up costs. No status and trend monitoring is conducted during the ramp-up period.
2. During years 4-5 of the 2012-2017 permit term all permittees should contribute equitably to implementation of status and trends monitoring at the 100 randomly selected sites in wadeable Puget Sound lowland streams. Monitoring is expected to be conducted at the frequency recommended in the 2010 Strategy for the entirety of the following permit term. This program follows the 2010 Strategy's recommendations with the following modifications:
 - a. The number of sites for the Puget Sound regional status and trends program should be expanded from 30 to 100, with 50 located inside UGAs and 50 outside UGAs. This is based on a precision table published by EPA that determines how accurately you can see change over five year period given a certain number of sites (Paulsen 1997; Cusimano *et al* 2006).
 - b. WRIA-scale status and trends monitoring (390 sites distributed across 13 sub-watershed areas) should not be implemented at this time because resources are limited and we want to see SWAMPPS move forward to successful implementation. We will answer our most important status and trends questions at the regional scale. Our goal is still to move toward the WRIA scale in the future, and other funding sources could be pursued to implement this more detailed design in one or more WRIs at any time.
 - c. We support using the Water Quality Index as recommended in the 2010 Strategy. However, it might be reasonable to scale back other constituents in the water column parameter list and/or increase the frequency to provide a better connection between instream conditions and stormwater inputs. We support Ecology facilitating these discussions prior to finalizing the sampling design and associated QAPPs.

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- d. Sediment sampling should occur once every five years. The timing of this sampling event should coincide with the state's EMAP sample collection schedule.
 - e. Habitat data are a necessary element of site characterization for stream benthos sampling, and therefore permittees should be required to collect this information.
 - f. Fish monitoring will not occur unless funding becomes available from another source.
 - g. Continuous flow monitoring might not be conducted. An analysis is needed to determine to what extent questions about loading, stream flashiness, etc. relevant to stormwater management can be answered with existing data, and to recommend what existing gages need to be maintained and ~~what whether~~ new gages need to be added to the network. Permittee pay-in contributions should fund ~~this analysis and contribute to installing new gages if needed.~~
 - h. Continuation and expansion of the collaborative stream benthos data management system should be included in the regional program.
 - i. A collaborative system for stream gauge data management should be created and utilized.
3. Permittees should contribute funding to conduct all of the sample collection and analysis regardless of where the randomly selected sites are located. It is anticipated that there will be a small number of sites located outside the geographic area covered by the permits. However, the full sample size is required in order to answer the questions: what percent of streams in Puget Sound lowlands meet various standards, how do urban and rural areas compare, and are conditions improving or worsening?
 4. Permittees should plan for ongoing data collection in future permit terms.
 5. Permittees should pay into a collective analysis of initial data during the 2012-2017 permit term. Permittees should plan to continue data evaluation at appropriate intervals in future permit terms.

Status and Trends Monitoring in Nearshore Areas:

1. The permit should allow three years to conduct ramp-up activities (such as site selection, QAPP development, training, equipment purchases, etc.) in preparation for full implementation of the monitoring program in the fourth and fifth years of the permit. In year 1 of the 2012-2017 permit term, permittees will not be required to contribute funding for these activities; although Ecology and others will likely conduct ramp-up activities to move the monitoring program forward without permittee funding support. In years 2-3 of the 2012-2017 permit term, all permittees should contribute equitably to ramp-up costs. No status and trend monitoring is conducted during the ramp-up period.
2. During years 4-5 of the 2012-2017 permit term, permittees should contribute funding for:

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- a. Fecal coliform sampling monthly at 50 sites in UGAs (to be compared to WDOH sampling locations in rural shellfish growing areas).
 - b. Sediment chemistry every five years at 30-50 sites in UGAs (to be compared to PSAMP sampling locations outside UGAs). (We are considering increasing the number of samples to 50 from 30; a power analysis for the nearshore sampling should back up the decision: if there is a compelling increase in level of information provided with the additional samples, then we should collect them.)
 - c. Mussel Watch annually beginning in the fourth year of the 2012-2017 permit term at 30-50 sites near stormwater outfalls (to be compared with Mussel Watch sampling locations away from stormwater outfalls). (We are considering increasing the number of samples to 50 from 30; a power analysis for the nearshore sampling should back up the decision: if there is a compelling increase in level of information provided with the additional samples, then we should collect them.)
3. Follow the overall approach outlined in the 2010 Strategy. Where possible, conduct marine benthos monitoring to provide for toxicity triad analyses/information and to get more holistic picture of the health of nearshore.
 4. Permittees should be expected to pay for sample collection and analysis as described above regardless of where the randomly selected sites are located. It is anticipated that there will be a small number of sites located outside the geographic area covered by the permits. However, the full sample size is required in order to answer the questions: what percent of marine nearshore areas in Puget Sound UGAs meet various standards, how do urban and rural areas compare, and are conditions improving or worsening?
 5. Permittees should plan for ongoing data collection in future permit terms.
 6. Permittees should pay into a collective analysis of initial data during the 2012-2017 permit term. Permittees should plan to continue data evaluation at appropriate intervals in future permit terms.

Source Identification and Diagnostic Monitoring:

1. Permittees should continue existing source identification and diagnostic monitoring as required in the current permits, particularly in sections S7 (TMDLs), S5.C.6 (IDDE, with appropriate modifications per discussions being held elsewhere), and S4.F (water bodies impaired due to stormwater).
2. For the 2012-2017 permit term, the 2010 Strategy should provide a guidance tool for other permit requirements, but not result in stand-alone monitoring requirements. Local monitoring needs vary from place to place. When impairments are discovered, prioritization of local problems will allow for effective allocation of resources to address issues. A coordination function for local jurisdictions should still be considered.
3. SWAMPSS will contribute standard methods and tools, analysis of existing information and dissemination of lessons learned. SWAMPSS status and trends data will be a

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credible data source for informing [S4.F](#) Compliance with Standards investigations of problems identified by other monitoring.

4. In the 2012-2017 permit term, permittees should contribute funding to: conduct a literature review, develop a QAPP library with DQOs and report templates, build a repository for information to evaluate current source identification programs, and design a database and reporting requirements to support Puget Sound scale analyses to identify problems that can be addressed by region-wide source control initiatives (*i.e.* [product substitutions](#)).
5. The information and tools created during the 2012-2017 permit term should result in improved approaches to source identification and diagnostic monitoring in future permits, particularly in connecting this category of monitoring to status and trends monitoring and effectiveness studies. Findings should be shared broadly.

Effectiveness Studies:

The SWG endorsed the following recommendations but did not come to consensus on them. [For further explanation of the discussion of these recommendations, see the Context and Details section that follows.](#)

1. The Stormwater Work Group should articulate a recommended process and criteria by which studies will be selected from among those ideas submitted by Phase I and Phase II jurisdictions in their annual reports due March 31, 2011 along with other ideas submitted by members of the caucuses of the Stormwater Work Group. This process should be informed by the findings of the literature review. The process is envisioned to be ongoing in order to learn and adapt and continue to select and conduct future studies. [Consensus agreement](#)
2. Once the studies are selected, a list of needed SOPs should be identified and developed. [Consensus agreement](#)
- ~~3. Permittees should contribute somewhere between a minimum of \$1M/year up to about \$6M/year in years 2-5 of the 2012-2017 permit term to support effectiveness studies, a literature review, and associated development of SOPs.~~
- ~~4. Studies should be outcome-based, and focus on evaluating each of the six permit-required programmatic stormwater management elements: public education and outreach; illicit discharge detection and elimination; controlling runoff from new and re-development; pollution prevention/operations and maintenance; structural stormwater controls (retrofits); and source control. [Consensus agreement](#)~~
- ~~5. Permittees should contribute funds in years 2-5 of the 2012-2017 permit term to support effectiveness studies, a literature review, and associated development of SOPs. [Majority agreement; one dissent; can't sign a blank check.](#)~~
- ~~3.—~~
- ~~4-6.~~ Permittees should plan to continue to fund effectiveness studies in future permit terms. [Consensus agreement](#)

Comment [KD1]: This is a placeholder; the statement does not reflect the reality that the SWG members have not yet voted on any of these four recommendations.

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CONTEXT AND DETAILS

The SWG assigned two subgroups to work over the summer of 2010 to draft recommendations for the work group to submit to Ecology. In addition to the fully endorsed recommendations above, the subgroups developed additional context and detail to support the recommendations. This information is provided in the following sections. See the “September 2010 Subgroup Reports” section for additional detail and more information about the options the SWG considered and discussed.

Pay-in option

The SWG’s most important overall recommendation [for the next NPDES municipal stormwater permit term](#) is that a viable administrative means be identified to pool the resources of municipalities and others to implement monitoring in [this and](#) future permit terms. The subgroup identified about 40 possible administrative entities and narrowed that list to four that were recommended to the SWG as organizations that might realistically serve as the administrative entity for the 2012-2017 permit term. A different organization might be chosen for successive permit terms.

[Add letter from John and Joel as an appendix.](#)

[Consider making the subgroup’s report and appendix, or bring all info here. Group is leaning toward making it an appendix and keeping the report short.](#)

SWG recommendation as to which organization should serve as the entity to handle money for the 2012-2017 permit term: Ecology was the only option the committee members unanimously agreed was *viable* for the [next](#) permit term; members were split on preference among Ecology, the Stormwater Technical Resource Center (STRC), and the Center for Urban Waters at UW Tacoma, with none preferring Association of Washington Cities. Phase II jurisdictions are largely okay with Ecology taking on the role of the entity for this permit term. Writing a permit requirement to send money to Ecology puts the agency in a difficult situation, and some SWG members still consider it an unpalatable means to pool local government and other resources. All SWG members want the pay-in option to succeed, wherever it is housed.

Recommendation to allow a go-it-alone option for permittees to conduct their effectiveness studies rather than requiring participation in the regional program: Many SWG members believe that Ecology should require full permittee participation in SWAMPSS. The committee as a whole recognized it might be more strategic to give permittees the option because the SWAMPSS cost estimates seem reasonable and folks are likely to participate. There is ample opportunity for contracting, and for paying back out within the framework.

Small streams status and trends

[Explanation of decision to scale back to Puget Sound lowlands urban/rural design:](#)

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The SWG subgroup reviewed comments on the April 2010 draft of the 2010 Strategy and agreed to a scaled-back approach to status and trends monitoring in small streams. The new design is a regional approach; it has no WRIA component but it is still scalable, and ~~densified the increased density~~ sampling might be pursued with other funds in some WRIs. The committee believes this is a good start that will provide a lot of information to work from. Although it will not have the specificity or detail at UGA-WRIA level, ~~it also will not cost as much~~ answer important questions about stormwater at a lower cost. The SWG recommends moving forward with this design, evaluating what we learn at this scale, and adapting as needed. Ecology's status and trends program does not include all of these parameters (*i.e.*, the water quality index (WQI)). The focus of the monitoring recommended here is to understand the impacts of stormwater, which the state program does not specifically address. The WQI provides a better connection between status and trends monitoring and source identification and diagnostic monitoring.

The SWG struggled with defining requirements for flow monitoring. Flow has an enormous impact on what happens in streams; and stormwater has an enormous impact on flows; but flow is difficult and expensive to work into the random sampling design, which would be ideal. The new SWG recommendation is to analyze the existing flow gauges and use that information for stormwater management; look at the data in first year and if there are not sufficient data to answer the questions, then add gages (might not be possible to do this through permittee contributions in next permit term). Questions that remain include: how many sites should be monitored long-term? Random or targeted? Use only available data? Consider adding staff gauges? If more gauges are needed, where would the money come from? How do we ensure that existing gauges are maintained? Who would do this – monitoring consortium entity? Where would money come from for new gauges? Should flow be approached on pilot basis? Should there be a Phase I vs. Phase II difference in implementing flow monitoring?

Nearshore status and trends

The SWG made progress toward prioritizing the activities and refining the design of this monitoring. More work needs to be done during the ramp-up period.

Source identification and diagnostic monitoring

The SWG recommends that the monitoring activities required in section S8 permit address only development of common infrastructure for future reporting and collective regional analyses of the information collected by permittees. The permittees should have ample opportunity to participate in defining the fields and format of the future database, and should contribute to a literature review and process for sharing the information.

Effectiveness studies

SWG members struggled to define both the level of effort needed and the appropriate burden to place on permittees with regard to effectiveness studies. A total investment of about \$7M per year in effectiveness studies is the amount recommended in the 2010 Strategy; it represented about half of the estimated total annual SWAMPPs program costs and was not anticipated to be fully funded by permittees. The revised cost estimate for all permit-required recommended monitoring is about \$11M for 4 years. Collectively, Phase I permittees are conducting between 22 and 28 effectiveness studies during the current permit term. Only about 11 studies would be

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conducted for \$1M per year for 4 years by all Phase I and Phase II permittees under the current proposal by local governments.

WSDOT on a different permit cycle

At this time the Stormwater Work Group is not making a recommendation as to the total dollar amount that should be targeted to effectiveness studies in the 2012-2017 permit term. Majority agreement, not consensus.

Context on allocation?

The local government caucus originally recommended \$4.4M/permit term and increased that recommendation to \$6M per permit term to be targeted to the six programmatic stormwater management elements, with an average of about \$1M per element.

Other caucuses think it should be closer to the \$6-8M/yr range.

Notes from discussion: perhaps a minimum of 11 studies should be collected during this permit term. Base on outcomes or threats addressed instead of number of studies? Context: LID being addressed by WSU program; other investments also being made. Still struggling with defining a reasonable level of effort for permittees. \$150-160M/yr being spent on stormwater management; invest about 5%-10% of that effort in effectiveness studies?? \$1.5M/yr is only 1%, seems low. \$1.5M/yr won't get us much. Even \$6M/yr seems underfunded. No consensus on what is the minimum level of effort. Approach is okay; can't agree on dollar amount; chicken and egg. For evaluating studies: be aware that Phase II permittee-submitted questions will focus on WQ; many program areas will not be appropriate for submission; address through caucuses.

The SWG did not make further recommendations about which effectiveness studies to recommend be conducted by the regional monitoring program. The SWG believes that it is most productive and appropriate to review the ideas that municipal permittees are required to submit in their annual reports due on March 20, 2011. The SWG has requested the other caucuses to submit other ideas to Ecology on the same timeline so that all of the ideas can be considered collectively.

The SWG has assigned a subgroup to work on finalizing a recommended process and criteria for selecting which studies will be chosen for implementation. The SWG will review the subgroup's work in early 2011 and will submit its recommendations to Ecology before the end of March, 2011.

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Comment [KD2]: What is the process we recommend for submitting other ideas – to SWG, to Ecology?? Will we have a boilerplate?

Comment [KD3]: SWG needs to do this on October 26 and also discuss appropriate timeline. What does Ecology need?

SEPTEMBER 2010 SUBGROUP REPORTS

Costs and Pay-in Subgroup

The schedule for the Department of Ecology (Ecology) to issue the 2012-2017 NPDES municipal stormwater permits requires that a pay-in option be clearly defined and established before the end of October 2010. The schedule for the SWG to approve recommendations submitted to Ecology requires that a draft report be completed by September 17, 2010.

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NPDES permittees in the Puget Sound basin are expected to participate in SWAMPPS via permit requirements in three types of regional monitoring activities: Status and Trends, Source Identification and Diagnostic Monitoring, and Effectiveness Studies. The implementation mechanisms for each category of monitoring are envisioned to be different. To meet Ecology's schedule, we might identify one or more interim mechanisms to facilitate the pay-in option for the next round of permits, with an eye towards defining and creating a more robust, satisfying administrative entity in the coming years.

The subgroup was tasked with developing specific recommendations to establish the pay-in option and allocating and prioritizing costs by the end of October so that Ecology can realistically include the pay-in option in the next cycle of municipal NPDES stormwater permits. The subgroup submitted its recommendations to the SWG in mid-September for discussion at the SWG at its September 27 meeting and approval at the October 13 meeting. The endorsed recommendations for the pay-in option are included in the SWG's report to Ecology. This section is intended to document the workings and interim decisions of the subgroup.

Subgroup Schedule and Participation: The subgroup met four times over the course of the summer to develop specific recommendations. The subgroup focused on the pay-in option, not on allocating and prioritizing costs. Subgroup members included: Neil Aaland (Washington Assn. of Counties), Karen Dinicola (SWG Project Manager, Ecology), Dick Gersib (WSDOT), Nathalie Hamel (Partnership), Heather Kibbey (Everett), Andy Meyer (Assn. of Washington Cities), Bill Moore (Ecology), Joyce Nichols (Bellevue), Mel Oleson (Boeing), Mark Palmer (Puyallup), Jim Simmonds (King Co.), Phyllis Varner (Bellevue), and Bruce Wulkan (Partnership). All meeting materials and notes were shared among the entire subgroup.

Characteristics of the Pay-In Option: A brainstorming session was held to identify the desired characteristics of the administrative entity. These are listed below:

1. Meets goals of permit pay-in concept
 - a. Able to have some sort of reliable agreement with Ecology to ensure permit-required monitoring is done
 - b. Local governments can write a check to directly to the entity or to Ecology using a boilerplate interagency agreement or in process similar to payment of permit fee
2. Competent in management, monitoring, and contracting
 - a. Money will be well managed
 - i. Funding dedicated to stormwater monitoring can't be redirected
 - ii. Non-profit activity (not a for profit, shareholder-driven organization)
 - iii. Low overhead
 - iv. Best value for dollars
 - b. Capacity to meet deadlines
 - c. Can accept federal and state money
 - d. Can accept federal and state money without going out for bid
 - e. Existing stable organization with some history, don't start from scratch
 - f. Entity has technical experience in stormwater monitoring (yes or no)
 - g. Capability to do data analysis
 - h. Can provide repository for data

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- i. Experience managing large contracts
3. Accountable and credible
 - a. Willing to have oversight by board
 - b. Perceived as neutral and transparent: open (harder for private entities?)
 - c. Everyone trusts the data
4. Broader than NPDES municipal stormwater permittees in Puget Sound
 - a. Expandable geographically (*i.e.*, to southwest and eastern Washington)
 - b. Expandable/accessible to other types of permits/permittees
 - c. Includes more entities than local jurisdictions: all entities participating in cost-sharing arrangements
5. Fits core mission or goals of the organization: a priority for the entity
6. No potential conflict of interest
7. Able to evolve to take on more functions
8. Long-range view of monitoring

Characteristics of an Oversight Mechanism: A brainstorming session was held to identify characteristics needed in the oversight of the administrative entity. These are listed below.

1. Allows us to start small with required functions and expand over time
2. Depends somewhat on the entity selected
3. Who makes decisions/sets priorities? We want broad agreement, and need Ecology buy-off.
 - a. Only folks paying in, or broader representation?
 - i. Buying a package of services; end of “say” for permittees?
 - ii. Ecology determines whether package complies with NPDES requirements
 - iii. If accountability lies with municipalities, each will have to demonstrate
 - iv. If accountability lies elsewhere, it depends how the contracts are written up: becomes contract law rather than CWA liability
 - b. What is relationship to ecosystem monitoring program?
 - c. What is relationship to SWG?

Roles of the Administrative Entity: A brainstorming session was held to identify the roles and responsibilities of administrative entity. It was determined that the roles and responsibilities needed to be better defined to initial set-up and keep long-term vision in mind. These are listed below.

1. Manage money (administer NPDES permittee pay-ins, contract out)
2. Conduct or contract:
 - a. Data analysis
 - b. Data management
 - i. Who owns the data? Need to spell out in contracts.
 - c. Data storage
 - d. Status and trends
 - e. Effectiveness
 - i. Run an RFP program for effectiveness studies

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- f. Source ID and diagnostic monitoring
 - i. regional prioritization
 - ii. data repository
 - iii. possible pay-in for service to meet permit requirements
3. Provide quality assurance and control
4. Maintain an open and inclusive process for prioritization
5. Establish and use a process for communicating with permittees
6. Report back to permittees and to others.
 - a. This entity creates the message for existing outreach programs to share.
 - b. Disseminating information to the general public is a role for the Partnership and/or Ecology, not the entity.
7. Audit function
8. Look for opportunities to improve effectiveness, reduce costs
9. Recommend improvements in monitoring to Ecology and the Partnership

Benefits of the Pay-In Option: The subgroup identified several benefits to having a pay-in option. In particular, it is anticipated that:

- A coordinated monitoring program will cost less to implement than a series of independent monitoring programs
- Having a pay-in option will lessen the level of difficulty associated with satisfying NPDES permit requirements for monitoring
- A coordinated monitoring program can still offer permittees some flexibility
- Data consistency will be improved
- Monitoring data will more easily be collected at multiple geographic and temporal scales
- Existing monitoring capacities will more easily be leveraged, without requiring each municipality to develop in-house expertise
- Using a coordinated, pay-in approach will allow the region to address specific near term actions in the Action Agenda
- Using a coordinated, pay-in approach will allow the region to address the highest priority monitoring questions

Creating and Narrowing Down an Initial List of Candidate Entities: The subgroup developed an initial list of candidate entities (Table 1). This list was developed via brainstorming session, and includes suggestions from members of the Local Jurisdiction Caucus that are not participating in the subgroup. In discussing the characteristics and the list of potential entities, several subgroup members were interested in issuing a request for proposals for organizations to serve as the administrative entity. The subgroup agreed that no funding was available to issue the RFP or review the proposals, and also that sufficient time was not available to do this solicitation given Ecology's permit reissuance schedule. Based on these circumstances, the subgroup instead agreed to focus on a short list of four possible entities that could work for the next permit cycle. It was agreed that the selected entity would not necessarily be the entity selected in future permit cycles.

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The four entities initially selected for further investigation included Ecology, the new Stormwater Technical Resource Center (STRC), USGS, and the Association of Washington Cities (AWC). Upon further consideration, the subgroup decided to not recommend USGS for the short-list of entities to consider to administer the pay-in option, but instead to consider USGS as an option as a contractor for implementing the streams status and trends monitoring program. The subgroup agreed that based on the comparison of the three entities, the Department of Ecology was the most likely to be successful in the near term for the upcoming permit cycle. Neither the STRC nor AWC currently have capacity to administer the funds generated via the pay-in option; in addition, the STRC has not yet established its legal structure. Late in our process, the Center for Urban Waters at UW Tacoma expressed interest in serving as the entity. These four entities were evaluated compared to key characteristics identified (Table 2). For the Department of Ecology, two sub-options could be pursued: one with funding derived from the local Toxics Fund, another with funding directly from local jurisdictions.

Draft Organizational Structure of Pay-In Option: A draft organizational structure was developed (Figure 1). The administrative entity is expected to receive and handle funds from permittees and others and contract with others to implement the priority activities identified by the SWG, with approval from Ecology and in an appropriate manner to ensure that permit monitoring requirements are implemented.

Issues for Further Discussion/Consideration: The subgroup identified several issues which may need to be addressed at any or all of the possible organizations that might house the administrative entity:

- Some municipalities will object to sending any money anywhere.
- Is it possible to structure the pay-in option such that every municipality wants to participate?

Table 1. Initial brainstormed list of possible options for the administrative entity

State Agencies	Non Profits
Department of Ecology	People for Puget Sound
Puget Sound Partnership	Puget Soundkeeper Alliance
Department of Transportation	Bullitt Foundation
Department of Natural Resources	Cascade Land Conservancy
Academic Institutions	Sierra Club
UW Applied Physics Laboratory	New NGO/Trust focused on monitoring
UW Tacoma Urban Waters Institute	Assn of Washington Cities (AWC)
WSU Puyallup	Washington State Assn of Counties (WSAC)
WWU	Salish Sea Institute
PLU	Center for Watershed Protection
Centers/Institutes	Private
Stormwater Technical Resource Center	Battelle
Puget Sound Institute	Boeing
Local Jurisdictions	Herrera

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King County	Brown & Caldwell
Pierce County	Parametrix
Snohomish County	Taylor Associates
City of Seattle	Other Consultants
Other Cities or Counties	Other
Federal Agencies	Have the Legislature create an entity
USEPA	
US Geological Survey	
Pacific Northwest National Laboratory	
US Navy	
NOAA Fisheries	

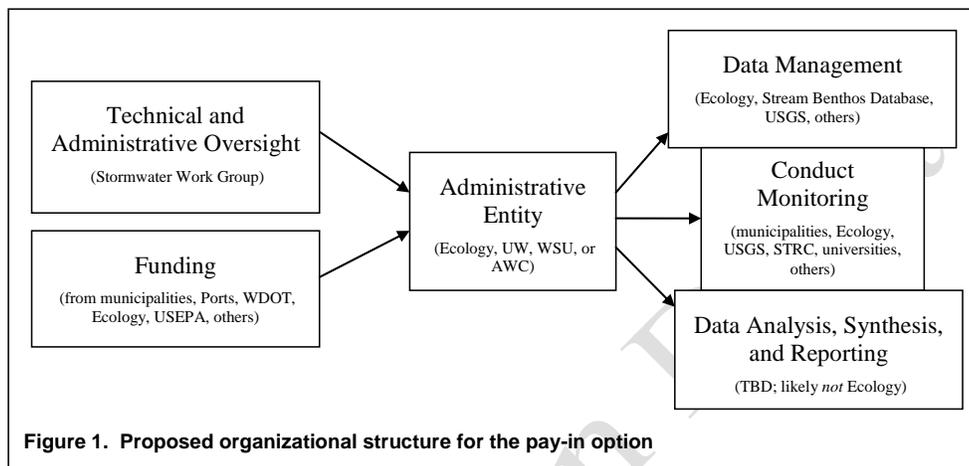
Table 2: Evaluation of Four Possible Options for the Pay-in Administrative Entity

Option	Washington State Department of Ecology (Ecology)	Stormwater Technical Resource Center (STRC)	Center for Urban Waters at UW Tacoma (Urban Waters)	Association of Washington Cities (AWC)
Description of pay-in administrative mechanisms	Ecology would establish contractual agreements with every municipality. Each municipality would send money to Ecology to conduct and/or contract for the monitoring. Ecology could contract with municipalities with capacity to get monitoring done. Overhead relatively low: applies to FTEs, not to amount paid in.	This would be one of three lines of business of STRC, in addition to TAPE and LID. STRC would establish legal structure, staff up, and establish agreements with each municipality. WSU Puyallup would most likely serve as the administrative entity. Each municipality would send money to WSU and enter into contracts with STRC. STRC would contract out for the monitoring with the exception of LID studies. Might staff up in future. No overhead estimate yet; negotiable. May form a non-profit.	The stormwater monitoring program would be a program at Urban Waters, parallel to others being created including the Puget Sound Institute (PSI). Each municipality would contract with UW's main campus, who would contract out for everything except the synthesis, which Urban Waters would conduct. Urban Waters has negotiated with the main UW campus to get a 26% overhead rate, but there might be further negotiation. Have formed a non-profit.	AWC would staff-up appropriately, and then modifies existing agreements with every city, modifies/creates agreements with counties. Each municipality would send money to AWC, who would contract out for all of the monitoring activities. Overhead would be set to cover costs.
Assurance that municipalities' funds dedicated to monitoring?	Yes, if done using contractual arrangements.	Yes, if done using contractual arrangements.	Yes, if done using contractual arrangements.	Yes, if done using contractual arrangements.
Expandable to	Statewide expansion would be	Yes, the mission of the STRC is already state-	Yes, although the Center for Urban	Expandable state-wide for municipalities, but

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other geographic areas and other permits?	straightforward. Some businesses have restrictions on giving money to regulatory agencies; would need to work this out.	wide and the STRC is already working with industry.	Waters is currently focused on urban Puget Sound. Non-profit could be attract businesses participation.	not sure how it would work for industries and businesses and non-profits and tribes.
Accountable and credible?	Yes, assuming oversight boards and contractual arrangements. General perception that Ecology will manage contracts well and appropriately implement them. Lots of scientific expertise, including stormwater. EAP is credible.	TBD; in the process of establishing boards and advisory committees. STRC is a new entity with no track record, but WSU Puyallup has history and track record.	UW is highly respected. Urban Waters is a new Center with no track record.	AWC would not be bidding to conduct monitoring program activities. No risk of perception issues or conflict of interest.
Capacity to manage funds and contracts	Lots of grant management and contract management experience. Currently have existing contractual relationships with all Phase I and II municipal permittees.	STRC has legislature-provided funding and staff only for planning through June 2011. Need funding and work program after that, to staff accordingly. Would need an interim funding source between June 2011 and 2013 when municipal pay-in would start.	UW has existing contracting and grant management experience. Need to develop standardized contracts with each municipality and with contractors.	Would serve solely in contract management and administrative role. Existing capacity is very limited and already used for ongoing business.
Other issues and potential barriers	Conflict of interest not really an issue with regard to enforcement. May appear self-serving to have monitoring requirements in Ecology's permits that call for municipalities to send money to Ecology. Some municipalities have poor relationships with Ecology. Need to get enough municipalities to pay-in to get enough critical mass. This option has been discussed with program managers at Ecology, but not with higher level management.	Long-term viability in question: need to develop and implement a sustainable business plan. Still don't know the business structure. Could be an option to be implemented in future permit terms. Overhead rates are negotiable. Boards have discussed this issue and there is some disagreement as to whether the timing of this venture would help or hinder STRC in its overall mission.	Urban Waters business plan is not known. Not certain how PSI and stormwater monitoring would interface. Urban Waters is not really interested in housing administration functions. They primarily want to be involved in the synthesis.	No in-house scientific expertise. This option has not been discussed with AWC board and executive director.

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- How would this be done and what is the “go it alone” option and how much does that cost?
- What if pay-in itself is too onerous? Would municipalities pull out and not participate?
- All organizations proposed to be the entity would need to staff up to handle the increased work load to manage funds and contracts beyond their existing work load.
- No matter which entity is chosen, its overhead will need to be evaluated to make sure it covers appropriate administrative capacity.
- Specific interest would need to be expressed by municipalities in having Ecology serve as the administrative entity to help overcome the skepticism that exists about having Ecology serve in this role.
- It is not clear if these options are defined well-enough for getting approval on them by the entities themselves. A lot still needs to be worked out to operationalize the administrative mechanism: including getting the municipalities’ funds, entering into contracts with each, providing assurances to Ecology and the permittees that the required tasks will be accomplished, and contracting out all the work required to conduct the monitoring, store the data, and analyze the information.
- Need to clarify if the pay-in option is mandatory or optional. If it is optional, need to clarify if “go it alone” is equal to “pay in” or if “go it alone” needs to be more onerous to encourage “pay in”. From a practical perspective, it will be difficult for Ecology to manage two separate programs regardless of the organization that serves as the administrative entity, though how difficult is unknown.

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- The designated entity could possibly remain ambiguous for preliminary draft language, but would need more certainty (i.e., a real entity) by summer 2011 for draft permit issuance.
- It is not viable to switch from Ecology to another entity in the middle of a permit term. If there is a transition, it needs to happen at the end of the 2012-2017 permit term.
- Monies from municipalities and federal agencies cannot be redirected by the Washington State Legislature. Using contractual arrangements ensures that the money will be dedicated to monitoring and assessment. However, the use of any money that comes from the Legislature could be altered in future biennia.
- The SWG has not yet received information about overhead rates that is comparable across the organizations being considered to serve as the administrative entity. This issue is of significant concern to municipalities and others who might pay in.

Permit Monitoring Elements and Context Subgroup

The subgroup was convened to further refine how the SWG's recommendations will be integrated into the 2012-2017 NPDES municipal stormwater permits. The subgroup was specifically tasked with discussing *Major Topics of May 2010 Comments on April 30th Draft Strategy*, reviewing public comments, and making new recommendations to the SWG associated with NPDES Municipal Stormwater Permittee participation and permit requirements.

The subgroup narrowed the scope of the small stream status and trends monitoring, provided more detail on the marine nearshore status and trends monitoring, and developed timelines and sequencing of how these tasks and also source identification and diagnostic monitoring as well as a new process for selecting effectiveness studies will fit into Ecology's reissuance timeline for permit issuance. These timelines are included in this section. The endorsed recommendations for the permit-required monitoring elements are included in the SWG's report to Ecology. This section is intended to document the workings and interim decisions of the subgroup.

Subgroup schedule and participation: The subgroup met five times over the course of the summer to develop specific recommendations and timelines. Members of the subgroup included: Cami Apfelbeck (Bainbridge), Scott Collyard (Ecology), Shayne Cothorn (WDNR), Dana de Leon (Tacoma), Tim Determan (WDOH), Karen Dinicola (SWG Project Manager, Ecology), Mindy Fohn (Kitsap County), Jonathan Frodge (Seattle), Heather Kibbey (Everett), Julie Lowe (Ecology), Mike Milne (Brown and Caldwell), Joyce Nichols (Bellevue), Kit Paulsen (Bellevue), Tony Paulson (USGS), Tom Putnam (Puget Soundkeeper Alliance), Jim Simmonds (King Co.), Carol Smith (Washington Conservation Commission), and Bruce Wulkan (Partnership). All meeting materials and notes were shared among the entire subgroup.

KEEP THIS: Decision to scale back small stream status and trends: The subgroup first decided which question was most important to answer and which scale was most important for the initial launch of the regional stormwater monitoring program: all of Puget Sound, only the Puget Sound lowlands, or the WRIAs. The subgroup agreed that this initial effort should focus on understanding urban and rural areas of the Puget Sound lowlands at the regional scale. [Move](#)

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[Table 3 to appendix or translate the table to a text discussion of the contents and keep it here \(group leaning toward keeping info here to justify rationale\).](#) Table 3 shows the questions the group considered in making this decision. Question 2 was selected as the subgroup's recommendation to the SWG, who endorsed the recommendation.

[Axe these timelines -- Proposed timelines for integrating the monitoring framework into the municipal stormwater permits:](#) The following timelines were developed to identify specific tasks and deadlines in order to successfully integrate the three major categories of monitoring in the 2010 Strategy into the municipal stormwater permits. Three timelines, one for each monitoring category, are presented in tables 4 through 6. The deadlines are intended to reflect Ecology's current permit reissuance schedule.

Table 3. Possible Questions to Answer with a Small Stream Status & Trends Monitoring Program

Question	Number of sites	Discussion
1. What percent of streams in Puget Sound (PS) lowlands meet or do not meet standards or targets? (PS lowlands: good/bad)	50	Current Salmon Recovery Funding Board/Washington Forum monitoring effort for Salmon Recovery and Watershed Health at the general Puget Sound scale (lowlands plus forested areas).
2. What percent of streams in PS lowlands urban areas and rural areas meet various standards, targets, etc., and how do urban and rural areas compare? (PS lowlands urban: good/bad; rural: good/bad)	100	Subgroup recommendation for NPDES 2012-2017 permit (focused on stormwater dominant, wadeable streams): provides information at the Puget Sound scale for urban and rural areas, meshes with salmon recovery monitoring needs at a Puget Sound scale. More affordable and feasible for the initial monitoring effort.
3. What percent of streams in PS lowlands meet various standards, targets, etc., in each Action Area, and how do the Action Areas compare? (PS action areas: good/bad)	Between 210 and 350	Considered: provides information for each action area and powerful information at the Puget Sound scale. No differentiation between urban and rural.
4. What percent of streams in PS lowlands meet various standards, targets, etc., in each WRIA, and how do the WRIs compare? (PS: good/bad; WRIA: good/bad)	390	Framework recommendation (focused on stormwater dominant, wadeable streams): provides information for WRIA level trends and management, extremely powerful for urban/rural questions at the Puget Sound scale, meshes with salmon recovery monitoring needs.
5. What percent of streams in PS lowlands meet various standards, targets, etc., in urban and rural areas within each WRIA, and how do the urban and rural areas within each	Approx. 1300	Considered but not recommended (focused on stormwater dominant, wadeable streams): provides powerful information at the WRIA level, extremely powerful for multiple questions at the Puget Sound scale, meshes with salmon recovery monitoring

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WRIAs compare? (PS: good/bad; WRIA urban: good/ bad; WRIA rural: good/bad)		needs.
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Table 4. Proposed Status and Trends Timeline: Deadlines, Roles, and Products/Tasks

Deadline	Role	Product/Task
October 2010	Ecology /EAP	Preliminary sample draws, statistical power analyses and evaluate WQI for Puget Lowlands nutrients
November 2010	Ecology	Finalize sampling design and finalize costs
February 2011	Ecology	Provide justification and overview of program for fact sheet. This includes identifying what questions this program will answer and how it relates to stormwater
March 2011	Ecology – EAP	Establish standardized reporting and guidance for data analysis
January 2012	SWG/Ecology	Identify SOPs (existing and needed)
January 2012	Ecology	Permit issuance date, pay in established, begin MOA process
January 2013-2015	Permittees/pay in	Ground truth sites, gain access permission.
April 2013	Permittees/pay in	Order equipment, training (if needed) and start up efforts
June-Sept 2014	Permittees/pay in	Initiate sampling (1 year)
December 2014-end of cycle	Permittees/pay in	Data input, QA/QC, analyses,
December 2015	Permittees/pay in	Debrief on field sampling effort across Puget Sound: what went well, what needs work
December 2015	Permittees/pay in	Status report per sampling design and reporting expectations

Table 5. Proposed Source Identification and Diagnostic Monitoring Timeline: Deadlines, Roles, and Products/Tasks

Deadline	Role	Product/Task
December 2010	Ecology	Ecology incorporates Source Identification as a tool for TMDL and S4 programs monitoring
April 2011	SWG	Identify information sharing needs (e.g. SOPs, success/failure stories)
January 2012	SWG	Identify ideas for repository for information sharing involving IDDE programs, SOPs, QAPPs, and other information sharing for permittees
October 2011	SWG	Identify the parameters and format for what is needed to collect for input into IDDE and other source

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		identification process elements for adaptive management for the 2016 permits
October 2013	Permittee/pay in	Set up repository

Table 6. Proposed Effectiveness Studies Timeline: Deadlines, Roles, and Products/Tasks

Deadline	Role/Responsibility	Product/Task
March 2011	Current permit requirement: Phase II and Phase I	Phase I & II Stormwater Monitoring reports/questions due: include effectiveness questions and site selection from Phase II's and data from all Phase I programs (structural and programmatic effectiveness)
May 2011	SWG and Ecology	Identify common interests/regional priority questions from Ph I, Ph II and SWG recommendations
June 2011	SWG/Ecology	Establish regional effectiveness projects based on recommendations
January 2012	SWG	Refine criteria for effectiveness based on workshop feedback
January 2012	Ecology/permittees	Permit issuance date/Pay in begins – MOU/ILA contracting
March 2012	Ecology	Provide an overview to permittees for SWG/independent entities ranking and selection procedure for effectiveness studies
May 2012	SWG	Compile and sort effectiveness questions
May 2012	SWG	Initiate literature review once projects are selected and ranked
August 2012	SWG	Finalize priority study questions based on literature reviews & project needs
January 2013	Permittees/pay in	Effectiveness sampling designs completed
October 2013	Permittees/pay in	Permittee uses sampling designs and regionally evaluates possible sites for studies – includes field visits, agreements, access to property etc.
February 2013	Permittee/pay in	Finalize site selection and order equipment
January 2014	SWG SOP group	Complete SOPs for effectiveness (non-structural and structural). Structural BMP guidance follows TAPE guidance. Non-structural/programmatic BMP evaluation will need guidance and SOPs for data analysis and statistical evaluation.
June 2014	Permittee/pay in	QAPP development, finalization and approval
June 2014	SWG	Begin discussion around next priority questions
October 2014	Permittees/pay in	Initiate sampling
October 2016	Permittees/pay in	Anticipated sample completion date for some projects (this is a rolling of projects, dependent on # of projects etc.)
March 2017	Permittees/pay in	Status report due
January 2017	Ecology	Permit cycle expiration date

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- Paulsen, S. 1997. Environmental Monitoring and Assessment Program: Integrated Quality Assurance Project Plan for Surface Waters Research Activities. U.S. Environmental Protection Agency, Office of Research and Development, Corvallis, OR. 129 pp.
- Cusimano, R., G. Merritt, R. Plotnikoff, C. Wiseman, and C. Smith. 2006. Status and Trends Monitoring for Watershed Health and Salmon Recovery Quality Assurance Monitoring Plan. Washington State Department of Ecology. Publication No. 06-03-203. 62 pp. Available for download at <http://www.ecy.wa.gov/pubs/0603203.pdf>

KD: Add reference that Bob C sent.