DRAFT

Making Mitigation Work

The report of the Mitigation that Works Forum

September 2008

Notes to reviewers:

1. Formatting is not complete; this initial formatting was to facilitate review; final formatting will deal with text boxes (if any), tables, maps, figures, photos, and color. Please advise if you have photos, etc. that you'd like us to include.

2. We will develop a list/key of acronyms.

3. We will develop some tables summarizing which agencies and others are involved in implementation of which recommendations to include as an appendix.

4. We are continuing to engage the tribes and seek their input on these draft recommendations.

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Summary of Our Recommendations

1. Reinforce the importance of avoiding and minimizing impacts to resources that are highly valuable and difficult to replace.
2. Establish an ecosystem- or watershed-based approach to mitigation.
3. Develop and implement a wide variety of compensatory mitigation tools.
4. Develop more coordinated, predictable approaches to reviewing development projects and associated mitigation plans.
5. Support making mitigation work.

The Charge to the Forum

Aquatic resources mitigation should create a real opportunity to sustain both our economic vitality and our environmental resources. Unfortunately, this opportunity is seldom realized and we continue to erode the quality and quantity of our wetlands and other aquatic resources, or lose them altogether. There is ample evidence and broad agreement among all stakeholders that our return on this spending is low:

- Estimates of mitigation success vary, but local, regional, and national studies show that most mitigation projects fail to fully achieve their intended goals and are not effectively replacing lost or damaged resources, habitats, and functions. We are not even close to achieving the goal of "no net loss" for wetlands and shoreline habitats.
- Land use planning and permit decisions are not adequately informed by an understanding of ecosystem processes or watershed conditions. Opportunities to direct mitigation dollars to the most beneficial restoration and conservation efforts likely are being lost. As a result we may be inadvertently driving development into the areas that are more appropriate and suited for restoration or conservation. At the same time, there is not confidence that conservation and restoration priorities are harmonized with other local efforts to maintain a buildable lands inventory and protect resource lands, especially agricultural lands.
- The process for reviewing and permitting development projects and making mitigation decisions lacks transparency and is viewed as too slow, complex, costly, and unpredictable.
- Permit decisions and mitigation requirements often are fragmented across multiple federal, state, and local decision makers, creating a confusing patchwork of standards and impeding efforts to recognize or act upon landscape level impacts.
- Alternatives to on-site mitigation have not been adequately explored or put into place, limiting choices and encouraging site-scale mitigation efforts even when these efforts are not likely to be

sustainable over time. Local governments, especially cities, often are reluctant to approve off-site mitigation if it occurs outside their jurisdictional boundaries.

- There are few widely accepted tools or methods to identify and account for the multiple benefits that some, especially larger-scale, mitigation projects may offer.
- Long-standing regulatory approaches to mitigation fail to take advantage of the latest science on the advantages of ecosystem- or watershed-based actions.

Many of the problems with environmental mitigation are well studied and well understood. Over the years a number of multi-stakeholder groups have made recommendations to improve the mitigation process in Washington State and across the country. While some progress has been made to improve mitigation as a result of these efforts, there remains broad dissatisfaction with both the mitigation process and its environmental outcomes.

In this setting, the Mitigation that Works Forum was convened in December 2007 to develop and agree on a shared vision for successful mitigation and identify practical actions that could be taken to make all aspects of environmental mitigation work better and achieve better outcomes.

Our Shared Vision of Successful Mitigation

The key element of our shared vision for successful mitigation is that it *works.* This means:

- Strong avoidance and minimization programs minimize the need for compensatory mitigation.
- Communities are assured that habitats and species are protected, that the quality and quantity of environmental resources will improve, and that resources will become self-sustaining over time.
- Businesses and development interests will have better choices about how and where to mitigate impacts, and more confidence that well-designed mitigation projects can be approved in a predictable and timely fashion.
- Regulatory and permitting agencies have the confidence, tools, and resources to make decisions efficiently, verify that mitigation occurs in the places where it will produce the greatest ecological benefit, and monitor and enforce mitigation implementation so that environmental outcomes are achieved.

Mitigation that *works* will be recognized by the results it achieves. Our shared vision is that successful mitigation:

- Takes an ecosystem or watershed approach to offsetting development impacts and fully replacing like-kind ecosystem functions in the right ways and in the right places so we do more than simply "tread water" in terms of meeting the not net loss goals, but actually improve ecosystem functions and values.
- Is better integrated with local land use plans, regional transportation planning, and salmon recovery efforts, and is compatible with the goal of sustaining resource lands.

- Focuses mitigation spending on the areas and functions that are sustainable, have the highest need for protection, and the highest potential for successful restoration, so that the health of watersheds improves over time.
- Is predictable and timely—because agency policies and decision-making processes have been clearly articulated providing clear and consistent paths to decision points, project proponents know in advance what to expect during the permitting process.
- Makes use of a broad set of compensatory mitigation options such as banking, in-lieu fee programs, and advance mitigation, in addition to off-site and traditional on-site approaches so that mitigation occurs in the locations that are most beneficial to natural processes in the watershed. In many cases mitigation should occur close to but not necessarily on the sites where impacts occur.
- Relies on programmatic decisions where possible to further improve the efficiency of the permit process.

These words may seem familiar. In fact, these same outcomes have been sought by many past efforts to improve environmental mitigation. We emphasize that, in our view, this shared vision is NOT yet being widely achieved by regulatory agencies, permit decision makers, or project proponents. Many mitigation projects continue to be poorly sited, poorly designed and implemented, and poorly maintained (if they are maintained at all), and not enough attention has been devoted to monitoring, compliance, and adaptive management. As a result, ecological values and functions continue to be lost and the cumulative impact of many poor decisions (or failure to mitigate at all) is increasingly degrading watershed conditions, especially in developing areas.

We need a whole new way of approaching mitigation—moving away from the past narrow and often confrontational view of site-by-site piecemeal solutions, and towards a broader ecosystem or watershed scale view to achieve a more functional and resilient natural system. To achieve our vision of successful mitigation, significant changes are needed in state policies, implementation, and adaptive management strategies.

Bringing about the changes necessary to achieve our shared vision of successful mitigation forms the basis for our recommendations.

Building on Recent Improvements

In our deliberations on successful mitigation we heard stories of failed programs and projects but also stories of progress. These stories of progress include:

- The Washington Department of Ecology (Ecology) published guidance, "Protecting Aquatic Ecosystems: A Guide for Puget Sound Planners to Understand Watershed Processes," to help communities implement watershed characterization. Currently Ecology is actively assisting characterization efforts in several counties and cities.
- By taking advantage of state and federal grant funds, local communities, such as Whatcom County, developed specific watershed plans based on characterization work. The plans identify key areas for development, protection, and restoration to be integrated with local land use plans and regulations. One notable example includes the Birch Bay watershed management unit.
- The U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (Corps) announced innovative new rules to promote no net loss of wetlands by improving wetland restoration and protection policies, increasing the effective use of wetland mitigation banks, and strengthening the requirements for the use of in-lieu fee and permittee-responsible mitigation. The new wetlands compensatory mitigation standards emphasize watershed-based approaches, promote innovation, and focus on results.
- Ecology, EPA, and the Corps are working on joint guidance to address when off-site mitigation is appropriate and how to make decisions about off-site mitigation.
- Ecology convened a Mitigation Banking Advisors group to facilitate completion of the state banking rules.

- The National Marine Fisheries Service (NOAA Fisheries) and U.S. Fish and Wildlife Service (USFWS), collectively the Services, are working with private banking interests to establish the state's first habitat bank that will provide credits for improvements in salmon production to aid in the recovery of threatened salmon stocks.

- Some local governments, such as the City of Duvall, have updated their critical area regulations to allow and encourage use of mitigation banks and other mitigation tools.

- Some entities, such as the Ports of Tacoma and Anacortes, have successfully used innovative mitigation approaches authorized under RCW 90.74 to provide advance mitigation for impacts to marine resources such as eelgrass and salmon habitat.

- The Washington Department of Transportation (WSDOT) has used advance mitigation strategies to develop compensatory mitigation ahead of project impacts regulated by local, state, and federal laws. Using this approach, WSDOT has succeeded in developing ecosystem functions in advance of unavoidable impacts and successfully mitigated impacts to aquatic resources.

- The state's Office of Regulatory Assistance (ORA) has developed an Integrated Project Review and Mitigation Tools Initiative—an electronic permitting pilot project for Clark County that streamlines the permit application and review process and provides links to information on potential mitigation sites.

- Ecology, for the first time, has dedicated resources for mitigation compliance monitoring and enforcement. As a result, we have verified the status of 100% of projects within two years of when the permit was issued. Problem sites have received technical assistance from Ecology staff. Technical assistance appears to be prompting higher likelihoods of mitigation success. A recent review of mitigation sites visited since mid 2006 (56 sites), revealed that 80% are predicted likely to achieve ecological success. This assumes that technical assistance and adaptive management will continue for the entire monitoring period.

- Wetland banks continue to increase in number around the state. Since 2004, four new banks have been certified by Ecology—an increase of 133% (3 banks were certified prior to 2004). Another eight banks are in the certification process. If all these new banks are certified, this would represent

an increase of 400% since 2004. There are also five additional banks operating in the state not subject to Ecology certification.

Successes like these begin to create a foundation for more improvements to mitigation programs and outcomes.

A Comprehensive Approach

For purposes of developing a set of recommendations, we have divided the actions needed to make mitigation work into manageable "buckets" of related work. We emphasize that this should not be taken as a call to further compartmentalize or fragment the mitigation system. We anticipate that the guidance, training, and support functions called for in these recommendations will be integrated and applied across agencies and with tribal governments to the maximum extent possible. We believe this type of integration and cross-agency and government-to-government commitment to similar evaluation and decision making processes should be possible in every case contemplated by this report.

For example, the guidance documents contemplated in Actions 1.1, 2.5, 2.6, 3.1, and 5.2 might well be combined into a single, integrated, multi-agency document. Similarly, the new policy statements called for in Actions 2.1 and 5.3 might be combined. Policy and guidance development, education, technical assistance, and outreach should be integrated or coordinated as much as possible to develop and present one comprehensive approach to improving mitigation processes and outcomes.

Recommendation 1: Reinforce the Importance of Avoiding and Minimizing Impacts to Resources that are Highly Valuable or Difficult to Replace

One of the keys to meeting our goal of no net loss involves preserving aquatic resources that are exceptional, rare, unique, or have proven difficult or impossible to replace. This is why permitting agencies at the local, state and federal levels have long followed the mitigation sequence, which requires avoiding and minimizing impacts as the first step in protecting wetlands and other valuable resources, and why this sequence continues to be critical to successful mitigation programs.

Bogs, fens, vernal pools, native grasslands, and mature forested wetlands are examples of habitats that are becoming increasingly rare and are almost impossible to replicate. We cannot afford to lose any more of these systems, even small ones, and need to redouble our efforts to protect them. Unfortunately, it can be difficult for permitting agencies to say no to projects that impact these high-value resources, particularly linear projects such as pipelines and roads. We need to strengthen our approach to impact avoidance and minimization in these situations. This renewed emphasis on avoidance and minimization should be balanced and tailored to the value of the affected resources.

- High value resources identified through an appropriate watershed characterization should have a very high bar for impacts.
- Impacts to lower-value resources that have limited function, potential, and opportunity to be sustained should be considered within the context of the watershed and whether other mitigation/restoration projects would provide greater environmental benefits.

Recognition of a high-value resource depends heavily on watershed conditions. Different types of resources might be considered high value in different types of watersheds. For example, in some watersheds, resources that might otherwise be considered lower-value may be critical and need diligent protection.

SHORT TERM ACTIONS

1.1. Create additional avoidance and minimization guidance

Ecology, the Washington Department of Fish and Wildlife (WDFW), the Corps, and EPA should work with local government planners, permit writers, and project proponents to develop a checklist of practical avoidance and minimization best practices. This should include suggestions on how to evaluate whether a wetland that is "avoided" would be sustainable considering adjacent project-related changes to drainage, vegetation, soils, and other features. It also should include a list of items to be considered in the early planning and review stages of a project (drainage plans, lot layout, road configuration, stormwater management approaches, vegetation retention, etc.) and tips on ecologically sensitive design that local planners can use when reviewing development applications. The goal of this effort is not to create a cookbook approach to avoidance and minimization, since every site is different, but rather to create a practical way for project proponents and local governments to document – and have confidence—in their avoidance and minimization decisions. The ORA project review tools and "lessons learned" described in Actions 4.3 and 4.4 also can help inform development of the best practices checklist and avoidance guidance.

The state and federal agencies should seek peer-to-peer engagement with tribal technical staff early in the development of this guidance. Prior to public review and comment on the guidance, the state and federal agencies should engage in government-to-government consultation with tribal governments.

The combination of this guidance with implementation of the actions in Recommendation 1 will enable more effective impact avoidance and minimization. The watershed characterization information and decision guidance prepared in response to Recommendation 2 will help permit reviewers more readily and reliably identify high-value resources and priority protection sites at the watershed and site scales; this guidance will help planners and permit writers efficiently review proposed avoidance and minimization activities.

1.2. Invest in conservation

Ecology, WDFW and the Puget Sound Partnership (Partnership) should work with the federal government and non-governmental organizations to increase funding for acquisition and protection of priority areas, so they are "off-limits" to impacts. State conservation grant programs (the Recreation and Conservation Office [RCO], Ecology, the Washington State Conservation Commission, WDFW) should align funding priorities with conservation priorities identified in watershed characterizations. Funding priorities should also recognize projects that complement or leverage (but do not supplant) compensatory mitigation actions.

1.3. Develop a menu of techniques the marketplace can use to monetize the value of land with high ecological function

Ecology, WDFW, the Department of Community, Trade and Economic Development (CTED), and the Conservation Commission should work with local government planners, permit writers, and land owners to develop and pilot a menu of market-based techniques that can be used to monetize the value of land with high ecological function. This effort should follow on the Conservation Commission's Conservation Markets project. At a minimum this work should explore the following.

- Direct payments for ecosystem services (restore or protect natural systems that provide water supply, cleaner air, water filtration services, habitat restoration, flood control).
- Ecosystem services markets (wetland banking, conservation banking, water banking, carbon credits).
- Tradable permits (cap and trade).
- Tradable development rights (Transfer Development Rights [TDRs], conservation easements).

Recommendation 2: Establish an Ecosystem or Watershed-Based Approach to Mitigation

There is clear evidence that one of the key causes of mitigation failure is inadequate understanding of how a mitigation site or project will be affected and shaped by the environment within which it exists. Too often decisions about where or how to "build" a mitigation site or project are dictated by factors of convenience, so we use whatever land is readily available and we implement complex engineered solutions to try to mimic natural systems. The Forum believes, and the scientific evidence suggests, that when mitigation is needed, better outcomes will be achieved by taking ecosystem processes and watershed conditions into account when we locate and design mitigation sites and projects. Our recommendation echoes recent federal guidance on compensatory wetland mitigation, which requires EPA and the Corps to consider watershed-based approaches in making mitigation decisions.

The fundamental goal of an ecosystem- or watershed-based approach to mitigation is to put mitigation in the "right place" in the landscape. Establishing an ecosystem-/watershed-based approach to mitigation means that decisions about where and how to allow impacts and, when impacts are allowed, where and how to place mitigation will be based on an understanding of ecosystem processes and their effects on ecosystem functions. By integrating this information into land use decisions over time, we will improve the sustainability of planning, development, and mitigation efforts over approaches that consider impacts only on a project-by-project basis. By approaching mitigation at the ecosystem or watershed level, we will direct mitigation investments to the places and ecosystem processes that are most likely to be successful and meaningful, leveraging mitigation efforts to improve ecosystems over time. This is a notable departure from past approaches which tended to place mitigation on the same site where impacts occur ("on-site" mitigation) regardless of whether the mitigation would be successful and sustainable over time or contribute in a meaningful way towards the overall health of watershed processes. The Forum supports the idea that mitigation generally should occur in proximity to impact sites—and that on-site mitigation is appropriate in some cases—but we eschew the practice of simply defaulting to on-site mitigation without understanding the broader landscape.

When we use the words “ecosystem- or watershed-based” to describe our preferred mitigation approach, we are recommending that mitigation decisions be based on an understanding of the ecological processes and the dynamic physical and chemical interactions that form and maintain the landscape. The geographic context for this broad understanding is most commonly a watershed. The term “watershed” should be construed generally as a geographic area within which all living things are inextricably linked by a common water course. As used here, a watershed could include a fairly small catchment (e.g., a sub-basin) or a larger drainage area, such as a Water Resource Inventory Area (WRIA).

A watershed approach is an analytical process for making compensatory mitigation decisions that support the sustainability or improvement of aquatic resources in a watershed. It involves consideration of watershed needs, and how locations and types of compensatory mitigation actions address those needs. We can used a landscape perspective to identify the types and locations of compensatory mitigation projects that will benefit the watershed and offset losses of aquatic resource functions and services caused by development activities permits. This approach may involve consideration of landscape scale, historic and potential aquatic resource conditions, past and projected aquatic resource impacts in the watershed, and terrestrial connections between aquatic resources when determining compensatory mitigation requirements.

In recommending watershed-based mitigation approaches, the Forum recognizes that the portion of any WRIA that is evaluated may vary depending on the specific ecological questions and issues being addressed. We also recognize that adequately addressing some issues such as terrestrial wildlife habitat and movement may require consideration of a different geographic unit—one that is not necessarily defined by water and/or drainage and may in fact encompass multiple watersheds.

The Forum believes that a watershed-based approach to mitigation is critical to facilitating more successful mitigation using a broad range of mitigation tools including mitigation banks, in lieu fee programs, and permittee-responsible mitigation (including on- and off-site mitigation).

SHORT TERM ACTIONS

2.1. Articulate policy priorities for the use of watershed characterization information to expedite mitigation decisions

Ecology, WDFW, the Corps, and EPA should make a clear policy statement supporting the use of watershed characterizations as a means for making watershed-based mitigation decisions. This policy statement would build on and reiterate the guidance contained in the April 2008 federal rule on Compensatory Mitigation for Losses of Aquatic Resources (73 FR 19594). The policy statement should also indicate the importance and value of having a comprehensive inventory of potential mitigation sites to inform decision-making at the project level. State and federal agencies should establish the expectation (consistent with the new federal mitigation rule) that watershed characterization information will be used in state mitigation decisions, including in decisions about when off-site mitigation is appropriate. The state should encourage local permit writers to rely on watershed characterization information, when available, in their decision making. Consistent with this new policy direction, Ecology and WDFW should clearly describe the process for how permit applicants and other project proponents (e.g., mitigation bankers) can obtain efficient mitigation approval by proposing projects that are consistent with the areas/sites identified in accordance with Actions 2.1 and 2.2.

2.2. Compile and expand watershed characterization information

Ecology, WDFW, and the Partnership, in cooperation with tribes and local government planners and permit writers, should compile existing watershed characterization information for cities and counties where characterizations have been completed, and should complete watershed characterizations in other areas. Characterization efforts should evaluate three elements: water processes, local wildlife habitat, and land use build-out patterns. As a first priority, this work should be done for Puget Sound watersheds and high-growth watersheds outside the Puget Sound, including east of the Cascades. Coarse-scale characterization maps should be prepared to identify key areas for restoration, protection and development within these fast-growing watersheds. Subsequent characterization efforts should "drill down" to more precisely indicate: the high-priority areas for protection; ecologically-important areas that are minimally altered and can be effectively restored; unique, rare, or otherwise intrinsically-valuable resources; areas where more intensive development can occur without major additional adverse effects on water quality, water flow, or habitat; and areas where development pressures are

most likely to conflict with or confound future mitigation and/or restoration efforts. This effort is not intended to supplant the excellent work done to prioritize salmon recovery projects or other resource management efforts, but to augment them with a broad characterization of watershed processes and functions.

In its most basic form, the characterization information described above should be used to help identify areas that are priorities for acquisition (or protection via conservation easements), areas that are appropriate for restoration and/or highly suitable for mitigation/conservation banks, and areas where development can occur with less impact on or risk to ecosystem or watershed processes. Designation of protection and restoration areas should consider salmon recovery goals, conservation of biodiversity, connectivity, and ecosystem adaptation to long-term stressors such as climate change. These types of areas, and the major resources in each, should be identified and mapped, and maps provided to federal, state, and local agencies, project proponents, the tribes, and the public. Where watershed characterization reveals major conflicts between ideal and actual land uses, planners and permit writers should acknowledge these conflicts and look for opportunities to learn from these situations to reduce future siting conflicts. Local governments can and should use characterization information to support the development of local shoreline master plans and critical area ordinances.

An example of the type of characterization effort the Forum is recommending is Whatcom County's Birch Bay Characterization and Watershed Planning Pilot Study. The Birch Bay study was a collaborative effort by local, state, and federal agencies to create a comprehensive set of watershed management recommendations using integrated watershed characterization tools. The primary participants in the study were the Whatcom County Planning and Development Services (PDS) Department, EPA, Ecology, WDFW, and the Partnership. The Birch Bay study provides preliminary recommendations for land use planning and resource management that will maintain—or preferably improve—the quality and condition of local wetland, stream, nearshore, and terrestrial resources in the Birch Bay watershed. The study had the following main components.

- The watershed was delineated into 32 drainage sub-basins based on surface water flows. The sub-basins were grouped into four Watershed Assessment Areas (WAAs) to identify management recommendations. Wetlands and streams within the WAAs were mapped and categorized at relatively fine resolution.
- A futures-based land use and development scenario was developed to understand potential development patterns within the basin based on current regulatory and zoning frameworks.
- Patterns of water, nitrogen, and pathogen movement through the watershed were identified to determine the relative importance of each basin for these processes.
- Wildlife use and available habitat conditions within the watershed were assessed to provide greater context for understanding overall ecological conditions and future management options.
- A general framework was developed to depict the potential suitability of individual sub-basins for future development and to determine management priorities and recommendations for each sub-basin based on current conditions and anticipated build-out scenarios.

Whatcom County is planning to evaluate options for implementing the recommendations in the Birch Bay study in cooperation with watershed residents in the future. Those efforts may help to guide and refine future characterization efforts throughout the state.

FIGURE 1: MAP OF PRIORITY PROTECTION, RESTORATION AND DEVELOPMENT AREAS FROM THE BIRCH BAY PILOT STUDY

2.3. Create and maintain a state-wide wetlands inventory

Building on the watershed characterization efforts described in Action 2.2, Ecology should develop a status and trends program for Western Washington wetlands. The program should inventory and track the approximate amount and extent of existing wetlands using land cover data provided and maintained by NOAA as part of the Coastal Change and Analysis Program (C-CAP) and hydric soil data provided and maintained by the Natural Resource Conservation Service (NRCS). In addition, Ecology should monitor changes in vegetative cover over time as a general approximation of the losses or gains in wetland areas at a broad scale. The program also should track trends in losses or gains of various types of wetlands to provide a general indication of changes in wetland function that may be occurring across the landscape.

Over time, Ecology should enhance the C-CAP analysis with field assessments to provide an understanding of whether wetland functions are trending better, worse or being maintained. As resources become available, Ecology should explore information technology strategies that allow the exchange of data between state, local and tribal governments to enhance the C-CAP analysis.

2.4. Continue WDFW efforts to compile watershed and salmon recovery plan information to create an inventory of potential mitigation sites/projects

Comment [MSOffice1]: Check with WDFW about how to describe their ongoing work in this area.

WDFW and Ecology working with the Corps, EPA, NOAA Fisheries, the USFWS, tribes, and local government planners and permit writers should use existing plans, including watershed management plans, watershed and shoreline restoration plans, salmon recovery plans, Washington Biodiversity Council Conservation Opportunity maps, and WDFW Conservation Action Plans to create an inventory of potential sites and projects that might be candidates for mitigation. This effort should start with the Puget Sound Basin and areas outside the Puget Sound under intense development pressure.

As an initial step, Ecology and the Corps should identify criteria for which projects/sites or types of projects/sites may be eligible for consideration as mitigation for wetland and stream impacts. These criteria are necessary to ensure that implementing projects from existing restoration, recovery, and conservation plans will provide appropriate replacement for authorized impacts and still make meaningful contributions towards salmon recovery and other types of ecosystem improvement. The mitigation site identification tool created in 2007 as part of the Shared Strategy might serve as a starting point for this process. Good candidate sites for mitigation should be mapped on the watershed

characterization maps recommended in Action 2.2 and over time be integrated with electronic permitting systems such as the one being developed by ORA and Clark County.

2.5. Establish clear expectations about what information is needed to make various types of mitigation decisions

By December 2009, Ecology, WDFW, the Corps, and EPA, in consultation other agencies with mitigation interests or responsibilities (including CTED, RCO, the Department of Natural Resources (DNR) and WSDOT), and local government planners and permit writers should publish an integrated, multi-agency guidance document to identify the types of characterization information and level of detail needed to support different types of mitigation decisions. At a minimum, the agencies should determine the type and level of information needed to identify priority areas for protection, areas that have the highest potential and/or highest value for restoration through, for example, mitigation or conservation banks, and areas where more intense development can occur without significant risks to or impacts on ecosystem processes. The process should acknowledge that not all mitigation decisions require the same level of information and should give decision makers greater confidence that they can recognize when information is adequate. The work this Forum did to outline a "sliding scale" of mitigation-related information and decisions might be the basis for this guidance.

The state and federal agencies should seek peer-to-peer engagement with tribal technical staff early in the development of this guidance. Prior to public review and comment on the guidance, the state and federal agencies should engage in government-to-government consultation with tribal governments.

The guidance should build on and not duplicate Ecology's 2005 Wetlands in Washington State documents (Volumes I and II, Ecology Publications # 05-06-006 and #05-06-008, respectively) and the mitigation guidance documents prepared by Ecology, the Corps and EPA in 2006 (Ecology Publications #06-06-011a and #06-06-011b). The guidance should focus specifically on streamlining the process for making watershed-based mitigation decisions. It should address decisions to allow off-site mitigation, and support use of innovative mitigation tools such as banks, in-lieu fee programs and advance

mitigation more readily. Ecology should work with the Corps and EPA to ensure that the new guidance is compatible and consistent with the April 2008 federal rule on Compensatory Mitigation for Losses of Aquatic Resources. It also should help planners and permit writers make decisions about fisheries and shoreline/nearshore mitigation by describing how characterization information can be used for Hydraulic Project Approvals (HPAs) and shoreline substantial development permits, and what types of information are needed for each.

The table below generally describes different levels of watershed characterization and the types of information that would typically be required for each.

Analysis Components	Questions Answered	Data and Information needs
Level of Effort: Basic		
• Water Flow Process • Water Quality Processes	• Which areas are intrinsically most important for water flow processes? • Which areas are most highly altered for water flow processes? • Which areas are intrinsically important for nutrient and pathogen removal? • Which areas are most at risk for nutrient and pathogen inputs? • Which areas should be prioritized for restoration of water flow or water quality processes? • Which areas should be prioritized for protection of water flow or water quality processes? • Which areas can accommodate development with limited adverse effects on water quality and water flow processes?	• Basic mapping of sub-basin boundaries, geologic features, topography, and land cover • Precipitation data • Wetland inventory maps • DNR stream mapping (and ditches, if available) • Locations of pollutant sources • Road network/density • Impervious surface • More refined wetland and stream mapping from aerial photos (and LiDAR, if available) • High value habitats/resources • Wetland and stream buffers • Quantitative ranking of sub-basins for water quality and hydrology processes
Level of Effort: Moderate		
• Water Flow Process • Water Quality Processes • Local Habitat Assessment	• Where are the highest quality, most sensitive, or most vulnerable wetlands located? • Where are the highest quality (least altered) wildlife habitats? • What are the priority areas for wetland	• Qualitative assessment of habitat based on aerial photos and land cover information • Quantitative ranking of sub-basins for water quality and hydrology processes • Local knowledge/assessment of target

Analysis Components	Questions Answered	Data and Information needs
	protection? • What are the priority areas for wildlife habitat protection? • Where are the most productive/highest value salmon habitats? • What are the priority areas for salmon habitat protection? • What are the most important corridors for wildlife movement?	species guilds • Mid-scale mapping of land cover types (historic and existing), critical habitats, salt marshes, productive salmon streams, natal & pocket estuaries, forage fish spawning areas, wildlife concentration areas, feeder bluffs & drift cells, fish passage barriers, road network/density, development type/density, impervious surface using available data sources (no field work required)
Level of Effort: Detailed		
• Water Flow Process • Water Quality Processes • Local Habitat Assessment • Build-Out Analysis	• How will projected growth under current zoning affect priority areas identified above? • Which areas are most vulnerable to increased density and increased impervious surface? • Which areas can be developed with relatively limited impacts on water flow, water quality and habitat?	• Field inventory of habitat conditions • GIS analysis of buildable lands inventory • Assessment of exiting development intensity relative to zoning • Projected increases in dwelling unit density • Quantitative calculations in impervious surface / land cover due to growth projections
Level of Effort: Nearshore Conditions (methods need to be more fully developed)		
• Drift Cell Function • Watershed Stressors • Site-scale Stressors	• Where are the most important feeder bluffs/sediment sources? • Where are the highest functioning nearshore areas? • What nearshore areas are most altered / stressed? • Which nearshore areas should be prioritized for restoration? • Which nearshore areas should be prioritized for protection?	• WDNR ShoreZone data • Ecology Coastal Atlas and shoreline aerial photography • Other information to be determined

2.6. Expand and improve watershed characterization tools and guidance

Well-understood, implementable watershed characterization tools and guidance are the critical complement to the new guidance on information requirements for mitigation decisions described above. Ecology, WDFW, WSDOT, and DNR should expand upon and improve the methods and tools for watershed characterization so the information needs described in Action 2.5 can be reliably met.

Improvement of the methods and tools for watershed characterization should build on the existing freshwater watershed characterization methods and guidance described in Protecting Aquatic Ecosystems By Understanding Watershed Processes: A Guide for Planners (Ecology Publication #05-06-027 June 2008, Version 3). It should incorporate and fully describe the wildlife habitat assessment and build-out analysis components. The guidance should also build on and incorporate past work by the Transportation Permit Efficiency and Accountability Committee (TPEAC) on watershed characterization for highway projects as well as the Biodiversity Council's efforts to develop and implement the December 2007 Washington Biodiversity Conservation Strategy. The agencies should develop an example or, if possible, create a model that standardizes use of existing readily available information and data necessary for characterizing watershed conditions.

Needed characterization approaches for the nearshore marine environment also should be developed. Such approaches could build on Battelle's nearshore restoration prioritization methods recently used in Bainbridge Island and Jefferson County (Battelle Marine Laboratory, Report No. PNWD-3762) and/or People for Puget Sound's work in Northern Skagit County (the Northern Skagit County Bays and Shoreline Habitat Conservation and Restoration Blueprint, 2005 Update).

As with other guidance documents described in our Recommendations, the state and federal agencies should seek peer-to-peer engagement with tribal technical staff early in the development of this guidance. Prior to public review and comment on the guidance, the state and federal agencies should engage in government-to-government consultation with tribal governments. If the guidance development timelines support it, this guidance might be combined with the guidance on decision making described in Action 2.5.

LONGER TERM ACTIONS

2.7. Use watershed characterization to inform land use planning

Watershed characterization information will be most useful in areas where local jurisdictions are amenable to linking the findings to land use planning decisions. CTED, with the support of Ecology and WDFW, should work with local government partners and stakeholders interested in piloting the integration of watershed characterization information with other ongoing land use planning efforts. CTED, with Ecology and WDFW, should support these pilot integration projects by providing appropriate technical and financial resources and incentives. This support would allow local communities to analyze different build-out scenarios in light of the characterization results and make adjustments, if needed, to achieve local watershed goals (similar to the Birch Bay watershed planning effort described above).

Where information on high-priority areas for conservation, restoration and development does not match existing land use planning and zoning designations (including designations for agricultural land) or planned build-out, CTED should actively engage the affected local jurisdictions to develop solutions. CTED should encourage them to more closely align planning with watershed characterization and the Washington Biodiversity Council's Conservation Strategy by considering this information in future critical area ordinance and comprehensive planning updates and Shoreline Master Program updates. This dialogue should identify and consider this information in decisions about where and how development will be placed. It should support strategies for maintaining the total amount of buildable land and resource lands and create mechanisms to value (and reward) the water quality, water flow, and habitat services that conserved lands may provide. The collaboration with local government should include creation of a menu of approaches for local governments to consider such as low impact development, and urban forestry and urban density design models to reduce the impacts of development on aquatic and terrestrial resources.

Recommendation 3: Develop and Implement a Wide Variety of Compensatory Mitigation Tools

Successful mitigation will require a wide variety of tools and options for decision makers and project proponents including wetland and multi-resource banks, in-lieu fee programs, advance mitigation, and traditional on- and off-site approaches. By working together to improve the effectiveness of all the mitigation approaches and to clearly identify how decisions about use of alternatives to on-site mitigation will be made, Ecology, WDFW, EPA, the Corps, USFWS, and NOAA Fisheries (collectively "the Agencies") can increase the predictability and performance of the entire mitigation process.

SHORT TERM ACTIONS

3.1. Publish clear guidance on how to make site-scale or project-scale decisions about off-site mitigation

By December 2009, the Agencies should issue joint guidance describing circumstances under which off-site mitigation may be appropriate, and the specific information needed to approve an off-site mitigation approach. This guidance would accompany (and possibly be part of) the watershed characterization guidance noted in Action 2.6 but would be geared more toward site- or project-scale decisions. This guidance should provide a predictable set of criteria for decision making and identify issues to address so that there are uniform and reasonable expectations about when and where off-site mitigation might be used and how decisions to implement off-site mitigation will be made. This is not to create a cookbook approach to decision outcomes; site-specific decisions always will require some level of professional judgment on the part of the decision maker—the purpose is to make the decision process and timing more predictable for project proponents and developers. Every effort should be made to leverage the watershed characterization information described in Recommendation 2 to create as much predictability as possible on when off-site mitigation may be appropriate.

3.2. Improve the wetland banking system

Ecology, in consultation with WDFW, the Corps, and EPA, should complete and expand ongoing reforms to the wetland mitigation banking process to ensure that banks can be efficiently identified, permitted and used. The new program should mirror the federal banking requirements and process and reflect recommendations from the Banking Pilot Advisory Group. The new rule should not add additional process above the federal requirements except where required by state statute.

Prior to public review and comment on the wetland mitigation banking rule, Ecology and the Corps should engage in government-to-government consultation with tribal governments.

Ecology, EPA and the Corps should develop guidance for wetland bankers that encourages them to locate wetland banks in priority areas for restoring watershed processes. This could include pre-identifying important areas when a watershed characterization has been completed. For banks located in key restoration areas and designed to be consistent with restoration needs, the Agencies should provide incentives such as streamlined processing.

To encourage wetland banking as an important mitigation alternative, the Corps, EPA, and Ecology should continue to provide training for regulators and the development community on wetland banking and the use of banks. Ecology and the Corps should provide at least five trainings per year over the next biennium to local regulators and the development community.

In addition to training, additional resources should be provided to local governments to actively engage in the banking process. Ecology and CTED should provide example language to local governments for updating local codes to allow and encourage banks by July 2009.

The Corps, EPA, and Ecology should expand the crediting system for wetland banks to allow for the use of multiple resource credits on a bank site. The system should reflect a more refined accounting of functional gains and losses.

3.3. Establish multi-resource conservation banks

The Services, in consultation with Ecology, WDFW, the Corps, and EPA and the tribes should work together to establish additional habitat and conservation banks that meet their respective mandates under the Endangered Species Act (ESA), the Clean Water Act, and various state laws including the State Hydraulic Code. Habitat and conservation banks might be established independently of wetland mitigation banks or in conjunction with them. In other words, a "wetland bank" might be able to sell "fish credits" and a "fish bank" might be able to sell "wetland credits" provided that credits can be legitimately generated for each resource type (in other words no swapping of fish credits for wetland credits or vice versa). This would potentially expand the market for bank credits and increase the chance that project proponents can meet their mitigation obligations efficiently and effectively. Part of this effort should be to explore development of crediting systems that can appropriately account for habitat benefits and resources. The Agencies should assess the recent multi-species conservation bank efforts in California to inform this action.

3.4. Support Development of a Puget Sound In Lieu Fee Program

The Partnership has convened an effort to explore establishing an in lieu fee program in the Puget Sound area. The Forum endorses this effort and encourages continued engagement of all stakeholders in developing and piloting sustainable in lieu fee program approaches.

The Partnership should seek peer-to-peer engagement with tribal technical staff early in the development of the in lieu fee program. Prior to finalizing program elements, the Partnership should engage in government-to-government consultation with tribal governments, particularly for Tribes in watersheds that may be affected by any pilot program.

3.5. Expand appropriate use of advance mitigation

Ecology, WDFW, the Corps, and EPA in consultation with the Services as needed, should work with WSDOT and other interested parties to develop specific guidance on the use of advance mitigation. The

guidance should address questions such as: what information is needed to identify projects that might use advance mitigation? How should the value of an advance mitigation project be determined? What are the baseline information requirements for advance mitigation projects? What are the requirements and approval process for future use of advance mitigation credits?

3.6. Support local governments in establishing policies, regulations, and processes for using the full suite of mitigation tools

Local governments are critical in implementing mitigation policies. Ecology, WDFW and CTED, in consultation with the Corps and EPA, should work closely with local governments on development of the off-site mitigation guidance described in Action 3.1 to ensure these policies can be implemented by local governments. This should include working with local governments to develop example local policies, regulations, and guidance for individual jurisdictions to consider adopting into their local codes. If necessary, this effort might begin with an assessment of which local governments allow for and are actively using banks and other mitigation tools in their updated CAOs and SMPs and why, and an identification of the concerns or barriers that prevent other local governments from adopting such tools. As part of this effort Ecology and CTED should work with local governments to identify and overcome barriers to approving cross-jurisdiction mitigation where watershed characterizations indicate that such actions are appropriate and to ensure support for locally developed programmatic mitigation approaches.

Recommendation 4: Develop More Coordinated, Predictable Approaches to Reviewing Development Projects and Associated Mitigation Plans

By expanding use of inter-agency agreements, multi-agency permit review teams, programmatic agreements and regional general permits we can reduce the transaction costs associated with mitigation, make decisions more predictably, and ease tensions on all sides of mitigation efforts.

SHORT TERM ACTIONS

4.1. Expand use of the multi-agency concept

ORA should work with Ecology, WDFW, the Corps, and EPA to expand use of the multi-agency permit (MAP) team concept for projects that require more than one permit by establishing one MAP team in each Ecology regional office by 2013.

4.2. Expand use of programmatic agreements and general permits

Ecology, WDFW, the Corps, and EPA should identify opportunities to expand use of regional general permits for like-types of development projects within specific geographic areas and use of programmatic general permits for avoiding unnecessary duplication of anther Federal, state or local agency's regulatory efforts. These agencies should work together to identify common mitigation situations that may be candidates for general permits based on the number and types of permits issued in the past three years. In addition, the Corps and EPA should work with the Services to develop a complementary Section 7 ESA consultation agreement associated with projects carried out under these permits. At least one new programmatic or regional general permit and complementary Section 7 consultation should be completed by December 2009.

The state and federal agencies should seek peer-to-peer engagement with tribal technical staff early in the development of regional general permits. Prior to public review and comment on regional general permits, the state and federal agencies should engage in government-to-government consultation with tribal governments.

The goal should be to leverage the watershed characterization information described in Recommendation 2 and the wide variety of mitigation tools described in Recommendation 3 to support development of programmatic agreements and general permits. For example, a general permit might be appropriate for some types of residential development in areas that a watershed characterization has identified as appropriate for development.

4.3. Complete and expand the Office of Regulatory Assistance's integrated project review and mitigation tools initiative

Building on the Joint Aquatics Resources Permit Application (JARPA) ORA is working with Clark County to create an on-line system to help applicants who need permits for actions that affect aquatic resources. The system could identify permit requirements and coordinate the permit review process. This project has great potential and should be continued and expanded. Expansions might address: making the system available to additional communities or statewide, adding more mitigation functions to the system, adding content to address other types of permits, such as stormwater or shoreline permits, and making the system accessible to a broader range of applicants rather than only to certified or public agency applications.

4.4. Document and act on lessons learned from ORA's Integrated Project Review and Mitigation Tools Initiative

ORA works to identify overlaps and conflicts between environmental requirements and permit conditions. Specifically, ORA gathers information about the consistency of permit conditions across permitting programs and where possible is helping agencies reconcile conflicting conditions and consolidate similar conditions into more uniform language. This information, if acted upon, has the

potential to greatly improve permitting programs. ORA should continue to work with its local, state and federal partner agencies to resolve discrepancies in permit conditions and identify ways to resolve overlaps and conflicts among environmental requirements and permits.

Recommendation 5: Support Making Mitigation Work

As we make progress in improving mitigation systems and performance, we must continually evaluate our work and look for opportunities to improve. It is not enough to simply issue the policy statements and guidance documents; we must support implementation with training and technical assistance, incentives and investment. We also must be able to identify and take action against projects that failed to mitigate or do not meet performance standards, and implement corrective actions when mitigation projects are not working. This is essential if we are to be accountable to our regulatory mandates and to our responsibilities as resource stewards. It is also essential to achieving no net loss and, ideally, to recovering watersheds over time.

SHORT TERM ACTIONS

5.1. Develop and track a suite of standard evaluation metrics and monitoring approaches

In order to win broad support from government, business, and environmental interests, we will need to demonstrate that watershed-based mitigation provides a better path for meeting the state's no net loss policies while accommodating sound development efforts compared to our current system. A central aspect of this demonstration is developing an accounting system to track progress against valid ecological metrics. This can be complex and costly, but new technical and technology tools offer promise. For example, watershed characterization and GIS tools developed through Whatcom County's recent Shoreline Master Program update provide the county with an unprecedented opportunity to map shoreline, wetland, and other critical areas in their watersheds. Such approaches can be coupled with information from more detailed ecological function measurements to assess changes in ecological conditions over time. The regional in-lieu fee program described in Action 3.4 provides an opportunity to develop and test accounting protocols to determine whether no net loss is being achieved in a specific service area. Lessons learned from this effort should inform development of a broader accounting to determine whether the state is meeting its responsibilities in each watershed.

Ecology should work with WDFW, WSDOT, the Corps, EPA, and the Services to develop a common approach to monitoring including appropriate monitoring design, performance standards, protocols and metrics for different types of mitigation projects (e.g., wetlands, shorelines, and habitat). These common metrics and standards would not take the place of site- or project-specific performance standards but could serve as a set of minimum requirements that would enable us to better assess whether mitigation efforts are successful. They should complement the statewide wetland inventory described in Action 2.3.

Previous efforts to assess mitigation success, including Ecology Wetland Mitigation Evaluation Study Phases 1 and 2 (Ecology Publications #00-06-016 and # 02-06-009, respectively) acknowledged that the wide variability in monitoring approaches and performance standards made it difficult to determine on a programmatic basis which sites or projects were truly successful. A more standardized approach to monitoring would enable us to more accurately document compliance and ecological outcomes. Monitoring and metrics should be focused on determining whether ecological functions are truly being successfully replaced. This will facilitate a common understanding of whether mitigation projects are working or not, and will help project proponents and sponsors focus on the outcomes that are most important to environmental success. Monitoring and metrics also should track where alternatives to on-site mitigation are used and evaluate the success of these approaches. WSDOT's experience monitoring over 150 sites should be leveraged to understand what types of measurements would be most relevant to signaling mitigation success.

Use of common metrics and monitoring approaches for multiple mitigation projects over time may allow us to compare the success of various mitigation design, construction, and maintenance strategies. This information could also be used to help us determine whether mitigation actions implemented using certain tools (banks, in lieu fee programs, on-site, etc.) are more or less successful than others. Results of the metrics program and associated monitoring should be used to make adjustments to the policies and guidance on mitigation approaches and to refine training and outreach. We emphasize that

common metrics are only a starting point for development of individual project performance standards, and likely would need to be supplemented with project-specific metrics.

The state and federal agencies should seek peer-to-peer engagement with tribal technical staff early in the development of metrics. Prior to public review and comment on metrics, the state and federal agencies should engage in government-to-government consultation with tribal governments.

5.2. Create a compliance monitoring and inspection checklist for mitigation projects

Ecology and WDFW, in consultation with the Corps, EPA, and local government planners and permit writers should create a compliance monitoring and inspection checklist for mitigation projects. This checklist should build on Ecology's ongoing compliance monitoring and enforcement work and checklist. It should provide a simple document that can be used by any agency that might inspect a mitigation project and can be used by project proponents to guide their independent project evaluation and monitoring.

5.3. Require adaptation/adjustments if mitigation projects aren't working

Ecology and WDFW, in consultation with the Corps, EPA, and local government planners and permit writers should make a clear policy statement acknowledging that sometimes our ability to design and engineer natural systems in mitigation projects falls short . When project-specific goals are not met, adaptations or adjustments to projects are needed to ensure that environmental outcomes are achieved. When compliance monitoring efforts show that a mitigation project is not working, prompt efforts should be made to correct the problems so that the mitigation project begins to provide environmental functions and values. This could involve the mitigation agencies requiring additional planting, different plantings, re-grading of a site, weed control, and other measures to adjust to unanticipated site conditions or other circumstances that prevent projects from performing as intended. At the program level, lessons learned from tracking where adaptation or adjustment is needed should be incorporated into the planning of future mitigation projects by, for example, creating some additional

flexibility in the construction and monitoring sequence to allow for planting one year following grading once its evident that proper grades are established.

5.4. Dedicate sufficient human and financial resources to monitoring and adaptive management programs at all levels of government

This is critical. Ecology, for the first time, has dedicated staff and resources for compliance monitoring and enforcement for mitigation projects We understand that resources at all levels of government are limited and pulled in many, many directions. At the same time, it is foolish to rely on mitigation to protect and (ideally, over time) recover the ecological health of our watersheds, invest considerable sums of money building projects, and then fail to assess the outcome. The results of this are predictable and have been experienced time and again—failure of many projects and catastrophic failure of the mitigation system to achieve no net loss. Ecology should convene the state mitigation agencies, tribal governments, local governments, development agencies, developers, mitigation bankers, and other interested parties to develop a strategy to create sustainable resources for compliance monitoring and enforcement of mitigation projects. This should include exploration of opportunities for cooperative monitoring involving local, state, and federal agencies based on mutual aid or inter-local agreements, and of options for more third-party implementation of monitoring, ideally with a dedicated funding source. A sustainable resource strategy is needed both for compliance monitoring for projects that have gone through the mitigation sequence and obtained a permit (i.e., known projects) and for government enforcement actions for projects that failed to avoid or minimize impacts or mitigate (i.e., illegal projects/fills). Projects where efforts were not made to avoid, minimize or mitigate should become the highest priority for enforcement actions.

5.5. Support local governments with training and technical assistance

Local governments are the front line decision makers for most development projects and, therefore, are also in the front lines of decisions about avoidance, minimization and mitigation. The Forum cannot emphasize strongly enough that mitigation will not work unless local governments are involved in program and guidance development and are supported in implementation of their responsibilities. Ecology and CTED should engage in an open dialogue with local governments and with their advisors

and associations to understand what support would be most relevant and useful to them and should work diligently to bring that support about. Potential ways to support local governments include:

Comment [EDM2]: 9/26; placeholder for ideas from cities and counties.

5.6. Create a common understanding of what it takes to make mitigation work in the community of practitioners

The Forum discussed early in its deliberations that improving mitigation processes and outcomes has the potential to benefit regulatory agencies, local governments, development and business interests, and the environment. In that spirit, Ecology and CTED should continue to involve the broader mitigation community in implementation of the recommendations in this report and in ongoing program assessment and improvement. This should include development of joint outreach and training programs and a shared training curriculum between government agencies and environmental and business interests. Training should address watershed characterization, use of mitigation alternatives, and mitigation decision-making guidance to help develop a common understanding of mitigation practices and expectations among all parties.