IV. Core Elements

> HABITAT

Habitat is Key

CLEAN WATER FOR FISH: INTEGRATING KEY TOOLS

I. Current Situation: Where are we now?

Background

Many Washington waters are not clean enough to meet standards for water and sediment quality and are causing harm to salmon. Although municipal wastewater and industrial discharges require increasingly intense treatment under the Clean Water Act (CWA), many water bodies still fail to meet water quality standards. Some waters are degraded by nonpoint pollution from runoff that carries bacteria, toxins, and excess nutrients from many sources. (See Chapter I. Background: Setting the Context for further discussion of the sources of nonpoint pollution.)

Washington is currently launching two significant and parallel environmental initiatives: development of a statewide plan for salmon recovery and development of cleanup plans for polluted water bodies. The two initiatives are governed by separate federal acts, the Endangered Species Act (ESA) and the Clean Water Act (CWA), that have historically been powerful tools for change, with varying degrees of success. The two acts have seldom been applied concurrently to the same activity or issue, and then only to limited circumstances or geographic scope.

However, with the current listings of salmon, steelhead, and bull trout as threatened or endangered species in Washington State and the implementation of CWA requirements, there will be significant and continuing overlap in the application of these laws to the habitat (including uplands, riparian areas, and waters) upon which salmon depend for survival. Since water quality and habitat conditions are largely governed by human activities, it is imperative that the state and federal agencies administer these laws and develop the salmon recovery and water cleanup plans in a coordinated, consistent, and complementary fashion.

The federal Clean Water Act of 1972 requires the state to establish numeric standards for specific pollutants in water bodies, prepare a list of water bodies that do not meet water quality standards, and develop Water Cleanup Plan or Total Maximum Daily Loads (TMDL) for each of the polluted water bodies. The implementation of these requirements is very critical to protection and restoration of salmon habitats.

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Discussions have been held between the state and National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (USFWS), and the Environmental Protection Agency (EPA) to explore issues and options regarding the consistency and integration of requirements of CWA and ESA. Some duplication and apparent conflicts have been identified which, if unresolved, will complicate and hinder the success of both programs. To the extent practical and feasible, the state and federal agencies are committed to integrating ESA and CWA programs to offer agencies and landowners a predictable, practical and coordinated process to meet the objectives and requirements of both acts. Pilot TMDL and Habitat Conservation Plan (HCP) integration is being implemented as part of a proposed HCP by Simpson Timber Company. Also, the Forest and Fish agreement addresses CWA and ESA requirements. (See Chapter IV. A. 2. Forests and Fish)

Current Applicable Policies

Water Quality requirements are contained in the Clean Water Act and the state Water Pollution Control Act. They are administered at the state level by the Department of Ecology.

The Water Pollution Control Act sets the state's policy for clean water: to"... maintain the highest possible standards to insure the purity of all waters of the state consistent with public health and public enjoyment...the propagation and protection of wildlife, birds, game, fish and other aquatic life, and the industrial development of the state."

The CWA, passed in 1972, sets the national policy for clean water: to"... restore and maintain the chemical, physical, and biological integrity of the Nation's waters." To accomplish this, section 303(d) of the act specifically requires the states to:

- 1.) establish and periodically review and revise water quality standards;
- 2.) perform water quality assessments to identify waterbodies that are not meeting the standards, and to make lists of such waterbodies every two years; and
- 3.) develop cleanup plans ("total maximum daily loads", or TMDLs) for listed water bodies.

(1) Water Quality Standards

The state has had *Surface Water Quality Standards (Chapter 173-201A WAC)* to protect aquatic life and human health since 1975. The CWA also requires states to periodically review and update their water quality standards in order to comply with new or revised federal guidance, to incorporate new state programs, and to respond to new understandings of aquatic ecosystems and new scientific information. Such reviews must take place at least every three years, and are generally know as "triennial reviews".

The Department of Ecology has also developed and adopted *Sediment Management Standards (Chapter 173-204 WAC)* in order to identify, manage and cleanup contaminated sediments in marine waters. The sediment management standards have been incorporated into the state's surface water quality standards.

(2) Water Quality Assessments

The state did little in the way of conducting water quality assessments and developing cleanup plans until the late 1980s. Biennial water quality assessments have been conducted since at least 1988. Department of Ecology, the administering agency, has identified 666 polluted water bodies in 1996. While the list represents only about 2% of the state's waters, most major estuarine and river systems in the state are on the list, including those important for salmon. Although only 5% of the state's water bodies had sufficient data to be assessed, almost 50% of those assessed ended up on the list. [See figure 4.]

In June 1998 Ecology submitted a revised 1998 list of 636 polluted waterbodies to EPA. The new list has not yet been approved.

While the most common water quality criteria exceeding standards is bacteria, a human health concern, following close behind are temperature, toxics, dissolved oxygen and acidity (pH)—all critical for survival of salmon and other aquatic life. [See figure 5.]

(3) Water Cleanup Plans - TMDLs

What is a TMDL?

- A technically based, scientifically sound approach to address all sources of pollution in a watershed.
- A means to address cumulative affects of nonpoint sources and mixed point and nonpoint sources (e.g., Chehalis TMDL).
- Address all types of pollution (e.g., temperature, dissolved oxygen, toxics, etc.).
- Tailored to specific watershed situations (not one size fits all).
- Can adjust uses to be protected and standards to be met (under EPA guidance).
- Schedules establish expected milestones—targets to be reached.
- Effectiveness monitoring and adaptive management are cornerstones to ensure progress towards goals.

What is the process of developing TMDLs under the CWA?

- 1. Select the pollutant(s) for the TMDL.
- 2. Estimate the assimilative capacity of the waterbody to absorb the pollutant(s) and not exceed water quality standards, including a margin of safety.
- 3. Estimate pollutant loadings from all sources.
- 4. Use predictive analyses to determine the total allowable pollution loading.
- 5. Allocate the allowable pollution among the point and nonpoint source discharges so the water quality standards are achieved.
- 6. Develop an implementation strategy to achieve the desired loading and allocations, including reasonable assurance that the strategy will be achieved.

7. Develop a monitoring plan to measure progress and effectiveness.

In 1991 two environmental groups filed suit against the Department of Ecology (Ecology) and the Environmental Protection Agency (EPA) for allegedly not making satisfactory progress in required actions under section 303(d) of the CWA, including water quality assessments and development of water cleanup plans. Following several years of court skirmishes, the plaintiffs and the agencies negotiated a settlement agreement and consent decree that was filed in federal court in January 1998.

The primary outcome of the settlement was the establishment of a 15-year schedule for the state to develop TMDLs and begin implementing cleanup plans for each of the 666 waterbodies identified on the state's 1996 pollution list. The schedule is based on greatly increasing the pace of TMDL development, and devising more efficient ways of developing them. In addition, the state also agreed to develop implementation plans as a part of each cleanup plan. The implementation plans are to contain lists of pollution sources, control measures to be implemented, timeframes for the measures to be put into place and to meet water quality standards, and monitoring plans to measure performance and achievement of standards.

To date Ecology has developed, and EPA has approved, water cleanup plans covering 32 different water bodies. Many of these were developed in close coordination with local governments, or were largely based on their programs. One additional cleanup plan was developed by EPA for the state addressing Columbia River dioxins. This plan remains the only cleanup plan to have undergone consultation between EPA and the National Marine Fisheries Service (NMFS) under the Endangered Species Act, so there is little precedent for that process. Ecology currently has about 15 more water cleanup plans in various stages of development. The settlement agreement requires that cleanup plans be developed as appropriate for all water bodies listed as impaired.

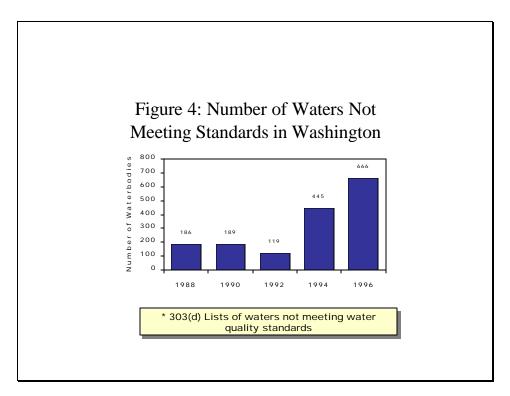
Examples of completed TMDLs that address fish-related issues:

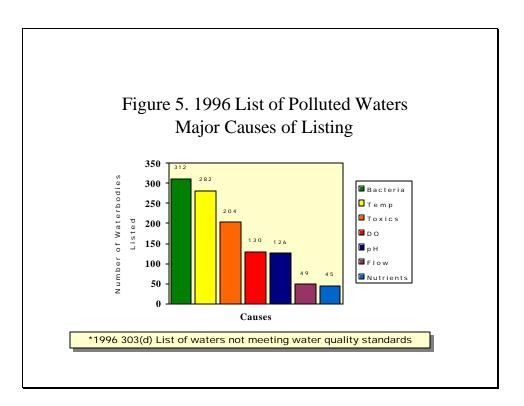
- Lower Yakima River TMDL: DDT, suspended sediments;
- Chehalis River Basin TMDL: dissolved oxygen, temperature;
- Green-Duwamish River TMDL: ammonia.

Common elements of these TMDLs:

- aquatic resources, especially fish, were severely affected by poor water quality;
- ESA listed or potentially listed fish in each watershed;
- water quality sampling and flow monitoring identified cause and extent of problems in each watershed;
- TMDL technical analysis and modeling identified existing pollution loading and established reduction targets to meet water quality standards;

- in two of the three, both point and nonpoint sources of pollution were involved, including combinations of agriculture, forestry, stormwater, and municipal and industrial discharges;
- implementation plans were developed in conjunction with other local and state planning efforts;
- pollution fixes will involve efforts by state, local, federal and tribal governments as well as local interests.





4) General and individual NPDES permits

The discharge of pollutants into the state's surface waters is regulated through NPDES permits. Ecology issues these permits under authority delegated by EPA. Permits typically place limits on the quantity and concentration of pollutants that may be discharged. In most cases the permits are issued for five years. Permits are required for (1) wastewater discharges to surface waters from industrial facilities or municipal sewage treatment plants, (2) stormwater discharges from industrial facilities and construction sites of five or more acres, and (3) stormwater discharges from municipal storm water systems that serve populations of 100,000 or more.

Permits are usually issued to individual permittees for a specific facility or a general single permit is issued to cover a group of dischargers that have similar discharges. General permits are available for fish hatcheries, dairies, gravel operations, aquatic herbicide application, stormwater from municipal, industrial, Washington State Department of Transportation (WSDOT) road construction and construction sites of five or more acres. Several of these permits expired and are in the process of being renewed.

5) CWA and ESA Integration Issues

The concurrent listings of salmon under the ESA and polluted water bodies under the CWA have shown the need for state agencies to collaborate and jointly address both issues. This makes sense to both agency regulators and landowners. There are both similarities and differences in the requirements of the ESA and CWA. Some broad policy issues must be addressed to effectively and efficiently move forward with consistent implementation of both Acts.

Both ESA and CWA call for the development of plans to restore and protect degraded resources, i.e., salmon and water quality. However, there are differences in the processes, content, and implementation requirements, as well as the degree of flexibility allowed under each program. Three specific areas are especially problematic: the extent of *regulatory certainty* for agencies and landowners where salmon restoration and water cleanup are both needed; the apparent differences in the *priorities and timetables* where actions are needed under both the ESA and CWA; and apparent differences in the *scientific standards* for approval of the actions.

Regulatory Certainty -- Agencies and landowners have limited time and resources to install, maintain and implement restoration and cleanup activities. There is a need for some assurance that implementing approved plans under the ESA and CWA will result in predictable outcomes over agreed upon timeframes.

Priorities and Timetables -- The CWA requires the state to prioritize water bodies not meeting water quality standards. Priority setting factors include the presence of endangered species, risks to human health, and others. The TMDL settlement agreement includes a 15-year timeframe for addressing all polluted waters. The state and local entities are also developing priorities for restoration projects for salmon recovery efforts. These priority setting processes and timelines must be integrated and must be acceptable under both the ESA and CWA.

Scientific Standards -- The state's water quality and sediment quality standards are based on criteria adopted to protect aquatic life (including salmon) and human health. Although some of these criteria are currently undergoing review and updating by the state, they have not previously been subject to consultation under the ESA. It is essential that the water quality criteria are approved by EPA and determined by NMFS and USFWS to be adequately protective of salmon. In addition, jointly adopted criteria must be established for the approval of cleanup plans for water quality and recovery plans for salmon, and for the future evaluation of their success.

II. Goal and Objectives: Where do we want to be?

Goal:

Restore and protect water quality to meet the needs of salmon.

Objectives:

- Revise and implement water quality standards to respond to aquatic ecosystem needs, especially for temperature, turbidity and dissolved oxygen.
- Implement Water Cleanup Plans for waterbodies in ESA listed areas first.
- Implement nonpoint source "best management practices" and nonpoint action plans.

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- Integrate Endangered Species Act and Clean Water Act programs by working cooperatively with federal agencies, especially EPA, NMFS, USFWS to:
 - Obtain or decide *regulatory certainty* for agencies and landowners under ESA and CWA.
 - Understand and agree on priorities and timetables under ESA and CWA.
 - Reconcile *science-based criteria* for defining required progress (for example, temperature standards applicable to water cleanup plans under the CWA will be reconciled with temperature criteria under the ESA).

III. Solutions: What is the route to success?

Ensuring cool and clean water for fish requires agreement on:

- A common set of performance measures (including water quality standards) to assess progress in achieving physical and biological integrity.
- A statewide package of adequate Best Management Practices (BMPs) for different land uses to address nonpoint pollution sources, such as the BMP agreed to in the Forest and Fish Report on riparian zone protection, road management and unstable slopes. The BMPs will vary but a package of BMPs will be agreed upon for different land uses. Watershed assessment tools (such as TFW watershed analysis and TMDL studies) will be agreed to as the means to tailor those BMPs for specific watersheds if necessary to address local conditions, cumulative effects and assimilative capacity.
- A practical approach to monitoring how well we are achieving agreed upon performance measures and a common and predictable adaptive management approach to gauge progress and make necessary adjustments.
- Specific timelines for adaptive management reviews of not less than 5 years or more than 50 years.
- A combination of regulation, voluntary actions, and funding that will provide us with an acceptable level of certainty (such as baseline forest practices rules, a schedule to complete and update watershed analysis and funding for adaptive management).

Water Quality Standards

The Department of Ecology will adopt revisions of the state's surface water quality standards and sediment management standards to ensure protection of salmonids. The state is currently in the latter stages of completing its latest review of water quality standards, and is proposing significant changes to the standards. These changes will primarily address the antidegradation policy and the application of "use-based" standards.

- The antidegradation policy currently included in the standards allows high quality water (i.e., water quality that is <u>better</u> than required under the standards) to be degraded only when necessary and in the public interest. Even then, all known, available and reasonable control, prevention and treatment technologies must be used prior to discharge of wastes. Some waters that constitute an outstanding natural resource may be set aside from any further degradation. The current proposal would establish mechanisms and procedures in the standards to implement these policies. Programs designed to attain or implement water quality standards, such as waste discharge permits or the forest practices rules, must also meet these provisions.

- The second major area proposed for revision is to change the structure of the water quality standards from the current "class-based" to a "use-based" structure. Currently, each water body is classified from class "AA" down to class "C". For each class, numeric criteria are assigned to protect all of the designated uses in that class. This system appears to underprotect some species needing very cold water (e.g., bull trout), yet over-protects naturally warm waters and man-made conveyances. No clear process exists for assigning classes or uses to water bodies.

The current proposal is to change to a use-based system, where individual uses with specific associated numeric criteria, are assigned to specific water bodies. This approach appears to provide the best long-term framework for the standards. It will provide more real-world choices than the current class system, and it will be easier to determine which criteria are appropriate for which water body. One outcome of the proposal is that new or revised numeric criteria are being developed for some designated uses, including some of the criteria for the protection of salmonids. Ecology is conducting case studies on several types of water bodies to test the proposed approach.

- The third area is the revision of the numeric and descriptive standards. Water temperature, the level of dissolved oxygen and acidity are critical factors for salmon spawning and rearing. Recent research performed by the National Marine Fisheries Service (NMFS) has also shown that juvenile salmon survival is significantly reduced in watersheds with high levels of toxics. That research has been corroborated by information collected by the Puget Sound Ambient Monitoring Program. The revision of the water quality standards will consider and will include new scientific information and understanding of the aquatic ecosystems.

The existing water quality standards also address contaminated sediments. Puget Sound and coastal estuaries are critical habitats for salmon, and sediments in many of these areas contain high levels of toxic contaminants. A wide range of adverse impacts on the health and survival of juvenile salmonids and other marine species are associated with exposure to contaminated sediments. There are numerous ongoing and planned activities that serve to prevent and/or reduce the potential for adverse impacts on the health and survival of juvenile salmonids migrating through areas with heavily contaminated sediments. However, current levels of toxic contaminants in sediments at many sites in Puget Sound and other marine waters exceed the sediment management standards. Consequently, many sites with contaminated sediments have been identified on the state's 303(d) list of impaired waterbodies. Ecology is currently updating the sediment management standards, and expects to have that work completed the end of 1999 or early 2000.

Water Cleanup Plans-TMDLs

As stated earlier Total Maximum Daily Loads (TMDLs) are essentially a calculation of the capacity of a water body to assimilate pollution without violating water quality standards, and an allocation of that capacity to various dischargers, including both point and nonpoint source activities. The allocations generally result in a need for reductions in discharges. In addition, implementation plans to achieve the reductions are required. These address timing and methods of pollution control to ensure reductions, implementation tracking, effectiveness monitoring and adaptive management.

TMDLs are generally based on watersheds. While the Clean Water Act (CWA) does not allow the Department of Ecology to delegate TMDL responsibility, the agency is free to develop partnership agreements with local governments and other agencies to define roles and expectations in the development and implementation of TMDLs. Such agreements would likely address the degree of participation by state and local agencies, as well as technical assistance and oversight considerations.

The Department of Ecology plans to develop the Water Cleanup plans in conjunction with other watershed planning efforts underway at state and local levels, including local watershed planning under the Watershed Management Act (ESHB 2514). The exact methods and procedures by which TMDLs will be related to the watershed plans prepared under the Watershed Management Act are not yet clear. The following issues need to be addressed:

- Reconciling and agreeing on the role of local watershed planning in developing and implementing water cleanup plans.
- Determining how strategies for attaining and protecting instream flows will be included in water cleanup plans.
- Determining the applicability and usefulness of existing regulatory programs.
- Funding to develop and implement the water cleanup plans, ensuring that water quality standards will be met and the settlement agreement will be honored.

The Department of Ecology is currently prioritizing waterbodies on the 303(d) list in four areas of the state for the next round of TMDL development. TMDL development for high priority waterbodies will be initiated in July 1999. It is expected that at least 10% of the required TMDLs will be developed through efforts by local planning units under the Watershed Management Act. Implement strategies to correct water pollution problems and meet water quality and sediment quality standards within acceptable timeframes.

The majority of the cleanup plans will address pollutants that adversely affect salmonids, including toxics as well as more common pollutants, such as elevated temperature and depleted oxygen. To implement the cleanup plans the state will rely primarily on existing regulatory and voluntary programs, such as waste discharge permits, programs for cleaning up contaminated sediments, programs to implement nonpoint source "best management practices", Forest and Fish agreement once adopted by the Forest Practices Board, and inspections and enforcement. Ecology will give priority to development of water cleanup plans that protect salmon.

Additional funding to implement the settlement agreement is needed and must be obtained through EPA grants and legislative appropriation. Ecology has developed a workload model to estimate costs and has drafted a budget request for increased funds. Ecology will continue to work with legislative committee members, their staffs and consultants, as well as other agencies and stakeholders, to identify and resolve program and funding concerns.

Clean Water Act/Endangered Species Act Integration

Why should we link clean water and salmon recovery?

Although the two federal acts were developed independently and for the most part have not been jointly administered, in this case there are several compelling reasons to link our clean water and salmon recovery efforts:

- Need to restore both the physical and biological integrity of our watersheds;
- Resources to be protected are inextricably linked;
- Common elements between basic programs (e.g., HCPs and TMDLs);
- Neither program alone can protect resources at a satisfactory level;
- Joint program reduces risk of future legal challenges that could jeopardize individual programs and decisions (i.e., increases "certainty");
- Federally mandated requirements for the state to accomplish both; and
- Clear desire among elected officials and public for "one stop shopping" versus repetitive and potentially conflicting or duplicative planning efforts.

These reasons compel us to have a clear and common description of the requirements to meet ESA and CWA goals and requirements. To accomplish that the focus will be on the following:

- Agency Cooperation

NMFS, USFWS and EPA all have key roles, responsibilities, and authorities. Integration of the two acts will require these agencies to share power and build trust. They need to work with the key players to identify common elements of the CWA and the ESA and the various implementing programs. The Departments of Ecology, Fish and Wildlife, and Natural Resources will continue discussions with NMFS, USFWS, EPA and tribes to

examine the issues, develop options and identify solutions for integration with the ESA and the CWA.

The Governor's Office will seek national agreement with the solutions reached regionally. Ecology and other state agencies will implement the agreements reached regarding ESA and CWA integration. Ecology will use increased resources to develop water cleanup plans in coordination with ESA requirements and in conformance with the settlement agreement. Existing water quality programs will be better focused and enhanced to implement cleanup plans and improve water quality needed by aquatic species.

- Certainty

A common definition of certainty is critical. Absolute certainty for landowners or government agencies is not possible under either ESA or CWA. The "no surprises" policy and Habitat Conservation Plans (HCP) have a common element of adaptive management. There is no reason a TMDL cannot have associated with it, these same elements of adaptive management and timelines of relative certainty.

Certainty can come in many forms. While the outcomes of adaptive management cannot be certain, the process can. Predictability can come with agreement on the goals and targets, initial measures to be implemented, the timeframes for implementation, the assumptions to be tested, what steps are needed to test them, how the results will be interpreted, who will be involved in the interpretation, and how the results will be used. These are the basic elements of adaptive management.

Certainty can also come in the timeframes for adaptive management. If we agree that a given assumption may take five years to test or a given outcome may take fifty years to achieve, we will trigger adaptive management for five year increments and significant predictability, and certainty can be achieved for up to fifty years.

Finally, certainty can come in knowing how the results of monitoring progress will be used. Performance monitoring (i.e., did you do what you said you would do?) may result in enforcement actions. Validation monitoring (i.e., were your assumptions correct?) may result in a change in a best management practice (BMP). Any changes in water quality standards will have similar results. Effectiveness monitoring (i.e., did you achieve expected outcomes?) may result in a review of all or most BMPs. Specific timelines for these actions also adds certainty. For example, a change in a BMP could result in a two to three year timeline to implement the BMP and changes in watershed analysis could be incorporated in the five-year cycle for updates.

When all the above has been completed for a specific watershed, larger geographic scale (landscape level), or statewide (such as forest practices rules) a TMDL and HCP can be approved for the time period designated in the adaptive management element. It is not

expected that <u>both</u> HCPs and TMDLs will or must be done in all watersheds, but where that is necessary or preferred, the capability to do so must exist.

- Implementation of the framework for integration

The integration framework has been tentatively affirmed with the Joint Natural Resources Cabinet, EPA, NMFS, and USFWS. Federal agencies are addressing the CWA/ESA integration issues and options in consultation with state and tribal governments and with input from interested parties. The state will seek endorsement, of the framework for integration, by leadership in the Clinton Administration. The state will implement the framework as part of the statewide salmon recovery and clean water strategies. Details can be worked out over time if the framework can be agreed upon now. Resolving these issues will result in significant gains in salmon recovery efforts. Failure to resolve them threatens both salmon recovery and clean water.

Alternatively, the state may decide on a path to force resolution of the issue. Our ability to move forward on commitments to do TMDLs is primarily tied to legislative policy and budget support. This in turn is tied to resolution of this ESA/CWA issue for forestry, agriculture, urban development, and salmon recovery in general and the need to offer agencies and landowners a predictable, practical and coordinated process to meet the needs of both laws. Priorities and timetables for both ESA and CWA will be synchronized, and any conflicts in procedures and technical criteria will be resolved.

Incentives and Enforcement

- The Department of Ecology and other state agencies will encourage voluntary actions to address water quality problems caused by waste discharges, riparian conditions and nonpoint source pollution. This encouragement will be through incentives such as technical assistance, grants and loans, and other means. These actions will be encouraged both prior to the development of water cleanup plans in order to stabilize water quality or as alternatives to formal water cleanup plans where appropriate, and as a means to implement such plans.
- The Department of Ecology will take immediate corrective and compliance actions where appropriate and practical to address water and sediment quality problems posing imminent threats to water quality prior to development of water cleanup plans. Targeted, rapid source control actions are more cost effective and efficient in some cases.

IV. Adaptive Management and Monitoring: Are we making progress?

The Department of Ecology along with other agencies will:

- Track progress toward implementation and resolution of the CWA and ESA integration issues.
- Continue to conduct ambient monitoring and perform water quality assessments every two years, using its own data and other available data, to determine compliance with water quality standards.
- Identify and implement opportunities for enhancements to existing water quality programs to improve and prevent degraded water quality.
- Annually track the development and completion of cleanup plans against the targets set in the settlement agreement.
- Conduct effectiveness monitoring to evaluate the success of cleanup plan implementation strategies in meeting water quality standards. If progress toward meeting water quality standards is inadequate, the implementation strategies will be evaluated and revised.

Default Actions

Should the state not develop the required water cleanup plans, the default is for the federal Environmental Protection Agency to develop and implement the required plans.

If the CWA/ESA integration issues are not satisfactorily resolved the state would likely lose support from various interests for completing the water cleanup plans and they would then be developed by the federal EPA. If satisfactory progress is not made, it is also likely that legal action would be pursued by the plaintiffs of the existing lawsuit and others in federal court.