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Puget Sound Estuary Program

Bellingham Bay Action Program:

1991 Action Plan

September 1991

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BELLINGHAM BAY ACTION PROGRAM: 1991 Action Plan

By

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Prepared for

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List of Acronyms and Abbreviations

AET	apparent effects threshold
BCS	Bellingham Cold Storage Company
BFF	Bellingham Frozen Foods, Inc.
BMP	best management practice
CCMP	comprehensive conservation and management plan
CCWF	Centennial Clean Water Fund
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
City Parks	City of Bellingham Parks and Recreation Department
City Planning	City of Bellingham Department of Planning and Economical Development
City Public Works	City of Bellingham Department of Public Works
COG	Whatcom County Council of Governments
Corps	U.S. Army Corps of Engineers
County Health	Whatcom County Health Department
County Planning	Whatcom County Planning Department
County Public Works	Whatcom County Department of Public Works
CSC	Concerned Southside Citizens
CSO	combined sewer overflow
CWA	Clean Water Act
DNR	Washington Department of Natural Resources
DOH	Washington Department of Health
DOT	Washington Department of Transportation
EAR	elevation above reference
Ecology	Washington Department of Ecology
EIS	environmental impact statement
EPA	U.S. Environmental Protection Agency
FERC	Federal Energy Regulatory Commission
FWS	U.S. Fish and Wildlife Service
Georgia-Pacific	Georgia-Pacific Corporation
GIS	geographic information system
HPA	hydraulic permit approval
HPAH	high molecular weight polycyclic aromatic hydrocarbon
LPAH	low molecular weight polycyclic aromatic hydrocarbon
MCI	Maritime Contractors, Inc.
MOA	Memorandum of Agreement
MTCA	Model Toxics Control Act
NEPA	National Environmental Policy Act

NPDES	National Pollutant Discharge Elimination System
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PIE	Public Involvement and Education
Port	Port of Bellingham
PSAMP	Puget Sound Ambient Monitoring Program
PSDDA	Puget Sound Dredged Disposal Analysis
PSEP	Puget Sound Estuary Program
PSWQA	Puget Sound Water Quality Authority
PSWQMP	Puget Sound Water Quality Management Plan
RCRA	Resource Conservation and Recovery Act
RCW	Revised Code of Washington
SARA	Superfund Amendments and Reauthorization Act of 1986
SCS	Soil Conservation Service
Sea Grant	Washington Sea Grant
SEPA	State Environmental Policy Act
State Parks	Washington State Parks and Recreation Commission
TSCA	Toxic Substances Control Act
WAC	Washington Administrative Code
WARM	Washington Ranking Method
WDF	Washington Department of Fisheries
WDW	Washington Department of Wildlife
WRRLC	Waste Reduction Recycling and Litter Control
WWTP	wastewater treatment plant

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The Bellingham Bay Action Program has benefitted from the participation of members of the Bellingham Bay Interagency and Citizen Work Group. Duties of the work group include 1) reviewing program documents, agency policies, and proposed actions; 2) providing data reports and other technical information to EPA; and 3) disseminating action program information to constituencies or interest groups. The past and continuing efforts of the interagency and citizen work group are greatly appreciated. Special thanks are extended to Dr. Fran Solomon, the former Bellingham Bay Action Program coordinator, and to Ms. Lucille Pebles, the current Bellingham Bay Action Program coordinator, for chairing the work group activities. Members of the Bellingham Bay Interagency and Citizen Work Group are listed below. Where two individuals are listed, the second individual is an alternate or new staff member.

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Executive Summary

Previous studies of Bellingham Bay have revealed widespread chemical contamination of sediment and marine organisms, bacterial contamination, and low levels of dissolved oxygen in the water in urban areas of the bay. Chemical contamination and low oxygen levels pose hazards to the aquatic ecosystem. Toxic contamination may decrease the abundance and diversity of benthic invertebrate organisms, increase the prevalence of tissue disorders such as liver tumors in fish, and result in the accumulation of chemicals in fish and shellfish. Chemical and bacterial contamination may pose human health risks when contaminated fish and shellfish are eaten. Chemical and bacterial contamination may also result in the closure of commercial and recreational shellfish harvesting areas.

The Washington Department of Ecology and the U.S. Environmental Protection Agency, working with the Washington Departments of Natural Resources, Fisheries, and Health; the Puget Sound Water Quality Authority; the City of Bellingham; the Port of Bellingham; Whatcom County; the Lummi and Nooksack tribes; and local industries and concerned citizens, developed the Bellingham Bay Action Plan to address water quality problems in Bellingham Bay.

Bellingham Bay has been the focus of studies since 1988 under the U.S. Environmental Protection Agency's Urban Bay Action Program. The Urban Bay Action Program 1) identifies priority problem areas of contamination; 2) identifies current, historical, and potential sources of contaminants; 3) establishes schedules to take corrective actions to eliminate existing problems and to investigate potential problems; and 4) identifies appropriate agencies and mechanisms for implementing corrective actions. Ongoing coordination among participating agencies and citizens will be provided by the Washington Department of Ecology, which funds a full-time coordinator for the Bellingham Bay Action Program. Authority for implementation of the 1991 Action Plan is derived from various federal, state, and local environmental regulations and is specified under the industrial and municipal discharge control element (P-13) in the Puget Sound Water Quality Management Plan.

In 1989, the U.S. Environmental Protection Agency analyzed all existing data on adverse biological effects, chemical and bacterial contamination, and eutrophication for Bellingham Bay. Eutrophication is the biochemical process that results in high levels of

nutrients and low levels of dissolved oxygen in water. In the *Bellingham Bay Action Program: Data Summaries and Problem Identification* report, the existing data were summarized and priority problem areas were identified. For example, areas received a high priority ranking for action if they exhibited particularly high levels of contamination or adverse biological effects such as high mortality rates of organisms in sediment toxicity tests. The regulatory and management efforts of the 1991 Action Plan focus on sources that are most directly related to priority problem areas.

Four problem areas for chemical contamination have been identified for Bellingham Bay. The four areas are the mouth of Whatcom Creek, the area near the Georgia-Pacific Corporation outfall discharge, the area immediately inshore of the terminus of the Post Point wastewater treatment plant outfall, and a small area off the Fairhaven shoreline. Another potential problem area has also been identified. This large area extends from the Squalicum Marina to the Whatcom Creek Waterway, along the eastern shoreline of Bellingham Bay, and then out into the central part of the bay. This potential problem area surrounds and includes the four smaller problem areas.

Actions to correct problems can include remedial (cleanup) activities such as source control and sediment cleanup activities. Controlling individual sources may be accomplished by increasing controls on existing permits, locating and investigating currently unpermitted discharges, and developing specific contaminant control techniques such as best management practices. Source control efforts include reducing concentrations or volumes of discharges to prevent further environmental problems. Sediment remedial actions, such as removal or capping of contaminated sediments, can correct existing environmental problems.

The action plan specifies a broad array of actions designed to improve the environmental quality of Bellingham Bay. These actions include the following:

- **Planning and Program Development Actions**—The Urban Bay Action Program, as outlined in the *1991 Action Plan*, integrates local planning activities, ensures consistency among the various environmental programs, and provides a mechanism for public review to ensure accountability for implementation of agency activities.

- **Pollution Control Actions**—The Whatcom County Health and Public Works departments will investigate onsite sewage disposal systems.
- **Remedial Actions**—The Washington Department of Ecology will conduct initial investigations of industrial and commercial facilities and waterways.
- **Sampling and Monitoring Actions**—The City of Bellingham Department of Public Works will expand its creek monitoring program to further characterize water quality in the city's creeks and streams and to determine the sources of contaminants.
- **Resource Protection Actions**—The Washington departments of Wildlife and Fisheries will assist in the protection of fisheries resources and wildlife habitat by reviewing permits for construction affecting state waters, including wetlands.
- **Educational Actions**—The City of Bellingham Parks and Recreation Department will provide interpretive displays for watersheds along trails adjacent to rivers, creeks, streams, and public waterfront areas.

The 1991 Action Plan is a working document that will be refined as new data are made available. An interagency urban bay action team, composed of technical and planning staff from local, state, tribal, and federal agencies, will meet four to six times per year to coordinate action plan implementation, review progress made on implementation, resolve any problems, and refine the plan to reflect new information and activities. A Citizen's Advisory Committee will meet four to six times per year to evaluate action plan implementation, determine appropriate citizen activities, and provide input to the action team. The Washington Department of Ecology's Action Program Coordinator has responsibility for the long-term coordination of the action plan and implementation of source control actions.

Introduction

In response to widespread concern over the environmental health of Puget Sound, several agencies with regulatory, resource management, and research responsibilities initiated the Puget Sound Estuary Program (PSEP) in 1985. The primary objectives of PSEP are to protect the sound and its living resources and to improve the condition of contaminated areas. As a primary element of PSEP, the Urban Bay Action Program was established to address the most severe contamination problems in Puget Sound, which occur in embayments near urban areas.

The Urban Bay Action Program focuses on identifying and reducing chemical and bacterial contamination and eutrophication through a series of coordinated actions by government agencies and responsible parties (e.g., owners and operators of the facilities that are sources of contamination). Contaminant control activities may include improving drainage or treatment systems for storm water and sewage, developing stricter permit conditions for wastewater dischargers, enforcing hazardous materials regulations, and initiating best management practices (BMPs) or cleanup measures at sites of concern. A guidance document, *The Urban Bay Action Program Approach: A Focused Toxics Control Strategy* (PTI 1990) describes the overall goals and specific actions of the Urban Bay Action Program in more detail.

Under the Urban Bay Action Program, Bellingham Bay was selected in October 1988 as a priority area for problem identification and corrective action planning. Bellingham Bay is an embayment in northern Puget Sound with the city of Bellingham located at its northeastern corner (see Figure 1). In August 1989, an initial data summary and problem identification report (PTI 1989a) was completed for Bellingham Bay. This report summarized data collected primarily from 1980 to 1989 and identified problem areas and known and potential contaminant sources. This 1991 Bellingham Bay Action Plan is based on the data summary report and on extensive discussions with federal and state resource and regulatory agencies, local industries, concerned citizens, city and county government agencies, and tribes that have responsibility for protecting the environmental quality of Bellingham Bay and Puget Sound as a whole.

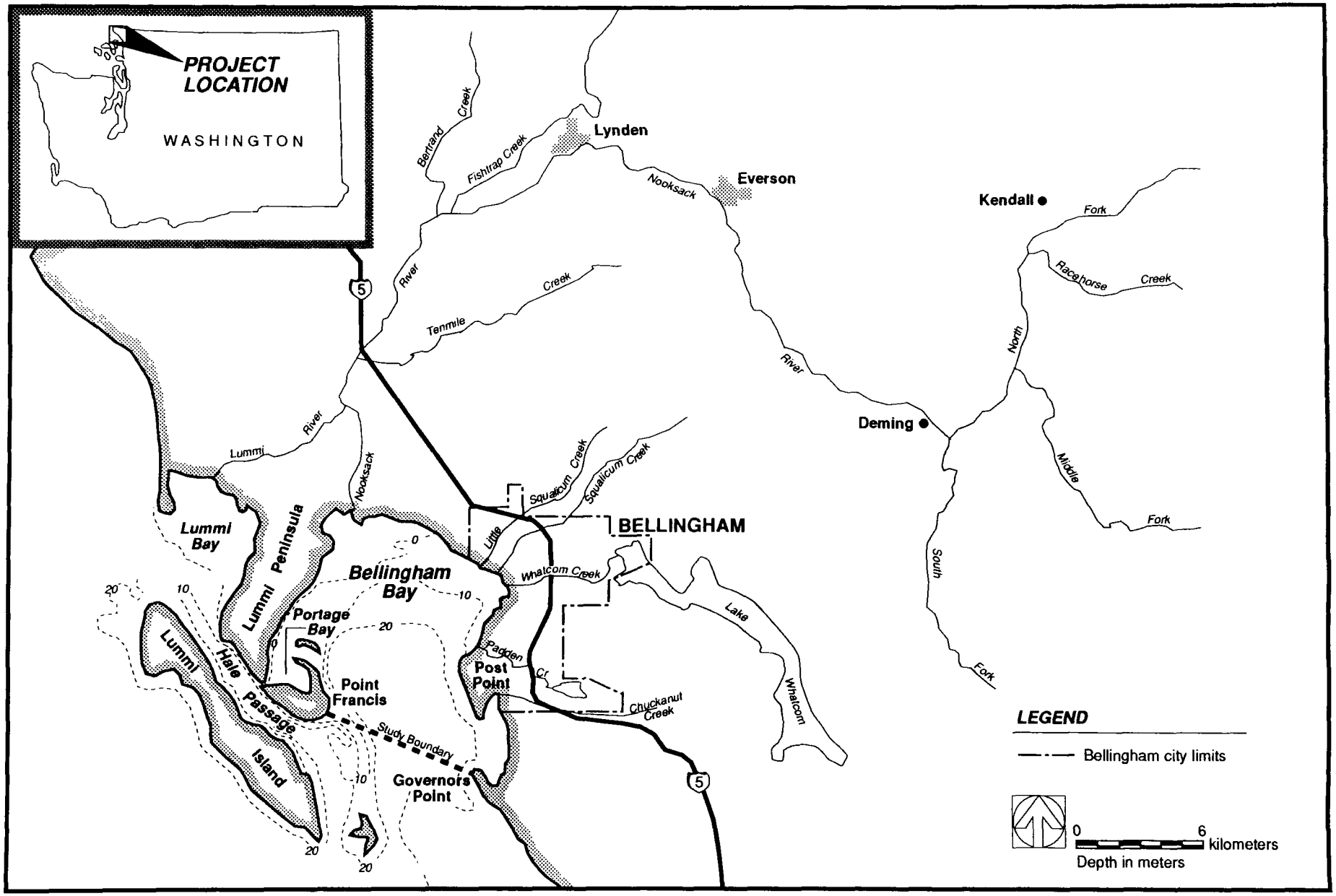

Figure 1. Bellingham Bay study area.

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This action plan describes the comprehensive plans and programs that address contaminant sources and problem areas on an areawide basis, and the individual corrective actions developed for specific sites and sources. Recommended corrective actions are described for each problem area and potential contaminant source. Problem areas and sources were identified by PTI (1989a) and participating agencies during the development of the action plan. For each problem area and associated contaminant sources, the action plan specifies 1) the first steps toward corrective actions, 2) the agencies responsible for implementing those actions, 3) targeted implementation schedules, and 4) any factors that may limit effective implementation of a given task. The remainder of this introduction provides a description of the Urban Bay Action Program and an overview of Bellingham Bay and its associated contamination problems.

Bellingham Bay Action Program

The Bellingham Bay Action Program was initiated by PSEP in October 1988. PSEP consists of the U.S. Environmental Protection Agency (EPA), the Washington Department of Ecology (Ecology), and the Puget Sound Water Quality Authority (PSWQA). Through a process of interagency coordination, local government support, and public participation, the Bellingham Bay Action Program has focused new and continuing efforts to control contaminant sources within the priority problem areas of the bay. The objectives of the action program are to:

- Identify specific areas of concern based on levels of chemical and bacterial contamination and eutrophication and associated adverse biological effects and impacts to natural resources
- Identify historical and ongoing sources of contamination and eutrophication
- Rank contaminated areas and sources to set priorities for development of corrective actions
- Implement corrective actions to reduce or eliminate sources of chemical and bacterial contamination and eutrophication and restore contaminated areas to support natural resources and beneficial uses.

The major decision points and program elements of the Bellingham Bay Action Program are presented in Figure 2.

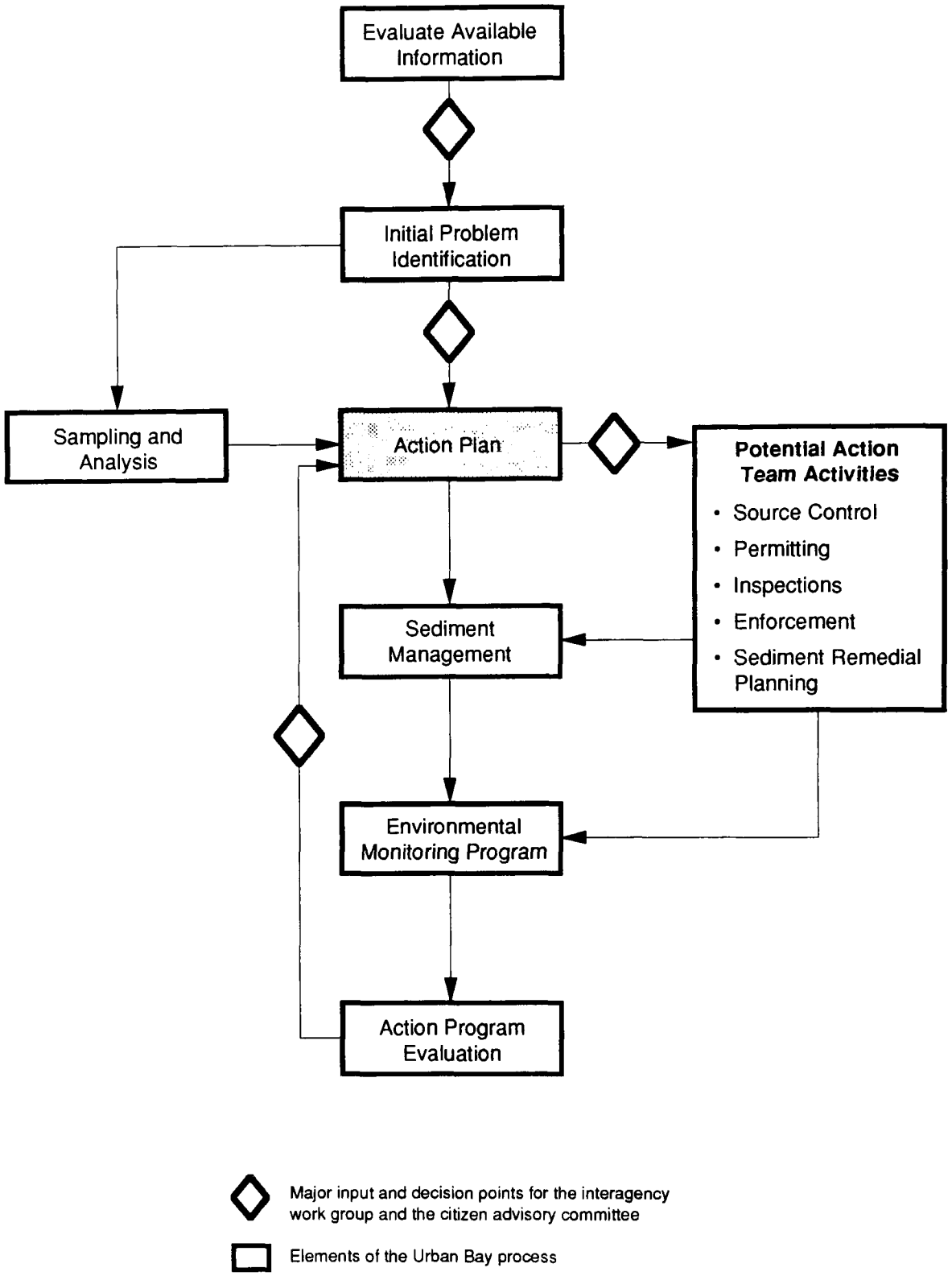

Figure 2. Decision points and elements of the Bellingham Bay Action Program.

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The Bellingham Bay Action Program has followed a process in which cooperative efforts by federal, tribal, state, and local officials; local industries; and concerned citizens have helped to define problem areas, focus environmental monitoring efforts, and plan and implement corrective actions. Coordination is fostered through an interagency and citizen work group. The work group is composed of representatives from federal, state, and local agencies; the Lummi and Nooksack tribes; local industry; and concerned citizens. The work group has been responsible for reviewing documents and providing input to the planning process.

Action Plan Development

The process for development of the 1991 Bellingham Bay Action Plan was completed in several stages. First, existing data on chemical and bacterial contamination and eutrophication were collected and analyzed to identify and prioritize problem areas (PTI 1989a). Next, individual meetings were held with each agency or group within the work group to determine their current or planned actions to improve water quality in Bellingham Bay. Following the meetings, a "contaminant-source action matrix" was developed and presented to the work group. The matrix presented the types of environmental problems and associated actions that agencies were implementing to address contamination problems. In addition, the matrix served to identify gaps in management programs, contaminant source control, and data collection efforts. Following presentation of the matrix, agency representatives were again consulted to cooperatively negotiate how each agency would commit resources to help implement additional preventative or corrective actions or gather information to fill data gaps. Ecology then sent letters to confirm agency commitments. These letters and agency replies constitute the administrative record for the Bellingham Bay Action Plan and are contained in Appendix A. A second work group meeting will be held to review and discuss the commitments of each agency and to further enhance interagency communication and coordination. The action plan will be continually reviewed as new data become available to refine the definition of environmental problem areas and contaminant sources, and as agency action agendas evolve.

This action plan focuses on contaminant source control to minimize inputs of contaminants and serves as a blueprint for source control activities, including field investigations and permit reviews. Other corrective actions may also be specified, including alternatives for cleaning up contaminated sediments and environmental monitoring to evaluate the success of source control. Examples of sediment cleanup activities include capping contaminated sediments with

uncontaminated materials or removing the contaminated sediments by dredging. Because these activities are most likely to be implemented only after significant source control (to minimize the probability of future recontamination and additional cleanup), sediment cleanup is likely to be a long-term rather than short-term component of the Bellingham Bay Action Program. Monitoring is also a long-term component of the action program. Existing monitoring programs will be coordinated and the data will be used to evaluate the effectiveness of source control and sediment remediation (see Figure 2).

Implementation of the Action Plan

In 1988, EPA formally designated Puget Sound as an estuary of national significance under the federal Clean Water Act (CWA). Section 320 of the CWA requires the development of a comprehensive conservation and management plan (CCMP) for each designated estuary. The 1991 Puget Sound Water Quality Management Plan (PSWQMP), developed by PSWQA, meets all the requirements of a CCMP. Development of the PSWQMP is conducted under Section 90.70 of the Revised Code of Washington (RCW). Element P-13 of the 1991 PSWQMP states that the "urban bay approach" is an essential part of a comprehensive strategy to control sources of toxic contamination. Implementation of the Bellingham Bay Action Plan and other urban bay action plans is part of the overall implementation of the PSWQMP.

Regulatory Authority

Ecology, EPA, and many other agencies have regulatory authority to implement specific elements of the 1991 action plan. This regulatory authority stems from discharge permit programs and inspection requirements under federal and state water quality regulations such as the CWA and the state Water Pollution Control Act. Additional authority is derived from hazardous substance control regulations, such as the federal Comprehensive Environmental Response, Compensation and Liability Act [CERCLA (also known as Superfund)] as reauthorized by the Superfund Amendments and Reauthorization Act of 1986 (SARA), federal Resource Conservation and Recovery Act (RCRA), federal Toxic Substances Control Act (TSCA), state Model Toxics Control Act (MTCA), county regulations for solid waste and hazardous waste, and health department regulations. Other important laws include the state combined sewer overflow (CSO) control regulation, the state Shoreline Management Act, the State Environmental Policy Act (SEPA), and the National Environmental Policy Act (NEPA). In addition, the Washington Aquatic Lands Act provides the Washington Depart-

ment of Natural Resources (DNR) with proprietary authority to manage the state's aquatic lands in trust for the public.

Under several of the above regulations, Ecology is responsible for issuing and revising wastewater and industrial waste discharge permits, conducting site inspections, and overseeing cleanup plans for contaminated sites. Ecology also has regulatory authority over storm drains that discharge to state waters.

Action Team Development

As part of the Bellingham Bay Action Program, Ecology will establish and lead an interagency action team to guide the implementation of the action plan. The Bellingham Bay Action Team is a subset of the interagency and citizen work group and will include technical staff from local, state, tribal, and federal agencies. Agencies represented may include the City of Bellingham Department of Public Works (City Public Works), the Whatcom County Department of Health (County Health), the Whatcom County Department of Public Works (County Public Works), the Washington Department of Health (DOH), the Lummi and Nooksack tribes, and EPA.

Local governments are key participants in following through on the activities of the action plan. City and county agencies responsible for source control and remedial activities include City Public Works, County Health, and County Public Works. These three agencies are responsible for a wide variety of activities crucial to the success of the action plan, such as controlling municipal and industrial wastewater effluent and storm water quality. Other agencies [e.g., the Port of Bellingham (Port) and DNR] and private companies are responsible for contaminant prevention and control relevant to the activities on their property. Ensuring that agencies and companies comply with environmental regulations is an important element of the action plan.

Enforcement

Ecology can ensure implementation of the action plan through legal enforcement procedures such as warning letters, notices of violation, penalties, and administrative orders. However, the preferred approach to implementing the action plan is to work cooperatively with all involved parties. Voluntary commitment to perform the actions in the action plan is the most efficient and cost-effective approach to reducing point and nonpoint contaminant sources impacting Bellingham Bay. Successful implementation of the action plan will require the cooperation of all parties within the Bellingham Bay watershed.

Funding

Successful implementation of the action plan also depends on adequate funding. The Washington State Legislature and U.S. Congress have passed major legislation designed to protect water resources. This legislation includes the federal CWA and the state Centennial Clean Water Fund (CCWF), the Aquatic Lands Enhancement Account, and the Coastal Zone Management Program. Various grants and low-interest loans are available through programs administered through the above-mentioned laws. (See Appendix B for a more thorough discussion of potential funding sources.)

Public Involvement

Public involvement in government decision-making is a critical component to the success of the action plan. The public is encouraged to comment on all actions that may affect water quality in Bellingham Bay. The major programs that relate to water quality include the Shoreline Management Act, SEPA, MTCA, the National Pollutant Discharge Elimination System (NPDES), and the Puget Sound Dredged Disposal Analysis (PSDDA). Public involvement processes for these programs are described in more detail in Appendix C.

Future Activities

After the action plan is finalized, the action team will meet four to six times per year to advise and assist in carrying out specific actions, solve any problems that arise, evaluate the effectiveness of the various implementation strategies, and maximize interagency coordination. It is anticipated that revisions and updates to the action plan will be produced every 4 years.

Ecology will continue to involve representatives from environmental, business, recreational, civic, educational, and neighborhood groups through the citizen advisory committee. This advisory committee will 1) identify public concerns and issues relevant to agency actions set forth in the action plan, 2) disseminate action plan information to members of organizations represented on the committee, 3) review work products and attend scoping meetings, and 4) help ensure that agencies perform the remedial actions or investigations for which they are responsible.

Coordination with Other Areawide Plans and Programs

Coordination of the Bellingham Bay Action Program with other planning and management programs is another component required for timely and effective implementation. The PSWQMP and the watershed management planning process are areawide programs that will be coordinated with the Bellingham Bay Action Program.

PSWQA oversees and coordinates the PSWQMP, which is implemented by state agencies, local governments, and other parties. Activities described in the areawide plans and programs of the action plan are consistent with the PSWQMP. Coordination of PSWQA-directed activities with the urban bay program occurs through the Bellingham Bay Interagency and Citizen Work Group meetings. PSWQA will actively participate as an interagency work group member through work group and action team meetings.

In addition to the PSWQMP, other local or subject-specific plans and programs that may have an impact on Bellingham Bay also require coordination with the Bellingham Bay Action Program. Activities associated with these other programs will be coordinated by the Bellingham Bay Action Program Coordinator and staff members of the various agencies involved. The Bellingham Bay Action Program Coordinator will attend relevant planning meetings and also review and comment on draft plans developed through these programs. In addition, some agencies will have representatives on the Bellingham Bay Action Team. (See the *Comprehensive Plans and Programs* section for a more detailed discussion of these plans and programs.)

Technical Approach for Identifying and Ranking Problem Areas

The Urban Bay Action Program relies on a "preponderance-of-evidence" approach to identify and rank contaminated problem areas and contaminant sources. Selected chemical, biological, and toxicological indices are used to compare conditions at contaminated sites with reference conditions in relatively uncontaminated embayments. The contaminated sites then receive a priority ranking. The rankings are used to determine the order in which problem areas will be evaluated for source control and possible remedial actions. Study areas that exhibit high values of contamination and adverse biological effects receive a ranking of *high priority*. The following types of environmental indicators are generally used to identify and rank problem areas (see also Figure 3):

- **Sediment Chemistry**
  - Concentrations of metals and organic compounds
  - Conventional sediment variables (e.g., grain size distribution, total organic carbon)
- **Bioaccumulation**
  - Chemical concentrations in clams and fish

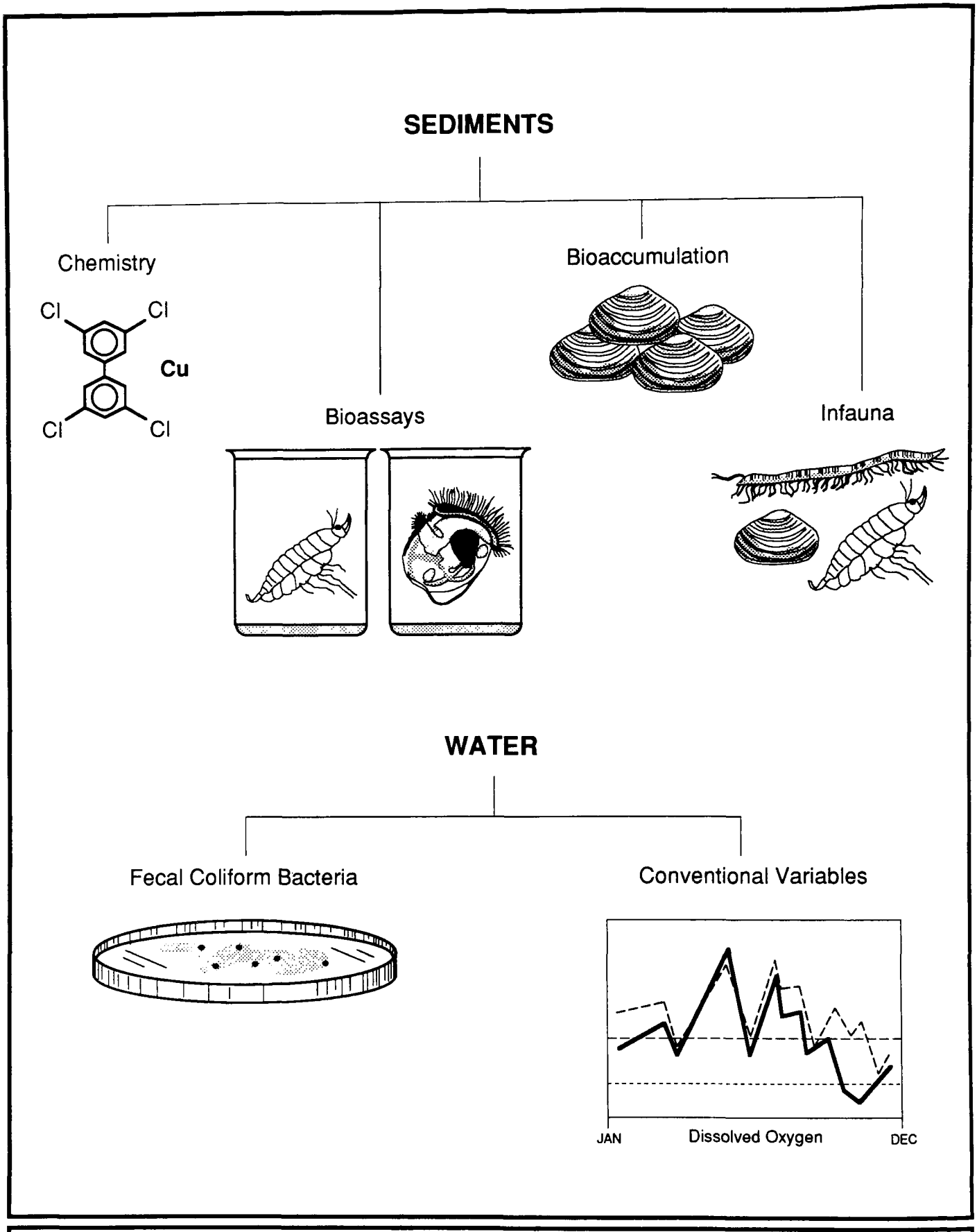

Figure 3. Environmental indicators used to define problem areas of sediment and water contamination and biological effects.

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- **Sediment Bioassays**
  - Amphipod mortality (10-day bioassay)
  - Oyster larvae abnormality (48-hour bioassay)
- **Benthic Infauna Abundance**
  - Polychaete abundance
  - Pelecypod abundance
  - Gastropod abundance
  - Crustacean abundance
- **Fish Histopathology**
  - Lesion (e.g., tumor) prevalence in livers, kidneys, and gills of English sole
- **Bacterial Measurements**
  - Fecal coliform bacteria in water and shellfish
- **Conventional Water Quality Variables**
  - Concentrations of dissolved oxygen
  - Concentrations of nutrients (i.e., nitrogen, phosphorus).

Each of the above indicators is used to assess different environmental impacts. Measurements of contaminant concentrations in sediments are used to characterize the degree of contamination and to trace contaminant sources. Measurements of contaminant concentrations in tissues of aquatic organisms are used to identify large-scale problem areas and potential human health risks. Sediment bioassays and counts of sediment-dwelling organisms are each valuable for characterizing effects of contamination at specific sampling locations. In characterizing large-scale problem areas, measurements of lesions in fish are useful. Synoptic measurements of sediment chemistry, bioassays, and benthic community analyses are often used together to characterize toxic problem areas in Puget Sound (Chapman et al. 1985; PTI and Tetra Tech 1988a,b). Bacterial measurements are used to assess microbial contamination of water and shellfish and potential human health risks. Measurements of conventional water quality variables are used to assess eutrophication.

Identification and prioritization of problem areas for Bellingham Bay included calculations of elevation above reference (EAR) values, and comparison of existing data with sediment quality

criteria [i.e., apparent effects threshold (AET)] and regulatory standards. EAR values are generated by dividing the measured value by a reference value that is representative of contaminant concentrations in nonurban areas. Puget Sound AET values were also used as sediment quality values to evaluate chemical data relative to predicted biological effects. AET values are chemical-specific sediment concentrations above which a particular adverse biological effect is predicted to occur with a statistical significance of $P \leq 0.05$ for a given data set. Because AET values are predictive, they are especially useful in interpreting historical data on sediment contaminant levels where biological data are not available. In the future, sediment management standards [Chapter 173-204 of the Washington Administrative Code (WAC)] recently adopted by Ecology will be used to determine areas of sediment contamination. Microbial and water quality parameters were evaluated and compared with established state and federal standards to rank problem areas for microbial contamination. Criteria that were used in determining problem and potential problem areas are presented in Table 1.

All of the available indicators of eutrophication, microbial contamination, and chemical contamination in sediments and biota were integrated to identify problem areas in Bellingham Bay. Because there were insufficient data on chemical contamination in the water column, bioaccumulation, and fish histopathology, these three types of indicators were not used to identify problem areas in Bellingham Bay. Other data gaps hindered identification of problem areas in some portions of the bay and prioritization of problem areas throughout the bay. For example, there was limited information concerning contaminant inputs from the Nooksack River and storm drains. Numerous indicators of contamination such as sediment concentrations of organic compounds, sediment toxicity, bioaccumulation, and fish pathology were lacking. Also, information about the geographic extent and biological effects of contamination was limited. As a result of these data gaps, problem ar in Bellingham Bay could not be ranked numerically, and thus w designated as problem areas or potential problem areas. Numeric ranking or prioritization of problem areas would be possible with more data. The results of the problem area identification are presented in the Description of Priority Problem Areas section.

TABLE 1. CRITERIA USED TO DEFINE PROBLEM AREAS

Classification	Condition Observed
Problem station for chemical contamination	Chemical[a] concentration >HAET[b] **or** amphipod mortality >50 percent or benthic depression[c] >95 percent
	Chemical concentration >LAET[b] **and** amphipod mortality is significant[d], but <50 percent
	Chemical concentration >LAET **and** benthic depression >80 percent, but <95 percent
Problem station for microbial contamination	Fecal coliform bacteria concentration greater than Washington Class A and B water quality standards (Class A standard = 14 organisms/100 mL, Class B standard = 100 organisms/100 mL)
	Fecal coliform bacteria concentration greater than U.S. Food and Drug Administration tissue standard concentration (230 organisms/100 grams tissue)
Problem station for eutrophication	Dissolved oxygen concentration less than Washington Class A water quality standard (6.0 mg/L)
Potential problem station for chemical contamination	Chemical concentration >LAET **or** amphipod mortality is significant, but <50 percent **or** benthic depression >80 percent, but <95 percent

[a] Any single metal or organic compound.

[b] HAET - highest apparent effects threshold for all Puget Sound indicators
LAET - lowest apparent effects threshold for all Puget Sound indicators.

[c] Any major taxon; abundance depression relative to value observed in reference area (i.e., abundance at impacted station <5 percent of abundance at reference station).

[d] Significantly different ($P \leq 0.05$) from mortality using reference area sediment.

Overview of Bellingham Bay and Associated Contamination Problems

This section describes the project area and summarizes information about the contamination and eutrophication problems in Bellingham Bay. Additional detail on these topics can be found in Bellingham Bay Action Program: Initial Data Summaries and Problem Identification (PTI 1989a).

General Description of Area

Bellingham Bay is a relatively large embayment located in the most northern part of Puget Sound, approximately 24 km south of the United States-Canada border (Figure 1). For the purposes of the urban bay program, the bay was defined by a line drawn from Point Frances to Governors Point, and includes Chuckanut Bay and Portage Bay. Bellingham Bay is approximately 12 km long and 8-9 km wide. Waters of the bay are, for the most part, less than 30 meters deep. A large delta is located in the northern part of the bay at the mouth of the Nooksack River. The delta extends approximately 2 km into the bay. The Nooksack River watershed is the largest source of fresh water [85 m^3 (~3,000 ft^3/sec)] and sediment (~650,000 m^3/yr) input to the bay, although additional drainage comes from seven other small watersheds. Bellingham Bay receives drainage from an area of 1,679 km^2.

Bellingham Bay is used for many activities requiring a high level of environmental quality, including commercial and recreational fishing, shellfish harvesting, aquaculture, boating, wildlife habitat, and water contact recreation (e.g., swimming). Commercially important anadromous fish resources in the study area include chinook, coho, pink, sockeye, and chum salmon; cutthroat and steelhead trout; Dolly Varden; and longfin smelt. Commercially important marine fishes in Bellingham Bay include Pacific herring, Pacific cod, various rockfish, lingcod, rock sole, English sole, and starry flounder. Shellfish species harvested in the bay include Dungeness crab; Pacific oysters; and native littleneck, Manila, horse, and butter clams. The total commercial catch of salmon, marine fish, and shellfish from Bellingham Bay in 1983 was approximately 3.1 million pounds, with a value of approximately $2.75 million. At least four species of marine mammals have been documented to exist in the vicinity of the bay including harbor seal, harbor porpoise, killer whale, and gray whale. Additional species that may occur in the bay on rare occasions include the California sea lion, northern sea lion, Dall's porpoise, and minke whale. Although Bellingham Bay is not used extensively by large popula-

tions of waterfowl, the bay does lie on the flight path between the Fraser River estuary and Skagit Bay and is used as a stopover point for waterfowl migrating between these two areas. These waterfowl include brant, snow geese, mallard, widgeon, green-winged teal, and pintail. Bellingham Bay is also used as an overwintering area for diving ducks such as scoter and golden eye. A variety of public and private recreational facilities such as marinas, boat ramps, and shoreline parks are located in the study area, primarily in inner Bellingham Bay.

Most of the urban and industrial activity in watersheds affecting Bellingham Bay is confined to the area near the city of Bellingham. The shoreline of the city of Bellingham has been influenced by extensive shoreline modifications (i.e., dredging and filling) to accommodate commercial and industrial uses. The area includes three federally maintained waterways: Squalicum Creek, I & J Street, and Whatcom Creek waterways. Intertidal areas presently occupy approximately 42 km^2 of Bellingham Bay. Approximately 1.4 km^2 of the original intertidal areas in inner Bellingham Bay have been filled.

As a result of urban and industrial influences, localized areas of Bellingham Bay are contaminated with bacteria and toxic chemicals. The bay may also be subject to eutrophication. Studies have shown that chemical and bacterial contamination and low oxygen levels in Bellingham Bay have resulted in stresses to the ecosystem and restrictions on beneficial uses.

As discussed in *Bellingham Bay Action Program: Initial Data Summaries and Problem Identification* (PTI 1989a), several studies on bioaccumulation and sediment toxicity, and surveys of macroinvertebrate assemblages have been conducted in Bellingham Bay. They were conducted throughout the study area identified in Figure 1, and the primary media sampled were sediment, shellfish, and macroinvertebrates. These studies and surveys do not provide a complete assessment of the bay because there are insufficient data regarding contaminant sources from the Nooksack River system and storm drains, organic compounds in sediment, sediment toxicity, bioaccumulation, and fish pathology. Recommended actions to collect additional data include 1) conduct vertical profiles of sediment contamination at selected locations in Bellingham Bay, 2) conduct sampling at additional stations near potential contaminant sources or in areas that have not been sampled previously (e.g., Squalicum Harbor marina, mouth of Nooksack River, nearshore and shallow areas), and 3) conduct sampling for a greater range of chemicals such as pesticides, dioxin, tributyltin, and compounds

characteristic of pulp mill discharges (e.g., alkylated phenols, guaiacol, and resin acids).

Chemical Contamination

Sediment in inner Bellingham Bay, near the cities of Bellingham and Fairhaven, exhibit significant chemical contamination. Based on information contained in *Bellingham Bay Action Program: Initial Data Summaries and Problem Identification* (PTI 1989a), levels of low molecular weight polycyclic aromatic hydrocarbons (LPAHs) and high molecular weight polycyclic aromatic hydrocarbons (HPAHs) in sediment were significantly elevated at all Bellingham Bay stations, mercury in sediment was elevated at 78 percent of the Bellingham Bay stations, and levels of several HPAH compounds were elevated above reference values by 100–139 times. Numerous stations exhibited significant contamination for polychlorinated biphenyls (PCBs) and metals such as lead, arsenic, and zinc. Based on the Puget Sound marine sediment cleanup screening levels identified in the state sediment management standards, numerous areas in Bellingham Bay may be considered as candidate areas for sediment cleanup activities.

Other measures of chemical contamination include bioaccumulation, sediment toxicity, and decreases in the numbers of benthic organisms. Past bioaccumulation information indicates that mercury contamination in species collected from Bellingham Bay is elevated above reference area levels and is widely distributed throughout the bay. Significant sediment toxicity was found at several stations, and decreases in the numbers of benthic organisms were noted at numerous stations.

Bacterial Contamination

Concentrations of fecal coliform bacteria, used as an indicator of other disease-causing organisms, have been found to exceed state water quality standards. In addition, freshwater creeks entering the bay are contaminated by fecal coliform bacteria. All freshwater stations evaluated and one shellfish sample exceeded state or federal standards for fecal coliform bacteria in water and shellfish tissue.

Eutrophication

Information on eutrophication in Bellingham Bay indicates that dissolved oxygen levels in several locations have fallen below state water quality standards (6.0 mg/L). Low dissolved oxygen concentrations cause physiological stress to organisms living at, near, or in the bottom of Bellingham Bay and may exacerbate stress from toxic contamination. In areas with extremely low dissolved oxygen concentrations, organisms can die due to anoxia.

Description of Priority Problem Areas

This section provides a description of the known problem areas associated with chemical and bacterial contamination and eutrophication and identifies potential sources of the contaminants.

Toxic chemicals are considered a problem if concentration levels significantly exceed contamination indices, such as EAR values or AETs. Contamination indices are generally described above in the *Technical Approach for Identifying and Ranking Problem Areas* section and in more detail in *Bellingham Bay Action Program: Initial Data Summaries and Problem Identification* (PTI 1989a). Microbial contamination is considered a problem if fecal coliform bacteria levels exceed state water quality and shellfish standards. Eutrophication is considered significant if dissolved oxygen levels fall below state dissolved oxygen standards.

Problem Contaminants and Station Locations

Based on the limited data available, polycyclic aromatic hydrocarbons (PAHs), PCBs, mercury, lead, silver, arsenic, zinc, copper, and fecal coliform bacteria have been identified as problem contaminants for Bellingham Bay. The 13 problem stations for chemical contamination, grouped in four problem areas, are shown in Figure 4. An additional 26 stations were identified as potential problem stations for chemical contamination (see Figures 4 and 5). Eleven stations were identified as problem areas for bacterial contamination (see Figures 4 and 5) and three stations were identified as problem stations for eutrophication (see Figure 5). Further source control and remedial action evaluations are strongly recommended in problem areas. More study is recommended in potential problem areas to define the extent and severity of existing problems.

Contaminant Sources

There are six major categories of point and nonpoint sources of contaminants to Bellingham Bay: wastewater treatment plants (WWTPs), CSOs, surface water runoff, industrial facilities, groundwater, and accidental spills. The cities of Bellingham, Ferndale, Lynden, and Everson all have WWTPs that have been issued NPDES permits for discharges to either Bellingham Bay or the Nooksack River. There is only one CSO in Bellingham (the "C" Street interceptor). Overflows from this CSO occur at an average rate of one overflow event per year. There are numerous sources of surface water runoff to Bellingham Bay including 11 storm drains that drain directly into the bay, 64 storm drains that drain to creeks, the Nooksack River watershed, and 8 other watersheds that drain directly to the bay. Additional private drains discharge storm water to Bellingham Bay from industrial facilities located in the city. There are 18 NPDES-permitted industrial

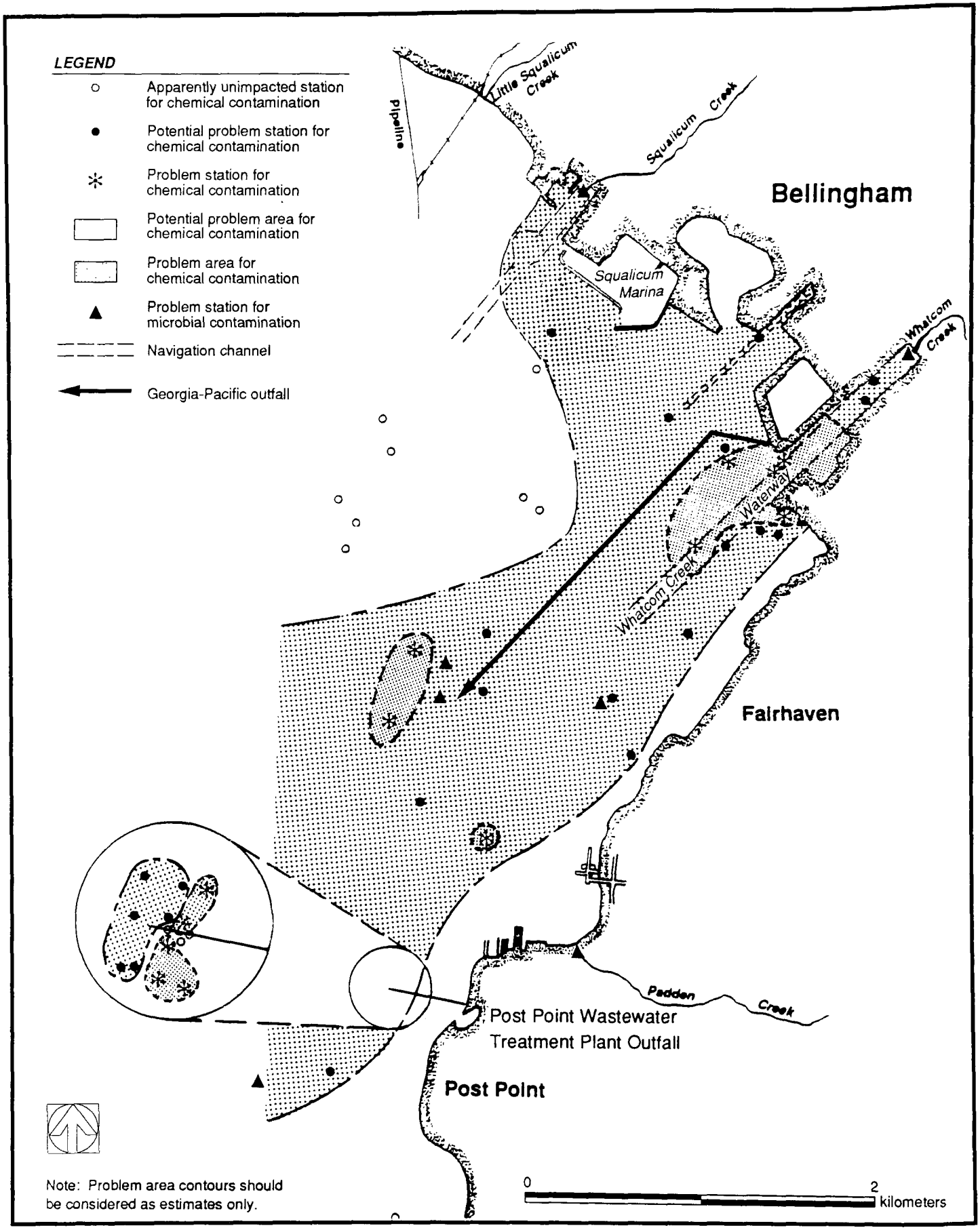

Figure 4. Classification of stations in inner Bellingham Bay according to action criteria.

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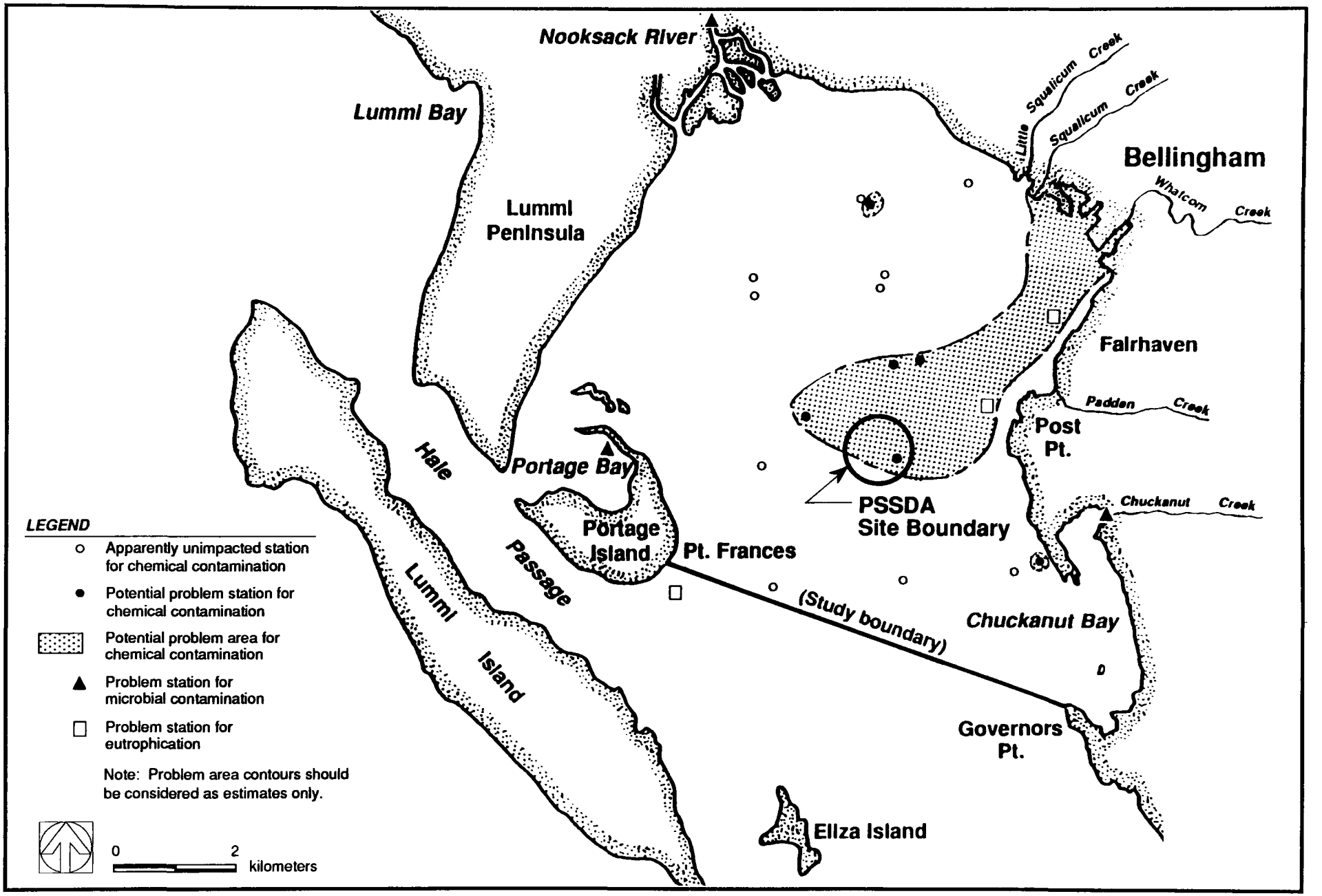

Figure 5. Classification of stations in outer Bellingham Bay according to action criteria.

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discharges: 9 that discharge to the Post Point WWTP and 9 that discharge to either the bay or streams that flow into the bay. Nonpoint sources of contamination to Bellingham Bay include landfills, commercial and recreational marinas, the Port dock facilities, and disposal sites for dredged material. Numerous spills from vessels and facilities into Bellingham Bay have been documented.

Other potential sources have been identified by the interagency and citizen work group. All known and potential point and nonpoint sources identified to date are shown in Figures 6 and 7 (see Table 2 on page 77 for additional discussion of these sources).

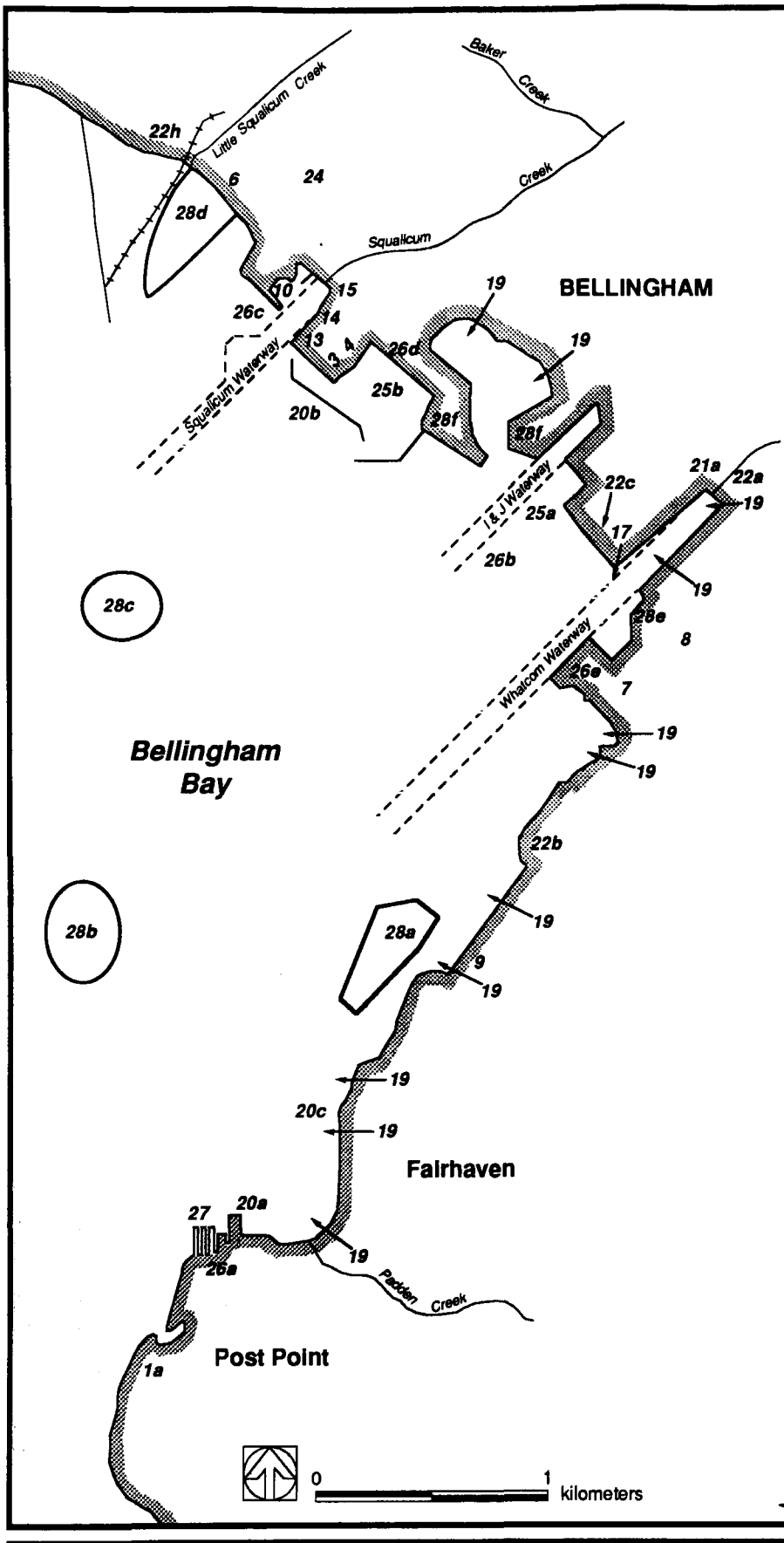
Areas of Chemical Contamination

Four problem areas for chemical contamination, made up of 13 problem stations, have been identified for Bellingham Bay. The four areas are: the mouth of Whatcom Creek, the area near the discharge from the Georgia-Pacific Corporation (Georgia-Pacific) outfall, the area immediately inshore of the terminus of the Post Point WWTP outfall, and a small area off the Fairhaven shoreline (Figure 4). Chemical concentrations, amphipod mortalities, or depressions in benthic abundance from these areas exceeded the problem area criteria presented in Table 1.

An additional 26 problem stations are grouped into one large potential problem area (Figure 5). This large potential problem area extends from the Squalicum Marina to the Whatcom Creek Waterway, along the eastern shoreline of Bellingham Bay, and out into the central part of the bay. This large area encompasses the four smaller identified problem areas. Chemical concentrations, amphipod mortalities, or depressions in benthic abundance from these areas exceeded the potential problem area criteria presented in Table 1.

Since the data summary report was completed in 1989, several other studies have been completed that evaluated baseline conditions, potential sources, and bioaccumulation levels in Bellingham Bay. These additional studies have been done to fill gaps in existing data. They have also been conducted as part of ongoing monitoring programs and to determine baseline conditions. The information from these studies has not been integrated with the indices used to determine problem areas.

An extensive baseline analysis of sediment chemistry, benthic infauna, bioassays, and bioaccumulation was done for the area near the Bellingham Bay PSDDA open-water dredged material disposal



LEGEND

NPDES PERMITTED SOURCES

1 **WASTEWATER TREATMENT PLANTS**
- a Post Point
- b City of Ferndale (Figure 7)
- c City of Lynden (Figure 7)
- d City of Everson (Figure 7)

2 **HATCHERIES**
- a Bellingham (Figure 7)
- b Nooksack River State (Figure 7)

3 Bellingham Cold Storage
4 Bellingham Frozen Foods
5 Brooks Manufacturing (Figure 7)
6 Columbia Cement Corporation
7 Dahl Fish Company, Inc.
8 Georgia-Pacific Corporation
9 Maritime Contactors Inc. (awaiting NPDES permit)
10 Mt. Baker Plywood, Inc.
11 The Oeser Company (Figure 7)
12 Public Utility District #1 of Whatcom County (Figure 7)
13 Schenk Seafood Sales
14 Sea-Pac Company, Inc.
15 Seawest Industries
16 Shukson Frozen Foods (Figure 7)

OTHER POINT SOURCES

17 "C" Street CSO

18 **EMERGENCY OVERFLOWS**
- a Edgewater (Figure 7)
- b Flynn Street (Figure 7)
- c Birch Street (Figure 7)

19 City of Bellingham storm sewer system

NONPOINT SOURCES

20 **SALMON NET PENS**
- a Alaska Ferry Terminal
- b Squalicum Harbor
- c Taylor Dock

21 **HATCHERIES**
- a Maritime Heritage Center
- b Skookum (Figure 7)

22 **LANDFILLS**
- a Whatcom County Courthouse vicinity
- b City of Bellingham
- c Shoreline vicinity
- d Lynden (Figure 7)
- e Cedarville
- f Airport Woodwaste (Figure 7)
- g Hilltop Farms
- h 1178 Marine Drive
- i Y-Road
- j Zell Road

23 Chuckanut Bay Residential Area (Figure 7)
24 Marine Drive (Birchwood vicinity)

25 **MARINAS**
- a Hilton Harbor
- b Squalicum Harbor

26 **PORT OF BELLINGHAM TERMINALS**
- a Fairhaven
- b Hilton
- c Parkway
- d Squalicum Harbor
- e Whatcom International Shipping

27 Alaska State Ferry Terminal

28 **DREDGED MATERIAL DISPOSAL SITES**
- a Site A
- b Site B
- c Site C
- d Site D
- e Site E
- f Site F
- g PSDDA Site (Figure 7)

← Stormdrains

Figure 6. Major contaminant sources in inner Bellingham Bay.

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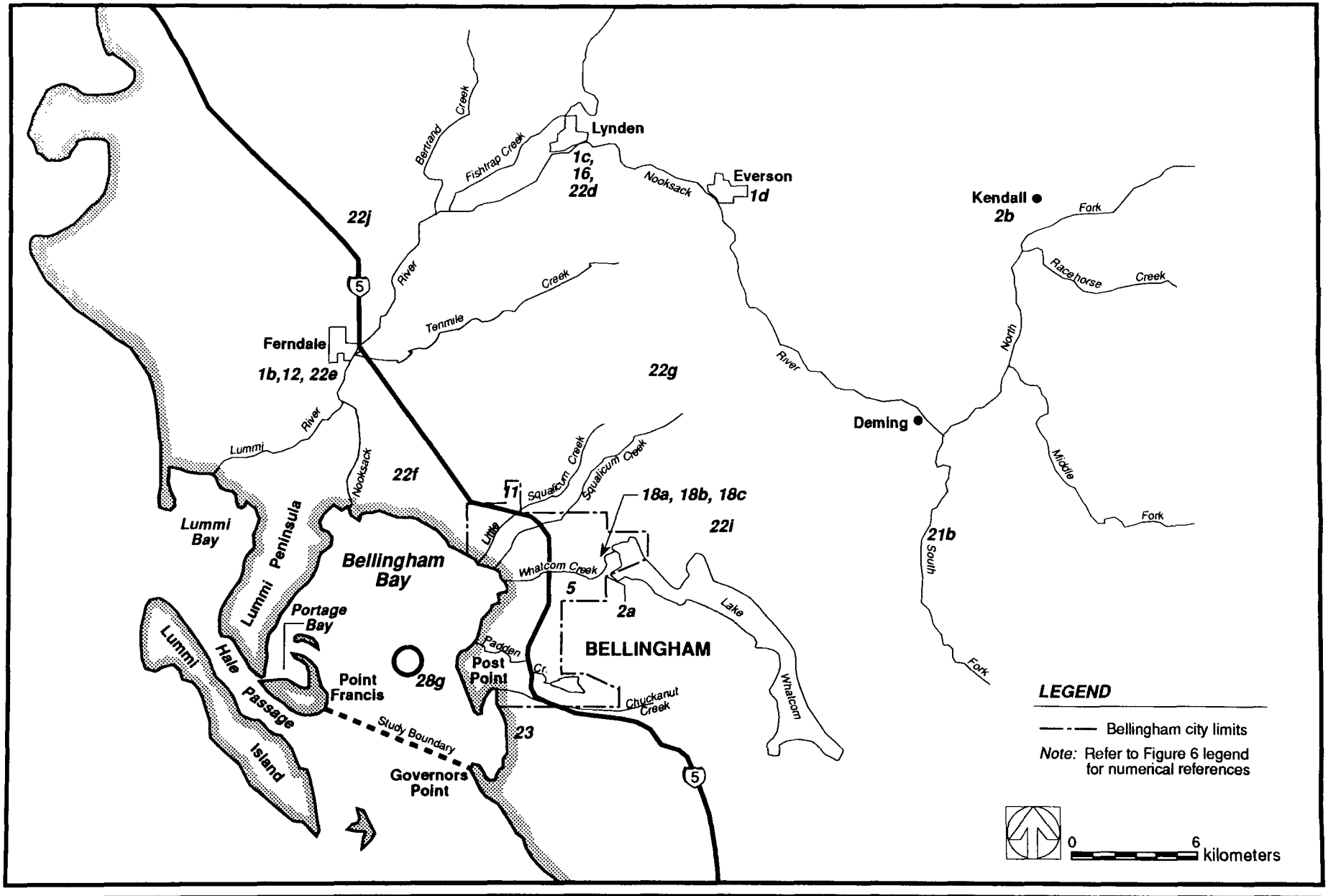

Figure 7. Major contaminant sources to Bellingham Bay.

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site in 1989 (PTI 1989b). The sediment chemistry levels for five stations exceeded PSDDA screening level criteria for mercury, one station exceeded the screening level criteria for mercury and 4-methylphenol, and one station exceeded the screening level criteria for mercury, phenol, and benzoic acid. Benthic infauna populations were not considered depressed and bioassay responses were close to responses to sediments from a reference area. While eight metals and three organic chemicals were found in bivalves from the disposal site area, none of the levels were above PSDDA tissue guidelines. The stations from the PSDDA baseline study with elevated chemical concentrations are mostly within the area previously identified as a potential problem area by the *Initial Data Summaries and Problem Identification* report (see Figure 5).

EPA recently completed the first phase of a study to trace contaminant sources from storm drains in Bellingham Bay [*Drainage Basin Source Tracing Study: Phase 1 Technical Memorandum* (PTI 1991)]. While data from the report have not yet been integrated with the data from the initial data summaries, the new data indicate that sediment from several storm drains have levels of chemical contamination that are associated with potential adverse biological effects in the marine environment. Based on biological effects criteria, stations BELL03, BELL08, BELL09, and BELL16 (Little Squalicum Creek) were designated as high priority for additional source tracing activities (Figure 8). These three storm drains and one creek had levels of sediment contamination that are associated with adverse biological effects in marine organisms. Stations BELL13 and BELL14 were both classified as medium priority for further source tracing due to the number and level of sediment contaminants and potential adverse effects on marine organisms. Phase 2 of this study is now underway to determine potential sources in the drainage basins associated with the six priority stations as well as one basin not evaluated as part of Phase 1 work (see EPA activities in the *Comprehensive Plans and Programs* section on page 27).

Additional data on sediment contamination and toxicity have been collected by the U.S. Army Corps of Engineers (Corps) to evaluate disposal options for sediment from Squalicum Creek, I & J Street, and Whatcom waterways (U.S. COE 1991). Six of 12 samples in Squalicum Creek Waterway, 4 of 18 samples in I & J Waterway, and all 3 samples in Whatcom Waterway failed PSDDA criteria for sediment disposal in a nondispersive disposal site. Sediments collected for PSDDA are collected from 4-foot sediment cores and may represent historically contaminated sediments that are buried beneath more recent, less contaminated surface sediment layers.

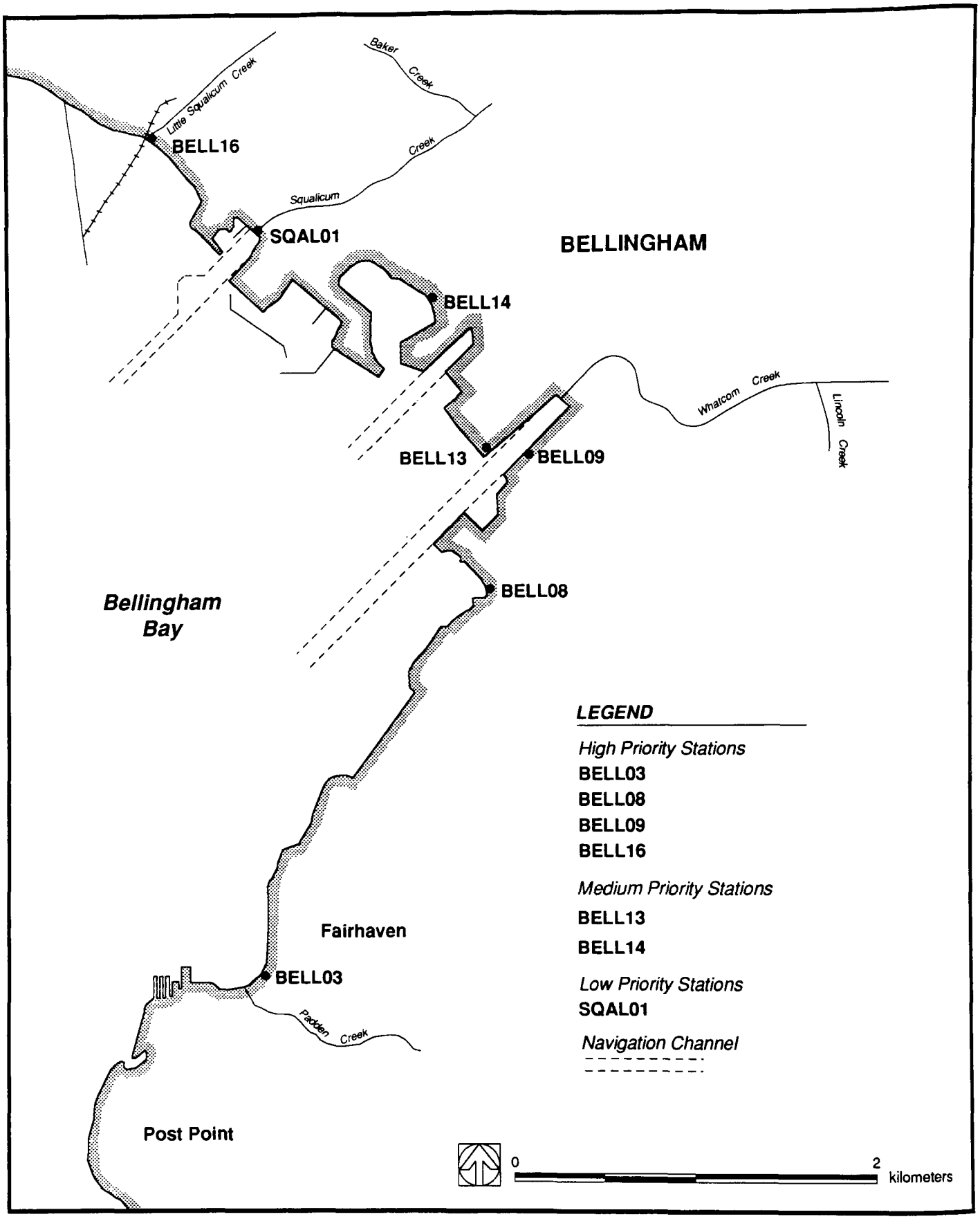

Figure 8. Priority storm drains and creeks for source tracing.

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However, high zinc levels were found in surface sediments of the Squalicum Waterway. The sediment chemistry data from these samples indicate that much of this area has sediment contamination levels significantly elevated above Puget Sound marine sediment cleanup screening levels (i.e., levels that indicate an area should be evaluated for cleanup).

Several bioaccumulation studies evaluating fish and shellfish contamination have recently been completed. A study evaluating bioaccumulation of contaminants in crabs and clams was conducted in 1990 by Ecology and DNR. The results of the study are presented in *Bioaccumulation of Contaminants in Crabs and Clams in Bellingham Bay* (Cubbage 1991). The study reveals that concentrations of metals in crabs and clams are near reference area levels. Mercury concentration levels in crabs collected near Whatcom Waterway are higher than background levels. Low levels of two pesticides, DDE and chlordane, and PAHs were also found in some samples. The concentrations of contaminants were low compared with areas of known sediment contamination and were equivalent to concentrations found at reference areas.

In 1989, DOH conducted sampling of English sole from Bellingham Bay under the Puget Sound Ambient Monitoring Program (PSAMP). While only a few metals and organic chemicals were evaluated, arsenic and copper were the only contaminants that were detected at concentrations higher than detection limits. Mercury data were rejected due to poor laboratory quality control.

In the spring of 1991, DOH conducted sampling of shellfish collected near the Post Point WWTP outfall, also in accordance with PSAMP. The samples were evaluated for metals and organic chemicals. Four organic chemicals were found above the detection limit. Benzoic acid was the most significantly elevated, with concentration levels between 360 and 700 μg/kg. The other three organic chemicals were found at relatively low concentrations.

Areas of Bacterial Contamination

Four marine water stations and five freshwater stations are classified as problem areas in Bellingham Bay due to microbial contamination (Figure 4). In addition, levels of fecal coliform bacteria were elevated in shellfish from three areas within Bellingham Bay. EAR values were calculated using the Class A marine water quality criterion of 14 organisms/100 mL, Class B marine water quality criterion of 100 organisms/100 mL, and the Class A freshwater quality standard of 100 organisms/100 mL. The criterion for evaluating shellfish tissue was 230 organisms/100 grams of tissue,

based on the U.S. Food and Drug Administration guideline. There is a lack of data on discharges of untreated wastewaters (e.g., via storm drains and surface runoff to Bellingham Bay). This data gap limits knowledge of the full extent of potential microbial contamination problems in Bellingham Bay.

Areas of Eutrophication

All three stations evaluated violated the dissolved oxygen standard for eutrophication (Figure 5). Problem stations for eutrophication were determined based on the Washington state water quality standard of 6.0 mg/L for Class A marine waters. The station near the Post Point WWTP had the highest number of violations, and concentrations lower than 5.0 mg/L were observed at a station near Post Point and near the former Starr Rock dredged material disposal site. Low dissolved oxygen levels in Bellingham Bay may be due to incoming seawater that is low in dissolved oxygen and high in nutrients (i.e., nitrate) (Rensel and PTI 1991). The lack of data on dissolved oxygen conditions in nearshore and shallow areas limits knowledge of the full geographic extent of potential eutrophication problems in Bellingham Bay.

Many planned or ongoing actions to control contaminant inputs and eutrophication to the project area are part of comprehensive programs or planning activities of federal, state, local, and tribal government agencies. The first part of this section provides a brief summary of these programs and the agencies involved. The second part of this section, which consists of Tables 2-8 (see pages 77-102), presents a detailed action plan for controlling contaminant discharges to problem areas and implementing other relevant actions.

Comprehensive Plans and Programs

Comprehensive plans and programs apply to a large portion of the project area (e.g., basin plans or the geographic area within a local government body's jurisdiction) or a category of sources or activities (e.g., storm water management programs or development of BMPs for an industrial category). The following programs and plans are described in terms of actions that can be taken to identify or control ongoing sources of contamination in the project area. The discussion is organized by the major implementing agency, local government body, and tribe.

U.S. Environmental Protection Agency

In conjunction with Ecology and PSWQA, EPA co-manages PSEP. EPA oversees state-delegated programs and ensures that federal minimum standards are attained. EPA also provides technical support to state and local agencies in the planning and development of environmental protection programs. EPA has initiated several technical studies in support of Urban Bay Action Programs in Puget Sound. These studies are listed in Appendix D.

Storm Water Management

In November 1990, EPA issued the final rule for permit application requirements for storm water discharges under the NPDES program of the federal CWA. Under this rule, EPA will regulate both individual industrial facilities that discharge storm water to storm sewer systems, and municipalities serving populations greater than 100,000 that have separate municipal storm sewer systems. Storm water discharges from municipalities with populations under

100,000 (including Bellingham) will be covered by rules that are expected to be issued by October 1992.

Under the storm water rule, facilities discharging storm water from industrial areas into storm sewer systems or state waters will be required to obtain NPDES permits from EPA or Ecology. Permits will be phased in using a four-tiered system. Under the first tier (the initial stage), general permits will be issued to cover many facilities at once. Specific permits will then be issued for watersheds, groups of industries, and individual facilities. For storm water discharges covered by the rule, industrial facilities must submit a permit application to Ecology within 1 year after promulgation of the rule (December 1991). There are three ways for a facility to become covered by a permit. A facility may apply for an individual facility-specific permit, apply as part of a group (or industry-wide permit), or submit a Notice of Intent to be covered by an agency-issued general permit. The first two methods (i.e., facility- and group-specific permits) are used if general or industry-specific permits have not yet been initiated by EPA and Ecology, or if the discharge(s) in question would not be adequately addressed by the more general permit.

These regulations are in addition to rules Ecology is preparing for minimum requirements for storm water management programs for Puget Sound (see *Washington Department of Ecology* on page 33). The cities of Bellingham, Ferndale, Lynden, and Everson and the surrounding unincorporated areas of Whatcom County will be affected by these storm water regulations and requirements.

EPA and Ecology are also conducting a drainage basin source tracing study (PTI 1991b). The focus of this study is to determine the location, characteristics, and sources of contaminants in the city of Bellingham storm drains and drainage basins that discharge to Bellingham Bay. This study is being accomplished in two phases. Phase 1, which has been completed, included sampling at or near the terminal point of drainage basins. This sampling was done to determine contaminant contributions from each major basin, identify potential problems, and help focus future sampling efforts. Contamination contributions of storm drains and creeks to Bellingham Bay were evaluated using chemical analyses of storm drain and stream sediments. Drainage basins were then ranked to determine which basins will receive further sampling, evaluation, and analysis. Phase 2 work includes determining drainage basin boundaries, identifying sources in seven basins, and producing maps. Completion of Phase 2 will occur in September 1991.

Permit Review

EPA reviews and comments on all significant permits for dredging and fill operations in navigable waters under Section 404 of the federal CWA and Section 10 of the Rivers and Harbors Act. While these two programs are implemented by the Corps, modifications suggested by EPA concerning environmental protection and wetland impacts may be included as requirements in the final permits.

Bioaccumulation

EPA has conducted a reconnaissance survey evaluating polychlorinated dibenzo-*p*-dioxin (dioxin) and polychlorinated dibenzofuran (furan) contamination in Puget Sound crabs (PTI 1991a). Crabs were collected from 12 locations in Puget Sound, including one station near the Georgia-Pacific outfall in Bellingham Bay. The results of a preliminary health assessment using data from one composite sample indicate that dioxin and furan levels in crabs from Bellingham Bay do not appear to be a health risk.

Lummi Tribe

The Lummi Tribe has usual and accustomed fishing areas in Bellingham Bay supported by treaty rights and manages several fish resource enhancement projects. The tribe reviews plans and permits for development projects that could affect the tribe's usual and accustomed fishing areas.

Watershed Management

The tribe actively participated in the development of watershed plans for the Silver Creek, Ten-Mile Creek, and Kamm Creek watersheds. These three creeks are lowland tributaries of the Nooksack River and were selected as early action watersheds by Ecology in June 1987. Early action watersheds are part of Element NP-1 of the PSWQMP.

The tribe obtained a CCWF grant from Ecology for implementation of one component of the Silver Creek Action Plan. The tribe completed, with assistance from the Nooksack Tribe, a stream rehabilitation project to restore stream vegetation and limit livestock access to streams. This project served as an example of stream rehabilitation techniques that can be used in many areas of the Nooksack River watershed. The tribe does not have the funds to conduct other stream restoration projects but is willing to review draft project plans, provide technical recommendations, and letters of support for work done by other groups and agencies.

Nonpoint Source Management

The tribe's Resource Protection Division routinely reviews all forest practice applications for areas within the Nooksack River basin.

Tribe personnel also conduct site visits and provide technical recommendations to foresters. The tribe's goal is to provide technical advice during the planning stage of a forestry or development project to prevent activities that will increase sediment loading to salmon spawning streams.

The tribe is also compiling an inventory of sources that cause sediment loading to streams for selected watersheds. The tribe will develop lists of corrective actions that can be implemented by land owners to reduce the input of sediment to streams. This effort is intended primarily to prevent sediment loading to salmon streams and the Nooksack River.

Resource Management - Salmonids

The tribe operates several salmon rearing ponds located approximately 1 mile upstream from the mouth of the Nooksack River on the Lummi Reservation. The ponds are used to rear chinook and chum salmon and steelhead. Fry (juvenile salmon) from tribal and state hatcheries are transferred to these ponds in the spring and released several months later. Warm water temperatures in the rearing ponds allow the fry to grow quickly which, in turn, results in higher return rates for adult salmon.

In 1990, the tribe constructed an artificial spawning channel on the north fork of the Nooksack River at Maple Falls. In 1991, the spawning channel produced over 34,000 chum fry. The estimated egg-to-fry survival was 21 percent. This spawning channel protects the fry from the impacts of sedimentation (e.g., mortality due to smothering and low dissolved oxygen levels). Increased sedimentation can also lead to stream instability and channel shifting. Channel shifting results in a scouring or smothering of fry located within the redd (i.e., nest).

The tribe also operates the Skookum Creek Hatchery that is located on the south fork of the Nooksack River. Salmon released from this facility migrate out of the Nooksack River and spend several months in the shallow margins of Bellingham Bay and nearby waters. The Skookum Hatchery produces about 2 million coho and 60,000 fall chinook annually, which represents about three-quarters of the total hatchery coho and one-third of the total hatchery chinook leaving the Nooksack River.

Resource Enhancement - Shellfish

Oyster and littleneck clam seed from the tribe's Lummi Bay Shellfish Hatchery are planted in the west side of Bellingham Bay on selected tideflats in Portage Bay. Future activities may include

habitat enhancement using gravel and predator exclusion nets to increase natural production.

The tribe has a CCWF grant to survey the shellfish resources in Whatcom County. This survey will identify shellfish resource areas and examine the relationship of fecal coliform bacteria contamination in shellfish to upland nonpoint sources of pollution.

Monitoring Activities

The tribe has sought funding from several federal sources to support water quality monitoring. Present funding levels allow only a limited amount of monitoring. High priorities are to determine sediment and nutrient loading in the Nooksack River and Bellingham Bay and to monitor incidents of algae blooms that occur in the late summer in the lower Nooksack River and Bellingham Bay. The tribe will also follow the harvest certification status of the tribe's shellfish beds and will attempt to determine the major sources of bacterial contamination.

Investigations and Studies

The tribe has completed a report entitled *Nooksack Delta Investigations* (Cochrane 1990) which evaluated the growth rate of the Nooksack delta. The measure of delta growth was based on the rate of sedimentation that occurred at one location on the outer margin of the delta. The rate of shoaling has increased by a factor of 4.7 for the period 1956–1990 when compared to the period 1888–1956 (i.e., 0.45 feet/year and 0.09 feet/year, respectively). The report concluded that increased sediment loading in the river has resulted in this accelerated growth and that poor forest practices are the major cause of increased sediment loading. The increased growth of the delta is impairing skiff navigation, degrading adjacent shellfish habitat, and reducing the depth of estuarine channels used by migrating salmon. Littleneck clam beds are at risk from the advancing delta. Markers placed near these beds will be used to monitor the advance of the delta. Corrective actions for sedimentation from past forest practices were recommended in the report as one strategy for reducing impacts to the clam beds.

Several ongoing investigations are being conducted to better understand the impacts of sedimentation on salmon and trout spawning, egg incubation, and juvenile salmon development. Corrective actions are being identified for specific areas in the upper Nooksack River watershed to reduce the effects of sedimentation within critical spawning areas. These actions include mitigation measures such as the creation of artificial spawning areas to improve the productive capacity of the watershed.

Nooksack Tribe

The Nooksack Tribe has usual and accustomed fishing rights in Bellingham Bay and manages several fish enhancement projects. The tribe studies aquaculture proposals and monitors environmental conditions throughout Whatcom County. The tribe also participates in the Nooksack Technical Spring Chinook Group.

Watershed Management

The tribe has participated in planning committees to develop watershed management plans for the Silver, Ten-Mile, and Kamm creeks. Stream restoration projects identified in the watershed management plans will soon be implemented.

Resource Management

The tribe operates a small hatchery on the Rutsatz slough and plants 300,000 chum eggs in Anderson Creek each year. The hatchery was damaged during the flooding of 1990 and rehabilitation work is currently in progress. The rehabilitated hatchery may rear steelhead fry and will include a spawning channel for chum salmon.

The tribe has participated in and completed numerous fish productivity and habitat enhancement projects along the Nooksack River and its tributaries including 1) construction of a spawning channel on the south fork of the Nooksack River near Skookum Creek for overwintering chum salmon, 2) removal of a section of falls from the middle fork of the Nooksack that serves as a barrier to fish passage, 3) construction of an acclimation pond for steelhead, 4) restoration of habitat on Racehorse Creek (along the north fork of the Nooksack River), 5) restoration of the portion of Silver Creek that runs just outside the city limits of Bellingham (in conjunction with the Lummi Tribe), 6) removal of a log and mud jam in Canyon Creek [in conjunction with the U.S. Fish and Wildlife Service (FWS)], and 7) rehabilitation of the artificial spawning channel in Hutchinson Creek. Fish productivity and habitat enhancement projects planned by the tribe include: 1) chum brood stock collection for eggs in the fall of 1991, 2) egg planting in the spawning channel in Hutchinson Creek in the fall of 1991, 3) removal of the fish barrier at Canyon Creek in the summer of 1992 to add 5 miles of prime fish habitat (in conjunction with FWS), and 4) removal of garbage from Anderson Creek in the summer of 1991.

In conjunction with the Nooksack Technical Spring Chinook Group, the tribe was the lead agency during the construction of an acclimation pond on the north fork of the Nooksack for spring chinook fry from the Kendall hatchery. The committee is planning to use Deadhorse Pond as an acclimation pond for spring chinook (and

possibly steelhead) in the spring of 1992 and may also enhance the spring chinook run in the south fork of the Nooksack River.

Monitoring Activities

Approximately every 2 months, the tribe monitors Cornell, Wells, Racehorse, Hutchinson, and Porter creeks for temperature, pH, dissolved oxygen, and scouring.

Washington Department of Ecology

In addition to the Bellingham Bay Action Program, Ecology has numerous ongoing programs and planning activities related to chemical and bacterial contamination and eutrophication in the project area.

National Pollutant Discharge Elimination System

EPA has delegated authority to Ecology to issue and enforce NPDES permits for nonfederal facilities. Ecology generally issues NPDES permits on a site-by-site basis, and a permit for one site may include more than one discharge or source of contaminants. Permits for municipal WWTPs authorize discharges throughout the plant's service area, including CSOs. Industrial permits may include a storm drain component for surface runoff as well as the wastewater discharge component. NPDES permits may require effluent limitations for toxic contaminants (concentration or total loading) and may include provisions for instituting BMPs to reduce nonpoint contaminant inputs. EPA's new NPDES regulations for storm water require property owners and tenants in certain industrial categories to submit data to Ecology regarding surface water runoff (see *U.S. Environmental Protection Agency* section).

Ecology currently maintains 16 NPDES discharge permits in the Bellingham Bay project area. These permits are for the cities of Bellingham, Ferndale, Lynden, and Everson WWTPs; Bellingham Cold Storage Company (BCS); Bellingham Frozen Foods, Inc. (BFF); Sea Pac Company, Inc.; Seawest Industries, Inc.; Schenk Seafood Sales, Inc.; Oeser Company; Brooks Manufacturing Company; Columbia Cement Corporation; Public Utility District No. 1 of Whatcom County; Bellingham Hatchery; Nooksack State Salmon Hatchery; and Georgia-Pacific.

Ecology will continue to conduct inspections and sampling efforts, issue permits, enforce NPDES regulations, and require the implementation of BMPs in the Bellingham Bay project area.

With the assistance of an advisory committee, Ecology is currently developing a general permit to address concentrated animal wastes. A draft permit will be issued for public review in the fall of 1991.

Watershed Planning for Nonpoint Source Pollution

Under the state nonpoint source pollution planning rule (Chapter 400-12 WAC), Ecology administers a grant program that enables local agencies to develop plans for controlling nonpoint source contamination on a watershed basis. CCWF is one of the financial resources available to local agencies under Ecology's grant program. This funding source is being used by the Conservation District to implement the Kamm and Ten-Mile creeks early action watershed plans and was used by the Whatcom County Council of Governments (COG) to develop the Silver Creek early action watershed plan.

Ecology is responsible for final approval of watershed plans developed under the nonpoint source pollution planning rule.

Monitoring

As part of its Ambient Monitoring Program, Ecology is currently monitoring one water quality station and two sediment quality stations in Bellingham Bay. The water quality station is located on the north side of Portage Island, approximately halfway between the southern tip of the Lummi Peninsula and the southern tip of Portage Island. This station is sampled monthly. One of the sediment stations is located 1.4 nautical miles northwest of Governor's Point and is sampled annually. The other sediment station is located approximately 1 mile east of the Nooksack delta, about 2 miles offshore. This station is sampled once every 3 years. Through this ambient monitoring effort, data have been collected on toxic contaminants in marine sediments and conventional constituents in the marine water column.

In addition to marine monitoring, Ecology's Ambient Monitoring Section monitors conventional parameters (e.g., nutrients and oxygen) at two stations in the Nooksack River. These stations are located at Brennan and at north Cedarville. The Brennan station is sampled annually; metals and total hardness are also monitored at this station. The Cedarville station is sampled once every 3 years.

Data collected through Ecology's Ambient Monitoring Program is provided to PSAMP, which is a comprehensive program to monitor environmental quality throughout Puget Sound.

Ecology's Environmental Investigations and Laboratory Services division has also been investigating the cause of recurrent coho salmon mortality at the Maritime Heritage Fish Hatchery on Whatcom Creek. Monitoring of the creek will occur during the first significant storm event in the fall of 1991 and will include metals and organic chemical analyses.

Storm Water Management

As part of the PSWQMP, Ecology's Water Quality Program Stormwater Unit is developing a basic storm water program that focuses on preventing increased storm water flows and contamination, and a comprehensive urban storm water program that focuses on controlling storm water quality and quantity. The basic storm water program will apply to all counties and cities in the Puget Sound watershed. The comprehensive urban storm water program will apply to the six largest cities (including Bellingham) and four other urbanized areas in the Puget Sound region by November 1991. By the year 2000, it will apply to all cities and urbanized areas of the Puget Sound region. In support of both the basic storm water program and the comprehensive urban storm water program, Ecology will issue rules, guidelines, and model ordinances for storm water management programs by November 1991.

Ecology will also produce a technical manual for use in storm water management planning. The manual will include BMPs for the control of erosion and sedimentation from construction sites, design operation and maintenance standards for public and private retention/detention facilities, and techniques for the reduction or elimination of contaminants in runoff from problem land uses. An interim review draft of the manual is currently under public review. The final manual will be released concurrently with Ecology's storm water rule.

In addition to requirements for municipal storm water programs, Ecology has worked with the Washington Department of Transportation (DOT) and other interested parties to draft an administrative rule that requires DOT to control the quality and quantity of highway runoff in the Puget Sound basin. The rule was adopted in May 1991 and became effective June 21, 1991.

Ecology is also currently developing guidance on the disposal of water and sediment derived from storm drain system maintenance (e.g., catch basins). With grants from PSEP and under Section 205(j) of the federal CWA, Ecology is collecting and analyzing sediment and discharge water associated with catch basins. The

information will be used to develop disposal and handling policies for drainage systems within Puget Sound.

Pretreatment

Ecology's Water Quality Division is responsible for writing state waste discharge permits for all industries that discharge wastewater to the city of Bellingham WWTP.

Combined Sewer Overflows

Ecology requires the development of CSO reduction plans when overflows exceed one per year. In 1987, the city of Bellingham submitted a CSO study to Ecology which documented that overflow events are limited to less than one per year. Therefore, Ecology does not require a CSO reduction plan from the city of Bellingham.

Toxics Bioaccumulation Study

Ecology's Environmental Investigations and Laboratory Services division has carried out a study requested by the Bellingham Bay Action Program to determine concentrations of selected metals and organic chemicals in Bellingham Bay shellfish, compare results to concentrations found elsewhere in Puget Sound, and determine potential public health risks. The Lummi Tribe and DNR collected samples in August and September of 1990. Crabs were collected from eight sites and clams were collected from four sites. Sites were chosen based on popular recreational harvesting locations and where little or no bioaccumulation data exist. Based on the final report (Cubbage 1991), concentrations of metals in Bellingham Bay crab and clam tissues were low and approximately the same as reference area levels. Pesticides and PCBs were not detected in either crab or clam tissues. PAHs were found at low levels in clam tissues.

Agricultural Enforcement

Under the Agricultural Compliance Memorandum of Agreement (MOA) between Ecology, the Washington Conservation Commission, and the Conservation District, Ecology refers farmers with water quality problems to the Conservation District. If a farmer fails to call on the Conservation District for help in developing a conservation plan or refuses to implement an approved conservation plan, Ecology may carry out enforcement activities based on water quality violations.

Shellfish Protection

Ecology's Shorelands Program Shellfish Unit is co-chairing, with DOH, an interagency committee that is producing a recreational shellfish plan for Puget Sound. A draft of the plan will be issued for public review in August 1991 and should be finalized by October

1991. The plan addresses the protection of shellfish resources and human health. The plan identifies 146 recreational beaches throughout Puget Sound and includes provisions for site-specific monitoring, public notification, public involvement and education, community outreach, and beach restoration actions at 40 of these beaches. Monitoring actions will be conducted by DOH and will include sampling shellfish for paralytic shellfish poisoning and fecal coliform bacteria, conducting water quality sampling for fecal coliform bacteria, and conducting general upland surveys to identify probable contaminant sources. Intensive source investigations and mitigation efforts would fall under the jurisdiction of the local health department. Responsibilities of Ecology's Shellfish Unit include 1) implementing public involvement and education actions, 2) administering grants for beach restoration and cleanup activities, and 3) coordinating with urban bay action teams on recreational shellfish issues.

Chuckanut Bay is currently classified as a "threatened" beach under the classification scenario presented in the draft recreational shellfish plan (see Washington Department of Health, *Human Health Risk Management* section).

Hazardous Waste Sites

Under MTCA, Ecology investigates hazardous waste sites and negotiates cleanup actions. As the first step in the investigation process, Ecology conducts a site hazard assessment to confirm the presence of hazardous substances and determine the relative risk the site poses to human health and the environment. Based on the information gathered in the site hazard assessment, the site is ranked by the Washington Ranking Method (WARM) relative to other sites in the state of Washington. The WARM ranking incorporates human health and environmental risks.

Sites with a WARM score of 1 or 2 usually receive first priority for cleanup through Ecology's Toxics Cleanup program. A site may be re-evaluated and receive a new rank if new information is received or additional risks are identified. Private parties may also initiate site cleanup.

Ecology has performed the following site hazard assessments in Whatcom County: Whatcom Creek Waterway, Boulevard Park, Little Squalicum Creek (near Oeser Cedar), Georgia-Pacific airport landfill, and Trans-Mountain's pipeline pump station on East Smith Road. These sites will be ranked in the fall of 1991.

Shoreline Development

Ecology's Shorelands Division is responsible for reviewing shoreline master programs for consistency with the state Shoreline Management Act. They are also responsible for reviewing shoreline permits. For shoreline master programs which are being modified, Ecology is strongly advising that marine sewage pumpout facilities be provided at marinas. Ecology also administers coastal zone management grants to enable local agencies to modify their shoreline master programs.

Sediment Standards Development

Ecology has been a lead agency or key participant in several efforts to develop tools for evaluating and managing contaminated sediments in Puget Sound. These efforts have included the Commencement Bay Superfund project, PSDDA, the Urban Bay Action Program, and the PSWQMP. Ecology has developed sediment quality standards, a process for managing sources of sediment contamination, a sediment cleanup decision process, and criteria for confined disposal of dredged material. In addition, guidelines for unconfined disposal of dredged material have been developed under PSDDA. These sediment standards and guidelines affect sediment remedial actions, wastewater discharges, and dredging operations in Bellingham Bay.

Education

Ecology is involved in a variety of educational activities regarding MTCA and waste reduction and recycling. Activities focus on the general public, industry, and small businesses and include the distribution of MTCA public awareness grants, other public education grants, and brochures and educational posters published by each program within Ecology.

The Bellingham Bay Action Program Coordinator is available for educational presentations on the status of water quality in Bellingham Bay, in addition to programs on what citizens can do to improve water quality. Ecology staff are also available for educational presentations on such topics as the MTCA, Sediment Management Standards, and storm water management rules.

Ecology's Waste Reduction Recycling and Litter Control (WRRLC) program will be holding "Away-with-Waste" workshops in Whatcom County during the 1991- 1992 school year. These workshops will educate teachers on how to use the "Away-with-Waste" primary and secondary school curriculum, which focuses on waste reduction and recycling. Staff from Ecology's WRRLC program are available for educational presentations and workshops concerning waste reduction and recycling efforts in business and industry.

The WRRLC program has also funded, and will continue to fund, a wide variety of waste reduction and recycling educational activities in Whatcom County.

Enforcement and Complaint Response

Staff members from Ecology's Northwest Regional Office in Bellevue respond to water quality complaints and work with violators of the state water pollution laws to address water quality problems. Ecology actions include site visits, correspondence, education, notices of violation, administrative orders, penalties, and other enforcement actions.

North Puget Sound National Marine Sanctuary

Ecology, in conjunction with the National Oceanic and Atmospheric Administration, is investigating the possibility of designating north Puget Sound as a national marine sanctuary. This designation would ensure comprehensive management and protection of north Puget Sound's resources and beneficial uses including recreational, ecological, and historical qualities.

Washington Department of Fisheries

The Washington Department of Fisheries (WDF) is primarily responsible for maintaining and enhancing fish resources for commercial and recreational use and enhancing public access to fishing areas.

Storm Water Management

WDF addresses storm water management issues pertaining to development projects through the Hydraulic Project Approval (HPA) permit process and the SEPA review process. WDF has developed standard storm water guidelines that apply to developments that require an HPA permit or involve more than 5,000 square feet of impervious surface. An HPA permit is required if any part of a storm water facility involves work below the ordinary high water line of the waters of the state. Under the storm water guidelines, storm water should be metered into streams at near the predevelopment rate to maintain streambank and streambed stability. In addition, pollutants in storm water should be treated using BMPs to protect marine and freshwater aquatic life.

Nonpoint Source Management

WDF, using the services of the Washington Conservation Corps, has installed cattle crossings and fences along many streams adjacent to agricultural areas. WDF also strongly encourages HPA applicants to install fencing to prevent livestock access.

Resource Management

WDF reviews and comments on SEPA and NEPA documents and NPDES permits as they pertain to fish habitat. WDF is the lead agency for HPAs in areas with anadromous fish runs. HPAs are required for any construction activities in fresh and marine waters under the Hydraulic Code Rules (Chapter 220-110 WAC). WDF is particularly concerned about development activities near herring and surf smelt spawning areas, nearshore juvenile salmonid habitat, and salmon spawning streams. WDF will review all proposals on a case-by-case basis to adequately protect these sensitive resources.

WDF operates two hatcheries, one on the Nooksack River and one on Whatcom Creek. Both the Nooksack River hatchery and the Whatcom Creek hatchery raise chum, chinook, and coho salmon. The Whatcom Creek hatchery is operated in cooperation with the Maritime Heritage Center, a nonprofit organization. The coho salmon raised at the Whatcom Creek hatchery suffer high mortality nearly every year. The suspected cause of this mortality is poor water quality (e.g., toxic contaminants) in Whatcom Creek.

WDF, in conjunction with several tribes, local agencies, and local interest groups, places and operates salmon net-pens for raising salmon in Bellingham Bay. Currently, salmon net-pens are located at the Taylor Dock, in Squalicum Harbor, and at the Alaska Ferry terminal in Fairhaven. The Taylor Dock and Squalicum Harbor pens were established in 1990, and the Alaska Ferry terminal pens were established in 1989. WDF issues HPAs, evaluates site-specific physical and biological data for compliance with recommended siting guidelines, and co-manages the pens once they have been established. Net-pens producing 20,000 or more pounds of fish (i.e., approximately 250,000 fish) per year must have an NPDES permit. Currently, the net-pens located in Bellingham Bay are producing less than 20,000 pounds of fish per year.

The Taylor Dock net-pen operation consists of four pens and is cooperatively managed by the Bellingham Samish Bay Enhancement Advisory Committee and WDF. A physical and biological survey of the site was conducted under direction of WDF in August 1990. The site will be surveyed again during the fifth year of operation and prior to renewal of the HPA in 1996. The Squalicum Harbor net-pen operation consists of one pen and is cooperatively managed by the Bellingham Heritage Center, the Bellingham Sam- Enhancement Advisory, and WDF. The Alaska Ferry net tion currently consists of only one pen, and future ain. This pen is cooperatively managed by the Bay Enhancement Advisory and WDF. Continue of both the Squalicum Harbor and Alaska Ferry

net pens are contingent on the findings of a WDF monitoring program that targets a representative sample of net pen operations in Puget Sound similar in size and function to these two net-pen operations.

Several salmon fisheries exist in Bellingham Bay at various times throughout the year: fall chinook are caught from late July to mid-September, coho are caught from mid-September to mid-November, chum are caught from early November to mid-December, and steelhead are caught from mid-December to January. In odd years, pink salmon are caught in July. WDF monitors salmon stocks by comparing annual run size estimates for each stock and species. A run size estimate for a particular species and stock includes an estimate of the total adult fish caught by coast-wide commercial fisheries, coast-wide sport fisheries, and spawning escapement (i.e., those fish allowed to escape capture to spawn). Coded wire tags and spawning ground surveys currently provide the basis for run size estimates, though other methods are being explored in an effort to refine these estimates. Bellingham Bay is also used as a major nursery and overwintering area for herring, although no herring roe fishery (i.e., collection of herring eggs on kelp) exists in the bay. Pacific cod are caught by commercial fishers from December to March. Smelt are caught by recreational fishers in February and March in Squalicum Harbor. English sole and Bellingham Bay sole (a race of English sole) are caught throughout the year.

There are also commercial and recreational fisheries for Dungeness crab in Bellingham Bay. Approximately 100,000–150,000 pounds of Dungeness crab are caught commercially and 50,000–75,000 pounds are harvested recreationally each year. WDF monitors the stock size and harvest and also reviews projects (e.g., permits under SEPA and the federal CWA) that may impact the crab resource.

Although there is currently no commercial shellfish harvesting other than crabs in Bellingham Bay, the Lummi Tribe harvests large quantities of clams from Chuckanut Bay.

Wetlands Protection

WDF has been directed by the Governor's Executive Order on Wetlands (signed April 21, 1990) to protect fish life by assuring protection for the value and function of wetlands by adding conditions to or denying HPAs to the fullest extent of WDF's authority. To add conditions to or deny an HPA that will impact a wetland, WDF must show that the wetland has a positive impact on fish life. To protect fish life, WDF implements a policy of no-net loss of

habitat. Where applicable and as directed by Section 12 of the Governor's Executive Order on Wetlands, WDF will implement the following mitigation priorities:

- Avoid wetland impacts
- Minimize wetland impacts
- Rectify impacts by repairing, rehabilitating, or restoring wetlands
- Reduce impacts by preservation and maintenance of wetlands
- Compensate for impacts by replacing, enhancing, or substituting wetlands
- Monitor impacts to wetlands and take corrective actions.

As a condition of an HPA, applicants must fully mitigate all negative impacts to the value and function wetlands provide to fish populations.

Monitoring Activities

Under PSAMP, two fish monitoring stations were to be established in Bellingham Bay. One station was to be sampled annually and the other station was to be sampled every other year. To date, one station has been established south of Post Point about 1.25 miles north of Gull Harbor. However, due to funding constraints, this station will only be sampled every other year. This station was sampled in 1989 but not in 1990. In the 1989 sampling event, three composite samples (muscle tissue from five fish combined to make each composite sample) of English sole were collected from each station. The samples were tested for metals and organic chemicals. Arsenic and copper concentrations were at 3.80 mg/kg and 0.23 mg/kg, respectively. Lead concentrations were below the mean detection limit at 0.04 mg/kg, and mercury data were rejected due to poor laboratory quality control. For the four organic chemicals tested, concentrations were below the mean detection limit. Cancerous lesions were not found in any of the samples.

In 1991, WDF attempted to establish a second station north or northeast of the Post Point station, but was unable to catch enough fish. Another attempt will not be made in the immediate future. In future sampling events, WDF will analyze English sole muscle tissue for a wider range of toxic contaminants. The sampling effort will also include analysis of toxic chemicals in liver tissue. In the future, additional samples may be taken as part of PSAMP.

Human Health Risk Management

WDF is working with DOH to determine if the concentrations of arsenic found in English sole pose a human health risk.

Sampling Activities

The hatchery located on Whatcom Creek that is operated in conjunction with the Maritime Heritage Center has experienced an annual coho salmon mortality event during the fall months for a number of years. The mortalities appear to correspond with the first significant rainfall and runoff event of the fall. Ecology and the hatchery manager have attempted to conduct water sampling to isolate the source of the mortality events. These efforts will continue until the source of the mortality events is determined.

Washington Department of Health

DOH, formerly part of the Department of Social and Health Services, is responsible for regulating commercial and recreational shellfish harvesting and is involved in sewage disposal control. Currently, there are no beaches certified for commercial or recreational harvesting of intertidal shellfish in Bellingham Bay, and DOH recommends that no recreational shellfish harvesting be conducted in inner Bellingham Bay.

Watershed Management

DOH representatives provide technical assistance to the 12 Early Action Watershed committees. These committees, which include the committees for Silver, Ten-Mile, and Kamm creeks, are responsible for developing plans to control nonpoint sources of pollution. DOH's participation on these committees focuses on onsite sewage disposal and classification of shellfish growing areas.

Nonpoint Source Management

DOH has completed a draft revision of its onsite sewage system regulations (Chapter 246-272 WAC). Public workshops will be held in the summer of 1991 to discuss the proposed changes. The proposed revisions address a number of issues, including operation and maintenance, areas of special concern, certification of onsite sewage system designers, installers, and regulators. The regulations also require that each system be built to provide adequate sewage treatment.

A model ordinance was developed by DOH primarily to assist marinas in handling blackwater (i.e., sewage) coming from liveaboard boats. However, the ordinance is considered inflexible by marina operators and the liveaboard community. DOH, in conjunction with the Washington Parks and Recreation Commission, Ecology, and PSWQA is revising the ordinance. The revised

ordinance will provide sewage disposal options addressing the needs of various types of marina users. A state agency task force has recently been assembled and an advisory committee will be formed that will include representatives of boating communities. The task force will be developing the model ordinance and drafts will be reviewed by the advisory committee. Under PSWQMP, DOH is to encourage local governments to implement the ordinance within 6 months of its completion. The ordinance will be accompanied by a report providing information to local governments on designing and installing slipside pumpouts at marinas and methods of ensuring their use by liveaboard boaters. No sooner than 2 years following distribution of the model ordinance, DOH shall evaluate progress under the nonmandatory program and recommend additional action as necessary.

Human Health Risk Management

On September 13, 1989, the Washington State Board of Health approved new regulations for recreational shellfish harvesting. These regulations give DOH and local health departments the authority to monitor and classify beaches for recreational shellfish harvesting based on bacterial counts, concentrations of toxic contaminants, and surveys of bacterial contaminant sources. Recreational harvesting of shellfish could be prohibited on beaches that have conditions that would pose unacceptable health hazards. Under that regulation, DOH and Ecology are developing a recreational shellfish program and preparing a draft action plan that was published in July 1991 and is available for public comment. The [illegible] addresses the protection of shellfish resources and human [illegible]h and includes proposed water quality and shellfish tissue [illegible]toring at major recreation shellfish harvesting locations throughout Puget Sound. The draft plan identifies four classifications to rank beaches for recreational shellfish harvesting:

- **Low-threat**—Beaches that meet health standards for safe shellfish harvest or are distant from recognized upland or water-based sources of pollution.
- **Threatened**—Public beaches where shellfish harvesting is threatened or potentially threatened by increasing pollution. Adequate shellfish resources or the potential for enhancement exists, and good public access is available.
- **Correctable**—Public beaches that do not meet standards for safe shellfish harvesting due to chronic, though reversible, nonpoint bacterial pollution. Abundant

shellfish resources or potential for enhancement exists, and good public access is available.

- **Long-term Harvest Restriction**—Public beaches with chronic or severe bacterial water quality degradation or that are located in the immediate vicinity of sewage treatment plants, contaminated sediments, or major sources of toxic substances that require an area with long-term corrective actions.

Based on completed site evaluations, most public beaches in Puget Sound will be classified. Post Point is an example of a beach that is likely to be classified as an area with long-term harvest restriction.

DOH will be developing a draft MOA with county health departments that addresses whether DOH or county health departments bear the responsibility of posting health warning signs on beaches. This draft MOA is being reviewed by several county health departments.

Monitoring Activities

Under PSAMP, DOH conducts quarterly sampling of bivalve shellfish (e.g., clams) for fecal coliform bacteria and annual sampling for metals, organic chemicals, and pesticides. Samples for fecal coliform bacteria testing are collected near Post Point. In May 1991, bivalve shellfish near Post Point were also sampled for metals and chemicals. High levels of benzoic acid were found in the bivalve shellfish.

As part of its Recreational Beach Program, DOH monitors water quality at 19 stations located in Chuckanut Bay between Post Point and Governors Point and in the Chuckanut Village Stream. Sampling conducted in August 1989 and May 1990 indicate that fecal coliform bacteria are elevated in the Chuckanut Village Stream. DOH notified County Health about the bacterial elevations in Chuckanut Village Stream.

Adopt-A-Beach volunteers will sample shellfish for paralytic shellfish poisoning toxins at Post Point and Chuckanut Bay once every 2 weeks from April 1 through October 31 during 1991. The shellfish will be analyzed by DOH. However, monitoring of these areas for paralytic shellfish poisoning during the winter months is unlikely.

Washington State Parks and Recreation Commission

The Washington State Parks and Recreation Commission (State Parks) has a Boater Environmental Education Program to provide information and services to the recreational boating community.

Nonpoint Source Management

The 1989 legislature passed a bill that allocated funds from the Watercraft Excise Tax to fund sewage pumpouts at marinas and environmental education efforts for boaters. In the spring of 1991, the law was rewritten to include the funding of portable, as well as stationary, pumpout stations. The law allocated a total of $1 million for the first biennium (fiscal years 1990 and 1991) and $1 million annually for each of the following 4 years.

For fiscal years 1990 and 1991, $300,000 was available from State Parks for public and private marinas to install or repair sewage pumpouts. Design criteria were developed by Ecology and were reviewed at the April 1990 meeting of State Parks. In May 1990, State Parks sent notices to all marinas in the state regarding the availability of pumpout station grants, but no applications were received from marinas in Bellingham Bay. Notices will be sent again in September or October 1991 for the 1992 funding cycle.

State Parks will work on developing an enforcement strategy for marine discharges after the completion of the sewage pumpout station grant program. The strategy, Element MB-5 of the PSWQMP, is due to be completed by the end of 1994.

Hazardous Waste Management

State park rangers receive training in hazardous waste management as part of ongoing programs. Because rangers sometimes use pesticides and other chemicals, they are licensed to ensure that proper procedures are used in applying these substances.

Education

State Parks manages the Boater Environmental Education Program. State Parks is in the process of hiring two new staff members for boater education. One staff person will be involved in watershed planning and conduct outreach activities (e.g., presentations) and one will conduct boater educational activities. With the additional personnel conducting outreach activities, State Parks plans to become more active in educational activities.

A slide show about boat waste management and a video on the environmental impacts of boating are available through State Parks for group presentations and for distribution to middle schools in the state. In addition, a water quality interpretive sign and sewage

pumpout location and operating instruction signs are available. State Parks and Ecology will discuss potential locations in Bellingham Bay for these signs.

State Parks publishes an educational brochure titled *Boater's Guide to Clean Water and Good Times*. The brochure addresses boating safety, trash and plastic disposal, sewage pumpout station locations throughout the state, shellfish protection, boat maintenance, environmental and economic impacts of boating, ocean disposal placard requirements, and other general information. This brochure is distributed to marinas, ports, educational groups, middle schools, marine retail operations, and to other individuals and groups who request it.

Washington Department of Wildlife

The Washington Department of Wildlife (WDW) has responsibility for managing the wildlife of the state. WDW is also responsible for the Bellingham hatchery.

Storm Water Management

WDW supports WDF's draft storm water guidelines that require storm water detention/retention and treatment for hydraulic projects. WDW is considering adopting the storm water guidelines as official policy after the public comment period is completed and the guidelines have been finalized.

Watershed Management

WDW is involved in the Federal Energy Regulatory Commission (FERC) process for licensing the construction of hydroelectric dams. WDW examines in-stream flows, erosion control, and other impacts to fish and wildlife under the Fish and Wildlife Coordination Act. There are currently a number of proposed hydroelectric projects on the Nooksack River and its tributaries. WDW is developing a list of priority habitats and species that will be used to evaluate impacts to wildlife.

Land Use Development

WDW reviews and participates in comprehensive land use plans. Because the review and participation is usually performed by a local biologist who covers a large geographic area (2–4 counties and a number of municipalities), the level of participation and review depends on other agency priorities.

Resource Management

WDW has enhancement projects for native fish such as steelhead, Dolly Varden trout, and sea-run cutthroat trout in place in Padden and Whatcom creeks and several streams that empty into Lake

Whatcom. In addition, sport fishing regulations have been restricted to increase protection for native species. WDW also manages the Bellingham hatchery that is located in Whatcom Falls Park.

Resource Protection

WDW is the lead agency responsible for HPAs on areas upstream from those areas of streams used by anadromous fish. WDW's Habitat Management Section reviews all SEPA permits and forest practice permits as an advisory agency. WDW also provides comments to Ecology regarding the issuance of water rights. In all cases, the comments are related to potential impacts to fish and wildlife resources and the means to mitigate or eliminate those impacts.

Wetlands Protection

WDW has a policy in place under which the agency may deny or add conditions to an HPA permit for proposed projects that may impact wetlands. No degradation of wetlands is allowed. If there is an impact, it must be mitigated at the rate of 2 acres of new wetlands per 1 acre lost. However, under SEPA and NEPA, WDW is only permitted to place conditions on activities rather than deny a permit outright. Ecology, the Corps, and local governments are also involved in the review and any mitigation would be a result of negotiation or consensus among all involved agencies.

Washington Department of Natural Resources

DNR is responsible for managing terrestrial and aquatic lands owned by the state and for enforcing certain resource protection laws.

Nonpoint Source Management

Under the Washington Forest Practices Rules and Regulations (Chapter 222, WAC), DNR approves applications for harvesting over 5,000 board feet of timber or for any other forest operation that would be located on unstable slopes or near the nesting or breeding ground of threatened or endangered species. Approved applications are required before timber can be harvested for sale. Conditions placed on the approved application provide for the protection of soil integrity, reforestation, streamside habitat protection, and fishery and wildlife concerns. Under the Timber, Fish and Wildlife agreement among resource agencies, timber companies, tribes, and environmentalists, interdisciplinary teams may be formed to deal with environmental concerns. The teams make recommendations to the forest practices forester, who may then

require several habitat protection conditions to the clearing application.

DNR also enforces rules and regulations under the Surface Mining Act (Chapter 78.44 RCW). Specifically, DNR has authority to oversee those operations that collectively result in more than 3 acres of land being disturbed or that result in excavation walls more than 30 feet high and steeper than 45 degrees. The purpose of the Surface Mining Act is to ensure that mined lands are properly rehabilitated, that surface water quality is protected, and that public safety standards are adhered to.

Aquatic Lands Management

DNR leases state-owned aquatic lands in harbor areas of Bellingham Bay for periods ranging from 5 to 30 years and for nonharbor areas for a maximum of 55 years. The aquatic lands leasing program is being evaluated to incorporate procedures for addressing contaminated sediment liability issues including site identification, investigation, and remediation. In addition, all new and recently signed leases include provisions concerning lessee liability for releases of hazardous substances. If hazardous substances are released on properties the lessees occupy, the lessees will be held liable for response and cleanup costs, conducting investigations, and pursuing corrective actions.

DNR established the Sediments Management Section in the Division of Aquatic Lands in January 1991. The new section will encourage DNR leaseholders to investigate and remediate contaminated sediments on state-owned aquatic lands. The Sediments Management Section will also represent DNR when the agency is identified as a potentially responsible party for sites containing contaminated sediments.

In spring 1990, DNR received a grant from EPA to review aquatic land use authorizations in nonurban areas of Puget Sound. In this study, DNR's use authorizations were categorized by the likelihood that the general use of the site could have contaminated state-owned properties. Since then, DNR has expanded on this study by developing an inventory and empirical ranking of all lease sites in western Washington, regardless of their urban or nonurban designation. As part of the land use authorization audit, DNR completed the *Puget Sound Sediment Reconnaissance Survey, 1991* (Tetra Tech 1991). The objective of the survey was to identify contaminated aquatic lands that are publicly owned. Potentially contaminated areas of Puget Sound (including Bellingham Bay) with few existing data were surveyed.

DNR is also developing a user's manual that addresses contaminated sediment management and includes policies and regulations related to contaminated sediments. A working draft is currently being reviewed by Ecology.

DNR and the Port are developing a port management agreement. This agreement will assign all management responsibilities for aquatic lands abutting port properties to the Port. The agreement will require the Port to follow DNR's regulations for managing the leases. Leases entered into by the Port and DNR for individual properties would be eliminated. The agreement is the result of legislation designed to simplify the collection process for lease revenues.

DNR and Ecology are developing an MOA regarding contaminated sediments on state-owned aquatic lands under which DNR will carry out provisions of the MTCA (e.g., remedial investigations and cleanups). One PSDDA disposal site is located within the Bellingham Bay project area and any sediments requiring disposal there would be subject to PSDDA guidelines.

DNR manages the Aquatic Lands Enhancement Account. This account has money available for funding projects to acquire land for public recreational access and public education. Account funds are not available for cleaning up contaminated sediments or improving water quality.

Outfall Management

DNR requires use authorizations for placement of outfalls on state-owned lands. In some cases, DNR may charge a fee if the outfall will result in a net loss of state-owned resources (e.g., geoducks).

Monitoring Activities

DNR is responsible for conducting chemical and biological monitoring at the Bellingham Bay PSDDA site. DNR performed baseline biological monitoring in the summer of 1990 at the Bellingham PSDDA site for concentrations of certain problem chemicals in the tissues of Dungeness crab. Crab density was also monitored. This baseline monitoring was conducted in conjunction with Ecology's Bellingham Bay bioaccumulation survey, and the results are incorporated in Ecology's final bioaccumulation report that was released in September 1991. The baseline monitoring survey investigated the concentrations of arsenic, cadmium, lead, mercury, PCBs, and various pesticides in crab muscle and hepatopancreas. Arsenic, cadmium, and mercury were detected in every sample. Of the

pesticides, DDE was found in 62 percent of the samples, and chlordane was found in 15 percent of the samples. Concentrations of detected chemicals were generally low. DNR will conduct a crab bioaccumulation study after at least 100,000 yards^3 of material have been disposed of at the PSDDA site.

Dredging Activities

The Bellingham Bay PSDDA open-water dredged material disposal site is available for use from June 16 through October 31 of each year. DNR, EPA, the Corps, and Ecology evaluate the material that is proposed for disposal at the PSDDA site. DNR issues the permits to use the site and monitors compliance with terms of the permit.

The Corps and the Port are planning to use the PSDDA site during the 1992 dredging season. Sediments from Whatcom Creek, I & J Street, and Squalicum Creek waterways were tested under the PSDDA guidelines. None of the Whatcom Creek Waterway sediments were approved for disposal at the PSDDA site. Only some of the sediments tested from the I & J and Squalicum Creek waterways were approved by the PSDDA agencies.

Habitat Mapping

In support of PSAMP, DNR is involved in a project to inventory nearshore habitat using remote sensing techniques (i.e., aerial photographs and satellite images). Habitat information has been gathered and will be entered into a geographic information system (GIS) by December 1991. New data will be collected every 3 years by the EPA and will be added to the GIS. When the project is complete, comprehensive habitat maps for Bellingham Bay will be available.

Puget Sound Water Quality Authority

PSWQA is responsible for developing the PSWQMP for water quality protection in Puget Sound. PSWQA oversees all the PSWQMP programs implemented by federal, state, and local agencies; tribal governments; and federal facilities.

Storm Water Management

Under the 1991 PSWQMP, a work group and a storm water technical assistance service have been added to the storm water program. The work group will help coordinate policy issues among fisheries, storm water, and wetlands programs. The storm water technical assistance service will be provided to local governments by Ecology. The 1991 PSWQMP proposes that the local storm water programs be incorporated in the comprehensive land devel-

opment plans that will be drafted under the State Growth Management Act (Substitute House Bill No. 2929).

Ecology has drafted a proposed rule that will set minimum storm water standards for new developments. When Ecology's proposed rule is finalized, PSWQA will adopt a rule that requires local governments to adopt storm water programs that include Ecology's rule. These rules are being coordinated with the recent federal storm water NPDES regulation (see *U.S. Environmental Protection Agency* section). Adoption of both rules by PSWQA is expected by January 1992.

Nonpoint Source Pollution Management

PSWQA is currently revising the watershed management planning rule (Chapter 400-12 WAC) to incorporate information from the watershed planning efforts that have occurred to date.

Under the 1991 PSWQMP, the issue of pesticide use will be addressed in existing nonpoint pollution, education, and household hazardous waste programs.

Also, the 1991 PSWQMP directs DOT to develop a program to control runoff from highways in the Puget Sound basin. Ecology has drafted guidelines for the program that were adopted as an administrative rule in May 1991 and became effective on June 21, 1991. Under this program, the department will draft and adopt a storm water management manual, develop a vegetation management program, and institute other measures to control the quality and quantity of runoff from highways in the Puget Sound basin. The administrative rule will govern the runoff program and includes a requirement that the department shall comply with standards identified in watershed actions plans, even if they are more stringent than the department's manual.

Wetlands Protection Activities

In the 1991 PSWQMP, minimum guidelines or standards for wetland protection programs that will be implemented by local governments are proposed. PSWQA has deferred a final decision on the standards until summer 1991 to provide additional time for public comment. PSWQA is seeking public comment on whether or not to adopt mandatory standards or guidelines, in addition to comments on the content of the standards. The program recommended by PSWQA also includes expanded roles in wetlands protection for the Corps, EPA, and FWS. In addition, PSWQA has established a wetlands restoration program.

Water Quality Planning

The PSWQMP was initially developed in 1987, revised in 1989, and finalized in 1991. The plan was adopted in May 1991 as the first CCMP in the nation for an estuary of national significance (as designated under Section 320 of the federal CWA). The CCMP contains an action plan for various programs and establishes broad funding and program funding priorities. Based on legislation in 1990 that reorganized and reauthorized PSWQA, the PSWQMP also includes an implementation strategy for prioritizing plan elements according to constraints faced by local governments. The legislation also authorizes PSWQA to create a foundation for supporting education and research activities.

Oil Spill Prevention

The 1991 State Legislature passed an oil spill bill that mandates implementation of most of PSWQA's spill prevention and response program. The spill prevention and response program includes elements for contingency plans, spill prevention plans, spill prevention education, and numerous other elements to increase spill prevention and response.

Monitoring Activities

Staff at PSWQA provide technical and administrative support to PSAMP. PSAMP provides a comprehensive, long-term monitoring program for Puget Sound. PSAMP was designed to: 1) assist agencies by characterizing and interpreting spatial and temporal trends and identifying problem areas, 2) take measurements to support specific program elements and measure the success of the PSWQMP, and 3) provide an ongoing assessment of the health of Puget Sound and the risk to human health from consuming seafood from the sound.

Three management units comprise PSAMP: 1) the PSAMP Steering Committee, 2) the Monitoring Management Committee, and 3) PSWQA. PSWQA will act as the chair for the PSAMP Steering Committee and the Monitoring Management Committee and will facilitate agency cooperation among the state agencies implementing PSAMP. Other functions PSWQA will carry out include providing arbitration for interagency disagreements concerning PSAMP; providing and housing staff members; managing data; and distributing integrated, interpretive reports of PSAMP results. PSAMP received $1 million in funding over the 1989- 1991 biennium. Under PSAMP, there are stations for sampling sediment, fish, shellfish, and the water column in Bellingham Bay. These stations are described under the appropriate implementing agency.

Public Involvement and Education Fund

The Public Involvement and Education (PIE) Fund was created by the Washington State Legislature in 1987 to sponsor model projects for public involvement and education, community cleanup activities, and environmental monitoring by members of the general public. An initial $1 million was distributed in January 1988 (Round 1) and June 1988 (Round 2). The 1988 legislature appropriated $1 million to sponsor two more rounds of funding in 1989 and 1990. Approximately $700,000 was granted in the third round in October 1989 and another $300,000 was distributed in the fourth round in April 1990. PIE contracts have been awarded to Whatcom Community College, University of Washington Sea Grant (Sea Grant), Puget Sounders, Friends of the San Juans, and the Nooksack Tribe.

The next round of PIE funding began with the release of a request for proposal for Round 5 on June 15, 1991. Proposals will be due August 16, 1991. Selections will be announced on October 25, 1991. Round 6 requests for proposals will be released in January 1992, with proposals due in March and awards made in May 1992. Although funding for rounds 5 and 6 depends on budget decisions made by the 1991 State Legislature (not available at time of publication), $1.1 million is identified in both the House and Senate versions of the budget. Approximately two-thirds of the PIE fund contract money will be awarded in Round 5 and one-third in Round 6.

PSWQA is in the process of forming the Puget Sound Foundation and is selecting the first board members. The board will be fully established by the summer of 1991. The foundation is a new program that responds to a recognized need for an ongoing structure to coordinate strategies and funding for research and education. The primary tasks of the foundation will be: 1) funding and coordinating research and education programs on Puget Sound, and 2) assuming responsibility for certain elements of the research and education program as staff and funding allow. Fund raising activities will begin after the board has been established.

City of Bellingham Department of Planning and Economic Development

The City of Bellingham Department of Planning and Economical Development (City Planning) manages shoreline development and issues shoreline permits, develops land use regulations, and reviews projects to be conducted within the city limits for compliance with SEPA.

Nonpoint Source Management

Under the State Growth Management Act, the city can now review forest practices permits and require mitigation, provide additional conditions, or recommend denial. As a way to place additional controls on forest practices, the city will not approve a forest practice permit unless a development application is also submitted to City Planning.

Shoreline Management

The city's maritime industries are concentrated in several "urban maritime" zones. The area near Squalicum Harbor has multiple uses and is likely to expand in the next decade. Water-dependent development will be encouraged in the urban maritime shoreline areas. The Port is considering filing an application for a shoreline master permit to expand the Squalicum marina. The cruise ship berth in Fairhaven may be expanded beyond its current use as the Alaska ferry terminal. There are also plans to develop a pedestrian walkway along Bellingham Bay near Taylor Street.

Land Development

The city is considering revising the threshold levels for a determination of significance under SEPA. The threshold level determines when environmental impacts require preparation of an environmental impact statement (EIS). This project has been put on hold due to staff shortages.

In 1979, the city of Bellingham and Whatcom County created an Urban Growth Boundary outside of the city limits. The areas between the boundary and the city limits are zoned "interim urban density" until a new comprehensive land development plan is drafted. This means that the city will provide water and sewer services to these areas under the assumption that they will ultimately develop into "urban density" zones and be annexed into the city.

Regulation Development

City Planning will develop a wetlands protection ordinance after wetlands are confirmed through a wetlands survey. The ordinance will include a permitting system, regulations, and a goal of no net loss of wetlands. A wetlands map will be developed and will become part of the ordinance.

City Planning is also developing a land clearing ordinance to provide requirements for the clearing of trees, shrubs, and other vegetation. The ordinance will address the amount of clearing that may be performed, where the clearing may be performed, the types of vegetation that may be removed, and erosion and sediment control. This ordinance is aimed at addressing properties containing under

5,000 board feet of timber because these properties are not covered by the DNR forest practices permit.

City of Bellingham Department of Public Works

City Public Works operates the Post Point WWTP and is responsible for controlling storm water runoff.

Storm Water Management

In July 1990, the city established a drainage utility in order to address storm water drainage issues. At this time, the fees are collected on all developments at the time development permits are issued and are based on the amount of impervious surface created. The fee for single-family homes is $400, and the fee for all other developments is $400 for each 3,000 feet^2 of impervious surface created. The collected fees are placed in a fund that is used to upgrade deficiencies in the drainage system, build facilities of regional benefit, and support drainage division staff. There is no storm water detention requirement in the city of Bellingham, but the impacts on water quality are assessed for each project. If necessary, the developer is given the option of correcting deficiencies or providing storm water detention facilities that are designed to release water to streams at predevelopment rates. Projects with parking lots must provide outlet traps in the catch basins to trap oil and debris.

Watershed Management

City Public Works is working with the County Health and County Public Works on a study of Lake Whatcom and its watershed. Phase I of the study was completed in 1986 and resulted in a management plan for the lake. The plan identified several areas that required additional attention in order to ensure protection of the lake's existing water quality. Under Phase II of the study, several of the concerns identified in the management plan have been or are currently being addressed. County Public Works, under contract to the city, has completed underground fuel storage tank and storm drain inventories, and County Health has completed an onsite sewage disposal survey. A draft ordinance for regulating underground fuel storage tanks within the Lake Whatcom watershed has been proposed and should be finalized in the summer of 1991. County Public Works and County Health are incorporating the information from the surveys into their capital improvement programs and are developing maintenance programs for the tanks and storm drains within the Lake Whatcom watershed. In addition, City Public Works has contracted with the County Health to provide a septic system maintenance program for the entire county. It is not

known if additional corrective actions will be taken because the Lake Whatcom Advisory Committee has been disbanded.

An approved temporary erosion and sedimentation control plan must be prepared for all activities (e.g., clearing, development) that disturb land in the Lake Whatcom watershed. Larger developments are required to have permanent erosion and sedimentation control facilities. In areas outside the watershed, subdivisions and projects that may impact the environment are also generally required to provide an erosion and sediment control plan as a condition of the development contract or permit.

Sewer System Management

The C Street Interceptor is the only CSO in the city of Bellingham. Ecology has approved a CSO control plan submitted by City Public Works. While the plan allows one sewage overflow event per year, the city continues to reduce storm water intrusion so that overflow events will be reduced to less than one event per year. There is no schedule to completely eliminate the occasional overflow events.

Point Source Management

City Public Works has met all of the target dates for preparing the plans, specifications, and estimates for upgrading the Post Point plant from a primary treatment to a secondary treatment facility. The city of Bellingham has an industrial user ordinance that applies to approximately 20 companies. The ordinance allows the city to monitor effluent from industries that discharge to the treatment plant. If industries exceed thresholds for pH and total suspended solids, the city can require a pretreatment program and levy discharge surcharges.

The city's NPDES permit will be revised in March 1993. The revised permit may include requirements for measuring effluent toxicity using bioassay tests, effluent testing for mercury, and sediment quality testing near the outfall.

Nonpoint Source Management

City Public Works issues permits for development or clearing projects within the city limits that are also in the Lake Whatcom watershed to protect the lake from water quality degradation. The ordinance contains erosion and sediment control requirements. City Public Works has discontinued the use of herbicides in the Lake Whatcom watershed for roadside maintenance.

Wetlands Protection Activities

As one element of a Floodplain Management grant from Ecology, City Public Works has performed a wetlands assessment of

Squalicum Creek. Flood control, open space, wildlife habitat, and development opportunities are the other elements that will be assessed. As a result of these assessments, a plan will be developed to protect the wetlands. This plan may involve rezoning. Much of the watershed is currently zoned for commercial and industrial uses. A draft plan will be completed in April 1992 and the final plan will be completed in June 1992.

Monitoring Activities

In January 1990, City Public Works began a monthly testing program for all creeks within Bellingham city limits. The testing is done to compare existing conditions to Class A water quality standards. Parameters tested are temperature, pH, turbidity, dissolved oxygen, and fecal coliform bacteria.

Hazardous Waste Management

City Public Works, in conjunction with County Public Works and County Health departments, operates a model household hazardous waste program. The program includes a permanent drop-off site for household hazardous wastes.

Education

The focus of City Public Works' educational activities is the Lake Whatcom watershed. It receives the highest priority for city activities because it is the source of the city's drinking water. With funds received under the Interim CCWF program (Referendum 39), City Public Works has conducted or is conducting the following educational activities through the Lake Whatcom Education Program:

- Preparing written materials on water quality for third and sixth graders.
- Organizing sixth graders to participate in developing a conservation site within the watershed and in a poster contest.
- Organizing interpretive walks for children in middle schools that are specifically targeted at Squalicum, Whatcom, and Padden creeks where water quality issues are discussed.
- Coordinating with schools and teachers to incorporate watershed protection themes in their curricula. Workshops have been held for teachers where kits for analyzing basic water quality parameters were prepared for the workshop attendees.

- Publishing pamphlets that are distributed to all watershed residents and all city of Bellingham utility customers. The information contained in them is applicable to any watershed.

City Public Works also provides educational materials and conducts educational activities on garden and household hazardous wastes. City Public Works presents a slide show and a public seminar and publishes informational brochures on "lake-friendly" gardening.

City of Bellingham Parks and Recreation Department

The City of Bellingham Parks and Recreation Department (City Parks) is responsible for managing city park land and providing environmental education opportunities.

Storm Water Management

City Parks owns the storm drains that are located on the property owned by City Parks. City Parks removes sediment that accumulates in the storm drains as needed.

Park Land Management

A draft site management plan for Little Squalicum Park was prepared in April 1990. The plan calls for maintaining the majority of the site east of the Marine Drive bridge in a natural state, while developing the west meadow portion of the site west of the Marine Drive bridge for more intense uses (e.g., playfields and picnic areas).

Wetlands Protection Activities

City Parks completed a planning study of Padden Creek and its associated wetlands in June 1990. The study assessed existing conditions and recommended policies and actions for public access and wildlife and landscape management. Initial recommendations are currently being developed. A grant from the DNR Aquatic Lands Enhancement Account has also been secured to increase public access and enhance wildlife habitat along the creek. The improvements are scheduled to begin in late summer or early fall of 1991.

Human Health Risk Management

Based on recommendations from the state or county health departments, City Parks is willing to post health advisory warning signs (that are supplied by the state Department of Fisheries or Department of Health) on appropriate beaches in Bellingham Bay.

Education

City Parks currently has one person working half-time at the Maritime Heritage Center who provides interpretive information about environmental issues. City Parks would like to make this position full-time and place more emphasis on overall environmental issues. This position is currently funded by British Petroleum, the Bellingham School District, and the city of Bellingham. However, no additional funds are available to make the position full-time. Additional staff teach classes on issues regarding fish rearing.

City Parks would like to increase the opportunities for environmental education associated with watershed and water quality issues. City Parks will request funds in the 1992 city budget to place watershed and water quality related interpretive signs at parks.

Whatcom County Conservation District

The Conservation District is involved in watershed planning and controlling nonpoint source pollution from agricultural sources.

Watershed Management

The Conservation District is the lead agency for two watershed planning programs: the Kamm Creek early action watershed and the Ten-Mile Creek early action watershed. Implementation of the Kamm Creek Watershed Plan began in the spring of 1990. The Agricultural Stabilization and Conservation Service, a division of the Soil Conservation Service (SCS), provided $475,000 for the Kamm Creek Watershed Plan through a Water Quality Special Project grant. At least 50 percent of the farm waste management plans detailed in the Kamm Creek plan have been implemented. One of the major issues addressed in the Kamm Creek plan was controlling nonpoint pollution from agricultural sources. In addition, newsletters have been published and a booth was established in the summer of 1990 at the Northwest Washington Fair to distribute educational materials on watershed management.

Implementation of the Ten-Mile Creek plan could begin in July 1991. The Conservation District applied for $200,000 CCWF grant for implementation of the plan. Based on a draft ranking, the project ranks 30th out of 86 projects and was proposed to receive funding.

Farmers in the Bertrand-Fishtrap Creek watershed continue to implement waste management plans, either voluntarily, or in response to notification of water quality violations (as provided by the conditions of the compliance MOA between the Conservation District and Ecology).

Nonpoint Source Management

The Conservation District and SCS assist dairy farmers in developing farm plans. By using BMPs, the farm plans help reduce soil erosion and animal waste discharges. The farm plans address how waste is collected, stored, and applied as fertilizer to fields. There are cost-sharing opportunities through the U.S. Agricultural Stabilization Service to implement the BMPs. Cost-share assistance is denied to farm operators who fail to respond to being notified of a water quality violation. SCS recently placed one additional person in the SCS Lynden field office, who spends most of their time following up with farmers to ensure that they are implementing their waste management plans.

The Conservation District has an MOA with Ecology regarding the enforcement of water quality laws on farms. If a farm is causing water quality problems, Ecology will refer the case to the Conservation District. The district will then develop a farm plan with the farmer to reduce water quality problems. If the farm plan is not developed or implemented, Ecology may cite the farmer for water quality violations.

Wetlands Protection Activities

SCS identifies and inspects wetlands to ensure that farmers are in compliance with the federal Food Security Act of 1985. Under the Conservation Reserve Program, individuals who farm in wetlands or on highly erodible land are not in compliance with the law; therefore, they are not eligible for SCS and Department of Agriculture funds. Although there are many opportunities to work on habitat enhancement projects, SCS is not able to pursue these projects because funding is extremely limited.

Education

The Conservation District writes a waste management news article that the Whatcom County Cooperative Extension publishes monthly in the *Whatcom County Dairyline*. The Conservation District will begin publication of a quarterly newsletter in 1991. Funding for this program is from the State Conservation Commission sponsored through a CCWF grant.

The Conservation District, in conjunction with the Whatcom County Cooperative Extension, is in the process of producing two videos on farm animal waste management. These videos may be completed by June 30, 1991. The district also publishes a brochure that addresses conservation practices for farmers.

The Conservation District, in association with Georgia-Pacific, sponsors a 3-day conservation camp where sixth graders are taught the value of soil conservation.

Whatcom County Council of Governments

The COG is active in watershed planning activities.

Watershed Management

The COG is the lead agency for development of the Silver Creek Early Action Watershed Plan. Silver Creek drains into the Nooksack River. The plan includes the following programs: 1) education, 2) monitoring, 3) agriculture, 4) pesticides, 5) solid waste disposal, 6) forestry, 7) onsite septic systems, 8) storm water/erosion control, and 9) household hazardous waste. The watershed plan was approved by Ecology in April 1990 and implementation began in January 1991 with CCWF funds.

Nonpoint Source Management

Under the Silver Creek Watershed Plan, SCS and the Conservation District have been contracted by the county to complete an inventory of the farms in the county to determine the impacts of the farms on water quality. The farmers will then be encouraged to develop farm plans and implement BMPs.

Monitoring Activities

The Institute for Freshwater Studies at Western Washington University will conduct water quality monitoring in Silver Creek as part of the Silver Creek Watershed Plan. The Institute will test for pesticides, PCBs, volatile organic compounds, and heavy metals. The first round of sampling was scheduled to begin June 1991.

Education

Educational activities are an ongoing part of the Silver Creek Watershed Plan. Activities include the Master Watershed Program, the development of a contractor's manual that identifies BMPs, and participation in the county fair. There are approximately 20 volunteers in the first round of the Master Watershed Program. Training for the first group of volunteers was completed in mid-June 1991. Additional funding was granted to Washington State University, Extension Service - Whatcom County, for continuing the program beyond the funding allocated through the Silver Creek Watershed Plan.

A manual describing BMPs for contractors was developed by the Association of General Contractors of Washington. The manual has been distributed to the Whatcom County Building and Codes

Department and the city of Ferndale for distribution to contractors when building permits are issued.

The Conservation District also participates in the county fair to distribute educational materials to the community on nonpoint pollution and water quality issues.

Whatcom County Department of Public Works

County Public Works is active in storm water management. Shoreline, zoning, building, and clearing permits are all issued by the County Public Works.

Storm Water Management

County Public Works is developing storm water standards that will be included in the Lake Whatcom Watershed Plan. The standards will incorporate elements of the King County Surface Water Manual and the Ecology Stormwater Management Manual and will include requirements for onsite retention/detention, erosion and sediment control, and the treatment of storm water. The standards should be completed by September 1991. The county intends to adopt these standards for the entire county and the areas of the city of Bellingham that are included in the Lake Whatcom watershed. The city of Bellingham currently is not planning on adopting the standards.

Storm water detention ponds constructed during development projects are maintained for the first 2 years by the developers. Upon the third year, the county assumes the maintenance responsibility, but it is compensated by the developer for the maintenance. Currently, maintenance of these ponds by the county is on an infrequent basis, and the maintenance conducted by the developers is not regulated by the county. The current standards (Chapter 70 of the Uniform Building Code as modified by county ordinance) do not contain provisions for scheduling maintenance by the county or for regulating the maintenance conducted by the developers. Currently proposed standards do include provisions for a maintenance schedule of the ponds for the county. Sediments removed from the ponds are deposited in fill sites throughout the county.

In 1991, County Public Works received a budget increase for the maintenance of ditches. Approximately 200,000 cubic yards of material will be removed per year. This funding will continue on an annual basis as approved by the county council. County Public Works anticipates that the council will continue to approve the funds. Present plans provide for maintenance of 2,000 miles of ditches on a 15-year cleaning cycle.

County Public Works will install oil/water separators if necessary when doing routine drainage system maintenance. Oil/water separators are currently required for all newly constructed parking lots in the county.

County Public Works supports the establishment of a county-wide drainage district to generate funds for storm water management activities. However, no such district is currently planned.

Watershed Management

As part of a city of Bellingham study of the Lake Whatcom watershed, County Public Works has completed an inventory of storm drains and underground fuel storage tanks located within the watershed. County Public Works adopted an ordinance to regulate underground fuel storage tanks that are not currently regulated by state laws. Actions, including enforcement of the new ordinance, will begin on July 1, 1991.

Nonpoint Source Management

County Public Works has initiated a model program addressing the use of herbicides, pesticides, and fertilizers in the county. The county maintains a full-time position for overseeing vegetation management practices including herbicide application, noxious weed control, and mowing. The county has enforcement ordinances that limit the application of pesticides and herbicides in several sensitive areas including the Lake Whatcom watershed, Lummi Island, and areas where citizens have "owner will maintain" agreements. County Public Works participates on state and regional boards to stay current with developments on this subject.

Landfill Management

County Public Works is in the process of closing all the active county landfills. Solid waste that is not recyclable or compostable will be incinerated.

County Public Works is preparing an environmental impact statement for the proposed Georgia-Pacific Evergreen Wood Waste landfill.

Education

County Public Works is willing to participate in a volunteer storm drain stencilling project. Storm drains that discharge to streams will be stenciled with educational messages to prevent intentional dumping of oil and other contaminants.

Whatcom County Planning Department

The Whatcom County Planning Department (County Planning) participates in a variety of environmental planning efforts.

Nonpoint Source Management

The county has an ordinance for regulating impacts from forest clearing operations. This ordinance requires that a clearing permit be issued by County Planning even if the clearing operation is regulated under the Forest Practices Act. This clearing permit may include conditions to protect water quality or habitat. Forest clearing operations for single family houses are exempt from the ordinance.

Shoreline Management

County Planning has recently revised the Shoreline Master Plan for Whatcom County. This revision is the first comprehensive update to the Shoreline Master Plan in over 6 years. Major issues addressed in the revision include siting moorage and community docks, increasing public access, increasing drainage provisions, and determining approaches to modify present development setbacks. The revised plan was recently adopted by the county council.

Wetlands Protection Activities

The county has completed a wetlands inventory through an aerial photograph survey. An ordinance to help protect wetlands is being developed by County Planning.

Water Quality Protection Activities

County Planning and County Public Works are developing a water and sewer plan as part of a comprehensive land development plan. The water and sewer plan will address groundwater and surface water protection. Issues to be covered in the plan include jurisdictional conflicts over regulatory authority; water rights for the Nooksack River and county groundwater supplies; and water quality impacts from logging, agriculture, development, and waste disposal. As part of the plan, a Nooksack River study will be conducted to evaluate the pattern of groundwater and surface water interchange. This study will be completed by June 1992.

Hazardous Waste Management

County Public Works, together with City Public Works and County Health, operates a model household hazardous waste program. The program includes a permanent drop-off site for household hazardous wastes.

County Planning has also discontinued its use of herbicides in areas considered environmentally sensitive, including the Lake Whatcom watershed.

Whatcom County Health Department

County Health has responsibilities for environmental and human health protection.

Nonpoint Source Management

From January to July 1990, County Health conducted a Lake Whatcom watershed sewage disposal survey. The survey was conducted in response to the identification of onsite sewage disposal as a concern in the Lake Whatcom Management Plan. The results of the survey show a failure rate of 8 percent. Onsite sewage system failures occur when sewage is not properly distributed to the drainfield and, therefore, receives inadequate treatment. The survey includes the following recommendations for areas with the highest failure rates:

- Conduct a more intensive survey of older seasonal residences during the months of June, July, and August. Inadequate systems should be upgraded to conform as closely as possible to current standards.
- Consider the extension of public sewer service into the Academy and Haggin streets and Toad Lake Road areas.
- Initiate a public education program to encourage proper septic system maintenance. Mail brochures describing septic system functions and proper maintenance to all residences with onsite sewage disposal systems in the watershed. Maintain a list of all such residences in a computer database and send septic tank pumping reminder notices every 3-5 years.
- Perform an onsite sewage disposal survey within the watershed at least once every 5 years.

As a result of these recommendations, the city of Bellingham now charges a fee of 0.5 cent/gallon of sewage from onsite sewage systems pumpouts that is deposited at the Post Point WWTP. The money generated from this fee is dedicated to the septic tank system maintenance and education program. There is no cap on the total amount collected each year. The estimated amount to be collected in 1991 is about $18,000. All dwellings with failing onsite sewage systems found during the Lake Whatcom survey have been resurveyed, and the necessary repairs were made to them so that all are in compliance with sewage control regulations. No schedule has been set for public sewer installations or future onsite sewage system survey work.

County Health requires that all septic tank drainfields located within the Lake Whatcom watershed have at least 4 feet vertical separation (i.e., the vertical distance between the drainfield and groundwater) and be located where the slope is not greater than 15 percent. Outside the Lake Whatcom watershed, a minimum vertical separation of 2 feet is required. These requirements equal or exceed the state's current requirements. In addition, County Health operates a training program for new inspectors that ensures that systems are installed properly.

Landfill Management

County Health issues permits for landfills and is responsible for monitoring when required.

There are over 20 closed and 5 active landfills in Whatcom County. Ecology regulations mandate that landfills that have been closed since 1985 must have groundwater monitoring systems and implementation schedules. Currently, of the 20 closed landfills, Cedarville is the only facility being monitored. Monitoring results there show some groundwater contamination. Active landfills must have groundwater monitoring systems in place with approved closure and post-closure plans. All active facilities are monitored quarterly. Active landfills being monitored are Recomp, Olivine, and Intalco. Also being monitored are Airport Wood Waste and Hilltop Farms Wood Waste, owned by Georgia-Pacific. Each of these active landfills has closure and post-closure plans.

Human Health Risk Management

County Health currently does not monitor shellfish in Bellingham Bay. If funds were available, County Health might set up a marine water quality monitoring program.

County Health and DOH also may negotiate an MOA that addresses responsibility for posting warning signs at recreational shellfish beaches, if funding becomes available.

Hazardous Waste Management

County Health, City Public Works, and County Public Works jointly operate a model household hazardous waste program. The program includes a permanent drop-off site for household hazardous wastes.

Port of Bellingham

The Port operates marinas and boat launches in Squalicum Harbor and Fairhaven. The Port also operates several terminals throughout Bellingham Bay and owns and manages properties that are located

within the terminals that are used for commercial and industrial activities.

Storm Water Management

The Port owns some of the storm drains that are located on its properties. The city of Bellingham and other parties own the remaining storm drains located on the Port's properties. Material accumulated in catch basins in the storm drains owned by the Port is removed at least annually or more frequently, if needed. The Port encourages the stenciling of information on its storm drains by the appropriate agency to increase public awareness about dumping of oil and other contaminants into storm drains that discharge to creeks or Bellingham Bay.

Nonpoint Source Management

The Port operates marinas in Squalicum Harbor and Fairhaven Terminal. The Squalicum Harbor location has two sewage pump-outs and a waste oil tank for commercial and recreational boats.

Shoreline Management

The Port is considering filing an application for a Shoreline Master Permit to expand the Squalicum marina and add a hotel with piers and overwater access near Boulevard Park. The Port is also considering placing a new marina in Fairhaven Terminal, and a citizens committee is being formed to review the proposal. In addition, the cruise ship berth in Fairhaven may be expanded beyond its current use as the Alaska ferry terminal. The Port also plans to develop a pedestrian walkway along Bellingham Bay near Taylor Street.

Port Property Management

The Port will be working with its tenants to minimize the potential contamination of the properties. Beginning in 1992, the Port will use a combination of educational techniques, questionnaires, and field investigations to encourage tenants to employ business practices that will keep pollutants out of surface water and groundwater. Copies of applicable environmental regulations will be distributed to tenants. The Port maintains a clause in their standard lease that places responsibility for discharges of hazardous substances on the tenant.

Hazardous Waste Remediation

The Port owns property located at the intersection of 4th and Harris streets that has been contaminated with diesel fuel. The Port has hired a contractor to begin remedial activities on this property. Iron-laden surface water runoff from the northwest corner of the property will soon be diverted to the sewer system. In addition,

onsite excavation has revealed a pool of "C"-grade oil. A new remediation plan to address the contamination is being developed.

The Port also owns the property upon which the Tollycraft facility is located. This property is currently in violation of state dangerous waste regulations and federal land disposal restrictions for hazardous waste and may also be contaminated. Tollycraft is working directly with Ecology to come into compliance with the regulations and restrictions.

Sampling Activities

The Port sampled sediments from Whatcom Creek, I & J Street, and Squalicum waterways in September 1990 to determine whether the sediments could be disposed of at the PSDDA open-water, unconfined disposal site in Bellingham Bay. The Bellingham Bay PSDDA open-water dredged material disposal site has numerous site restrictions and testing requirements to permit dredged material disposal (PSDDA 1989). Based on these evaluation criteria, none of the sediments from Whatcom Waterway, and only some of the sediments from the I & J Street and Squalicum waterways, may be disposed of at the Bellingham Bay PSDDA site. The Port will be considering all alternatives for disposal of dredged sediments. Dredging in the areas of the waterways that are eligible for disposal at the PSDDA site could begin in the summer of 1992.

The Port is also conducting sediment sampling at the boat repair grid located in Squalicum Harbor. The sampling results will be used to determine if boat repair activities are adversely affecting water quality. A report will be available in the fall of 1991.

Waste Reduction Activities

In conjunction with Sea Grant, the Port established recycling facilities at the Squalicum Marina for cardboard, aluminum, scrap metal, wood, plastics, nets, and waste oil.

Education

The Port currently publishes a bimonthly newspaper entitled *Port Report*. The most recent issue contained the results of a State Parks recreational boater survey that included information on the types of waste disposal equipment and practices used aboard boats and the facilities and programs that are needed to control boat wastes. Future issues of the *Port Report* will include information on sewage, used oil and maintenance wastes, litter and plastic debris, safety, and education. The Port is willing to feature environmentally oriented educational information in future issues.

The Port participated in the development of a Sea Grant brochure for boaters that explains the growing problem of marine debris and contains a map of Squalicum Harbor showing the locations of the oil and waste recycling facilities. In addition, the brochure provides information on the proper disposal of plastic and other wastes generated by commercial fishing fleets.

Washington Sea Grant

Sea Grant provides educational and technical information about marine resource issues.

Waste Reduction Activities

Sea Grant worked with the Port to develop improved waste collection facilities at Squalicum Harbor. Currently, facilities exist for the collection of plastics, boat garbage, cardboard, aluminum, scarp wood and metal, nets, waste oil, sewage, and hazardous materials. Cardboard, aluminum, and scrap wood and metal are recycled.

Education

With funds received from a PIE grant, Sea Grant published three education brochures regarding the problems with marine debris and how recreational boaters and commercial fishermen can help address this problem. These brochures are available for $0.50 each through Sea Grant's North Sound office in Bellingham. Sea Grant is currently considering reprinting these publications.

Sea Grant is also interested in planning educational efforts to improve water quality in Bellingham Bay to the extent that Sea Grant's resources allow. Sea Grant may participate in education events depending on the priorities that emerge from the action plan process, available resources, and existing commitments.

Concerned Southside Citizens

Concerned Southside Citizens (CSC) is a citizen group concerned about environmental protection in Bellingham Bay.

Shoreline Management

CSC is cooperating with City Parks to enhance habitat in the 100-foot setback west of Padden Lagoon obtained through CSC's agreement in 1989 with the Port and the city of Bellingham. CSC has attended and actively participated in the planning meeting for this project. The project was recently approved by the Shoreline Committee of the city's Planning Commission. Work will begin in the summer of 1991, and CSC will provide funds and citizen labor.

Wetlands Protection Activities

CSC is working to protect wetlands in the Padden Creek watershed from proposed development and participated in the scoping process for an EIS for a proposed 1,400-unit residential development. CSC has also participated in workshops to refine a proposed wetlands ordinance for the city of Bellingham.

Water Quality Protection Activities

CSC has been involved in evaluating shoreline development projects that will affect water quality in southern Bellingham Bay. As a result of CSC's efforts, the Port is taking quarterly soundings at the Alaska Ferry Terminal to monitor scouring from ferries. To date, the soundings reveal that little, if any, scouring is taking place. If the soundings continue to show little scouring, they will be discontinued after 1 year.

Hazardous Waste Remediation

CSC has been involved with the Port to ensure that the cleanup of the contaminated site at the intersection of 4th and Harris streets proceeds in a timely manner.

Dredging Activities

CSC is monitoring the status of possible dredging projects in the Whatcom, Squalicum, and I & J waterways.

Education

CSC is helping to sponsor a political candidate forum on environmental issues that will take place in the fall of 1991. This forum will give the public an opportunity to examine candidates running for county, city, and port offices with regard to their stand on environmental issues.

Georgia-Pacific Corporation

Georgia-Pacific maintains an industrial facility that produces pulp and paper on Port property at the Whatcom International Shipping Terminal.

NPDES Source Management

Surface water runoff from the Georgia-Pacific site is collected and conveyed to the secondary treatment lagoon. Discharge of effluent from the lagoon to Bellingham Bay is regulated under an NPDES permit. Georgia-Pacific's NPDES permit was reissued on May 15, 1991. The permit, which is valid for 5 years, has new requirements for effluent toxicity testing, effluent chemistry analyses, and macroinvertebrate sampling near the plant outfall; however, Georgia-Pacific, in conjunction with other pulp and paper industries in Puget Sound, has contested the new permit conditions. The old

permit remains in effect until litigation over the new permit is resolved.

Landfill Management

Georgia-Pacific has the following historic and currently active offsite wood waste landfills:

- Airport Wood Waste (12 acres) - active
- Hilltop Farms Wood Waste (30 acres) - active
- Y-Road - closed
- 1178 Marine Drive - closed
- Zell Road - closed.

Primary treatment and secondary treatment solid wastes (consisting of settleable solids, bark, sand, sodium hydroxide, and chlorinated compounds) have been deposited at the Airport Wood Waste landfill site. This site has been active since 1984. The Hilltop Farms site has been active since 1976. Currently, only log yard waste (consisting of bark and dirt) is deposited at the Hilltop Farms site. Primary treatment solid waste was also deposited there in the past. No facility records exist for the two closed sites. The Zell Road landfill was operated in the late 1980s on agricultural land. The landfill was not permitted or monitored. In addition, Georgia-Pacific has proposed opening a new landfill at the headwaters of Ten-Mile Creek. The site will probably be used primarily for clarifier sludge ash and stack ash. County Public Works is preparing an environmental impact statement for the proposed landfill.

Waste Reduction and Recycling Activities

Georgia-Pacific has reduced its water consumption from 59 to 35 million gallons per day through recycling and new equipment.

Approximately 10 percent of primary treatment solid waste is currently reused by another local industry. Other potential outlets for waste reuse (e.g., fuel) are under consideration.

A project to burn solid waste residue from primary treatment for fuel is expected to begin early in 1992. In addition, a corporate-wide review is underway to consider use of recycled fiber in the production of tissue products. Georgia-Pacific also has participated in the Industrial Materials Exchange to find markets for its industrial by-products.

Hazardous Waste Management

The pulp and paper process results in a variety of waste products. Bleach pulping wastes, evaporator condensate including methanol and acetic acid, and papermaking effluents are processed in the company's aerated stabilization lagoon (treatment pond). Bark and primary clarifier solids are taken to approved solid waste sites. Mercury-containing brine solids are taken to an approved hazardous waste site.

Georgia-Pacific has developed a nonchlorine pulp bleaching process that uses caustic soda, oxygen, and hydrogen peroxide. The present market for this pulp is primarily in Europe for tissue products. Additional production of nonchlorine bleached pulp at Georgia-Pacific will depend on market demand, cost of production, and regulatory developments.

All large electrical capacitors located at the Georgia-Pacific plant containing PCBs have been removed. Fourteen above-ground petroleum storage tanks exist onsite, and no underground tanks are in use. All solvents and waste paints are removed from the site by a contractor.

Maritime Contractors, Inc.

Maritime Contractors, Inc. (MCI) operates a ship repair facility that consists of two dry docks and one marine railway.

Shoreline Management

The company is planning to build an additional pier and extend the stub pier, owned by the Port, located on the east side of the Alaska Ferry Terminal. Neither of these projects will require dredging.

NPDES Source Management

MCI has applied for an NPDES permit. While the company does not currently have any storm water facilities, the NPDES permit is likely to require some measures for containing storm water runoff. The permit will cover the entire site and contain monitoring requirements. Ecology's Water Quality Program is currently drafting the permit.

Best Management Practices

With assistance from the U.S. Coast Guard, MCI has developed a hazardous waste management and contingency plan. The plan calls for containment booms to be in place when pier-side work is performed and small sorbent booms, sorbent pads, and sorbent material to be available for upland spill containment. All employees will receive training on the plan. MCI also has a spill prevention control and countermeasure plan for the shipyard.

All sandblasting conducted on the dry docks is done with fabric curtains in place. Dry docks are cleaned of used sandblast grit before they are sunk. The grit is stored in a concrete bunker onsite and is hauled offsite and recycled by a contractor.

Oil is stored in one above-ground tank. Used oil is removed for recycling by a contractor. Commercial cleaners are responsible for taking bilge water from ships that are being repaired.

Hazardous Waste Management

MCI must follow state requirements for hazardous waste generation, storage, handling, transport, and disposal. Hazardous wastes handled at MCI include sandblast grit, paint residues from cleaning, still bottoms from solvent recycling, and waste oil.

Bellingham Cold Storage

BCS owns and operates a seafood processing plant, and has plans to build a new dry storage plant at the main plant for BFF. They are currently waiting for permit approval.

Storm Water Management

The BCS drainage system discharges to Bellingham Bay at approximately 10 locations. The system includes catch basins to collect sediments but does not include oil/water separators. The property is owned by the Port and it is unclear if the Port or BCS is responsible for the maintenance of the drainage system.

NPDES Source Management

BCS discharges noncontact cooling water to Bellingham Bay under an NPDES permit. Water used to process seafood is discharged to the Post Point WWTP. BCS has reapplied for a NPDES permit, and Ecology is currently writing the draft permit.

Best Management Practices

BCS trains all maintenance, foremen, cleanup, and most forklift personal in cleanup procedures. BCS maintains a safety committee which is in the process of drafting a policy that addresses discharging materials to storm drains. Currently, waste oils are stored in two onsite waste oil containers that are emptied by a private contractor.

Waste Reduction Activities

BCS is considering the following activities to reduce its waste discharge:

- Using a closed glycol system for cooling rather than water in both engine rooms. BCS currently uses a closed glycol system in Engine Room 1.
- Using a chilled water/chlorination system in which product transfer water is hydro-chilled, screened, and chlorinated for reuse. Solids removed through pretreatment are sent to a renderer.

Hazardous Substances Control Activities

All transformers at BCS have been changed so that they do not contain PCBs. Abandoned fuel tanks at a dock on the site were removed in 1989.

Bellingham Frozen Foods

BFF owns commercial vegetable processing operations in Bellingham.

Point Source Management

BFF discharges water used in processing vegetables to the Post Point WWTP. This discharge is monitored for total suspended solids, chemical oxygen demand, and solids.

The company is planning to discontinue discharges to the Post Point WWTP through the use of a land treatment facility where the wastewater can be applied to the land. An EIS has been completed and appropriate permits have been issued. A draft NPDES permit has gone through the public comment period and is being finalized. Construction on the land treatment facility has begun and should be completed in the fall of 1991. The facility will include a 20-million gallon storage lagoon that will be used as a retention basin for the wastewater. Oxygen will be supplied to the lagoon to minimize any odor. Groundwater at the facility will be monitored for nitrate and heavy metals.

Waste Reduction Activities

In 1988, BFF began recirculating the water used to transport peas through a closed loop system. This system hydro-chills and screens the water and then treats it with chlorine dioxide. This system has reduced BFF's water use by 400,000 gallons per day during the pea season, which lasts about 60 days. BFF has implemented similar systems for corn and carrot processing. The system used for corn processing will reduce water use by about 200,000 gallons per day, and the system used for carrot processing will reduce water use by about 120,000 gallons per day.

Site-Specific Action Plan

The site-specific action plan addresses areas with known chemical and bacterial contamination and eutrophication and potential contaminant sources. The site-specific action plan is intended to prioritize source identification, source control, and remedial activities according to priority problem areas. Source-specific actions, presented in Table 2, identify specific contaminant sources and source-specific control actions that will be taken to improve environmental conditions in Bellingham Bay. Sources listed in Table 2 are those identified in *Bellingham Bay Action Program: Initial Data Summaries and Problem Identification* (PTI 1989a) and by the members of the interagency and citizen work group (see Figures 5 and 6). Source characteristics and statuses were identified in the data summaries document and by work group members. Actions are those activities specifically related to source control or contaminant remediation that have been agreed upon by the individual agencies in the work group. The implementation date lists actual and projected start and finish dates for each action. Limiting factors represent requirements needed by agencies to implement specific actions. Blank areas indicate gaps in knowledge of the source characteristics or actions to limit or remediate contamination problems. One of the ongoing tasks of the work group is to further refine priorities and secure commitments from participating agencies to perform additional source identification and implement source control measures.

Tables 3–8 summarize general programmatic actions that will be taken to improve environmental conditions in Bellingham Bay. There is some overlap among the programmatic action tables (Tables 3–8), and also between the programmatic action tables and the source-specific action table (Table 2). Table 3 lists area-wide planning and program development actions, Table 4 lists pollutant control actions, Table 5 lists remedial investigations and remedial actions, Table 6 lists sampling and monitoring actions occurring in the project area. Table 7 lists resource protection actions, and Table 8 presents the various educational activities and programs that will be implemented. Each of these tables gives a brief description of the action, lists the agencies involved, and notes the starting or ending target dates when known. More detail concerning activities in the action column can be found in the *Comprehensive Plans and Programs* section of this report.

TABLE 2. SOURCE-SPECIFIC ACTIONS

Sources		Corrective Actions			
Type/Name	Characteristics and Status	Action	Agencies Involved	Target Date	Limiting Factors
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) POINT SOURCES					
Wastewater Treatment Plants (WWTPs)					
City of Bellingham Post Point WWTP	Primary WWTP; average flow 9.8-11.7 million gallons per day (mgd); per Consent Decree dated 2/5/88 limitations during food processing season (i.e., July–January) include 230 mg/L and 22,000 lb/day biochemical oxygen demand (BOD), 85 mg/L and 7,000 lb/day total suspended solids (TSS), and 700 fecal coliform bacteria/100 mL effluent. Limitations during February through June include 110 mg/L and 8,510 lb/day BOD, 55 mg/L and 6,000 lb/day TSS, and 700 fecal coliform bacteria/100 mL effluent. When secondary treatment goes online in 12/93, weekly average limitations will be 45 mg/L and 3,340 kg/day BOD, 45 mg/L and 3,340 kg/day TSS, and 400 fecal coliform bacteria/100 mL. Monthly average limitations will be 36 mg/L and 2,225 kg/day BOD, 30 mg/L and 2,225 kg/day TSS, and 200 fecal coliform bacteria/100 mL. NPDES permit to discharge to Bellingham Bay expires 3/16/93. NPDES discharges to WWTPs must have a pH within the range of 6.0-9.0 unless otherwise noted in permit.	Review and renew NPDES permit. Renewed permit will include requirements for measuring the level of toxic chemicals in effluent.	Washington Department of Ecology (Ecology)	3/93	
		Upgrade WWTP from primary to secondary treatment	City of Bellingham Public Works (City Public Works)	12/93	
		Meet all requirements of NPDES permit including best management practices (BMPs)	City Public Works	Ongoing	
City of Ferndale WWTP	Secondary WWTP; average flow 0.6 mgd; limitations include weekly averages of 45 mg/L BOD, 210 kg/day TSS, and 400 fecal coliform bacteria/100 mL effluent. NPDES permit to discharge to Nooksack River expires 9/5/94. NPDES discharges to WWTPs must have a pH within the range of 6.0-9.0 unless noted in permit.	Review and renew NPDES permit, include toxic chemical limitations	Ecology	9/94	
		Meet all requirements of NPDES permit including BMPs	City of Ferndale	Ongoing	

TABLE 2. SOURCE-SPECIFIC ACTIONS (Continued)

Sources		Corrective Actions			
Type/Name	Characteristics and Status	Action	Agencies Involved	Target Date	Limiting Factors
City of Lynden WWTP	Secondary WWTP; average flow 1.3 mgd; limitations include weekly averages of 45 mg/L BOD, 200 kg/day TSS, and 500 fecal coliform bacteria/100 mL effluent. NPDES permit to discharge to Nooksack River expires 5/9/93. NPDES discharges to WWTPs must have a pH within the range of 6.0-9.0 unless noted in permit.	Review and renew NPDES permit, include toxic chemical limitations	Ecology	5/93	
		Meet all requirements of NPDES permit including BMPs	City of Lynden	Ongoing	
City of Everson WWTP	Secondary WWTP; average flow 0.2 mgd; limitations include weekly averages of 45 mg/L BOD, 22 kg/day TSS, and 400 fecal coliform bacteria/100 mL effluent. NPDES permit to discharge to Nooksack River expires 4/30/94. NPDES discharges to WWTPs must have a pH within the range of 6.0-9.0 unless noted in permit.	Review and renew NPDES permit, include toxic chemical limitations	Ecology	4/94	
		Meet all requirements of NPDES permit including BMPs	City of Everson	Ongoing	
Hatcheries					
Bellingham Hatchery	Hatchery effluent. Effluent limitation: 679 lb/day TSS. NPDES permit to discharge to Whatcom Creek expires 6/30/96.	Review and renew NPDES permit, include BOD limitations	Ecology	6/96	
		Meet all requirements of NPDES permit including BMPs	Washington Department of Wildlife	Ongoing	
Nooksack River State Hatchery	Hatchery effluent. Effluent limitations: 27.4 mgd; 4,408 lb/day TSS. NPDES permit to discharge to Kendall Creek expires 5/17/93.	Review and renew NPDES permit, include BOD limitations	Ecology	5/93	
		Meet all requirements of NPDES permit including BMPs	Washington Department of Fisheries	Ongoing	
Industries					
Bellingham Cold Storage (BCS)	Screened wastewater from fish processing. Effluent limitation: daily maximum of 10,000 gallons per day (gpd). NPDES permit to discharge to Post Point WWTP expires 8/12/93.	Review and renew NPDES permit	Ecology	8/93	
		Meet all requirements of NPDES permit including BMPs	BCS	Ongoing	

TABLE 2. SOURCE-SPECIFIC ACTIONS (Continued)

Sources		Corrective Actions			
Type/Name	Characteristics and Status	Action	Agencies Involved	Target Date	Limiting Factors
Bellingham Frozen Foods (BFF)	Screened wastewater from vegetable processing. Effluent limitation: daily average of 2.0 mgd. A new draft NPDES permit to discharge to Post Point WWTP is currently being reviewed.	Review and issue new NPDES permit, include toxic chemical limitations	Ecology	7/93	
		Meet all requirements of NPDES permit including BMPs	BFF	Fall 1991	
		Construct a land treatment facility that will be used as a retention basin for the wastewater. Monitor groundwater for nitrate and heavy metals.	BFF	Ongoing	
Brooks Manufacturing Co.	Plant runoff; sump drainage; cooling water from wood-treating operations. Effluent limitations: daily maximum of 100 mg/L total oils and 0.1 µg/L pentachlorophenol (PCP). NPDES permit to discharge to Whatcom Creek and Bellingham Bay expires 6/20/94.	Review and renew NPDES permit	Ecology	6/94	
		Meet all requirements of NPDES permit including BMPs	Brooks Manufacturing	TBD[a]	
Columbia Cement Corp.	Process wastewater. Effluent limitations: 130,000 gpd; 0.005 pound TSS per 1,000 pounds of product. NPDES permit to discharge to Bellingham Bay expires 3/2/93.	Review and renew NPDES permit	Ecology	3/2/93	
		Meet all requirements of NPDES permit including BMPs	Columbia Cement	TBD	
Dahl Fish Co., Inc.	Screened wastewater from fish processing. Effluent limitation: daily average of 60,000 gpd. NPDES permit to discharge to Bellingham Bay expires 7/22/93.	Review and renew NPDES permit	Ecology	7/22/93	
		Meet all requirements of NPDES permit including BMPs	Dahl Fish Co.	TBD	
Georgia-Pacific Corp.	Effluent limitations include 41,300 lb/day BOD, 62,600 lb/day TSS, a pH range of 5.0-9.0, and 0.05 lb/day total mercury (Hg). NPDES to discharge to Bellingham Bay was reissued in 5/91.	NPDES permit was reissued on 5/15/91. The permit has new requirements for effluent bioassay tests, effluent chemistry analyses, and macroinvertebrate sampling near the plant outfall; however, Georgia-Pacific has contested the new permit conditions.	Ecology, Georgia-Pacific		
		Meet all requirements of the NPDES permit including BMPs	Georgia-Pacific	Ongoing	

TABLE 2. SOURCE-SPECIFIC ACTIONS (Continued)

Sources		Corrective Actions			
Type/Name	Characteristics and Status	Action	Agencies Involved	Target Date	Limiting Factors
Maritime Contractors Inc. (MCI)	Paint chips, tributyltin, lead in surface water runoff	Review application for NPDES permit that will require measures for treating and containing storm water runoff and monitoring	Ecology	6/92	
		Meet all requirements of the NPDES permit including BMPs	MCI	Ongoing	
Mt. Baker Plywood, Inc.	Press pit oil/water subnatant wastewater and boiler blowdown. Effluent limitations: daily average of 3,000 gpd; daily maximum of 100 mg/L total oils and 1.0 mg/L total phenolics. NPDES permit to discharge to Post Point WWTP expires 3/14/93.	Review and renew NPDES permit, include toxic chemical limitations	Ecology	3/93	
		Meet all requirements of the NPDES permit including BMPs	Mt. Baker Plywood	TBD	
Oeser Company, The	Sump drainage, cooling water from wood-treating operations; steam condensate and blowdown. Surface water limitations: daily maximum of 100 mg/L total oils and 0.1 μg/L PCP; daily average of 10 mg/L total oils. NPDES permit to discharge to Little Squalicum Creek and Bellingham Bay expires 6/20/94.	Review and renew NPDES permit, include toxic chemical limitations and storm water BMPs	Ecology	6/94	
		Meet all requirements of the NPDES permit including BMPs	Oeser Company	TBD	
Public Utility District #1 of Whatcom County	Water treatment plant decant water. Effluent limitations: 2.4 mgd; 0.01 mL/L settleable solids. NPDES permit to discharge to Nooksack River expires 6/26/92.	Review and renew NPDES permit	Ecology	6/92	
Schenk Seafood Sales	Screened wastewater from fish processing. Effluent limitation: daily maximum of 8,500 gpd. NPDES permit to discharge to Post Point WWTP expires 7/26/93.	Review and renew NPDES permit	Ecology	7/93	
		Meet all requirements of the NPDES permit including BMPs	Schenk Seafood Sales	TBD	
Sea-Pac Co., Inc.	Screened wastewater from fish processing. Effluent limitation: daily average of 3,000 gpd. NPDES permit to discharge to Bellingham Bay expires 7/22/93.	Review and renew NPDES permit	Ecology	7/93	
		Meet all requirements of the NPDES permit including BMPs	Sea-Pac Co.	TBD	
Seawest Industries	Screened wastewater from fish processing. Effluent limitation: daily average of 70,000 gpd. NPDES permit to discharge to Post Point WWTP expires 3/2/93.	Review and renew NPDES permit	Ecology	3/93	
		Meet all requirements of the NPDES permit including BMPs	Seawest Industries	TBD	

TABLE 2. SOURCE-SPECIFIC ACTIONS (Continued)

Sources		Corrective Actions			
Type/Name	Characteristics and Status	Action	Agencies Involved	Target Date	Limiting Factors
OTHER POINT SOURCES					
Combined Sewer Overflows (CSOs)/Emergency Overflows (EOF)					
"C" Street CSO - city of Bellingham	Untreated sewage and storm water runoff	Reduce storm water intrusion to limit overflow events to one or less than one per year	City Public Works	Ongoing	
Edgemoor EOF - city of Bellingham	Untreated sewage (one overflow event due to pump failure)	Installed two new electrical pumps	City Public Works	Completed	
Flynn Street EOF - city of Bellingham	Untreated sewage (one overflow event due to vandalism)				
Birch Street EOF - city of Bellingham	Untreated sewage (one overflow event due to power failure)	Install backup generator in case of power failure	City Public Works	TBD	
NONPOINT SOURCES					
Watersheds					
General (applicable to all watersheds)	Fecal coliform bacteria-laden surface water from failing septic systems; nonpoint sources including agriculture (dairy), urban, and logging runoff	Develop environmental elements of comprehensive land use plan required by the Growth Management Act	Whatcom County Planning Department (County Planning) and Whatcom County Department of Public Works (County Public Works)	Spring 1993	
		Establish county-wide onsite sewage disposal system maintenance program	Whatcom County Health Department (County Health)	Ongoing	
		Install oil/water separators as needed	County Public Works	Ongoing	
		Develop storm water standards	County Public Works	11/91	
		Issue and enforce clearing permits for developments involving >5,000 board feet of timber	County Public Works	Ongoing	

TABLE 2. SOURCE-SPECIFIC ACTIONS (Continued)

Sources		Corrective Actions			
Type/Name	Characteristics and Status	Action	Agencies Involved	Target Date	Limiting Factors
Nooksack River and tributaries: - Silver Creek - Ten Mile Creek - Kamm Creek - Bertrand Creek - Fishtrap Creek	Nonpoint sources including agricultural (dairy), urban, and logging runoff; leachate from Cedarville landfill and illegal dump sites; fecal coliform bacteria-laden surface water from failing septic systems.	Implement the Silver Creek Early Action Watershed Plan	Whatcom County Council of Government (COG)	Ongoing	
		Implement the Ten-Mile Creek Watershed Plan	Whatcom County Conservation District (Conservation District)	7/91	Receipt of Centennial Clean Water Fund grant for $200,000
		Implement the Kamm Creek Watershed Plan	Conservation District Soil Conservation Service	Ongoing	
		Assist farmers in developing waste management plans and implementing BMPs. Conduct follow-up inspections to ensure compliance with plans and BMPs.	Conservation District	Ongoing	
		Complete general NPDES permit for concentrated animal wastes.	Ecology and Interagency Advisory Committee.	8/92	
		Issue and enforce clearing permits for developments involving >5,000 board feet of timber	County Public Works	Ongoing	
		Compile an inventory of sediment sources and develop lists of corrective actions to reduce the input of sediment to streams	Lummi Tribe	Summer or fall 1991	
		Conduct site visits and provide technical recommendations to foresters	Lummi Tribe	Ongoing	
		Provide technical advice during the planning stage of a project to prevent activities that will increase sediment loading to salmon spawning streams	Lummi Tribe	Ongoing	
Squalicum Creek	Residential storm water runoff; nonpoint urban and industrial runoff; fecal coliform bacteria-laden surface water from failing septic systems.	Draft plan to protect wetlands	City Public Works	6/92	

TABLE 2. SOURCE-SPECIFIC ACTIONS (Continued)

Sources		Corrective Actions			
Type/Name	Characteristics and Status	Action	Agencies Involved	Target Date	Limiting Factors
Whatcom Creek (including (Lake Whatcom)	Residential, commercial, and industrial storm water runoff; nonpoint urban industrial and logging runoff; contamination from marinas and powerboats; fecal coliform bacteria-laden surface water from failing septic systems; leachate from landfills in Whatcom Creek vicinity.	Revise a model ordinance for liveaboards (i.e., boats used as primary residences) that deals primarily with how marinas should handle blackwater (i.e., sewage) coming from liveaboard boats	Washington Department of Health (DOH), Washington State Parks and Recreation Commission (State Parks), Washington Department of Ecology (Ecology), Puget Sound Water Quality Authority (Authority)	TBD	
		Conduct an inventory of underground fuel storage tanks and develop ordinance regulating the tanks	County Public Works and City Public Works	Inventory completed/ Ordinance has been proposed	
		Issue and enforce clearing permits for developments (conversions)	County Public Works	Ongoing	
		Apply strict requirements to the construction of septic systems	County Health	Ongoing	
Padden Creek	Residential and commercial storm water runoff; nonpoint urban, industrial, and commercial runoff; fecal coliform bacteria-laden surface water from failing septic systems.	Develop policies regarding public access, wildlife, and landscape management in wetlands (based on a planning study of Padden Creek and its associated wetlands and recommended improvements)	City of Bellingham Parks and Recreation Department (City Parks)	Fall 1991	
Salmon Net-Pens					
Alaska Ferry terminal	Nutrient loading and BOD	Identify and implement BMPs	Washington Department of Fisheries (WDF)	Ongoing	
Squalicum Harbor	Nutrient loading and BOD	Identify and implement BMPs	WDF	Ongoing	
Taylor Dock	Nutrient loading and BOD; operates under hydraulic project approval (HPA) permit that expires in 1996	Conducted a physical and biological survey in 8/90	WDF	Ongoing	
		Site to be surveyed again during 5th year of operation and prior to renewal of the HPA in 1996	WDF	1996	

TABLE 2. SOURCE-SPECIFIC ACTIONS (Continued)

Sources		Corrective Actions			
Type/Name	Characteristics and Status	Action	Agencies Involved	Target Date	Limiting Factors
Hatcheries					
Whatcom Creek Hatchery	Nutrients and BOD	Monitor water quality	WDF	TBD	
		Apply for state general NPDES permit	WDF/Maritime Heritage Center	Ongoing	
Skookum Creek Hatchery	Nutrients and BOD	Identify and implement BMPs	Lummi Tribe	TBD	
Landfills					
Airport Wood Waste landfill - operated by Georgia-Pacific (active)	Potential leaching of metals and organic chemical contaminants	Determine if leachate is contaminating groundwater or surface water	Georgia-Pacific	TBD	
		Pursue funding for site hazard assessment	County Health	TBD	No funding
Hilltop Farms Wood Waste landfill - operated by Georgia-Pacific (active)	Potential leaching of metals and organic chemical contaminants	Determine if leachate is contaminating groundwater or surface water	Georgia-Pacific	TBD	
		Pursue funding from Ecology to conduct site hazard assessment	County Health	TBD	No funding
Y-Road landfill - operated by Georgia-Pacific (closed)	Potential leaching of metals and organic chemical contaminants	Determine if leachate is contaminating groundwater or surface water	Georgia-Pacific		
		Pursue funding from Ecology to conduct site hazard assessment	County Health	TBD	No funding
Zell Road landfill - operated by Georgia-Pacific (closed)	Potential leaching of metals and organic chemical contaminants	Determine if leachate is contaminating groundwater or surface water	Georgia-Pacific	TBD	
		Pursue funding from Ecology to conduct site hazard assessment	County Health	TBD	No funding
1178 Marine Dr. - operated by Georgia-Pacific (closed)	Potential leaching of metals and organic chemical contaminants	Determine if leachate is contaminating groundwater or surface water	Georgia-Pacific	TBD	
		Pursue funding from Ecology to conduct site hazard assessment	County Health	TBD	No funding
Whatcom County Courthouse vicinity landfill (closed)	Potential leaching of metals and organic chemical contaminants	Determine if leachate is contaminating groundwater or surface water	Georgia-Pacific	TBD	
		Pursue funding from Ecology to conduct site hazard assessment	County Health	TBD	No funding

TABLE 2. SOURCE-SPECIFIC ACTIONS (Continued)

Sources		Corrective Actions			
Type/Name	Characteristics and Status	Action	Agencies Involved	Target Date	Limiting Factors
City of Bellingham landfill - Georgia-Pacific vicinity (closed)	Potential leaching of metals and organic chemical contaminants	Determine if leachate is contaminating groundwater or surface water	County Health	TBD	No funding
		Pursue funding from Ecology to conduct site hazard assessment	County Health	TBD	No funding
Shoreline vicinity landfill (closed)	Potential leaching of metals and organic chemical contaminants	Determine if leachate is contaminating groundwater or surface water	County Health	TBD	No funding
		Pursue funding from Ecology to conduct site hazard assessment	County Health	TBD	No funding
Lynden landfill - Nooksack drainage area (closed)	Potential leaching of metals and organic chemical contaminants	Determine if leachate is contaminating groundwater or surface water	County Health	TBD	No funding
		Pursue funding from Ecology to conduct site hazard assessment	County Health	TBD	No funding
Cedarville landfill - Nooksack drainage area (active)	Potential leaching of metals and organic chemical contaminants; surface water runoff	Determine if leachate is contaminating groundwater or surface water	County Health	TBD	No funding
		Pursue funding from Ecology to conduct site hazard assessment	County Health	TBD	No funding
Onsite Sewage Disposal Systems					
Chuckanut Bay residential area	Fecal coliform bacteria-laden surface water due to septic system failures. Direct drainage to Bellingham Bay.	Conduct an inventory of septic tank systems and repair the failing systems	County Health	TBD	No funding
		County-wide onsite sewage disposal systems maintenance program	County Health	Ongoing	
		Loan program for homeowners to improve, replace, or repair septic system	County Planning	Ongoing	

TABLE 2. SOURCE-SPECIFIC ACTIONS (Continued)

Sources		Corrective Actions			
Type/Name	Characteristics and Status	Action	Agencies Involved	Target Date	Limiting Factors
Marine Drive (Birchwood) vicinity	Fecal coliform bacteria-laden surface water (over 20,000 organisms/100 mL in drainage ditch samples). Direct drainage to Bellingham Bay.	Conduct an inventory of septic tank systems and repair the failing systems	County Health and property owners	TBD	No funding
		County-wide onsite sewage disposal systems maintenance program	County Health	Ongoing	
		Loan program for homeowners to improve, replace, or repair septic systems	County Planning	Ongoing	
Terminals and Marinas					
Port of Bellingham terminals: - Fairhaven - Hilton - Parkway - Squalicum Harbor - Whatcom International Shipping	Potential sources of chemical and biological contamination	Determine types and levels of contaminants present or being released and follow-up actions to be taken	Port and lessees	1992	
		Implement storm water BMPs	Port and lessees	1992	
		Performed a site hazard assessment on Whatcom Waterway to determine potential threat to human health and the environment	Ecology	Site hazard assessment report completed 8/91; site will be ranked for cleanup 9/91	Limited staff
Alaska State Ferry terminal located in Fairhaven	Potential for contaminated water due to resuspension of contaminated sediment from pile-driving; turbulence created as ferries maneuver may contaminate waters in immediate and adjacent areas	Quarterly soundings for depth/sediment disturbance	Port	Quarterly in 1991	

TABLE 2. SOURCE-SPECIFIC ACTIONS (Continued)

Sources		Corrective Actions			
Type/Name	Characteristics and Status	Action	Agencies Involved	Target Date	Limiting Factors
Squalicum Harbor Marina	Potential source of metals, sewage, fuel, oil, and boater waste	Administer boat sewage pumpout grants	State Parks	Ongoing	
		Determine types and levels of contaminants being released and follow-up actions to be taken	County Health; Port has taken samples at the Squalicum Marina repair grid	Report available fall 1991	No funding
		Establish oil and other waste collection facilities	Port	Complete except for boater repair waste	
		Establish BMPs for small boat repair grids	Port	TBD	
Hilton Marina	Potential source of metals, sewage, fuel, oil, and boater waste	Determine types and levels of contaminants being released and follow-up actions to be taken	Port County Health	TBD	No funding
		Administer boat sewage pumpout grants	State Parks	Ongoing	
		Establish oil and other waste collection facilities	Port	Complete except for boater repair waste	
		Establish BMPs for small boat repair grids	Port	TBD	
Dredged Material Disposal Sites					
Site A	Contains contaminated wood fibers and organic material dredged in 1969 from Whatcom Creek Waterway. Nature of contamination is unknown.	Sample sediments to characterize contamination and determine what, if any, actions should be taken	Washington Department of Natural Resources (DNR)	TBD	
Site B	Contains sediment dredged in 1966 from the I & J streets waterway. Sedimentation of this waterway was probably due to agricultural and logging activities upstream.	Sample sediments to characterize contamination and determine what, if any, actions should be taken	DNR	TBD	

TABLE 2. SOURCE-SPECIFIC ACTIONS (Continued)

Sources		Corrective Actions			
Type/Name	Characteristics and Status	Action	Agencies Involved	Target Date	Limiting Factors
Site C	Contains sediment from I & J streets, Squalicum Creek, and Whatcom Creek waterways	Sample sediments to characterize contamination and determine what, if any, actions should be taken	DNR	TBD	
Site D	Contains sediment dredged in 1963 from the Squalicum Creek waterway. Sedimentation of this waterway was probably due to agricultural and logging activities upstream.	Sample sediments to characterize contamination and determine what, if any, actions should be taken	DNR	TBD	
Site E	Contains sediments and sludges dredged in 1974 from Whatcom Creek Waterway.	Sample sediments to characterize contamination and determine what, if any, actions should be taken	Georgia-Pacific	TBD	
Site F	Contains sediments from 1981 dredging of the inner tidal flats of the mouth of Squalicum Creek	Sample sediments to characterize contamination and determine what, if any, actions should be taken	Port	TBD	
Puget Sound Dredged Disposal Analysis (PSDDA) disposal site	Will contain dredged material that passes the PSDDA criteria for unconfined, open-water disposal	Determine if dredged material passes PSDDA criteria for unconfined, open-water disposal	DNR, Ecology, U.S. Environmental Protection Agency, U.S. Army Corps of Engineers	Ongoing	
		Conduct chemical and biological monitoring	DNR	Ongoing	
		Conduct physical monitoring	U.S. Army Corps of Engineers	Ongoing	

[a] TBD - to be determined.

TABLE 2. SOURCE-SPECIFIC ACTIONS (Continued)

POTENTIAL SOURCES TO BE INVESTIGATED BY ECOLOGY

Absorption Corp.
Advanced Combustion
Allied Transmission
Al's RV Service
Bellingham Chemical
Bellingham Chrysler/Bellingham Mitsubishi
Bellingham Collision
Bellingham Detail
Bellingham Herald
Bellingham Marine Service
Bellingham Transmission
Bill Bailey Tires
Bob's Texaco
Bomac Machine
Bond's Texaco Service
Bucks Texaco
Capp'n Glass Boat Works
Chemical Services Northwest
Coastline Equipment
Coca-Cola Bottling Co.
Colt Construction
Conour & Pittman
Dewey Griffin
Diehl Ford
Ferrotek
Fishwrapper (The)
Foreign Auto Repair
German Car Repair
Grand Central Collision
Harmony Motor Works
Hawley's Boats
Heath Technica
Herb McNutt Auto Service
Higher Plane Cabinets
Hilton Harbor Marine
Hunnicutt's Truck Shop
Hydro Chem
Hydro Swirl
Import Motors
Ipero Construction
Marine Services Northwest
McClusky's Auto Body/Radiator
Mill's Auto Repair
Minute Lube
Motor Weld
Mustang Floatation
Myers Northwest
Nordan
North Cascade Machine and Fabrication
Northland Diesel
Northwest Honda
Northwest Marine Fabrications/ALFA
Aluminum Fabrications
Old Fairhaven Parkway Chevron
Olson Auto Body
Pacific Printing
Padden Creek Marine
Penderson Bros Inc.
Phillips Furniture
Precision Tune
Rainbow Auto & Paint
Ray's Auto Repair
RC Automotive
Rising Sun Motors
Roger Joby Motors
S&F Auto Body
SCINTILLA
Smitty's Auto
Special T Sign Co.
Strider Construction
Sunshine Printing
Timber Haulers
Tri County Engine Inc.
Trottners Mobile Auto Repair
Union Printing
V-Twin Supermarket
Weekly Construction Reporter (The)
Wefer Truck Parts
Weld Craft
West Coast Marine Services
Western Concrete Pumping
Western Roofing
Whatcom Skagit Crane Services
Whatcom Special Transport
Whatcom Tire Center
Whole Sale Auto
Wight Corp.
Wilder Construction
Woodcraft by Terry
Wright Bros./Sea Sport Boats

TABLE 3. PLANNING AND PROGRAM DEVELOPMENT ACTIONS

Action	Agencies Involved	Target Date[a]	Limiting Factors
Developed Puget Sound Water Quality Management Plan	Puget Sound Water Quality Authority (Authority)	Adopted 5/91	
Develop Squalicum Creek watershed plan	To be determined (TBD)	TBD	No lead agency
Develop Memorandum of Agreement (MOA) between Whatcom County Health Department (County Health) and Washington Department of Health (DOH) to sample shellfish and post signs at contaminated recreational shellfish beaches	County Health, DOH	TBD	No funding for local participation
Administer boat sewage pumpout grants	Washington State Parks and Recreation Commission (State Parks)	Ongoing	
Storm water and drainage utility established (fees based on one-time fee for amount of impervious surface created; erosion and sediment control plans required)	City of Bellingham Department of Public Works (City Public Works)	Ongoing	
Establish county storm water district to address water quality and quantity problems (including sedimentation and erosion control)	Whatcom County Public Works Department (County Public Works)	TBD	Awaiting public discussion and county approval
Create development standards for all port-owned or administered properties	Port of Bellingham (Port)	TBD	
Complete general National Pollutant Discharge Elimination System (NPDES) permit for concentrated animal wastes	Washington Department of Ecology (Ecology) and Interagency Advisory Committee	August 1992	
Adopt revisions to Whatcom County Shoreline Master Program	Whatcom County Planning Department (County Planning)	12/90	
Complete, review, and adopt comprehensive land use plan	City of Bellingham Planning and Economic Development Department (City Planning), County Planning, and resource agencies	TBD	
Establish lead agency (e.g., Whatcom County Public Utility District #1) to address and coordinate water quality issues	Whatcom County Council	TBD	
Issue land clearing permits for clearing operations not under the Washington Department of National Resources (DNR) jurisdiction	County Public Works	Ongoing	Limited staff and funding
Review shoreline master programs and shoreline permits	Ecology	Ongoing	

TABLE 3. PLANNING AND PROGRAM DEVELOPMENT ACTIONS (Continued)

Action	Agencies Involved	Target Date*	Limiting Factors
Developed highway surface water runoff rule	Ecology and Washington Department of Transportation (DOT)	Adopted 5/91	
Develop transboundary pollution controls and resource protection activities	U.S. Environmental Protection Agency (EPA), Ecology, National Marine Sanctuary Program	Ongoing	
Negotiate MOA between Ecology and DNR addressing liability and responsibility for investigation and cleanup of state-owned and state-leased lands	DNR and Ecology	Ongoing	
Negotiate port management agreement to assign management responsibilities (including liability) of state-owned lands contained within Port operations	DNR and Port	Ongoing	
Develop rules, guidelines, and model ordinances for storm water	Ecology	11/91	
Develop a best management practices (BMPs) manual for storm water	Ecology	11/91	
Develop storm water management requirements for cities with populations less than 100,000	EPA	1992	
Create development standards for the Lake Whatcom watershed	City Public Works and County Public Works	Adopt summer of 1991	
Develop critical areas protection ordinance	City Planning	12/31/91 (end of review period) 3/92 (interim ordinance)	Field confirmation of wetland inventory data needed
Review and approve local wetland protection plans	Authority and Ecology	8/91	
Developed sediment quality standards, dredged disposal criteria, and remedial action criteria	Ecology	Completed	
Conduct an inventory of underground fuel tanks in the Lake Whatcom watershed and develop ordinance regulating these tanks	County Public Works and City Public Works	Inventory completed/ ordinance has been proposed	
Survey areas within the Bellingham Bay watershed with known failing septic tank problems	County Health	TBD	No funding
Conduct an inventory of storm drain systems within the Lake Whatcom watershed; incorporate this information into capital improvement programs and develop maintenance programs	County Public Works and City Public Works	Ongoing	

TABLE 3. PLANNING AND PROGRAM DEVELOPMENT ACTIONS (Continued)

Action	Agencies Involved	Target Date[a]	Limiting Factors
Investigate the possible designation of north Puget Sound (including Bellingham Bay) as a national marine sanctuary	Ecology and the National Oceanic and Atmospheric Administration	Ongoing	
Revise model ordinance for boater waste disposal	DOH and State Task Force	TBD	
Develop and adopt land clearing ordinance that is water quality protective	City Planning	TBD	
Revise the thresholds for the State Environmental Policy Act (SEPA)	City Planning	TBD	No staffing
Develop a Squalicum Creek drainage improvement plan	City Public Works	6/92	
Establish stream protection ordinance regarding livestock management	City Planning	Fall 1991	
Provide guidance on the disposal of materials derived from storm drain system maintenance	Ecology	Winter 1991	
Add conditions to state leases to prevent and/or remediate contamination of state-owned aquatic lands	DNR and lessees	Ongoing	
Administer watershed management plan grants	Ecology	Ongoing	
Approve watershed management plans	Ecology	Ongoing	
Renew expired state waste discharge and NPDES permits	Ecology	Ongoing	Limit staffing and funding
Finalize recreational shellfish plan for Puget Sound	Ecology and DOH	October 1991	
Complete BMPs policy	Bellingham Cold Storage	Fall 1991	
Participate in the protection of water quality through attendance at public meetings, reviewing pertinent documents, and involvement in field projects	Concerned Southside Citizens	Ongoing	

[a] End date for action, except where noted.

TABLE 4. POLLUTANT CONTROL ACTIONS

Action	Agencies Involved	Target Date[a]	Limiting Factors
Apply strict requirements to the construction of septic systems within the Lake Whatcom watershed	Whatcom County Health Department (County Health)	Ongoing	
Conduct an inventory of and correct failing septic tanks in the Lake Whatcom watershed	County Health and City of Bellingham Department of Public Works (City Public Works)	Completed	
Investigate sources of elevated fecal coliform bacteria in Chuckanut Village stream	County Health	TBD	
Provide recycling bins at all parks	City of Bellingham Parks and Recreation Department (City Parks) and Washington Parks and Recreation Commission (State Parks)	Ongoing	
Provide permanent collection facility for household hazardous waste	County Health	Ongoing	
Compost and reuse all organic materials collected from park maintenance	State Parks and City Parks	State parks - immediately City Parks - ongoing	
Provide permanent collection facility for household hazardous waste	City Public Works and County Health	Ongoing	
Discontinue use of herbicides in Lake Whatcom watershed	City Public Works and Whatcom County Public Works Department (County Public Works)	Complete	
Implement water quality-sensitive vegetation control program	County Public Works	Ongoing	
Establish oil and other waste collection facilities for marina tenants in Squalicum Harbor	Port of Bellingham (Port)	Complete except for boater repair waste	
Establish best management practices (BMPs) at Squalicum Harbor small boat repair grids	Port	TBD	
Incorporate the use of environmentally friendly products for park maintenance and reduce or eliminate chemical use	City Parks and State Parks	Fall 1991	
Add staff to perform follow-up inspections to ensure compliance with farm waste management plans	Whatcom County Conservation District (Conservation District)	Completed (1 staff person added)	

TABLE 4. POLLUTANT CONTROL ACTIONS (Continued)

Action	Agencies Involved	Target Date[a]	Limiting Factors
Apply storm water management guidelines to developments that are subject to hydraulic project approval permit or that contain over 5,000 square feet of impervious surface	Washington Department of Fisheries (WDF)	Ongoing	
Restrict livestock access to streams with fencing	WDF, Washington Department of Ecology (Ecology), Conservation District, and private property owners	Ongoing	Limited funding and public acceptance
Work with lessees to minimize potential contamination of their properties and adjacent waters	Port	1992	
Require or assume responsibility for construction and maintenance of oil water separators, catch basins, and other storm water facilities on all Port-owned or administered properties	Port	Ongoing	
Investigate sources of elevated fecal coliform bacteria in stream near Chuckanut Village	County Health	TBD	
Establish a routine maintenance schedule for storm drain systems	City Parks		
Implement Ecology guidance on the disposal of sediment and decant water derived from maintenance of storm drain systems	City Public Works, County Public Works, City Parks, and Port of Bellingham	To be determined (TBD)	Development of guidelines by Ecology
Regulate dredged material disposal in Bellingham Bay	U.S. Environmental Protection Agency, U.S. Army Corps of Engineers (Corps), Ecology, and Washington Department of Natural Resources (DNR)	Ongoing	
Dredge and dispose of sediments from:			
Squalicum Waterway	Corps and Port	Fall 1992	Half of tested sediments unsuitable for in-water disposal
Whatcom Waterway	Corps and Port	TBD	All tested sediments unsuitable for in-water disposal
I & J Streets Waterway	Corps and Port	Fall 1992	Some tested sediments unsuitable for in-water disposal

TABLE 4. POLLUTANT CONTROL ACTIONS (Continued)

Action	Agencies Involved	Target Date[a]	Limiting Factors
Under the Model Toxics Control Act (MTCA), investigate hazardous waste sites and negotiate cleanup actions	Ecology	Ongoing	Limited staff and funding
Upgrade provisions of National Pollutant Discharge Elimination System (NPDES) permits that involve toxics monitoring and reduction	Ecology	Ongoing	
Coordinate and implement spill prevention and response activities for Puget Sound	Ecology	Ongoing	
Comply with provisions of NPDES permit	Maritime Contractors, Inc. (MCI)	Immediately	Issuance of permit by Ecology
Comply with provisions of NPDES permit	Cities of Bellingham, Lynden, and Everson wastewater treatment plants (WWTPs), Georgia-Pacific, Public Utility District No. 1 of Whatcom County	Ongoing	
Comply with provisions of new NPDES permit	City of Ferndale WWTP, Bellingham Cold Storage (BCS), Bellingham Frozen Foods (BFF), Sea Pac, Seawest, Schenk Seafood, Dahl Fish, Mt. Baker Plywood, Oeser Company, Brooks Manufacturing, Columbia Crest, Bellingham Hatchery, and Nooksack State Salmon Hatchery	TBD	Issuance of new permit by Ecology
Pursue opportunities for waste reduction and recycling	Georgia-Pacific, BCS, BFF, MCI	Ongoing	
Implement less toxic bleaching process and use recycled paper fibers	Georgia-Pacific	TBD	Need for market demand of unbleached products; increased production costs
Investigate additional steps that can be taken to prevent sandblast grit and other contaminants from entering Bellingham Bay (e.g., via storm drains)	MCI	TBD	
Establish a storm drain system maintenance program for building complex (i.e., Icicle, BFF, BCS, Trident Seafoods, and San Juan Seafoods)	Port and businesses	Immediately	Determination of responsibility
Require or assume responsibility for construction and maintenance of retention/detention basins and oil/water separators for all new permitted construction within the city of Bellingham	City Public Works	Ongoing	Development of guidelines by Ecology

TABLE 4. POLLUTANT CONTROL ACTIONS (Continued)

Action	Agencies Involved	Target Date[a]	Limiting Factors
Construct and maintain retention/detention basins and oil/water separators for all new municipal development	City Public Works	Ongoing	Development of guidelines by Ecology
Encourage use of constructed biofiltration swales for processing storm water runoff	County Public Works and City Public Works	Ongoing	
Enforce conditions of general NPDES permit for concentrated animal wastes	Ecology	Ongoing	Development of general permit; limited staff and funding
Conduct enforcement inspections and permitting activities under Agricultural Compliance Memorandum of Agreement	Ecology	Ongoing	Limited staff and funding
Establish maintenance programs for all existing public and private storm drain systems	County Public Works and City Public Works	County Public Works has established maintenance schedule for open drainage ditches	
Fund purchase of boater sewage pumpout stations	State Parks	Annually	
Construct and maintain oil/water separators, catch basins, and storm water systems in unincorporated areas	County Public Works	Ongoing	Awaiting development of guidelines by Ecology
Require or assume responsibility for construction and maintenance for retention/detention basins and oil/water separators for all new permitted construction in unincorporated areas of Whatcom County	County Public Works	Ongoing	Awaiting development of guidelines by Ecology
Conduct an inventory of septic tank systems in other areas of the Bellingham Bay Watershed known to have failing septic tanks. Correct the failing septic tank systems.	County Health and property owners	TBD	Funding
Evaluate all NPDES permits to determing loading to Bellingham Bay	Ecology	TBD	Limited staff and funding

[a] End date for action, except where noted.

TABLE 5. REMEDIAL INVESTIGATIONS AND REMEDIAL ACTIONS

Action	Agencies Involved	Target Date[a]	Limiting Factors
Conducted site hazard assessments for: - Whatcom Waterway - Little Squalicum Creek - Boulevard Park - Georgia-Pacific airport landfill - Trans-Mountain's pipeline pump station	Washington Department of Ecology (Ecology)	Completed	
Revise 4th and Harris streets site remediation plan and begin treatment or containment of surface water runoff	Port of Bellingham	Summer 1991	
Comply with state dangerous waste regulations and federal land disposal restrictions at Tollycraft site	Tollycraft Inc., Port of Bellingham, Ecology (Solid and Hazardous Waste Program)	Fall 1991	
Prioritize inspections and conduct initial investigations, including sampling of water, sediment, and soils, at industrial facilities	Ecology	Ongoing	
Investigate hazardous waste sites and negotiate cleanup actions as required under the MTCA	Ecology	Ongoing	Staff
Conduct sampling to identify contaminated state-owned aquatic lands	Washington Department of Natural Resources	Ongoing	
Identify contaminated sediments requiring cleanup	Ecology	Ongoing	

[a] End date for action, except where noted.

TABLE 6. SAMPLING AND MONITORING ACTIONS

Action	Agencies Involved	Target Date[a]	Limiting Factors
Expand creek monitoring program for fecal coliform bacteria, temperature, pH, turbidity, and dissolved oxygen	City of Bellingham Department of Public Works (City Public Works)	Fall 1991	No established follow-up mechanism
Conduct fish sampling for toxic chemicals in Bellingham Bay under Puget Sound Ambient Monitoring Program	Washington Department of Fisheries (WDF)	Annually	
Monitor crab density and tissue chemistry at dredged material disposal site in Bellingham Bay	Washington Department of Natural Resources	Summer 1990	
Monitor water quality and habitat in salmon-producing streams	Lummi Tribe and Nooksack Tribe	Annually	
Monitor local salmon stocks and Dungeness crab harvests	WDF	Ongoing	
Conduct bioaccumulation study in Bellingham Bay	Washington Department of Ecology (Ecology)	Sampling completed in summer 1990, report due in summer 1991	
Sample sediments for metals and organic chemicals at Squalicum Harbor small boat grid	Port of Bellingham	Summer 1991	
Sample sediments from Whatcom, Squalicum, and I & J streets waterways for use in considering dredged material disposal alternatives	Port of Bellingham	Complete	
Sample shellfish from Post Point for toxic chemicals	Washington Department of Health (DOH)	Samples collected 5/91; analyses conducted 6/91	
Sample 19 stations between Post Point and Governor's Point and in Chuckanut Village Stream under the recreational beach program for fecal coliform bacteria	DOH	Ongoing	
Sample for paralytic shellfish poisoning at Post Point and Chuckanut Bay every 2 weeks from April 1 through October 31	Adopt-a-Beach Program, DOH	Ongoing through 1992	Volunteers needed
Investigate Nooksack River water quality and potential impacts on adjacent shellfish beds	Ecology, DOH, Lummi Tribe	Fall 1991	
Monitor Bertrand-Fishtrap Creek watershed to determine effectiveness of waste management efforts	To be determined (TBD)	Fall 1991	Lead agency needed
Monitor creeks in upper reaches of Nooksack River for temperature, pH, dissolved oxygen, scouring, and fecal coliform bacteria	Nooksack Tribe, U.S. Geological Survey	Ongoing	

TABLE 6. SAMPLING AND MONITORING ACTIONS (Continued)

Action	Agencies Involved	Target Date[a]	Limiting Factors
Under the Puget Sound Ambient Monitoring Program conduct:	Ecology		
- Sediment triad sampling		Ongoing (annually)	
- Marine water quality sampling		Ongoing (monthly)	
- Freshwater quality sampling		Ongoing (annually)	
Investigate cause(s) of recurrent Coho salmon mortality at the Maritime Heritage Fish Hatchery	Ecology	Monitoring in fall 1991, report spring 1992	
Determine sources of contaminants in city of Bellingham storm drain systems	Ecology	Fall 1991	
Establish a marina water quality monitoring program	County Health	TBD	Funding

[a] End date for action, except where noted.

TABLE 7. RESOURCE PROTECTION ACTIONS

Action	Agencies Involved	Target Date[a]	Limiting Factors
Conduct salmon enhancement activities	Nooksack Tribe, Lummi Tribe, Washington Department of Fisheries (WDF)	Ongoing	
Issue hydraulic project approval permits for all construction affecting state waters, including wetlands	WDF, Washington Department of Wildlife	Ongoing	
Review Section 10/404 permits for dredge and fill activities in wetlands	U.S. Environmental Protection Agency	Ongoing	
Review shoreline permits and building and rezoning permits for development projects	Whatcom County Public Works Department, City of Bellingham Planning and Economic Development Department (City Planning), City of Bellingham Department of Public Works, Washington Department of Ecology (Ecology)	Ongoing	
State Environmental Policy Act (SEPA) review	All agencies	Ongoing	
SEPA approval	City Planning and County Public Works	Ongoing	
Protect tribal shellfish beds in Bellingham Bay	Lummi Tribe, Ecology, Washington Department of Health	Ongoing	
Respond to and investigate fish kills	Ecology and WDF	Ongoing	

[a] End date for action, except where noted.

TABLE 8. EDUCATIONAL ACTIONS

Action	Agencies Involved	Target Date[a]	Limiting Factors
Continue public education program to encourage proper septic system maintenance	Whatcom County Health Department (County Health)	Ongoing	
Continue public education program to protect the Lake Whatcom watershed (e.g., pamphlets, school curriculum, water quality test kits)	City of Bellingham Department of Public Works (City Public Works)	Ongoing	
Distribute on request the household hazardous waste education pamphlet	Whatcom County Public Works Department (County Public Works) (Solid Waste Division)	Ongoing	
Expand Lake Whatcom education program regarding water quality-friendly gardening	City Public Works	To be determined (TBD)	
Provide watershed interpretive displays along trails adjacent to streams and public waterfront areas (e.g., Padden Creek)	City of Bellingham Parks and Recreation Department (City Parks)	Will request additional funding in 1992 budget	
Distribute information about facilities at Squalicum Harbor for disposal of waste oil, toxics, and other waste	Port of Bellingham	Summer 1991	
Distribute boating survey summary flyers	Washington State Parks and Recreation Commission (State Parks)	Ongoing	
Continue providing spill prevention and response education programs	Washington Department of Ecology (Ecology)	Ongoing (continued schedule TBD)	
Provide educational signs to marinas with pumpout stations	State Parks	Ongoing	
Distribute/present boater education information on boater waste management	State Parks and Washington Sea Grant (Sea Grant)	Ongoing	
Develop educational materials on shellfish contamination at recreational beaches	Washington Department of Health (DOH)	1990 (as requested)	
Provide funding to local agencies for public involvement and education projects	Puget Sound Water Quality Authority	Ongoing	
Distribute Aquatic Land Enhancement Account grants to local agencies for public education and interpretive projects	Washington Department of Natural Resources (DNR)	Ongoing	
Hold workshops to inform agencies of available monies to provide public access to shorelines	DNR	Ongoing	

TABLE 8. EDUCATIONAL ACTIONS (Continued)

Action	Agencies Involved	Target Date[a]	Limiting Factors
Distribute grants for public involvement under Model Toxics Control Act	Ecology	Ongoing	
Post recreational shellfish harvest advisory signs where appropriate	County Health, DOH, City Parks	TBD	Finalization of Memorandum of Agreement
Publish a quarterly newsletter on farm practices	Whatcom County Conservation District (Conservation District)	12/91	
Produce and distribute videos on farm waste management (waste pond management and maintenance and waste use)	Conservation District and Cooperative Extension	Summer 1991	
Distribute funds for waste reduction and recycling educational activities	Ecology	Ongoing	
Hold presentations or workshops pertaining to Ecology regulations or programs	Ecology	Ongoing	
Reprint and distribute marine debris educational pamphlets at no charge	Sea Grant	TBD	
Participate in educational planning efforts and events	Sea Grant	TBD	Limited staff and funding

[a] End date for action, except where noted.

Planning and Coordination, Pollution Control, and Data Needs

The Site-Specific Action Plan tables (Tables 2–8) present a summary of many ongoing and needed activities to improve water quality in Bellingham Bay. Several planning and coordination, pollution control, and data needs are either not addressed in the action plan or are found in the action plan but have no committed agency or time frame for completion. This section summarizes these additional water quality needs for Bellingham Bay, and will provide a beginning framework for Action Team discussions and individual agency actions. Both are needed to address further data needs, and to coordinate actions for controlling contaminant inputs to Bellingham Bay.

Planning and Coordination Needs

Ecology needs to work towards a geographic focus for review and reissuance of NPDES permits. If all permits for Bellingham were evaluated at the same time, the permit review process could be used to determine the total quantity of pollutants entering the bay. This bay-wide pollutant loading information could be taken into consideration when reissuing these permits. For NPDES permits, Ecology also needs to develop and include BMPs specific to the industry being permitted.

Ecology needs to prioritize discharges to Bellingham Bay. The discharges should be prioritized by toxicity, type of contaminant, volume, and contaminant concentration. This would help to focus resources on the discharges of greatest concern.

Ecology and DNR are continuing to negotiate the terms of a Memorandum of Understanding concerning the roles of each agency when considering sediment contamination on state-owned aquatic lands. This memorandum needs to be finalized so that future cleanup activities can proceed in a timely manner.

DNR and the Port of Bellingham are currently negotiating a Port Management Agreement which will address liability for cleanup of contaminated aquatic lands. This agreement needs to be finalized to ensure that future cleanup activities proceed in a timely manner.

An MOA between DOH and County Health needs to be developed delineating responsibilities of the two agencies in the implementation of the Recreational Shellfish Rule (Chapter 248-52). The rule states that a "joint plan of operation" should be developed to outline how recreational shellfish beaches will be managed. However, Whatcom County has limited funds to take on additional responsibilities. This issue needs to be resolved and the requirements of the recreational shellfish rule carried out.

Enhancement of both water quality and aquatic habitats should be the key elements in planning for the future development of Bellingham's urban waterfront. As the city of Bellingham continues to grow and as port activities change in response to changing economic conditions, land uses along the urban shoreline will inevitably change. The City of Bellingham and the Port of Bellingham need to develop a common vision for the future of the community's waterfront. That vision should provide for protection and enhancement of water quality and aquatic habitat.

Standards for development in the city of Bellingham and Whatcom County, and on Port of Bellingham property need to be created. These standards should address storm water quantity as well as storm water quality issues. Ecology is developing rules, guidelines, and model ordinances for storm water as well as a BMP manual. These documents are expected to be completed by November of 1991.

The City of Bellingham and Whatcom County need to develop a storm and surface water utility to focus on water quantity and quality issues. The utility could be funded entirely by user fees. The establishment of such a utility would enable the pursuit of actions such as the creation of development standards and the creation of a regular maintenance program for both public and private storm drain systems.

City Public Works and County Health need to coordinate activities regarding water quality and hazardous substances. This is important because upstream activities in Whatcom County can affect water quality in the city of Bellingham. Specifically, these two agencies need to work together to identify and mitigate the sources of elevated fecal coliform bacteria found in creeks within the Bellingham city limits.

The City of Bellingham, Whatcom County, and the Port of Bellingham need to identify and develop BMPs for activities which could be adversely affecting the environment. For example the City needs to develop a water quality protective land clearing ordinance, the Port guidelines for their boat repair grid at Squalicum Harbor, and the County an ordinance to limit livestock access to surface waters.

The educational efforts implemented by the City of Bellingham for the Lake Whatcom watershed need to be expanded to address the entire Bellingham Bay watershed. Potential lead agencies include City Public Works, County Public Works, and COG.

All agencies need to look for opportunities to implement the actions described in this plan and any other actions which could improve the quality of water in Bellingham Bay. Opportunities may exist in other plans and programs.

All agencies and the communities of Bellingham and Whatcom County need to develop a sense of stewardship towards Bellingham Bay. Numerous beneficial uses of the bay provide an increased quality of life. By preventing further environmental degradation and addressing problems early, agencies and citizens can ensure protection for the bay that is both cost-effective and long term.

Pollution Control Needs

The landfills listed in Table 2 of this plan need to be prioritized for environmental audits or site hazard assessments. These investigations will determine the potential threat the site has to human health and the environment. The prioritization should begin immediately and a schedule developed for accomplishing these assessments. This work should be done by Georgia-Pacific and/or County Health for the Georgia-Pacific landfills and by County Health for the remaining landfills. Funds are available through Ecology for local health departments to perform site hazard assessments.

Areas known to have failing septic systems in the Bellingham Bay vicinity should be investigated and repaired. Sources of funds need to be actively pursued and a civil penalty created to aid in the achievement of this goal. Potential lead agencies include County Health and County Planning.

Ecology and identified potentially liable persons need to work towards the remediation of Whatcom Waterway, Little Squalicum Creek, Boulevard Park, Georgia-Pacific Airport Landfill, and Trans-Mountain's pipeline pump station.

To reduce the amount of pollution being discharged to Bellingham Bay from storm drains, City Public Works, County Public Works, and the Port of Bellingham need to:

- Perform drainage basin source tracing studies, which include:
  - Monitoring storm drains to characterize contaminants being discharged
  - Correlating contaminants associated with particular land uses to determine potential sources
- Work with dischargers identified in source tracing studies to target and implement BMPs
- Develop and implement a routine maintenance program for all storm water facilities (including those privately owned in the city and county).

The Port of Bellingham needs to clearly delineate maintenance responsibility for storm drains located on their properties. If that responsibility is not the port's, a regular maintenance program should be required of lessees.

Data Needs

Data are needed on nutrient and contaminant inputs to Bellingham Bay from the Nooksack River. The river contributes a large volume of freshwater to Bellingham Bay and could be a significant source of contaminants. Potential lead agencies include the Lummi Tribe and County Planning.

Sediment sampling is needed at the dredged material disposal sites shown on Figure 6 (see Numbers 28a, 28b, and 28c in the legend) to characterize contamination and determine what action, if any should be taken. The sampling should be done by DNR for disposal Sites A through D, by Georgia-Pacific for Site E, and by the Port of Bellingham for Site F.

Additional sediment sampling is also needed at the Post Point WWTP outfall, the Georgia-Pacific outfall, and the contaminated area near the Fairhaven shoreline. A greater range of chemicals should be analyzed for in these samples and the horizontal and vertical extent of contamination determined. Georgia-Pacific should perform the sampling at their outfall and the City of Bellingham at the Post Point outfall. DNR should perform the sampling at the contaminated area near Fairhaven.

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Glossary of Terms

Amphipod	Small shrimp-like crustaceans, such as sand fleas, that are often benthic dwellers and feed on algae and detritus.
Anadromous	Migrating up rivers from the sea to breed in fresh water. Salmon have anadromous life cycles.
Apparent effects threshold	Chemical-specific sediment concentrations above which a particular adverse biological effect is always found to be statistically significant ($P \leq 0.05$) for a given data set.
Benthic	Pertaining to the bottom of a water body.
Benthic community	A group of interacting species populations found within the benthic zone.
Best management practice	A method, activity, maintenance procedure, or other management practice to reduce the amount of contaminants entering a water body.
Bioaccumulation	The accumulation of a substance in tissues of an organism. Bioaccumulation of toxic substances may lead to disease or other health problems and may render organisms unfit for human consumption.
Bioassay	A laboratory or field test used to evaluate the toxicity of a material (commonly sediments or water) by measuring behavioral, physiological, or population response of organisms.
Biochemical oxygen demand	A measure of the amount of oxygen consumed in the biological processes that break down organic matter in water.
Biota	The animal and plant life of an area.
Combined sewer overflow	A discharge of raw sewage and stormwater, which occurs when the hydraulic capacity of a combined sewer line is exceeded.

Contaminant — A substance that is not naturally present in the environment or is present in amounts that can, in sufficient concentration, adversely affect the environment.

Crustacean — A group of primarily aquatic invertebrate animals (phyllum *Arthropoda*, class *Crustacea*) with a hard exterior skeleton, segmented body, and paired jointed limbs, including crabs, lobsters, and amphipods.

Diversity — The number of species in a community, or a mathematical index of the variety of species that also accounts for the relative abundance of each species.

Effluent — The liquid that flows out of a facility (e.g., treated wastewater).

Elevation above reference — An index of toxic contamination or biological effects that is equal to the measured value of a variable (e.g., chemical concentration) at a study site divided by the measured value of the same variable at a relatively clean reference area. For measuring impacts on benthic organisms, this index is inverted so that a depression below reference is measured.

Erosion — Wearing away of rock or soil by the gradual detachment of soil or rock fragments by water, wind, ice, and other mechanical and chemical forces.

Estuarine — Pertaining to an estuary. An estuary is a semienclosed body of water where ocean water is diluted by fresh water.

Eutrophication — The biochemical processes in a body of water that result in high levels of nutrients and low levels of dissolved oxygen.

Gastropod — A group of invertebrate animals (phyllum *Mollusca*, class *Gastropoda*) with a shell, including snails, limpets, and abalone.

Geographic information system — A computerized database system used to integrate geographic or natural resource information and produce maps.

Groundwater — Water found in permeable rock layers underground.

Habitat	The specific area or environment in which a particular animal or plant lives.
Hazardous waste	Any solid, liquid, or gaseous substance which, because of its source or characteristics, is classified under state or federal law as hazardous and is subject to special handling, shipping, storage, and disposal requirements.
Hepatopancreas	A gland in crustaceans and certain other invertebrates that combines the digestive functions of the liver and pancreas of vertebrates.
Histopathology	Study of tissue lesions.
Hydrocarbon	An organic compound composed of hydrogen and carbon (e.g., petroleum compounds).
Hydraulic permit approval	Under Washington's Hydraulic Code Rules, approval is required from Washington Departments of Fisheries and Wildlife for construction and dredging activities in state waters that support fish life.
Infauna	Animals living within the bottom sediments.
Influent	The liquid that flows into a facility (e.g., sewage into a wastewater treatment plant).
Intertidal	The area between high and low water marks.
Invertebrates	Animals without backbones.
Larvae	(Singular: larva)—A juvenile stage of fish or invertebrates with a body form that differs greatly from the adult stage (e.g., an oyster larva is a small, free-floating organism).
Lesion	An abnormal structural change in the body due to injury or disease (e.g., a liver tumor in fish).
Loading	Quantity of a substance that enters a water body during a specified time interval (e.g., pounds per year).
National Pollutant Discharge Elimination System	A part of the federal Clean Water Act which requires point source dischargers to obtain discharge permits.

Nonpoint source contaminants Contaminants that enter water from dispersed and often uncontrolled sources (such as stormwater runoff) rather than through pipes.

Nutrients Essential chemicals needed by plants and animals for growth. Excessive nutrients may lead to water quality problems by promoting excessive growth and subsequent decay of plants such as algae.

Organic compound Chemical compounds that contain carbon (e.g., petroleum hydrocarbon).

Paralytic shellfish poisoning An illness, sometimes fatal to humans, caused by a neurotoxin produced by a type of plankton called *Gonyaulax*. These organisms proliferate in blooms (sometimes called *red tides*) and can concentrate in clams, mussels, and other bivalves.

Pelecypod Also known as bivalves, pelecypods are molluscs that have two shells, are generally filter feeders, and include clams, oysters, and mussels.

Point source contaminants Contaminants from a single source such as a pipe (e.g., discharge from a sewage treatment plant or factory).

Polychaete A large group of segmented worms found in the marine environment (e.g., feather dusters).

Polychlorinated biphenyls A group of manufactured chemicals including 209 different but closely related chlorinated hydrocarbons. These compounds are toxic, persistent in the environment, and are probable human carcinogens.

Polycyclic aromatic hydrocarbons A class of complex organic compounds, formed by the combustion of organic material, that are persistent and widespread in the environment and are known to cause cancer. Low molecular weight polycyclic aromatic hydrocarbons have up to three carbon rings. High molecular weight polycyclic aromatic hydrocarbons have greater than three carbon rings and are more carcinogenic than the lower weight polycyclic aromatic hydrocarbons.

Sediment Material that settles to the bottom of a water body or collects on the bottom of pipes such as sewers and storm drains.

Toxic	Poisonous, cancer-causing, or otherwise directly harmful to life.
Toxic contamination	Presence of toxic substances, often caused by release of metals or synthetic organic chemicals to the environment.
Washington Ranking Method	A process used by the Washington Department of Ecology to rank hazardous waste sites and prioritize these sites for cleanup activities.
Watershed	The geographic region within which water drains into a particular river, lake, or body of water.

APPENDIX A

Administrative Record of Agency Letters of Commitment

Appendix A
Table of Contents

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 22, 1991

Mr. Michael T. MacKay
Lummi Fisheries
Natural Production Department
2626 Kwina Road
Bellingham, WA 98226

Re: Bellingham Bay Action Plan

Dear ~~Mr. MacKay~~ Michael:

This letter is in follow-up to the August 28, 1990 meeting that Michael Jacobson (PTI Environmental Services), Jacques Faigenblum (EPA), Fran Solomon (Ecology), and I had with you and Michael Cochrane, regarding actions that the Lummi Tribe is taking to reduce pollution in Bellingham Bay. I have summarized below our understanding of the Lummi Tribes actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This letter, as well as your response, will be included in the Bellingham Bay Draft Action Plan scheduled for release this July.

Fish Enhancement

The Lummis operate the Skookum Creek Hatchery and several salmon rearing ponds on the Nooksack River.

In the summer of 1990, an artificial spawning channel was constructed at Maple Falls on the north fork of the Nooksack River. *Was this constructed in response to sedimentation problems?*

Net pens were being proposed, in conjunction with the Washington Department of Fisheries, at the Taylor Street Dock as well as at the Alaska Ferry Terminal. *What is the status of the net pens? What environmental processes are they subject to? What is the Lummis role? What other groups or agencies are involved in the placing of net pens in Bellingham Bay?*

What other fish enhancement projects do the Lummis have planned?

Shellfish

With Centennial Clean Water Funds (CCWF), the Lummis have conducted an investigation addressing: the Nooksack delta growth rate and its effect on shellfish beds, littleneck clam populations along the entire Whatcom County coastline, and fecal coliform levels in the Nooksack River and in shellfish tissue. The final report on this effort was scheduled to be completed in December of 1990. *What is the status of the final report? Please send me a copy. What, in general, were the results of the investigation?*

The Lummis also assisted the Washington Department of Ecology in the collection of crabs and clams for a toxic chemicals bioaccumulation study.

Watershed Management Plans

Participation by the Lummis in Early Action Watershed nonpoint pollution activities has assisted in the development of watershed management plans for Silver Creek, Tenmile Creek, and Kamm Creek. These creeks are lowland tributaries of the Nooksack River. *What specifically was the Lummis role in developing watershed management plans for these creeks?*

Stream Restoration

The Lummi and Nooksack tribes participated in the restoration of a short section of Silver Creek. The restoration involved the clearing of canary grass, the installation of logs and the creation of a plunge pool. *Are there other stream restoration projects planned?*

Sedimentation

To reduce the effects of sedimentation within critical spawning areas in the upper Nooksack watershed, the Lummis are identifying specific corrective actions such as the creation of artificial spawning areas. The Lummis also have several ongoing studies investigating the impacts of sedimentation on salmon and trout spawning, egg incubation and juvenile rearing. *What other projects are planned to reduce the impacts of sedimentation? What is the schedule for these projects? What, in general, are the results of your various studies? Please send me a copy of these studies.*

Water Quality

The Lummis, in conjunction with the Whatcom County Planning Department, applied for CCWF monies to perform a study of the Nooksack River. The study would establish baseline data on the river and assess impacts from logging and agricultural practices. The information gathered would be placed on a GIS computer system. This proposal was not selected for funding. *Will another attempt be made to obtain CCWF monies, or other monies, to perform this study?*

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will be held this summer to discuss and comment on the draft plan. Prior to the finalization of the plan, public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response letter, feel free to call me at 649-7272. Please have your response letter to me by Friday, June 7th.

I appreciate your support of this process and look forward to your response.

Sincerely,

Lucille T. Pebles

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator

LTP:lp

14 June 1991

Ms. Lucille Pebles, P.E.
Belleingham Bay Action Program Coordinator
Department of Ecology, Northwest Region
3190 160th Ave. S.E.
Bellevue, Washington 980008-5452

RE: Comments to Bellingham Bay Draft Action Plan

Dear Ms. Pebles:

Thank you for this opportunity to provide comments on the Draft Action Plan. Included below are resposes to questions you had concerning actions the Lummi Tribe is taking to reduce pollution to Bellingham Bay.

Q: In the summer of 1990, an artificial spawning channel was constructed at Maple Falls on the north fork of the Nooksack River. Was this constructed in response to sedimentation problems?

A: Yes, the Tribe developed this project to mitigate for the impacts of sedimentation to fisheries in the upper Nooksack River Watershed. Investigations by us and others have shown that many of the once productive salmonid spawning areas have been impacted by a significant increases in sedimentation. In most cases this has resulting from past poor forest practices. Increased sediment loading has occured to the extent that many spawning reaches used by salmon become highly unstable. Instability results in increased channel shifting. This causes a scouring, dewatering, or smothering of salmon eggs located within the nest or "redd". The end result is a marked decrease in survival during the overwinter egg incubation period.

The spawning channel was constructed in a location that provides protection from channel shifting. This year the spawning channel produced over 34,338 chum fry. The estimated egg-to-fry survival was 20.8%. In contrast, eggs from salmon observed spawning in nearby sidechannels which had been later dewatered by channel shifting, would be expected to have near zero egg survival.

Q: What were the results of a Lummi Fisheries report investigating the growth rate of the Nooksack Delta and the effects on adjacent shellfish beds?

A: The Lummi Fisheries report, "Nooksack Delta Sedimentation Investigations" discusses a measurement that was taken and compared with historic bathymentric charts of the area. This measure of delta growth was based on the rate of vertical shoaling that occured at one location on the outer margin of the delta. The rate of shoaling was found to have increased by a factor of 4.7 for the time period 1956-1990 when compared to the period 1888-1956 (0.43 ft./yr. & 0.09 ft./yr. respectively).

This report identifies littleneck clams as one species most at risk

from the progradation of the delta front into productive clam beds located on the Lummi Reservation. Markers placed near these beds will be used in the future to monitor the advance of the delta. Aggressive corrective actions for past forest practice was recommended as one strategy for reducing impacts to these shellfish beds.

Q: What was the Lummis' role in developing watershed management plans for Silver Creek, Tenmile Creek, and Kamm Creek?

A: These Early Action Watersheds recieved letters of support from the Tribe during the nomination period. The Silver Creek proposal was nominated by the Tribe and was awarded Centenial Clean Water funds. The grant was administered by the Whatcom County Council of Governments at the Tribe's request. The Tribe actively participated during the development of watershed plans for all three watersheds.

The Silver Creek Plan identified a demonstration project that was to be undertaken by the Lummi Tribe with the help of the Nooksack Tribe. This work was completed last fall and resulted in the demonstration of several techniques to restore stream-side vegetation and to prevent livestock access. The final report is available from our office.

Q: Are there other stream restoration projects planned?

A: The Silver Creek Stream Restoration project, discussed above, was intended to provide an example of stream work that is needed in many areas of the Noooksack lowlands. It was the Tribe's expectation that local governments and the Washington Department of Fisheries would take the lead in encouraging this type of stream work for many other areas requiring stream canopy and livestock fencing. The Whatcom County Council of Governments has grant moneys available for some of this work.

At present our office does not have the resources to head up stream restoration projects. We would, however be available to review draft project plans and to provide technical recommendations and letters of support for work done by others. The Tribes Personel Department has qualified personel that could be used as a labor pool for stream work. The Nooksack Tribe and/or the Department of Fisheries Youth Conservation Corps who assisted us with the fencing on the Silver Creek Demo Project and would be excellent choices for taking the lead in future stream restoration work.

Q: What projects are planned to reduce the impacts of sedimentation?

A: Our Resource Protection Division routinely reviews all forest practice applications (FPAs) within the Nooksack Basin. Our biological and geological staffs provide technical recommendations to foresters, often after site visits (ID Teams). Our goal is to provide sound technical advise during the planning stage to prevent activities which will increase sediment sources, especially to

sensitive salmon spawning streams.

We are also conducting sediment source inventories for selected sub-watersheds and are developing specific lists of corrective actions as that can be taken by land owners to reduce sedimentation impacts.

Enclosed, please find a list of technical reports available from the our office. Let us know which reports you would like.

Q: Will the Tribe be pursuing other funding sources for developing baseline measures for estabilshing impact from logging & agricultural impacts?

A: The Tribe has sought several federal funding sources to provide water quality indicators to measure progress in providing sound forest agricultural practices. Present funding levels allow only a limited amount of water quality monitoring.

High priorities are for determining sediment and nutrient loading in the Nooksack and Bellingham Bay and to monitor incidents of nusiance algae blooms that occur in the late summer in the lower Nooksack and in Bellingham Bay. We wil also be monitoring the certification status of our shellfish beds and will be attempting to determine major sources of bacterial contamination that threaten the certification of shellfish growing waters.

Q: Will the Lummi Tribe and Whatcom County Planning Department be requesting CCWF funds to provide Nooksack water quality/quantity investigations?

A: There are no plans at present, but the Tribe is committed to provide its technical staff with computerized mapping tools and to conduct specific investigations to identify resources at risk from detrimental changes in water quality/quantity.

I hope this information will assist you in the Bellingham Bay Action Program. Please call me at 647-6230 if I can provide any additional information.

Sincerely,

Michael MacKay

Michael MacKay, Manager
Resource Protection Div.
Lummi Natural Resources

LUMMI NATURAL RESOURCES
RESOURCE PROTECTION

REFERENCE LIST
(Updated 6/17/91)

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FN: LUMREF (6/91)

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 22, 1991

Ms. Pat Petuchov
Nooksack Tribe
P.O. Box 157
Deming, WA 98225

Re: Bellingham Bay Action Plan

Dear Ms. ~~Petuchov~~ Pat:

This letter is in follow-up to the August 28, 1990 meeting that Michael Jacobson (PTI Environmental Services), Jacques Faigenblum (EPA), Fran Solomon (Ecology), and I had with you regarding actions that the Nooksack Tribe is taking to reduce pollution in Bellingham Bay. I have summarized below our understanding of the Nooksacks Tribe's actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This letter, as well as your response, will be included in the draft Bellingham Bay Action Plan scheduled for release this July.

Fish Enhancement

The Nooksacks have been involved in a number of fish productivity and habitat enhancement projects in the Nooksack River and its tributaries. In July of 1990 a portion of Silver Creek just outside the Bellingham city limits was restored; in August of 1990, in conjunction with the U.S. Forest Service (U.S.F.S.), a jam in Canyon Creek was cleared; revisions to the artificial spawning channel in Hutchinson Creek were completed in August of 1990. The Nooksacks have also received funds from the U.S.F.S. to clean out an acclimation pond on Dead Horse Creek and to perform channel improvements.

As part of the Nooksack Technical Spring Chinook Committee, the Nooksacks were also involved in the constuction of an acclimation pond on the north fork of the Nooksack River. *What other projects are planned by the committee? What other fish enhancement projects do the Nooksacks have planned?*

Watershed Management

The Nooksacks participate in the Nooksack Watershed Cooperative which addresses region-wide concerns affecting the Nooksack River. *What projects are currently planned by the cooperative?*

What has been the Nooksacks role in recent watershed management plans such as Silver Creek, Kamm Creek and Tenmile Creek?

Monitoring

Approximately every two months, the Tribe monitors Cornell, Wells, Racehorse, Hutchinson, and Porter Creeks for temperature, pH, dissolved oxygen and scouring. *Are fecal coliforms or any chemicals being monitored? Please send me a copy of the monitoring results.*

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will be held this summer to discuss and comment on the draft plan. Prior to the finalization of the plan, public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response letter, feel free to call me at 649-7272. Please have your response letter to me by Friday, June 7th.

I appreciate your support of this process and look forward to your response.

Sincerely,

Lucille T. Pebles

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator

ltp:lp

NOOKSACK INDIAN TRIBE
P.O. Box 157
Deming, Washington 98244
Telephone (206) 592-5176

June 12, 1991

RECEIVED
JUN 14 1991
DEPT. OF ECOLOGY

Lucille T. Pebles, P.E.
Department of Ecology
Northwest Regional Office
3190 - 160th Ave S.E.
Bellevue, Washington 98008 - 5452

Dear Lucille:

This letter is in response to your follow-up letter of May 22, concerning additional comments to be included in the the draft Bellingham Bay Action Plan.

Regarding the first paragraph under Fish Enhancement: a mud and log jam should qualify ..."a jam in Canyon Creek"... Also, the U.S.F.S. completed the clean out of Deadhorse acclimation pond, not that the Nooksack Tribe received funds to do this work.

Additional editing in the second paragraph: please substitue "lead agency" for "also involved"....and subtitue ..."construction of an" .... for "construction of two". Insert "in 1989 and 1990" after ..." the Nooksack River"...

In answer to your questions concening Fish Enhancement:

1) what other projects are planned by the committee?

   Deadhorse pond will be useed as an acclimation pond for spring chinook and possibly steelhead in the spring of 1992. Possible enhance of the South Fork spring chinook run is also planned. mewT

2) What other fish enhancement projects do the Nooksacks have planned?

   - Rehabilitaion work at our hatchery at Rutsatz slough is underway. The facility was damaged during the flood event of 1990. The facility will feature a spawning channel for chum salmon and possible rearing of steelhead besides chum.

- Brood stock collection for chum eggs in Fall 1991
- Fall 1991 egg planting in spawning channel of Hutchinson CReek
- Removal of fish barrier at Canyon Creek, to open up 5+ miles of prime fish habitat, as a cooperative effort with USFS, in the summer of 1992.
- Clean up of Anderson Creek - remove 40 years of accumulated dumping, in summer of 1991.

The following relates to comments/questions concerning Watershed Management:

The Nooksack Watershed Cooperative is currently inactive.

The Nooksack's role in watershed management plans:

The Nooksacks have participated in the planning committees on Silver, TenMIle and Kamm Creeks, and are now getting ready to implement stream restoration actions. A new watershed management committee on Drayton Harbor has been formed and the Nooksack Tribe is participating on this committee.

I hope that this letter clarifies the additions and comments we have. If you have any additional questions, please call me at 592-5176.

Sincerely,

Pat Petuchov - Fisheries Biologist

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 17, 1991

Mr. Brian Williams
Washington Department
of Fisheries
Hillcrest Plaza, Unit 7
430 - 91st Avenue N.E.
Everett, WA 98205

Re: Bellingham Bay Action Plan

Dear ~~Mr. Williams~~ Brian:

This letter is in follow-up to the September 25, 1990 conference call that Michael Jacobson (PTI Environmental Services), Fran Solomon (Ecology), and I had with you regarding actions that the Washington Department of Fisheries is taking to reduce pollution in Bellingham Bay. I have summarized below our understanding of the Department of Fisheries actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This letter, as well as your response, will be included in the draft Bellingham Bay Action Plan scheduled for release this July.

Fish Enhancement Projects

The Department of Fisheries operates a hatchery on the Nooksack River as well as one on Whatcom Creek, in cooperation with the Maritime Heritage Center. The Maritime Heritage Center hatchery has frequently experienced high coho salmon mortality. *Has the cause of this high mortality been determined?*

What is the status of placing net pens in Bellingham Bay? What environmental processes will they be subject to? What is the Department of Fisheries role? What other groups are involved in the placing of net pens in Bellingham Bay?

Puget Sound Ambient Monitoring Program (PSAMP)

As part of the PSAMP, the Department of Fisheries sampled English Sole in Bellingham Bay in May of 1989. Muscle tissue samples were analyzed for pesticides, polychlorinated biphenols, other priority pollutants and hazardous substances (e.g. metals). Samples were also taken to determine the presence of liver lesions. Bellingham Bay may be sampled again in July of 1991, and dioxin could be added to the list of constituents. *Is there one core station that is sampled once a year and another rotating station that is sampled once in three years? Please send me the results of the 1989 sampling.*

Permit Issuance and Review

The Department of Fisheries requires Hydraulic Project Approval (HPA) permits for projects that use, divert, obstruct, or change the natural flow or bed of any of the salt or freshwaters of the state. In addition, Fisheries has adopted stormwater and wetlands policies which are implemented through the HPA permit process.

The Department of Fisheries also reviews 404 permits as well as SEPA documents.

Wetlands

What is the Department of Fisheries wetlands policy? Are developers required to meet or exceed the provisions of the policy as part of the HPA permit?

Monitoring

In Bellingham Bay the Department of Fisheries monitors crabs, clams and commercial fish stock sizes. Pink salmon runs have been on the decline. Potential causes of this include: siltation of spawning grounds in the upper watershed, habitat loss, and low productivity in the bay which leads to quick out migration. *How are stocks monitored? Have you discovered any other declining trends? If so, what could be the reasons for the decline?*

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will be held this summer to discuss and comment on the draft plan. Prior to the finalization of the plan, public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response letter, feel free to call me at 649-7272 (SCAN 354). Please have your response letter to me by Friday, May 31st.

I appreciate your participation in this process and look forward to your response.

Sincerely,

Lucille T. Pebles

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator

LTP:lp

JOSEPH R. BLUM
Director

STATE OF WASHINGTON
DEPARTMENT OF FISHERIES
115 General Administration Building • Olympia, Washington 98504 • (206) 753-6600 • (SCAN) 234-6600

June 3, 1991

Department of Ecology
Attention: Lucille Pebles
Bellingham Bay Action Program Coordinator
3190 - 160th Avenue S.E.
Bellevue, Washington 98008

Subject: Response To Questions Regarding WDF Activities In Bellingham Bay

Dear Lucille:
Hopefully the following information will clarify the Department of Fisheries (WDF) activities in Bellingham Bay.

Fish Enhancement Projects:

1. Question: The Maritime Heritage Center hatchery has frequently experienced high coho salmon mortality. Has the cause of this high mortality been determined?

Answer: The Maritime Heritage Center hatchery has experienced an annual coho mortality event during the fall months for a number of years. The mortalities appear to correspond with the first significant rainfall and run off event of the fall. The Maritime Heritage Center hatchery depends upon Whatcom Creek for its' water source. It has been speculated that an upstream pollution source enters the system during the run off event at a level that is lethal to yearling size coho. To date, the hatchery manager with the assistance of DOE have been unable to isolate the source of the mortality. Water sampling efforts to isolate the pollutant and source were frustrated in 1990 by the absence of the anticipated coho mortality event. It is my understanding that efforts to isolate the pollutant will continue.

2. Question: What is the status of placing net pens in Bellingham Bay?

Answer: The Taylor Dock and Squalicum Harbor net pen sites will be on line in 1991 for extended rearing of juvenile coho and chinook salmon. Both sites were on line in during 1990. The Squalicum Harbor site is a one pen operation cooperatively managed by the Bellingham Heritage Center,the Bellingham Samish Bay Enhancement Advisory and WDF. The Taylor Dock site is a 4 pen operation cooperatively managed by the Bellingham Samish Bay Enhancement Advisory and WDF.

Though a single net pen was operational in 1989 and 1990 at the Alaska Ferry Terminal, operation at this site in 1991 is uncertain at this time. The Alaska Ferry Terminal net pen is

cooperatively managed by the Bellingham Samish Bay Enhancement Advisory and WDF.

3. Question: What environmental processes will the net pens be subject to?

Answer: (a) The Taylor Dock site was issued a Hydraulic Project Approval by WDF, a Determination of Non Significance issued by the City of Bellingham and a Shoreline Permit issued by the City. WDF contracted a physical and biological survey of the Taylor Dock site in August, 1990. In addition, an environmental checklist was submitted to the City of Bellingham in compliance with SEPA. The Hydraulic Project Approval was developed according to the Recommended Interim Guidelines For The Management Of Salmon Net-Pen Culture in Puget Sound published in December, 1986.

Answer: (b) The Squalicum Harbor site was issued a Hydraulic Permit Approval through WDF's Volunteer Fisheries Resource Program and according to the Recommended Guidelines For Sizing and Siting Delayed Release Net Pens developed by WDF in May, 1990.

Answer: (c) The Alaska Ferry Terminal site was issued a Hydraulic Permit Approval by WDF in 1989 according to preliminary Recommended Guidelines For Sizing and Siting Delayed Release Net Pens developed by WDF and adopted in May, 1990.

Answer: (d) The physical and biological characteristics of each site was surveyed prior to project implementation. The Taylor Dock site will be surveyed again during the fifth year of operation and prior to renewal of the Hydraulic Permit Approval in 1996. The Squalicum Harbor site and Alaska Ferry Terminal site will not be monitored. Continued operation of the Squalicum Harbor and Alaska Ferry Terminal sites is contingent on the findings of a WDF monitoring program targeting a representative sample of net pen operations in the Puget Sound area similar in size and function to these sites but not including the Alaska Ferry Terminal and Squalicum Harbor sites.

4. Question: What is WDF's role and what other groups are involved in the placing of net pen in Bellingham Bay?

Answer: (a) WDF is involved in the permitting process for net pen operations through issuance of the Hydraulic Project Approval. The City of Bellingham is also involved in the permitting process through SEPA and Shoreline Management jurisdiction. Through the SEPA process, any and all other interested parties can raise concerns regarding the siting and operation of proposed net pen facilities.

Answer: (b) WDF evaluates site specific physical and biological data for compliance with the above referenced net pen siting guidelines. WDF also works cooperatively with the Bellingham Samish Bay Enhancement Advisory and the Bellingham Heritage Center towards the successful operation of the net pen operations.

Puget Sound Ambient Monitoring Program (PSAMP)

1. Question: Is there one core station that is sampled once a year and another rotating station that is sampled once in three years?

Answer: The PSAMP program originally proposed to establish two sampling stations in Bellingham Bay. Initially, one station would be sampled each year and the second station sampled every other year. Due to funding constraints, the frequency of sampling for the primary sampling station, located south of Post Point, in approximately 12 fathoms of water, and defined by latitude 48 degrees, 40.93 minutes and longitude 122 degrees, 32.92 minutes, has been reduced to every other year. To date, samples were successfully taken in May of 1989 and 1991.

Sampling efforts in 1991 were unable catch enough flatfish to establish a secondary sampling station in Bellingham Bay north or north east of the Post Point station. WDF will not re-attempt to establish a secondary sampling site in the immediate future.

2. Question: Please send me the results of the 1989 sampling.

Answer: Sandra O'Niel with our Marine Fish Division in Seattle will send you the results of the 1989 sampling.

Permit Issuance and Review:

1. Question: What is WDF's wetland policy?

Answer: WDF has been directed by the Governor's Executive Order On Wetlands, signed April 21, 1990, to condition or deny Hydraulic Project Approvals (HPA) to the fullest extent of our authority to protect fish life by assuring protection of the value and function of wetlands. To do so, WDF must be able to assert that the wetland has a positive impact on fish life. To protect fish life, WDF implements a policy of no net loss of habitat. Where applicable and as directed by Section 12 of the Governor's Executive Order on Wetlands, WDF will implement the following mitigation priorities:

1. Avoid wetland impacts
2. Minimize wetland impacts
3. Rectify impacts by repairing, rehabilitating, or restoring
4. Reduce impacts by preservation and maintenance
5. Compensate impacts by replacing, enhancing or substituting
6. Monitor Impacts and take corrective action.

2. Question: Are developers required to meet or exceed the provisions of the policy as part of the HPA permit?

Answer: For all wetlands having a positive impact on fish life, developers must fully mitigate all negative impacts to the value and function of the wetlands utilizing the above reference mitigation priorities as a condition of HPA issuance.

Monitoring:

1. Question: How are stocks monitored in Bellingham Bay?
Answer: Bellingham Bay salmon stocks are monitored through a comparison of annual run size estimates for each stock and species. A run size estimate for a particular species and stock includes an estimate of total adult fish contributed to coast wide commercial fisheries, coast wide sport fisheries and spawning escapement. Coded wire tag data and spawning ground surveys currently provide the data foundation for run size estimates though other methodologies are currently being explored in an effort to refine these estimates.
Answer: Bellingham Bay dungeness crab are monitored through an annual and monthly evaluation of the commercial harvest and a limited volunteer recreational fishery sport catch log.

2. Question: Have you discovered any other declining trends?
Answer: Analysis of spawning escapement data for the years 1965 to 1989 does not support that the Nooksack River pink salmon are experiencing a declining trend. Spawning escapement estimates have fluctuated radically from year to year though in general appear to be maintaining a status quo level.

Answer: Analysis of spawning escapement data for native North Fork Spring Chinook indicates that this stock is experiencing a declining trend.

3. Question: If so, reasons?
Reasons for the decline are most likely a combination of
a. the difficulty of protecting the adults from harvest through out their ocean migratory range and
b. the instability of the North Fork Nooksack River spawning habitat.

Sincerely,

Brian Williams
Marine Habitat Manager
Habitat Management Division

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 17, 1991

Mr. Mark Schuller
Washington Department
of Fisheries
333 E. Blackburn Road
Mt. Vernon, WA 98273

Re: Bellingham Bay Action Plan

Dear ~~Mr. Schul~~Mark ler:

This letter is in follow-up to the November 6, 1990 meeting that Michael Jacobson (PTI Environmental Services), Fran Solomon (Ecology), and I had with you and Art Stendal of the Department of Wildlife, regarding actions that the Washington Department of Fisheries is taking to reduce pollution in Bellingham Bay. I have summarized below our understanding of the Department of Fisheries actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This letter, as well as your response, will be included in the draft Bellingham Bay Action Plan scheduled for release this July.

Permits/SEPA

The Department of Fisheries issues Hydraulic Project Approval permits prior to construction or other activity which uses, diverts, obstructs, or changes the natural flow or bed of any of the salt or freshwaters of the state.

Fisheries also reviews Forest Practices permits and SEPA documents. *What authority does Fisheries have in their review of the Forest Practices permit (e.g. permit denial)?*

Stormwater Issues

As part of the Hydraulic Project Approval permit process, the Department of Fisheries is requiring developments which exceed 5,000 square feet of impervious surface to adhere to Fisheries draft stormwater guidelines.

Under the guidelines, stormwater must be treated prior to discharging to a surface water body and, depending on proximity of downstream fish and shellfish resources, retention and/or detention facilities must also be provided.

The guidelines also include requirements for erosion and sediment control, and regular maintenance. *Have the guidelines been finalized? Were there any significant revisions made to the draft prior to finalization? How have these guidelines been received in the Whatcom County area?*

Fish Kills

What is the status of the Department of Fisheries assuming responsibility for addressing fish kills? Does this responsibility only apply to the Whatcom County area? Is authority delineated through a memorandum of agreement with the Department of Ecology? How is authority delineated?

Livestock Wastes

Fisheries is continuing to work with the Washington Conservation Corps installing cattle crossings and fences along streams adjacent to agricultural areas. Although this effort preserves the riparian corridor by limiting creek access to the crossings, it also creates a concentrated point of waste input. Fisheries suggests that livestock be prevented from accessing creeks and that the water be brought to the livestock. *Is the Department of Fisheries pursuing the idea of restricting access to creeks? If so, through what means?*

The Department of Fisheries coordinates closely with the Whatcom County Conservation District and refers farmers to them for assistance in developing and implementing waste management plans.

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will be held this summer to discuss and comment on the draft plan. Prior to the finalization of the plan, public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response letter, feel free to call me at 649-7272 (SCAN 354). Please have your response letter to me by Friday, May 31st.

I appreciate your support of this process and look forward to your response.

Sincerely,

Lucille T. Pebles

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator

LTP:lp

June 14, 1991

Lucille Pebles
State of Washington
Department of Ecology
Bellingham Bay Action Program
3190 160th Avenue S.E.
Bellevue, WA. 98008-5452

SUBJECT: Bellingham Bay Action Plan; Department of Fisheries Involvement

Dear Ms. Pebles:

I have reviewed your letter dated May 17, 1991 and offer the following comments:

1. Permits/SEPA - We also deny some applications for Hydraulic Project Approvals. Our authority in reviewing Forest Practice Approvals is limited to only that instream work which would require an Hydraulic Project Approval, such as logging across a stream or installing a culvert. We cannot deny a logging plan, even if we know in our hearts that the clearcut is much too large and will probably cause stream impacts. The cumulative effects issue is still up in the air. We are able to go outside our normal Hydraulic Code authority and address other concerns about projects near creeks through the SEPA process.

2. Stormwater Issues - We are still using the same guidelines. Whatcom County still does not wish to adopt our more stringent requirements, but when the county authorities suggest that the applicant contact us we require our criteria to be used. The City of Bellingham refuses to consider our guidelines. Ferndale is trying to follow them. Lynden is not. Everson and Nooksack are. Sumas and Blaine are coming closer.

3. Fish Kills - This responsibilty is still D.O.E.'s because we do not have the funding. This issue is still being discussed in Olympia and has not been totally resolved.

4. Livestock wastes: When an applicant applies for an Hydraulic Project Approval to dredge a stream that has very visible evidence of livestock damage we do our best to get the applicant to sign up for fencing. We have no direct means of requiring a fence. Many of the Whatcom County streams are closed by the D.O.E. for the issuance of new water rights for surface withdrawal.

Ms. Pebles
June 14, 1991
Page 2

It is ironic that the D.O.E. is trying to clean up the water, but does not seem to want to bend and devise a method to divert water to the cattle in these closed streams. The D.O.E. feels that a livestock owner has "riparian stock watering rights" with the land. This issue is important and hopefully will be discussed in the future.

Sincerely,

Mark Schuller

Mark Schuller
Regional Habitat Manager
428-1520

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 17, 1991

Mr. Don Melvin
Washington Department
of Health
Office of Environmental
Health Programs
LD-11
Olympia, WA 98504

Re: Bellingham Bay Action Plan

Dear ~~Mr. Melvin~~ Don:

This letter is in follow-up to the September 25, 1990 conference call that Michael Jacobson (PTI Environmental Services), Fran Solomon (Ecology), and I had with you regarding actions that the Washington Department of Health is taking to reduce pollution in Bellingham Bay. I have summarized below our understanding of the Department of Health's actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This letter, as well as your response, will be included in the draft Bellingham Bay Action Plan scheduled for release this July.

Puget Sound Ambient Monitoring Program (PSAMP)

As part of the PSAMP, the Department of Health samples bivalves quarterly off of Post Point. These samples are analyzed for total and fecal coliforms. Priority pollutants are monitored annually. *What is the Department of Health's interpretation of the data collected at Post Point? Please send me a copy of the priority pollutant data collected to date.*

Other Monitoring

The Department of Health has begun monitoring water quality at 19 stations between Post Point and Governors Point, and in the Chuckanut Village Stream. Six samples will be collected from each station per year to meet the requirement of 18 samples from each station within a three year period.

Fecal coliforms monitored in August of 1989 and in May of 1990 are elevated in the Chuckanut Village Stream samples. What actions will be taken to mitigate this problem, by whom and when? Please describe your commercial ambient monitoring program. Is this also called your regular ambient program?

Based upon the water quality data, recreational shellfish beaches may be classified as: Open, Closed or Conditionally Closed. Complete seasonal water quality profiles will be obtained prior to using the Conditional classification. *Please cite an example of the use of the Conditionally Closed classification.*

The Department of Health has also begun monitoring for paralytic shellfish poisoning. Shellfish samples were taken monthly during the winter and will be increased to weekly during the summer. *What recreational beaches in the Bellingham Bay area will be sampled? What months are included under winter and under summer? Will this be standard operating procedure from this point forward? Will any volunteer efforts be used to assist in collecting samples?*

Memorandum of Agreement

The Whatcom County Health Department and the State Department of Health are working on a memorandum of agreement (MOA) to delineate responsibility for the posting of recreational shellfish beaches. *What is the status of the MOA? How is the responsibility defined? What other issues are addressed in the MOA? Please send me a copy of the completed MOA. The Bellingham Parks Department has expressed a willingness to post signs provided by the state. Is the Parks Department involved in this process?*

Sewage Disposal

The 1991 Puget Sound Water Quality Management Plan calls for the Department of Health to revise the model ordinance for liveaboards to address sewage disposal needs for all boats using public and private marinas. *What is the status of these revisions? When will the ordinance be implemented?*

The Department of Health has revised their On-Site Sewage System Regulations (Chapter 248-96 WAC). The rules for on-site sewage disposal address operations and monitoring requirements, and technical issues such as vertical separation from groundwater and alternative treatment systems. The rules also intend to develop a standardized approach to the issue. *Were the rules adopted in their "Revised November, 1989" form? Is Whatcom County adopting local regulations to implement the rules?*

Dairy Wastes

The Whatcom County area contains a high concentration of dairies, which could be adversely affecting water quality in surface waters throughout the county. The Nooksack River, as a large contributor of freshwater to Bellingham Bay, could be adding significant amounts of fecal coliform contamination to the bay. What plans does the Department of Health have to monitor the river, or any other surface waters draining to the bay, for water quality parameters such as fecal coliforms?

The City of Bellingham is currently monitoring all streams within their city limits once a month. Standard water quality parameters are being monitored, including fecal coliforms. The data collected thus far indicates some exceedances of state water quality standards. What role will the Department of Health play in this issue?

What is the status of the Department of Health providing funding to local health districts so that they can address these types of watershed issues?

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will then be held to discuss and comment on the draft plan. Prior to the finalization of the plan, public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response letter, feel free to call me at 649-7272 (SCAN 354). Please have your response letter to me by Friday, May 31st.

I appreciate your participation in this process and look forward to your response.

Sincerely,

Lucille T. Pebles

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator

LTP:lp

KRISTINE M. GEBBIE
Secretary

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
Olympia, Washington 98504

RECEIVED
JUN 14 1991
DEPT. OF ECOLOGY

June 13, 1991

Lucille T. Pebles, P.E.
Bellingham Bay Action Program Coordinator
Department of Ecology
3190 160th Avenue SE
Bellevue, Washington 98008-5452

Dear Lucille:

The enclosed material addresses the questions posed in your May 17, 1991 letter concerning DOH activities in the Bellingham Bay/Chuckanut Bay areas:

Page one, paragraph two - Puget Sound Ambient Monitoring Program:

The PSAMP protocols call for Bivalve shellfish to be sampled quarterly for fecal coliform bacteria and annually for metals, organic chemicals and pesticides. Last year four beaches were analyzed for chemicals: Lincoln Park, March Pt., Ross Point and Walker Park.

In 1990 metals at these beaches were found at levels comparable to those reported in the 1988 Faigenblum study although the data for mercury had to be qualified since the frozen clams had exceed holding time limits. March Point had the only organic chemical found in levels above detection limits which was fluoranthene (a by product of fossil fuel combustion) at 44 ppb.

Post Point was not a chemistry site during 1990 but was added to the 1991 schedule. This site was dug on May 19, 1991 and will be analyzed by the end of June 1991. The person in charge of our PSAMP program is Linda Klote (586-8736). I will ask Linda to send you a copy of the PSAMP results when they are available.

Page one, paragraphs three and four - Other Monitoring:

Paragraph three - The samples collected in Chuckanut Bay between Post Point and Governors Point are part of our Recreational Beach Program. Derry Suther (664-0143) is in charge of the Recreational Program. There are no commercial growing areas in the region. The Whatcom County Health Department was notified about the Chuckanut Village Stream samples. Any corrective action falls under county jurisdiction.

Paragraph four - The commercial Ambient Program (Regular) follows guidelines established by the National Shellfish Sanitation Program. Under this program, our office is required to collect a minimum of 18 samples per sampling station from each Approved growing area within a three year period. Only areas which are certified as Approved by DOH fall under this particular monitoring program. Currently 42 areas fall into this category.

Water quality data is reviewed as it is received from the State Health Laboratory. Additional work may be scheduled in areas producing bacteria levels indicative of water quality problems.

Ambient water quality data is reviewed annually. Determinations regarding the appropriate growing area classification are made based on the most recent set of 18 samples per station.

I have included a copy of the NSSP Manual of Operations for your information. Jerry Lukes (753-5991) is in charge of the commercial Ambient Program.

Page two, paragraph one - Other Monitoring:

The current WAC 256-52 (previously 248-52) uses the classification nomenclature of "open, closed, and conditionally closed" for the purposes of regulating public beaches. The recreational program has departed from the use of these classifications and has developed a system to rank the beaches using the classification of "low-threat, threatened, correctable and long-term harvest restriction" categories. A copy of the first draft definitions of each of these categories is attached. This ranking system will be established in the newly drafted recreational action plan available soon for comments. Beaches will be placed in one of these categories based on a completed site evaluation.

Examples of beaches on the "long term harvest restriction" list would be Alki Point, Budd Inlet, Carkeek Point and Post Point.

Page two, paragraph two:

Recreational shellfish beaches at Post Point and Chuckanut Bay will be sampled for PSP by Adopt-A-Beach volunteers once every two weeks from April 1 through October 31 during 1991. Winter monitoring of these beaches is unlikely. Funding for the Adopt-A-Beach PSP monitoring program has been obtained through 1992.

The DOH staff does not collect samples from recreational beaches in Bellingham Bay.

Additional monitoring of recreational shellfish beaches is at the discretion of the Whatcom County Health Department. Historically, the County Health Department has collected PSP samples from Bellingham Bay on an infrequent basis. No PSP sample collection had been conducted by the County Health Department in 1991 in Bellingham Bay.

Page two, paragraphs three and four - Memorandum of Agreement & Sewage Disposal:

Paragraph three - The recreational WAC was intended to delineate responsibility between DOH and local health jurisdictions. Even though that intent is still meaningful and will still be attempted, to date a MOA with Whatcom County Health has not been finalized. A draft MOA is being reviewed by several health departments.

Paragraph four - The PSWQA plan establishes the formation of a state agency task force which has just recently been implemented with the formation of an advisory committee to follow. There is heightened interest regarding any changes in the model ordinance and any forthcoming drafts will be reviewed and possibly written by this advisory committee which will include members from the liveaboard and boating communities. The plan mandates that local governments be encouraged to implement the model ordinance within six months after completion.

Page two, paragraph five - Sewage Disposal:

The State Board of Health amended their on-site sewage system regulations (WAC 246-272) in November of 1989 to address "the repair and expansion of systems adjacent to marine waters."

The DOH has just completed a draft revision of WAC 246-272. Public workshops will be held in the summer of 1991 to discuss the proposed changes. The proposed revisions address a number of issues including operation and maintenance, areas of special concern, certification of designers, installers and regulators, and also require that each system be built to provide sewage treatment.

Local health departments may adopt local regulations, providing that the local regulation is at least as stringent as the state regulation.

Page three, paragraphs one and two - Dairy Wastes:

Since there are no certifiable commercial or recreational shellfish beaches in Bellingham Bay, this department will not be involved in any activities associated with water quality problems in the bay or its freshwater systems. If water quality should decline in areas adjacent to Bellingham Bay which are certified shellfish areas, it is conceivable that the Nooksack could be investigated by this office as a potential source of contamination.

Page three, paragraph three:

The DOH requested funds for local health departments to conduct a recreational shellfish program. It was our number one priority but was not approved by the Governors Office and O.F.M.

Health departments are not funded to trace dairy waste. That is the responsibility of the local conservation districts and the Department of Ecology. Local health departments will get involved in tracking waste if the source is from humans.

Local and State Health Departments serve on watershed committees. State Health representatives provide technical assistance to the twelve early action watershed committees. Our focus is on-site sewage disposal and shellfish growing area classification.

If you have any further questions regarding this, you may reach me at (206) 586-4484.

Sincerely,

Don Melvin/BjA

DON MELVIN
Environmentalist
Office of Shellfish Programs

DM:BjA

VII : BEACH RANKING

Beach ranking is an administrative tool used to catagorize public beaches in accordance with their water quality and their recreational value. Under Chapter 248-52 WAC, "recreational shellfish beaches" include those that are privately owned but have an limited public access, such as a community ~~or tribal~~ beach. However, there are officially 146 beaches owned and maintained by all levels of government that are covered by the Recreational Shellfish Action Plan,. Private beaches that have public access may be phased into the plan in time on a case-by-case basis.[1]

Beaches are separated into four general categories to prioritize agency resources:

1. Low Threat -- minimal water quality problems
2. Threatened -- water quality needs protection
3. Correctable -- water quality pollution present though reversible
4. Long Term ~~Closed~~ Harvest Restriction

Under this plan, beaches in the low threat or long term harvest restriction ~~closed~~ categories would not be targeted for action; they are either relatively pristine or too polluted to justify a recreational shellfish effort at this time. Beaches categorized as correctable or threatened would be targeted for cleanup.

#1 LOW THREAT

- Beaches which meet Health standards for safe shellfish harvest, or
- Beaches distant from recognized upland or water-based sources of pollution.

Action : None

#2 THREATENED

- Public beaches where ~~which~~ Health has ~~classified as open but~~ water quality data indicating ~~indicates~~ shellfish harvest is threatened or potentially threatened by increasing pollution.
- Adequate shellfish resource or the potential for enhancement exists.
- Public access is available and area is used by the public.

Action : Preventive

Preventive action includes *identifying* and *mitigating* specific pollutant sources which are threatening the water quality of a given beach. Protection usually entails less source

---

1. Questions of liaibility surround these *de facto* public beaches, were there to be any illness resulting from contaminated shellfish harvested from them.

identification and correction than a restoration area, but typically places emphasis on public eduction and preventative land-use measures. An example of this would be increasing boater education at outlying beaches with several moorages, such as in the San Juan Islands, or conducting workshops on agricultural best management practices.

#3 CORRECTABLE

- Public beaches Health has ~~classified~~ identified as ~~closed due to~~ failing to meet standards for safe shellfish harvest.
- ~~Closure~~ Caused by by chronic, though reversible, nonpoint bacterial pollution, or toxics,
- Abundant shellfish resource or potential for enhancement.
- Good public access is available.

Action : Restoration

Restoration means identifying and correcting pollutant sources. It involves characterizing the site by upland uses, drainages, and pollutant sources, followed by remedial action. Remedial action requires cooperation between state and local agencies and citizens. It may include: repair of failing on-site septic systems; creating stream buffers to control erosion and installing fences to prevent farm animal wastes from entering upland drainages; developing land use ordinances to moderate new development/ population densities; or educating boaters, marinas and the general public. The public needs to be involved in decisions concerning corrective actions.

#4 LONG TERM CLOSED

- Chronic or severe bacterial water quality degredation and/or in the immediate vicinity ~~the presence~~ of sewage treatment plants, contaminated sediments, or major sources of toxics which ~~in the immediate vicinity~~ require long term corrective action.

Action : Refer to Urban Bay Action Teams for cleanup

In 1990 ~~1989~~ Ecology and Health ranked the 146 official beaches covered by the Recreational Shellfish Action Plan.

- 54 beaches have no apparent problems and are ranked as Low Threat;
- 35 beaches are Threatened;
- 10 beaches are Correctable; and,
- 47 recreational shellfish beaches currently fall under the Long Term Harvest Restriction ~~Closed~~ category.

The number of beaches targeted for action by this plan is 45.

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 17, 1991

Mr. Doug Strong
Washington Parks and Recreation
Commission
7150 Cleanwater Lane, KY-11
Olympia, Washington 98504-5711

Re: Bellingham Bay Action Plan

Dear ~~Mr. Strong~~ Doug:

This letter is in follow-up to the September 12th conference call that Michael Jacobson (PTI Environmental Services), Jacques Faigenblum (EPA), Fran Solomon (Ecology), and I had with Peggy Britt regarding the Bellingham Bay Action Plan. The purpose of the conference call was to determine actions that the Washington State Parks and Recreation Commission is taking to reduce pollution in Bellingham Bay. I have summarized below our understanding of these actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This letter, as well as your response, will be included in the Bellingham Bay Draft Action Plan scheduled for release this July.

<u>Legislation</u>

In 1989 the State Legislature passed a bill which allocated a portion of the funds from the Watercraft Excise Tax, to a boater waste disposal program and a boater environmental education program. The law allocated a total of $1,000,000 for the first biennium (fiscal years 1990 & 1991) and $1,000,000 annually for each of the following four years.

For fiscal years 1990-1991, $300,000 was available for public and private marinas to install or repair sewage pumpout/dumpout facilities. Boat launches and boater destinations were also potentially eligible for these funds. All marinas in the state were notified of their eligibility in the Spring of 1990, however, no applications were received from marinas in Bellingham Bay. *When were notices sent out this year? Have you received any applications from Bellingham Bay facilities? Can these funds be used for portable pumpout stations, even if a marina currently has a stationary facility?*

In addition to sewage pumpout/dumpout grants, one of the other funding provisions is for ports and local health departments to develop environmmental education programs. Education elements include information on toxic substances used by boaters (e.g. oil,paints) and sewage disposal. *What is the process for receiving funds? Have the Port of Bellingham and the Whatcom County Health Department applied for funds?*

Boater Education

The Parks and Recreation Commission is currently in the process of hiring two new staff members for boater education. One staff person will be involved in watershed planning as well as conducting outreach activities (e.g. presentations). With the addition of personnel to perform outreach activities, the Boater Environmental Education Program plans to become more pro-active. *What specific outreach activities have you planned?*

A slide show about boat waste management and a video on the environmental impacts of boating are available through the Parks and Recreation Commission for group presentations. In addition, a water quality interpretive sign and sewage pumpout location and operating instruction signs are also available. Parks and Ecology will discuss potential locations in Bellingham Bay for these types of signs.

The Parks and Recreation Commission is revising the educational brochure titled "Boater's Guide to Cean Water and Good Times". The brochure currently addresses: safety, trash, plastic, sewage pumpout stations, shellfish/oil, maintenance and general information. *What are the revisions? When will they be completed? How is this document made available to the public?*

In 1988 the Parks and Recreation Commission conducted a recreational boater survey to find out: how much money boaters spend on a given day, what they spend it on, and where they spend it; what are their most frequent destinations; what types of waste disposal equipment and practices are used onboard; and what facilities and programs are needed to control boat wastes. *What actions have been or will be taken as a result of this survey?*

Model Ordinance for Sewage Disposal at Marinas

The Departments of Health and Ecology, the Parks and Recreation Commission, and the Puget Sound Water Quality Authority, are currently revising a previous model ordinance with the assistance of an advisory committee.

The model ordinance will provide sewage disposal options addressing the needs of various types of marina users. Local agencies governing marinas will be encouraged to adopt and enforce the ordinance.

Local governments will also be encouraged to work with the Parks and Recreation Commission boater education program. The ordinance will be accompanied by a report providing information for local governments on designing and installing slipside pumpouts at marinas and methods of ensuring their use by liveaboard boaters. No sooner than two years following distribution of the model ordinance, Health shall evaluate progress under the nonmandatory program and recommend additional action as necessary. *What is the status of the Model Ordinance?*

Water Quality

Who owns and maintains storm drain systems on state park property? Storm drains are a significant contributor to the degredation of surface waters. Therefore, it is important to keep them clean to minimize their environmental impact. How frequently are your systems cleaned? How are the removed materials disposed of? Is there any testing of the materials for toxic substances?

Pesticides, herbicides, and fertilizers contribute to the degradation of water quality. What actions are being taken on state park property, to reduce the impacts of these chemicals (e.g. reduction in use or using environmentally friendly products)?

Waste Reduction

What is being done to encourage park users to recycle?

What is done with organic materials obtained through park maintenance? Can the materials be composted? Does the presence of pesticides, herbicides and fertilizers affect compostibility?

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will be held this summer to discuss and comment on the draft plan. Prior to the finalization of the plan, public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response letter, feel free to call me at 649-7272 (SCAN 354). Please have your response letter to me by Friday, May 31st.

I appreciate your support of this process and look forward to your response.

Sincerely,

Lucille T. Pebles

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator

LTP:lp

JAN TVETEN
Director

AUG 91 11: 40

STATE OF WASHINGTON

WASHINGTON STATE PARKS AND RECREATION COMMISSION

7150 Cleanwater Lane, KY-11 • Olympia, Washington 98504-5711 • (206) 753-5755

August 6, 1991

Ms. Lucille T. Pebles, P.E.
Bellingham Bay Action Plan Coordinator
Washington Department of Ecology
Northwest Regional Office
3190 - 160th Avenue S.E.
Bellevue, WA 98008-5452

Dear Ms. Pebles:

This letter is in followup to the letter sent to me on May 17, 1991 requesting information regarding action by State Parks that is intended for the Bellingham Bay Action Plan.

The questions you posed under water quality and waste reduction in state parks have been forwarded on to our Operations Department, and their response will be sent on to you before the 28th of this month.

Under the paragraph entitled "Legislation" and your question about when notices would be sent out this year regarding applications for pumpout grants, please note that application packets will be sent in September or October of this year for the funding cycle of 1991/92. At this point, we have not received applications from any facilities in the state, and therefore we cannot respond to your question regarding whether we received any from Bellingham Bay. In the spring of this year, the pumpout WAC was rewritten to include language that would make it possible to fund portable pumpout stations. This would not prevent a marina currently with a stationary pumpout facility from applying for money to include a portable unit.

Also under "Legislation," you ask a question about grant money available to ports and local health departments to develop environmental education programs. The status of this program currently is that the WAC has been written, it has not been approved at this point, and it is on hold until it can go through all the governmental processes to make it operational. We also have the difficulty of no money being allocated for this program in the last legislative session, and we are trying to determine where or if we can fund the program as originally planned. The current target date for this program is during Fiscal 1992/93. The intent will be to fund Boater Environmental Education and Boat Waste Management grants.

Under "Boater Education," the following specific outreach activities are planned:

1) We will continue participating in boat shows, sportsmen's shows, county fairs, etc. to distribute educational materials to recreational boaters.

2) We will make regular presentations to grassroots organizations, such as Bay Watchers, Water Watchers, marina manager organizations, environmental education groups, etc. to make them aware of recreational boater impacts and solutions.

3) We have just completed a boater education video which will be distributed to all middle schools in the state. The video includes environmental sections targeting the recreational boater. Through this video, we'll work with environmental science teachers across the state to include elements of impacts by recreational boaters on the environment.

4) We will continue to provide interpretive signs, pumpout signs, brochures, etc. to marinas and launch ramp areas for boater education purposes.

5) We will continue to take active part in interagency committees and community action groups who are participating in water quality efforts.

Regarding your question about the boater environmental education guide, under the "Boater Education" paragraph, the following revisions were made to the guide. We have updated the information on pumpout locations and dump stations that are provided throughout the state. In the first BEE Guide publication, only Puget Sound pumpouts were listed. We've updated information under Economic Impacts and Environmental Impacts related to recreational boating. We've added a new section on the new MARPOL placard requirements that are now in place, and there is a section explaining that. We have updated telephone numbers and addresses where appropriate. We've refined and modified information relating to boat and engine maintenance practices. Lastly, the section on shellfish has been updated to include current information that's pertinent to recreational boaters.

Regarding distribution of the Boater Environmental Education Guide, as in the past, we distributed this brochure to all marinas and public ports in the state that we have on our mailing list. It's distributed widely at boat shows and sportsmen's shows throughout the state. We make it available upon request, either telephone or written. It's used as an educational document by Bay Watchers groups, Water Watchers groups as a part of their educational process. It will be distributed with the boater educational learning packet that will be distributed to middle schools throughout the state. We will make it available to environmental science teachers to include in their curricula as an information resource. Lastly, it is distributed through marine retail trade locations throughout the state. The BEE Guide has become one of our most requested brochures from the recreational boater, and our intent is to continue to update the pumpout location information on an annual or semiannual basis, depending upon when new pumpouts are added throughout the state.

Our efforts to establish a model ordinance for sewage disposal at marinas with the Department of Health are currently on hold. Both the Department of Health and State Parks have requested funds to hire personnel to complete this particular component of the Puget Sound Water Quality Plan. To date, that position has not been funded.

Your questions regarding water quality and waste reduction have been forwarded to our Operations Division at State Parks for their response. I've requested an answer prior to your deadline of August 28, and will forward those responses to you just as quickly as I receive them.

I apologize for the delay in getting you this information, and hope that it arrives in time to be of some value for your meeting. Please understand that State Parks is still very interested in participating in the Bellingham Bay Action Plan. Please continue to keep me updated on progress with the plan and any ways that I can help facilitate the process of bringing the plan to a final draft.

I look forward to working with you in the months ahead. Please let me know if there's any additional information that I can help you with prior to your next meeting.

Sincerely,

Doug Strong

Douglas K. Strong
Boating Education Coordinator

DKS:sn
cc Jim French, Manager
Boating Programs

JAN TVETEN
Director

STATE OF WASHINGTON

WASHINGTON STATE PARKS AND RECREATION COMMISSION

7150 Cleanwater Lane, KY-11 • Olympia, Washington 98504-5711 • (206) 753-5755

RECEIVED
AUG 26 1991
DEPT. OF ECOLOGY

August 20, 1991

Ms. Lucille T. Pebles, P.E.
Bellingham Bay Action Plan Coordinator
Washington Department of Ecology
Northwest Regional Office
3190 - 160th Avenue S.E.
Bellevue, WA 98008-5452

Dear Ms. Pebles:

I have enclosed additional comments to the letter I sent to you dated August 6, 1991, to complete information you requested that I was not able to answer at that time. This information reflects the collective input from our staff in the Operations and Resources sections.

State Parks does not have any facilities on Bellingham Bay as defined by the boundary map in the plan. The nearest State Park is Larabee State Park on Samish Bay, south of your study area. For the sake of information only, we have responded to your questions on water quality and waste reduction using Larabee State Park as an example. This will give you an idea of general State Parks operating procedures as it relates to these two areas.

Please call me at (206) 586-2283 if you should have questions.

Sincerely,

Doug Strong

Douglas K. Strong
Boating Education Coordinator

cc: Cleve Pinnix, Deputy Director
Tom France, Assistant Director, Resources
Dennis Smith, Assistant Director, Operations
Jim French, Manager, Boating Programs

DRAFT
August 20, 1991

BELLINGHAM BAY ACTION PLAN

Additional Comments

WATER QUALITY:

In the Bellingham Bay area, the Washington State Parks and Recreation Commission manages Larabee State Park. Larabee does not have a comprehensive storm water collection, disposal system. There are a few collection points in the main park that flow into the sewer system through which the water is treated (lagoon and chlorination) and effluent put into Launch Bay.

There is a minimal spraying program (once per year) in use at Larabee State Park. No herbicides, pesticides or fertilizers are used except at road edges and trails within the campground area. Minimizing the use of herbicides and pesticides is the most significant action State Parks has taken.

State Park boat launches are sites where toxic substances, oils and fuels, can collect and drain into the watershed. Boating Programs is in the process of developing a poster for use at boat launch sites to remind boaters of their impacts on water quality and the need to take actions to minimize or eliminate the release of oils and fuels or other toxic substances onto the ramp or parking area. The above information is also contained in our "Boater's Guide."

WASTE REDUCTION:

Presently, State Parks is in the development stages of a recycling program for use at State parks. On a site by site basis, State Parks does provide for

recycling of aluminum cans. The recycling which exists at State Parks right now is often augmented by local civic or youth organizations who are given the opportunity through their participation to benefit from funds recouped.

At all marine parks, State Parks has implemented a "pack-it-out" program nearly eliminating the need for the collection of trash. Park users are encouraged to recycle their wastes in addition to packing it out at the marine parks.

At our state parks in the Bellingham Bay area, and throughout the State Park system, there is minimal removal of organic materials. Lawn clippings and fallen vegetation, as much as is practical, is left to decompose in a natural fashion. Branches and limbs which must be removed for cleanliness and safety aspects are gathered and allowed to decompose or, when this is not practical, are burned on site.

R-BellBa:jfn

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 17, 1991

Mr. Art Stendal
Washington Department
of Wildlife
1405 Florence
Mt. Vernon, WA 98273

Re: Bellingham Bay Action Plan

Dear ~~Mr. Stendal~~ Art:

This letter is in follow-up to the November 6, 1990 meeting that Michael Jacobson (PTI Environmental Services), Fran Solomon (Ecology), and I had with you and Mark Schuller of the Washington Department of Fisheries, regarding actions that the Washington Department of Wildlife is taking to reduce pollution in Bellingham Bay. I have summarized below our understanding of the Department of Wildlife's actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This letter, as well as your response, will be included in the draft Bellingham Bay Action Plan scheduled for release this July.

Permits/Licenses/SEPA

The Department of Wildlife reviews Hydraulic Project Approval (HPA) permits, Forest Practices Permits, and SEPA documents. *What authority does Wildlife have in permit reviews?*

The Department of Wildlife also is involved in the Federal Energy Regulatory Commission (FERC) process for licensing the construction of hydroelectric dams. As a part of their review of applications to construct dams, the Department of Wildlife examines in-stream flows, erosion control, and other impacts to fish and wildlife. Although there are no laws in the state of Washington to protect wildlife, the Department of Wildlife can examine impacts to wildlife under the FERC process through the Fish and Wildlife Coordination Act. There are currently a number of proposed hydroelectric projects on the Nooksack River as well as on almost all of its tributaries. *Are there any plans to create or amend laws to protect wildlife?*

Stormwater Issues

The Department of Wildlife supports the Department of Fisheries stormwater guidelines which require stormwater detention/retention and treatment for HPAs. *What is the status of the Department of Wildlife adopting these guidelines as policy?*

Wetlands

When reviewing HPAs which have potential to impact wetlands, the Department of Wildlife may either deny or condition the permit to protect wetlands. No degradation of wetlands is allowed. If there is an impact, it must be mitigated at the rate of two acres of new wetlands per each acre lost. *If the Department of Wildlife's wetlands requirements are in conflict with other state or local requirements, which requirements will rule?*

Land Use

What role does the Department of Wildlife play in the development and review of comprehensive land use plans?

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will be held this summer to discuss and comment on the draft plan. Prior to the finalization of the plan, public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response letter, feel free to call me at 649-7272. Please have your response letter to me by Friday, May 31st.

I appreciate your participation in this process and look forward to your response.

Sincerely,

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator

LTP:lp

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 17, 1991

Ms. Betsy Striplin
Washington Department of
Natural Resources
Marine Research and Development
Center, EX-12
Olympia, Washington 98504

Re: Bellingham Bay Action Plan

Dear ~~Ms. Striplin~~ Betsy:

This letter is in follow-up to the September 12th, 1990 conference call that Michael Jacobson (PTI Environmental Services), Jacques Faigenblum (EPA), Fran Solomon (Ecology), and I had with you regarding actions that the Washington Department of Natural Resources is taking to reduce pollution in Bellingham Bay. I have summarized below our understanding of the Department of Natural Resources' actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This letter, as well as your response, will be included in the draft Bellingham Bay Action Plan scheduled for release this July.

<u>Puget Sound Dredged Disposal Analysis (PSDDA)</u>

The Bellingham Bay PSDDA open-water dredged material disposal site is open from June 16th through October 31st. The Department of Natural Resources (DNR), is responsible for authorizing the use of disposal sites and conducting chemical and biological monitoring. DNR performed baseline biological monitoring in the spring of 1990 at the Bellingham site and will conduct a crab bioaccumulation study after 100,000 cubic yards of material have been disposed of. No applications for disposal were received for the Bellingham site in 1990. *What were the results of the 1990 baseline monitoring? Please send me a copy of these results. What disposal applications have you received for 1991?*

Sediment Management

DNR has created a new section to handle dredging and contaminated sediments issues. The new Sediment Management section, with funding from EPA, is developing a screening approach for identifying leased marine lands with potential for sediment contamination. Areas will eventually be ranked in terms of relative probability of contamination.

In addition, a users manual is being developed for contaminated sediments which includes policies and regulations. *What is the status of these efforts? What specific EPA funds were obtained?*

Ecology and DNR are developing a memorandum of understanding that will address:

1) DNR liability for dealing with contaminated sediment sites

2) DNR responsibility for site investigation and cleanup

3) DNR's role in the aquatic lands leasing program, including site identification, investigation and remediation.

What is the status of the MOU? How are these three issues addressed?

Port Management Agreement

DNR is negotiating a Port Management Agreement with the Port of Bellingham. This agreement would assign all management responsibilities for aquatic lands abutting Port of Bellingham properties to the Port of Bellingham. Existing individual leases then would be eliminated. *Since these properties would remain state owned, will the Management Agreement address liability for cleanup of contamination?*

Coastal Zone Management Act

I am aware that the Coastal Zone Sediment Act was reviewed in December of 1990. Was the Port of Bellingham given control of any DNR lands as a result of this review? Were any of these properties contaminated?

Aquatic Lands Leasing Program

Aquatic land leases are issued for periods ranging from 5 to 30 years and can be opened prior to their expiration if the lessee desires to amend the lease or reassign property rights. New leases or newly opened leases are being revised by DNR to address liability for contaminated sediments. *What, in general, does the new language regarding contaminated sediments say?*

At this time, DNR does not plan to adjust lease rates around wastewater treatment plant outfalls.

Forest Practices

The Department of Natural Resources issues Forest Practices permits for the clearing of properties containing over five thousand board-feet of timber. *Please describe this permit. Is the Forest Practices permit required even if the five thousand board-feet of timber are not going to be sold?*

Does DNR have requirements in this permit for the protection of adjacent surface waters? What requirements does DNR have for the protection of wildlife habitat?

Puget Sound Ambient Monitoring Program (PSAMP)

What is DNR's role in the PSAMP?

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will be held this summer to discuss and comment on the draft plan. Prior to the finalization of the plan, public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response letter, feel free to call me at 649-7272 (SCAN 354). Please have your response letter to me by Friday, May 31st.

I appreciate your participation in this process and look forward to your response.

Sincerely,

Lucille T. Pebles

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator

WASHINGTON STATE DEPARTMENT OF
Natural Resources

RECEIVED
JUN 19 1991
DEPT. OF ECOLOGY

BRIAN BOYLE
Commissioner of Public Lands

OLYMPIA, WA 98504

June 18, 1991

Ms. Lucille T. Pebles
Washington Department of Ecology
Northwest Regional Office
3190 160th Ave SE
Bellevue, WA 98008-5452

Subject: Bellingham Bay Action Plan

Dear Ms. Pebles:

This letter responds to your letter of May 17, 1991 requesting additional information on the Department of Natural Resource's ongoing or planned activities in Bellingham Bay. For each section in your letter, I've provided comments and answered your questions.

Puget Sound Dredged Disposal Analysis (PSDDA)

In the first sentence, note that the disposal site is open from June 16 - October 31 of each year, and that these dates are set by the Shoreline Permit. In the second sentence, note that each of the four agencies with jurisdiction in the PSDDA program (U.S. EPA, Corps of Engineers, and Washington Departments of Ecology and Natural Resources) approve the material that will be disposed at the PSDDA site. DNR issues the permit to use the site and monitors compliance with terms of the permit. In the third sentence, the baseline work was conducted during the summer of 1990 rather than the spring. Further, that monitoring was for concentrations of certain problem chemicals in the tissues of Dungeness crab, and for crab density. No additional biological studies were conducted. This investigation was carried out in conjunction with Ecology's Bellingham Bay bioaccumulation survey, and our results are to be incorporated into Ecology's final report.

The PSDDA bioaccumulation survey investigated the concentrations of arsenic, cadmium, lead, mercury, PCBs, and various pesticides in crab muscle and hepatopancreas. Arsenic, cadmium, and mercury were detected in every sample. Of the pesticides, DDE was found in 62 percent the samples and Chlordane was found in 15 percent of the samples. Neither the other pesticides nor PCBs were found in any samples. Concentrations of detected chemicals were generally low.

The Corps of Engineers and the Port of Bellingham are currently planning to use the Bellingham Bay PSDDA site during the 1991 dredging season. Sediments from Whatcom Creek, I&J, and Squalicum Creek Waterways were tested under the PSDDA guidelines. None of the Whatcom Creek sediments were approved for disposal at a PSDDA site. Selected sediments from the other areas were approved by the PSDDA agencies.

Sediment Management

In the first paragraph, second sentence, note that a grant was received from U.S. EPA to initiate an inventory of aquatic leases that may contain contaminated sediments. That grant has been completed and all other funding for the contaminated sediments program has been provided by the state.

In the second paragraph, first sentence, note that the user's manual will briefly discuss regulations only to the extent that is required to educate the users as to the regulatory authority of the state. This manual will not contain an exhaustive discussion of environmental regulations. A working draft of the manual is undergoing review by the Department of Ecology.

DNR and Ecology are continuing to negotiate the terms of a Memorandum of Understanding concerning the respective roles of each agency when considering sediment contamination on state-owned aquatic lands.

Port Management Agreement

DNR is presently continuing the negotiation process for the Port Management Agreement (PMA) with the Port of Bellingham. The resulting PMA will address liability for cleanup of contaminated aquatic lands. Final language on this issue has not been agreed to.

Coastal Zone Management Act

The Port of Bellingham was not given control of any state-owned lands as a result of the recent review of the Coastal Zone Management Act. The Port has no control of state-owned aquatic lands that are outside of the areas that they currently lease from DNR.

Aquatic Lands Leasing Program

Aquatic leases contain specific restrictions on the use of environmentally harmful substances. Although these restrictions are summarized below, interested parties should contact the Aquatic Lands Division (206-753-5324) for specific lease terminology regarding harmful substances. The following is a general overview of the issues addressed in leases.

Hazardous, Toxic, or Harmful Substances. Lessees shall not keep, use, dispose, transport, generate and/or sell hazardous materials in violation of any appropriate law, regulation, statute, or ordinance. Lessees must promptly notify the State of all spills or releases of any hazardous substance. Lessee shall be fully liable to the State for any damages, expenses, suits, claims, costs, fees, penalties, and response, cleanup costs, or remediation costs as a result of the Lessee's control of the property.

Marine Plastics Act. Lessees shall comply with the Marine Plastic Pollution Research and Control Act of 1987 (Public Law 100-220). Under this act a lessee may be required to provide waste reception facilities, provide for US Coast Guard inspection of these facilities, and provide for waste handling and disposition.

Lessee to Take Corrective Action. Lessees will take corrective action to restore property, as nearly as possible, to its condition without the presence of the harmful substances. In the event that a lessee fails to do so, the State may take the corrective actions and will be entitled to full reimbursement of the costs incurred.

Testing. Lessees agree to conduct, at their own expense, all investigations required by the State to determine the existence, scope, or effects of hazardous substances on the leased property or associated resources where the State has reason to believe that hazardous substances may be present due to ongoing or historic activities in the leased area. If the State conducts the investigation, then the State will be entitled to full reimbursement of the costs incurred.

Reporting. At the State's request, lessees may be required to submit annual reports that summarize and describe all uses which have occurred upon the leased property during the preceding year. Additionally, lessees may be required to submit copies of all monitoring reports prepared in response to state or federal requirements.

Forest Practices

Under the Washington Forest Practices Rules and Regulations (WAC 222), DNR approves applications but does not issue permits for the clearing of properties containing over five thousand board-feet of timber. (Harvesting of less than five thousand board-feet does not require submission of a forest practices application but is subject to the Forest Practices Rules and Regulations). Approved applications are required for timber harvested for sale (see WAC 222 for definitions). Conditions placed on the approved application provide for the protection of soil integrity, reforestation, streamside habitat protection, and fishery and wildlife concerns. Under the Timber, Fish and Wildlife (TFW) agreement, interdisciplinary teams may be formed to deal with environmental concerns. They make recommendations to the Forest Practices forester who may then condition the application.

Puget Sound Ambient Monitoring Program (PSAMP)

DNR is conducting an inventory of nearshore habitats in support of PSAMP, and is represented on the PSAMP steering committee. The steering committee provides guidance on the performance of all tasks within PSAMP.

If you have any questions concerning these responses to your letter, please contact me at 753-0263.

Sincerely,

Betsy Striplin

Betsy Striplin
Division of Aquatic Lands

Reference Code: Bellingham Bay Action Program
SEDIMENTS\bellbay.let

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 17, 1991

Ms. Vallana Piccolo
Puget Sound Water
Quality Authority
PV-11
Olympia, WA 98504

Re: Bellingham Bay Action Plan

Dear ~~Ms. Piccolo~~ Vallana:

This letter is in follow-up to the October 25, 1990 meeting that Michael Jacobson (PTI Environmental Services), Fran Solomon (Ecology), and I had with you regarding actions that the Puget Sound Water Quality Authority is taking to reduce pollution in Bellingham Bay, via the 1991 Puget Sound Water Quality Management Plan. I have summarized below our understanding of the Authority's actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This letter, as well as your response, will be included in the draft Bellingham Bay Action Plan scheduled for release this July.

General

The Puget Sound Water Quality Authority (PSWQA) is working to improve water quality across Puget Sound through the development and implementation of the 1991 Puget Sound Water Quality Management Plan. This comprehensive document includes an action plan comprised of various programs: 1)Estuary Management and Plan Implementation, 2)Fish and Wildlife Habitat Protection, 3)Spill Prevention and Response, 4)Monitoring, 5)Research, 6)Education and Public Involvement, 7)Puget Sound Foundation, 8)Household Hazardous Waste, 9)Nonpoint Source Pollution, 10)Shellfish Protection, 11)Wetlands Protection, 12)Municipal and Industrial Discharges, 13)Contaminated Sediments and Dredging, 14)Stormwater and Combined Sewer Overflows, 15)Laboratory Support.

In the 1991 Plan, the PSWQA has established broad funding priorities as well as funding priorities by program element. This prioritization will help channel funds for plan implementation to the most needy areas.

The PSWQA oversees implementation of all the programs, including those being carried out by other agencies.

Monitoring

The PSWQA coordinates the Puget Sound Ambient Monitoring Program (PSAMP), which includes sampling of sediment, water, shellfish and bottomfish in Bellingham Bay, as well as monitoring of marine mammals and birds. Near shore habitats are also inventoried.

Various agencies, such as the State Department of Ecology, the State Department of Health, State Department of Fisheries and the State Department of Natural Resources perform the actual work.

Education and Public Involvement

Education and public involvement continue to be a high priority for the PSWQA in each of the programs. They will continue to have monies available for these activities through the highly successful Public Involvement and Education Fund (PIE-Fund).

Washington Sea Grant was awarded a grant from this fund in 1988 to develop an educational brochure which addresses marine debris at Squalicum Harbor. Funds were also awarded to Whatcom Community College to develop a video and booklet concerning watershed protection. *What other projects in the Bellingham Bay area have been funded through a PIE grant? What is the process for obtaining a grant? How large is this fund?*

Puget Sound Foundation

The Puget Sound Foundation is a new program which responds to a recognized need for an ongoing structure to coordinate strategies and funding for research and education. During the 1989-91 biennium, the Authority will establish this nonprofit organization whose primary tasks will be: 1)funding and coordinating research and education programs on Puget Sound; and 2) assuming responsibility for certain elements of the research and education program as staff and funding allow. *What is the status of this Foundation? What is the process for obtaining a grant?*

Wetlands Protection

The 1989 wetlands protection program called for protection of significant wetlands through (1) preservation (purchase or other mechanisms); (2) local government regulatory programs that meet minimum state standards; and (3) a program for protecting wetlands on state-owned uplands and aquatic lands. The 1991 Management Plan proposes minimum guidelines or standards for local government wetland protection programs. The Authority is seeking public comment on whether to adopt mandatory standards or guidelines and on the content of the standards. This program also includes a larger role in wetlands protection for the U.S. Army Corps of Engineers, the Environmental Protection Agency, and the U.S. Fish and Wildlife Service. In addition, a wetlands restoration program is established. *What is the status of the standards?*

Stormwater and Combined Sewer Overflows

The stormwater program in 1989 included: (1) phased development of stormwater programs in urbanized areas of Puget Sound, starting with the largest cities; (2) requirements for all cities and counties to develop operation and maintenance programs, adopt ordinances for new development, and develop stormwater education programs; (3) development of stormwater controls for state highways and federal facilities; and (4) requirements for all cities with combined sewer overflows in the Puget Sound basin to develop and implement plans providing for the greatest reasonable reduction of CSO events.

The 1991 stormwater program adds a work group to coordinate policy issues among fisheries, stormwater, and wetlands programs and a stormwater technical assistance service for local governments which would be provided by the Department of Ecology and coordinated with local governments. The program proposes that the local stormwater programs be incorporated into the comprehensive plans to be developed under the new Growth Management Act.

Ecology will adopt a rule which sets minimum stormwater standards for new development, and the Authority will adopt a rule which requires that local governments adopt the stormwater programs which include standards set in Ecology's rule. *Have there been changes to the last two statements?*

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will be held this summer to discuss and comment on the draft plan. Prior to the finalization of the plan public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response letter, feel free to call me at 649-7272 (SCAN 354). Please have your response letter to me by Friday, May 31st.

I appreciate your support of the Bellingham Bay Action Program and look forward to your response.

Sincerely,

Lucille T. Pebles

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator

LTP:lp

NANCY McKAY
Executive Director

STATE OF WASHINGTON
PUGET SOUND WATER QUALITY AUTHORITY
Abbot Raphael Hall • Mail Stop PV-15 • Olympia, Washington 98504-0900 • (206) 493-9300

RECEIVED
JUN 12 1991
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June 11, 1991

Ms. Lucille T. Peebles, P.E.
Bellingham Bay Action Coordinator
Washington State Department of Ecology
3190-160 Ave. S.E.
Bellevue, Washington 98008-5452

Dear Ms. Peebles,

Thank you for the opportunity to participate in the Bellingham Bay Action Plan development. Even though we do not always have as many resources to devote to them as we would like, the Authority views the urban bay action team (UBAT) programs as a very important part of protecting Puget Sound. We appreciate your hard work and that of Ecology's other UBAT staff as well.

Your May 17, 1991 letter poses several clarifications and questions regarding the Puget Sound Plan. I will address these issues section by section.

General

This section accurately summarizes the Authority's role. Please replace the final sentence with: " The PSWQA oversees implementation of all the programs as implemented by federal, state and local agencies, as well as tribal governments and federal facilities. The Puget Sound Plan was adopted in May 1991 as the first Comprehensive Conservation Management Plan (CCMP) in the nation for an estuary. of national significance under Section 320 of the federal Clean Water Act."

Monitoring

To the first paragraph, please add " The PSAMP is coordinated through a monitoring management committee that is made up of PSWQA, EPA, Tribes,local governments and the state implementing agencies." In the second paragraph, please add the Department of Wildlife to the list of implementing agencies. Please note that the PSAMP includes several stations in the Bellingham Bay area.

Education and Public Involvement

Bellingham PIE contracts have been awarded to Whatcom Community College (see page 83 of the attached PIE Book), University of Washington Sea Grant (page 15), Puget Sounders (Page 129), Friends of the San Juans (page 127) and the Nooksack Tribe (page 127).

PIE contracts (technically not grants) are awarded on a competitive basis two times each biennium. Requests for proposals are distributed through mass mailings to individuals and organizations on PSWQA mailing lists. RFPs are also provided to anyone who requests them.

The next round of PIE funding will begin with the release of an RFP for Round 5 on June 15. Proposals will be due August 16. Selections will be announced on October 25, 1991. Round 6 RFPs will be release in January, 1992 with proposals due in March and awards made in May.

Although funding for Rounds 5 and 6 depends on budget deliberations underway in the 1991 legislature, $1.1 million is identified in both the House and Senate versions of the budget. Approximately two-thirds of the PIE Fund contract money will be awarded in Round 5, one-third in Round 6.

Puget Sound Foundation

Currently, the foundation is in its formative stages of selecting the first few board members. Once the board has been fully established (summer 1991), they will begin their fund raising activities. Future grant applications should be directed to the foundation.

Wetlands

Please replace the third sentence with "The Authority deferred a final decision on the wetlands minimum standards until summer 1991 so that additional time for public comment could be accommodated for this program. At the time of this writing, the Authority was considering a combination of regulatory and voluntary approaches to wetlands protection."

Stormwater

This section is accurate. Please add a status section -- " The highway Runoff Rule was adopted by Ecology on May 21, 1991. The two parallel state stormwater rules for local governments are in draft form, and are being coordinated with the recent federal stormwater NPDES regulation (promulgated November 1990). Adoption of the stormwater rules is expected by January 1992. "

Sediments, Municipal and Industrial Discharges, Nonpoint etc.

Although you did not mention them in your request letter, there are several other Puget Sound Plan programs that I feel may have direct bearing on the condition of Bellingham Bay. I invite you to include some of the summary language out of the Plan for these programs plus a brief status. An important Sediments Standards Rule was adopted by Ecology in April 1991 to implement element P-2 of the Puget Sound Plan. These are the first sediment protection standards in the nation and will likely result in some sediment actions in Bellingham Bay. Also note the Plan's dischargers program requires the systematic upgrading of waste discharge permits to better monitor and control toxics. Current, Ecology has begun to include these requirements in permits. While there has been litigation regarding these new requirements, a joint effort by Ecology, EPA, PSWQA, and the Tulalip Tribes is resulting in improved monitoring by dischargers for toxics that will eventually lead to improved controls.

The Nonpoint, Shellfish, Spill Prevention, and Trans Boundary Issues (see Unfinished Agenda) also may warrant summary in your action plan. PSWQA is currently revising the Nonpoint Rule. The 1991 Legislature just passed an oil spill bill that mandates implementation of most of our Spills Prevention Program. Also, the recent publicity and governmental response to sewage and toxics from Canada seem to justify some mention.

In closing, I hope that this information is helpful in developing your draft action plan. If you need further information on specific programs, I invite you to contact individual program leads on our staff. I have included a phone list to assist you. Again, thank you for your efforts on this important project. Please call me (Scan 585-9173) or Ecology's Puget Sound Coordination Section, Dave Smith (Scan 585-7078), if you have other questions.

Sincerely,

Vallana M. Piccolo

Vallana M. Piccolo
Environmental Supervisor

cc:
Dave Peeler - Ecology
Jack Gakstatter - EPA

Marine Debris Demonstration and Education Project

Sponsor:

- University of Washington Sea Grant Program

Purpose:

- To reduce the amount of plastic and other debris that boaters dump into Puget Sound

Methods:

- Developing a pilot project to collect and recycle plastics and other boat trash
- Educating boat operators on the problems of marine debris, derelict gear, and plastics

Materials produced:

- Three brochures
- A 4-color poster and smaller bulkhead sticker

Results:

- A successful recycling program at Squalicum Harbor in Bellingham
- Dissemination of information on reducing marine debris to marinas around the country

Target audience:

- Commercial fishermen, recreational boaters, and marina operators in Squalicum Harbor, Bellingham

PIE slice:

- $30,000

Was it a coincidence that six months after the Squalicum Harbor recycling project began, the city of Bellingham initiated its own curbside recycling program? It wasn't entirely coincidental, according to Jim Humphreys. "We have a strong recycling ethic that is now institutionalized here," the coordinator of the PIE-funded Squalicum Harbor project remarked.

For one recycling program to inspire another is not uncommon. In fact, Sea Grant's recycling program was modeled after one at the harbor of Newport, Oregon. However, the layout of the Squalicum Harbor project was adjusted to the different types of gear that Bellingham fishermen use.

At Squalicum Harbor, receptacles now stand at the head of each marina ramp, with additional receptacles near the commercial fishing fleet's work area. Bins hold cardboard, aluminum, scrap metal, scrap wood, and nets. The most-recycled material is cardboard, according to Humphreys. Local recyclers pick up those items that have markets, while those without markets are sorted into dumpsters for later collection as trash.

Set-up cost for this low-budget and low-maintenance recycling site was less than $200, a feat made possible through clever planning and community support. Local fish processing plants contributed fish totes—four-foot square, three-foot deep wooden boxes—for use as recycling containers. Project staff washed the totes out, painted them inside and out, and added a hinged chicken wire top to each one.

An initial lack of interest from the Port of Bellingham delayed installation of the modified fish totes for nearly six months. However, once these new containers were in place and boaters and fishermen began to fill them with trash, the project steadily gained momentum and widened support.

The project's second part, the dissemination of material about recycling marine debris, produced 3,000 copies of a whimsical four-color poster. On this poster a familiar Puget Sound resident, the giant Pacific octopus, declares, "Marine Debris: Get a Grip on It."

The poster is part of an information packet that the project staff developed for other marinas. Also included in the packet are brochures: "Getting a Grip on Marine Debris at Squalicum Harbor;" "Marine Debris: How Commercial Fishermen Can Help Solve a Growing Problem;" "Marine Debris: How Recreational Boaters Can Help Solve a Growing Problem;" and

Rainy Days in Federal Way: The Problems of Stormwater Runoff

Sponsor: Federal Way Water And Sewer Citizen Advisory Committee

PIE Slice: $6,500

Contact: Lois Kutscha 939-4792, 924-5711

Under the direction of the citizen advisory committee, students from Sacajawea and Kilo Junior High School science clubs will produce a videotape and fact sheet to inform Federal Way residents about the damaging effects of stormwater runoff on Puget Sound and about remedies to correct runoff problems. The project will stress the connections between runoff and wetlands, streams, lakes, and groundwater in Federal Way.

Public Involvement in the Evaluation of the Proposed Northern Puget Sound National Marine Sanctuary

Sponsor: Friends of the San Juans

PIE Slice: $20,000

Contact: Nancy DeVaux 378-2319

This project will inform the public about the National Environmental Policy Act review process to evaluate the Northern Puget Sound National Marine Sanctuary proposal. Workshops will be held in Friday Harbor, Mount Vernon, Bellingham. Sequim, and Seattle. In addition to the workshops, a newsletter will be used to improve communication among user groups, conservation groups, agencies, and officials involved. This project is based on the Citizen Action Training School Model developed in Round Two of the PIE-Fund by Pilchuck Audubon.

Bay Watchers

Sponsor: Greater Hansville Chamber of Commerce

PIE Slice: $15,000

Contact: Bob Lewis 692-0956

Based on the successful Sequim Bay Watchers model developed in Round Two of the PIE-Fund, this project will recruit, train and certify 50 Master Bay Watchers in north Kitsap County. Using the curriculum developed by the original project, the volunteers will learn about water quality concerns related to septic systems, stormwater runoff, misuse of pesticides, application of fertilizers, and boating. At the end of the training period, the Bay Watchers will undertake community projects to protect water quality.

Soundbook

Sponsor: Marine Science Society of the Pacific Northwest

PIE Slice: $30,000

Contact: Jim Kolb 779-5549

A homeowner's water quality handbook with Soundwide application will be developed, patterned after the Chesapeake "Baybook." The handbook will promote individual responsibility in protecting Puget Sound, and will suggest specific activities for people to take. A technical advisory committee, which includes people from government, business, industry, education, and science will assist in developing the handbook.

Tribal and Community Watershed Education

Sponsor: Nooksack Tribe Fisheries Department

PIE Slice: $9,700

Contact: Douglas Dobyns 592-5176

The Nooksack Tribe will conduct an education project for tribal members and the general public on the role of the tribe in watershed protection.

Video: Puget Sound: Our Heritage at Risk

Sponsor: North Pacific Film and Tape

PIE Slice: $35,000

Contact: Tom Putnam 623-3151

A video will be produced based on the Puget Sound Water Quality Authority's recent publication, *Puget Sound: Our Heritage at Risk.* The video will take a comprehensive look at Puget Sound, describe its problems, examine the potential effects that may result from population growth and other pressures, and explain how individuals can become more involved in the fight to clean up and protect this spectacular estuary.

Eelgrass Exhibit

Sponsor: Port Townsend Marine Science Center
PIE Slice: $13,000
Contact: Anne Murphy 385-5582

The Port Townsend Marine Science Center will construct an outdoor eelgrass exhibit composed of an aquarium and interpretive panels. The exhibit will be located on the dock at Fort Worden State Park, overlooking a natural eelgrass habitat. The panels will provide information about eelgrass, such as its geographic distribution, its biological role as habitat, and its link to commercially important species of fish and shellfish.

Self-Guided Discovery Tours

Sponsor: Puget Sounders
PIE Slice: $9,900
Contact: Arnie Klaus 676-8094

A series of portable, weatherproof signboards will be built to interpret various facets of the Puget Sound ecosystem and describe human activities that harm the system. The signboard series will include interpretive information on watersheds, nonpoint pollution, habitat for migrating birds, waste stream management, shorelines, etc.. The pilot program will use the signboards for interpretive tours at three sites: Vashon Island, Orcas Island, and Whatcom County. The goal of the project is to offer a cost-effective way to provide interpretation in places where no permanent displays exists.

Boater's Project

Sponsor: Quartermaster Harbor Alliance
PIE Slice: $9,900
Contact: Barb Nightingale 463-3624

To reduce water column, surface, and sediment contamination of Quartermaster Harbor on Vashon Island, a five-part education program will be launched. This program will include: 1) installation of dock signage at the marina and yacht club describing the marine ecosystem and measures boaters can take during boating and boat maintenance to protect the ecosystem; 2) creation newsletter on boater activities and maintenance stressing actions to improve the harbor; 3) development of information about improved hazardous waste containment; 4) involvement of youth in beach cleanup; and 5) stormdrain stenciling with a "Dump No Waste. Drains to Bay" message.

Recreational Diver Education

Sponsor: Underwater Society of the Pacific Northwest
PIE Slice: $8,100
Contact: Laura Geselbracht 624-9190

The project will survey recreational scuba divers and dive boat operators in the Puget Sound region on favorite diving sites, types of activities pursued, and cumulative impacts of diving activities. The information will be used for two purposes: to educate recreational divers about how their activities affect subtidal habitat and what they can do to lessen individual impacts; and to suggest possible sites for underwater parks, preserves and artificial reefs.

Painting Contractor Education

Sponsor: Urban Wildlife Coalition
PIE Slice: $6,600
Contact: Charles Anderson 622-5260

The project will inform painting contractors about proper disposal and waste reduction for paint and paint related products (such as paint thinner). A specially designed poster and brochure and a telephone information line will be used to communicate the information. The information will be disseminated through local paint suppliers including Parker Paint, Rodda, and Fuller O'Brien.

Wetland Stewards Project

Sponsor: Washington State University Cooperative Extension, King County
PIE Slice: $9,900
Contact: Curt Moulton 296-3900

As part of the Cooperative Extension Land/Water Stewardship program, a comprehensive volunteer training curriculum will be developed on protecting and restoring wetlands. A core of 30 volunteers will receive 20 hours of training on general water quality

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 17, 1991

Mr. Bill Geyer
City of Bellingham
Planning and Economic
Development Department
210 Lottie Avenue
Bellingham, WA 98225

Re: Bellingham Bay Action Plan

Dear ~~Mr. Geyer~~ Bill:

This letter is in follow-up to the October 24, 1990 meeting that Michael Jacobson (PTI Environmental Services), Fran Solomon (Ecology), and I had with you regarding actions that the City of Bellingham Planning and Economic Development Department is taking to reduce pollution in Bellingham Bay. I have summarized below our understanding of the Planning Departments actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This letter, as well as your response, will be included in the draft Bellingham Bay Action Plan scheduled for release this July.

Wetlands

The City's wetlands ordinance has been put on hold until Class I and Class II wetlands can be reconfirmed through further field investigation. The results of this investigation will be used to develop a wetlands map that will become part of the wetlands ordinance. *What is the status of the adoption of the ordinance? How does it compare to the Puget Sound Water Quality Authority recommendations?*

Land Use

A land clearing ordinance is being formulated to provide requirements for the clearing of trees, shrubs and other vegetation. The ordinance will address:

1) The amount of clearing that can be performed.

2) Where the clearing can occur.

3) The types of vegetation that can be removed.

4) Erosion and sediment control.

This ordinance is aimed at addressing properties containing under five thousand board-feet of timber, which are not covered by the Department of Natural Resources forest practices permit. *What is the status of the land clearing ordinance? How have the City's comments on forest practices permits been received by DNR?*

Under the Growth Management Act, the City can now review Forest Practices Permits and mitigate them, provide additional conditions, or recommend denial. The City will not give positive approval of the Forest Practices Permit unless there is a simultaneous development application. *Has the requirement for a development application in conjunction with the Forest Practices Permit been successful? What is the rationale behind this requirement?*

In 1979 the City and Whatcom County created an Urban Growth Boundary outside of the city limits. The area between the boundary and the city limits has an interim urban density zoning until a new comprehensive plan is developed. The City will provide water and sewer service to these areas under the assumption that they will ultimately build out to urban densities and be annexed into the City. *What is the status of the comprehensive plan? Is there a written agreement between the City and County on providing water and sewer service, and future annexation?*

<u>State Environmental Policy Act (SEPA)</u>

The City was considering revising the SEPA threshold levels which determine when an environmental impact statement must be prepared. However, due to staff shortages this task was put on hold. *What is the status of this effort? What revisions are you proposing and why?*

<u>Squalicum Creek Watershed</u>

The City of Bellingham Public Works Department is performing an assessment of Squalicum Creek. The assessment includes wetlands, flood control, open space, wildlife habitat, and development opportunities. From this effort a drainage improvement plan will be developed.

Squalicum Creek ranked number two to receive a watershed management plan, and the work by the Public Works Department addresses drainage issues only. *Who will be developing a management plan for the Squalicum Creek watershed and when?*

The city Public Works Department has also been monitoring Squalicum Creek since January of 1990. The fecal coliform counts for June and October were well above state water quality standards. A potential source of these elevated counts could be livestock. *Does the City have any plans to create an ordinance to keep animals out of creeks and to provide measures to prevent manure runoff from entering streams? If the source of these high fecals are thought to be outside of the city limits, what actions will be taken?*

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will be held this summer to discuss and comment on the draft plan. Prior to the finalization of the plan, public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response letter, feel free to call me at 649-7272 (SCAN 354). Please have your response letter to me by Friday, May 31st.

I appreciate your participation in this process and look forward to your response.

Sincerely,

Lucille T. Pebles

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator

LTP:lp

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 17, 1991

Mr. Jack Garner, P.E.
City of Bellingham
Department of
Public Works
210 Lottie Avenue
Bellingham, WA. 98225

Re: Bellingham Action Plan

Dear ~~Mr. Garner:~~ Jack

This letter is in follow-up to the November 6, 1990 meeting that Michael Jacobson (PTI Environmental Services), Fran Solomon (Ecology), and I had with you, Ken Thomas, and Bill McCourt, regarding actions that the City of Bellingham Department of Public Works is taking to reduce pollution in Bellingham Bay. I have summarized below our understanding of the City's actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This letter, as well as your response, will be included in the draft Bellingham Bay Action Plan scheduled for release this July.

Lake Whatcom

The City is the lead agency in a study (funded in part by Referendum 39 monies) of Lake Whatcom and its watershed. Phase I of the study was completed in 1986 and resulted in a management plan for the lake. The plan identified several areas which required additional attention in order to ensure protection of the lake's existing water quality. Phase II of the study is designed to address the concerns of the management plan and is currently underway. The City is involved in lake restoration efforts. The Whatcom County Health Department is under contract to the City for an on-site sewage disposal survey, and the Whatcom County Public Works Department is under contract to the City for the formation of development standards, a fuel tank inventory, and a storm drainage inventory. *What is the status of these various tasks? What is the next step?*

A portion of the grant was earmarked for the development of educational materials on the protection of the Lake Whatcom watershed:

1) Written material was developed for third graders.

2) Sixth graders participated in a conservation site within the watershed and in a poster contest. Written material for this age group was developed and as well as a slide show.

3) Coordination with schools and teachers has been initiated to incorporate watershed education in their curriculum. Also, workshops have been held for teachers, at which kits for analyzing basic water quality parameters were prepared for the workshop attendees.

4) Pamphlets were developed for the general public as well.

The City plans to continue educational efforts beyond the grant funding and develop additional educational materials. *Will this information be specific to Lake Whatcom? What will be the nature of the material? The Lake Whatcom watershed is especially important because it is the City's drinking water source. However, all watersheds need to be protected. Are there plans to increase the scope of the educational materials to address watershed protection in general?*

<u>Squalicum Creek</u>

As an element of a Floodplain Management grant, the City has performed a wetlands assessment of Squalicum Creek. Flood control, open space, wildlife habitat, and development opportunities are the other elements that will be assessed. As a result of these assessments a plan will be developed to protect the wetlands; this could potentially involve rezoning. A draft plan will be completed in November of 1991; the final plan will be completed in April of 1992. *What is the status of the other assessments?*

Squalicum Creek has a number two priority, behind Drayton Harbor, for the development of a watershed management plan. *Who will be developing the watershed plan for Squalicum Creek? When would this work begin and be completed?*

The Whatcom County Council of Governments is performing the Drayton Harbor work, would they be a potential candidate for the Squalicum Creek work as well?

Stormwater

The City does not currently have a stormwater utility or comprehensive development standards to directly address stormwater issues. The creation of a utility will be considered at the time Ecology issues rules and guidelines for stormwater management programs. The City does have a development fee that covers impacts of new development. *What requirements are currently in place to address erosion and sediment control, detention, and the treatment of stormwater? How frequently are the City's drainage systems cleaned? How is the removed material disposed of? Does the City require oil/water separators for all new developments? Please describe the development fee (i.e. the amount of the fee, how it is assessed, and how the collected fees are used to offset impacts).*

Will any City owned/operated facilities require a NPDES permit under the new Federal storm water regulations (e.g. bus washing facility)?

The Lake Whatcom Development Standards will be benefical in the effort to improve water quality in Lake Whatcom. What are your thoughts on applying these development standards city- wide?

Water Quality

In January of 1990, the City began sampling all creeks within the city limits once a month. Parameters tested are temperature, pH, turbidity, dissolved oxygen, and fecal coliforms. *What prompted the City to begin this sampling program? Will actions be taken if Class A water quality standards are exceeded? If water quality criteria exceedances are suspected to result from activities outside of the city limits, what coordination would occur with the County?*

Given that the City of Bellingham will be required to permit their storm drain outfalls at some time in the future, what plans do you currently have for monitoring storm water and storm drain sediments for contaminants?

What role does Public Works play in addressing the contribution of dairy wastes to water quality problems?

What actions are being taken to address the contribution of herbicides, pesticides and fertilizers to the degradation of surface waters (e.g. public education, reduced use of these chemicals or use of alternative environmentally friendly products by the City and their contractors)?

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will be held this summer to discuss and comment on the draft plan. Prior to the finalization of the plan, public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response letter, feel free to call me at 649-7272 (SCAN 354). Please have your response letter to me by Friday, May 31st.

I appreciate your cooperation in this process and look forward to your response.

Sincerely,

Lucille T. Pebles

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator

LTP:lp

CITY OF BELLINGHAM • WASHINGTON •

DEPARTMENT OF PUBLIC WORKS, 210 Lottie St., Bellingham, Washington 98225
Telephone (206) 676-6961

June 7, 1991

RECEIVED
JUN 10 1991
DEPT. OF ECOLOGY

Lucille T. Pebles, P.E.
Bellingham Bay Action Program Coordinator
Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue WA 98008-5452

Dear Ms. Pebles:

You requested a partial response with available information to your letter of May 17th. This letter will answer some of your questions with the remaining information to follow as soon as it is available. To aid in our response, I have given the questions in your letter an identifying number, and our responses are keyed to those numbers.

In Question #4 you inquire about the preparation of a watershed plan for Squalicum Creek. As far as I know, there is no local agency willing to sponsor any additional watersheds given the limited financial support offered by the State.

In Question #6 you ask if any City facilities will require NPDES permits under the new storm water regulations. This is the first time I have received anything from the State Department of Ecology concerning this program. Since the State of Washington administers the NPDES permit system for the Federal Government, we have been expecting some information, direction, training, guidance or contact of any kind from the State on this program but this has not occurred. Since we have no information on the program, I cannot answer your question.

Question #10 concerns the role of the City's Public Works Department in addressing dairy wastes. Since there are no dairy operations in the City of Bellingham and since the vast majority of the watershed is outside the City limits, we have not identified any active role in dairy waste management.

Please see the attached memo for responses to Questions 1, 2, 8 and 11. Responses to Questions 3, 5, 7 and 9 will be forwarded as soon as they are available.

Sincerely,

John M. Garner, P.E.
Public Works Director

JMG:shh
060791

Attachment

RECEIVED
JUN 14 1991
DEPT. OF ECOLOGY

CITY OF BELLINGHAM • WASHINGTON •

DEPARTMENT OF PUBLIC WORKS, 210 Lottie St., Bellingham, Washington 98225
Telephone (206) 676-6961

June 12, 1991

Lucille T. Pebles, P.E.
Bellingham Bay Action Program Coordinator
Department of Ecology
3190 160th Ave. S.E.
Bellevue WA 98008-5452

Dear Ms. Pebles:

RE: Bellingham Bay Action Plan

This letter is intended to complete our response to your letter of May 17, 1991, concerning the Bellingham Bay Action Plan.

Under the Squalicum Creek section, we would suggest the following modifications to the summary statement. Change "protect the wetlands" to "manage the floodplain." Change "November of 1991" to "April of 1992," and "April" to "June."

Assessments of the current status of flood control, open space, fish and wildlife habitat, and development have been completed. Modeling of storm water flows will occur next, the results of which will form the basis for determining impacts and recommended improvements. All will be summarized in the draft plan due out in April of 1992.

Under the Storm water section, we would substitute the following summary:

The City recently (July 1990) enacted a drainage utility in order to address current and future drainage issues and problems. At this time, the fees are collected on all developments at the time permits are taken out, and are based on the amount of impervious surface created. Single-family homes are charged $400, and everything else is charged $400 for each 3,000 square feet of impervious surface created. The collected fees are placed in a fund which is used to upgrade deficiencies in the drainage system, to build facilities of regional benefit, and to support increasing demands on drainage division staff.

All land-disturbing activities in the Lake Whatcom watershed must be accompanied by an approved temporary erosion and sedimentation control plan, with permanent BMP facilities required of larger developments. Elsewhere, subdivisions and projects with potential environmental impacts are also generally required to provide an E/S plan as a condition in the development contract or permit.

There is no automatic detention requirement in Bellingham. Downstream impacts of development are assessed with each project, however, and the developer is given the option of correcting any deficiencies or providing detention to pre-development rates. Projects with parking lots must provide outlet traps in the catch basins to trap oil and debris. Other water quality controls may also be required of new developments by the City Council.

It is anticipated that the Lake Whatcom Development Standards for water quality control will be employed uniformly in the City eventually. Although the ordinance specifies only the lake, the standards are often employed elsewhere through the SEPA process.

In response to your question under the Water Quality section concerning monitoring, the City is aware of upcoming NPDES requirements from information provided by trade associations, but has not embarked on a discharge sampling program at this time. We expect to comply with monitoring requirements once they are developed by the Department of Ecology.

Sincerely,

Jack

John M. Garner, P.E.
Public Works Director

JMG:shh
061291

JMG - Here's our input for your answer.

DEPARTMENT OF PUBLIC WORKS
MEMORANDUM

TO: Ken Thomas, Operations Engineer

FROM: Bill McCourt, P.W. Superintendent - Operations WPM

DATE: May 28, 1991

SUBJECT: Bellingham Bay Action Plan Questions

I will attempt to answer the questions that Lucille Pebles posed in her letter of May 17.

Question #1 - The Whatcom County Health Department has completed their task on the survey of septic systems within the watershed. Corrective actions on failing systems have either been completed or are in progress. The City has contracted with the Health Department to provide a septic system maintenance program for the entire county. The system will maintain an inventory of all septic systems and provide reminders to homeowners when maintenance is required. The Whatcom County Public Works Department has prepared draft development standards based upon Ecology's guidelines. The standards should be submitted to the Council and adopted this summer. The underground fuel storage tank inventory has been completed and a draft ordinance regulating tanks has been proposed. I anticipate that these standards would be completed this summer. The storm drainage inventory has been completed for both the city and county portions of the watershed. Both agencies are incorporating the information in their capital improvement programs and developing maintenance programs for these facilities.

Since the Lake Whatcom Advisory Committee has been disbanded, it is unclear if any additional steps will be taken.

Question #2 - The focus of our current education program is on the Lake Whatcom Watershed. It is of highest priority since it is the source of the city's drinking water. The materials on the watershed are sent to all watershed residents and all City of Bellingham utility customers. The information contained in them is applicable to any watershed. The Raindrop, Rooftop, and Riparian watershed walks at Shuksan, Whatcom, and Fairhaven Middle Schools are specifically targeted at Squalicum Creek, Whatcom Creek, and Padden Creek. The City has also put together 4 water quality test kits for use by schools and other interested groups. The storm drain stenciling program was targeted at all

watersheds. The City will continue to promote programs with Lake Whatcom being the primary focus and watersheds in general will be considered secondary.

Question #8 - The City began the Creek Monitoring Program as an inexpensive yardstick on the health of our streams. The City will perform a cursory look at why streams exceed the Class A criteria. Fecal coliform testing will be pursued on the highest sites, and in the future low dissolved oxygen levels will be looked into further. The City is currently only sampling those streams located within the city limits and does not know of any comparable programs within the County with which to coordinate.

Question #11 - The City has addressed the issue of garden and household hazardous wastes through the Lake Whatcom Education Program. It has included brochures, a slide show, and a public seminar on Lake Friendly gardening. The City ~~also~~ has a program (and low volume users in the watershed) for recycling and disposal of household hazardous wastes. The Cooperative Extension Service ~~is being~~ promoted as a resource agency to suggest more watershed friendly solutions to gardening. The City has discontinued the use of herbicides and the County has also discontinued their use in areas considered environmentally sensitive including the Lake Whatcom Watershed. I have attached a sample of some of the brochures that have gone out so far. An additional one on Lake Friendly Gardening should be coming out in June or July.

Please let me know if you have any other questions regarding these matters.

WPM:sk

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 17, 1991

Mr. Byron Elmendorf
Bellingham Parks and
Recreation Department
3424 Meridian Street
Bellingham, WA 98225

Re: Bellingham Bay Action Plan

Dear ~~Mr. Elmendorf~~ Byron:

This letter is in follow-up to the September 26, 1990 meeting that Michael Jacobson (PTI Environmental Services), Jacques Faigenblum (EPA), Fran Solomon (Ecology), and I had with you and Tim Wahl, regarding actions that the Bellingham Parks and Recreation Department is taking to reduce pollution in Bellingham Bay. I have summarized below our understanding of the Parks Departments actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This letter, as well as your response, will be included in the draft Bellingham Bay Action Plan scheduled for release this July.

Posting of Warning Signs

The City Parks Department would be willing to post health advisory signs provided by the State Department of Fisheries or the State Department of Health. These signs would be posted at Bellingham beaches found to contain shellfish whose consumption would pose a human health risk.

Educational Activities

The Parks Department currently has one person working half-time at the Maritime Heritage Center who provides interpretive information about the fish hatchery. The Parks Department would like this position to become full-time with more emphasis being placed on overall water quality issues. This position is currently funded by British Petroleum and the Bellingham School District. However, no additional funds are available to make the position full-time.

Also, if funds were available, the Parks Department would like to provide interpretive signs along trails adjacent to streams. *Does the Parks Department plan to seek funding to expand their educational activities?*

Padden Creek Estuary

A planning study, providing a long range plan for the Padden Creek Estuary area, was completed in June of 1990. The study assessed existing conditions and recommended policies and actions for public access and wildlife and landscape management. Initial recommendations are currently being implemented.

With funds from the Aquatic Lands Enhancement Account, primary improvements to public access as well as the installation of interpretive elements, were scheduled to begin in the fall of 1990, with final completion in the spring of 1992.

What is the status of the initial work? Will all of the recommendations of the study be implemented? If so, when and what will be the funding source?

Little Squalicum Park

A draft site management plan for Little Squalicum Park was prepared in April of 1990. The plan calls for, "maintaining the majority of the site east of the Marine Drive bridge in a natural state, while improving the west meadow portion of the site west of the Marine Drive bridge for more intense human uses involving more traditional park improvements." *What is the status of this plan?*

Water Quality

Who owns and maintains storm drain systems on Parks Department properties? Storm drains are a significant contributor to the degredation of surface waters. Therefore, it is important to keep them clean to minimize their environmental impact. How frequently are your systems cleaned? How are the removed materials disposed of? Is there any testing of the materials for toxic substances?

Pesticides, herbicides, and fertilizers contribute to the degradation of waters as well. What actions are being taken to reduce the impacts of these chemicals (e.g. reduction in use or using environmentally friendly products)?

Waste Reduction

What is being done to encourage park users to recycle?

What is done with organic materials obtained through park maintenance? Can the materials be composted? Does the presence of pesticides, herbicides and fertilizers affect its compostibility?

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will be held this summer to discuss and comment on the draft plan. Prior to the finalization of the plan, public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response letter, feel free to call me at 649-7272 (SCAN 354). Please have your response letter to me by Friday, May 31st.

I appreciate your participation in this process and look forward to your response.

Sincerely,

Lucille T. Pebles

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator

LTP:lp

CHRISTINE O. GREGOIRE
Director

RECEIVED
MAY 28 1991
DEPT. OF ECOLOGY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 17, 1991

Mr. Byron Elmendorf
Bellingham Parks and
Recreat~~ion Department~~ 210 LOTTIE
3424 Meridian Street
~~Bellingham, WA 98225~~

Re: Bellingham Bay Action Plan

Dear ~~Mr. Elmendorf~~ Byron:

This letter is in follow-up to the September 26, 1990 meeting that Michael Jacobson (PTI Environmental Services), Jacques Faigenblum (EPA), Fran Solomon (Ecology), and I had with you and Tim Wahl, regarding actions that the Bellingham Parks and Recreation Department is taking to reduce pollution in Bellingham Bay. I have summarized below our understanding of the Parks Departments actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This letter, as well as your response, will be included in the draft Bellingham Bay Action Plan scheduled for release this July.

Posting of Warning Signs

YES

The City Parks * RECREATION Department would be willing to post health advisory signs provided by the State Department of Fisheries or the State Department of Health. These signs would be posted at Bellingham beaches found to contain shellfish whose consumption would pose a human health risk.

✓ Educational Activities

The Parks * REC Department currently has one person working half-time at the Maritime Heritage Center who provides interpretive information about the ~~fish hatchery~~. ENVIRONMENTAL The Parks Department would like this position to become full-time with more emphasis being placed on overall ~~water~~ ENVIRONMENTAL quality issues. This position is currently funded by British Petroleum and the Bellingham School District. However, no additional funds are available to make the position full-time. AND CITY.

EDUCATION. ADDITIONAL STAFF TEACH "FISH CLASSES"

Also, if funds were available, the Parks Department would like to provide interpretive signs along trails adjacent to streams. *Does the Parks Department plan to seek funding to expand their educational activities?* YES, 1992 Budget however doubt for funding

Padden Creek Estuary

A planning study, providing a long range plan for the Padden Creek Estuary area, was completed in June of 1990. The study assessed existing conditions and recommended policies and actions for public access and wildlife and landscape management. Initial recommendations are currently being implemented.

With funds from the Aquatic Lands Enhancement Account, primary improvements to public access as well as the installation of interpretive elements, were scheduled to begin in the fall of 1990, with final completion in the spring of 1992.

GRANT WILL FUND INITIAL DEVELOPMENT IN 1991 SUMMER/FALL

What is the status of the initial work? Will all of the recommendations of the study be implemented? If so, when and what will be the funding source?

Little Squalicum Park

A draft site management plan for Little Squalicum Park was prepared in April of 1990. The plan calls for, "maintaining the majority of the site east of the Marine Drive bridge in a natural state, while improving the west meadow portion of the site west of the Marine Drive bridge for more intense human uses involving more traditional park improvements." *What is the status of this plan?*

COUNTY PARKS OWNS PROPERTY - THEY HAVE ADOPTED PLAN

– Looking for City/County proposal 1992

Water Quality

PARKS' SYSTEM THAT SERVE ONLY PARKS OTHERWISE PUBLIC WORKS

Who owns and maintains storm drain systems on Parks Department properties? Storm drains are a significant contributor to the degredation of surface waters. Therefore, it is important to keep them clean to minimize their environmental impact. How frequently are your systems cleaned? How are the removed materials disposed of? ~~Is~~ there any testing of the materials for toxic substances?

AS NEEDED AS REQUIRED

Pesticides, herbicides, and fertilizers contribute to the degradation of waters as well. What actions are being taken to reduce the impacts of these chemicals (e.g. reduction in use or using environmentally friendly products)? APPLICATION USE WHEN NEEDED ACCORDING TO STATE GUIDELINES.

Waste Reduction

What is being done to encourage park users to recycle? NONE

What is done with organic materials obtained through park maintenance? Can the materials be composted? Does the presence of pesticides, herbicides and fertilizers affect its compostibility? WE OPERATE OWN COMPOST AREA for PARK MATERIAL - USE MATERIAL in PARKS

NO

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will be held this summer to discuss and comment on the draft plan. Prior to the finalization of the plan, public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response letter, feel free to call me at 649-7272 (SCAN 354). Please have your response letter to me by Friday, May 31st.

I appreciate your participation in this process and look forward to your response.

Sincerely,

Lucille T. Pebles

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator

LTP:lp

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 17, 1991

Mr. Chuck Timblin
Whatcom County
Conservation District
6975 Hannegan Road
Lynden, WA 98264

Re: Bellingham Bay Action Plan

Dear ~~Mr. Timblin~~ Chuck:

This letter is in follow-up to the October 31, 1990 meeting that Michael Jacobson (PTI Environmental Services), Fran Solomon (Ecology), and I had with you regarding actions that the Whatcom County Conservation District is taking to reduce pollution in Bellingham Bay. I have summarized below our understanding of the Conservation District's actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This letter, as well as your response, will be included in the draft Bellingham Bay Action Plan scheduled for release this July.

Watershed Management

Through watershed management plans, the Conservation District is addressing nonpoint pollution issues in Kamm Creek and 10-Mile Creek, which are tributary to the Nooksack River. Implementation of the Kamm Creek Watershed Management Plan will begin soon, and includes: Inventorying and Monitoring, Education, Technical and Financial Assistance, and Regulation and Enforcement programs. Centennial Clean Water Fund monies are being pursued for the implementaion of the 10-Mile Creek Watershed Management Plan. *What is the status of receiving funds for the implementation of the 10-Mile Creek Plan?*

In February of 1989, the Conservation District and the Whatcom County Health Department, began a one year joint water quality monitoring project in Bertrand-Fishtrap Creek watershed. As a result of this effort, many of the farms adjacent to waters having the highest fecal coliform concentrations contacted the Conservation District for waste management planning assistance. *What is the status of waste management in the Bertrand-Fishtrap watershed? Will water quality be monitored in the future to determine the effectiveness of the waste management efforts? What other joint efforts are planned?*

Farm BMPs Program

Under the farm best management practices program, Ecology receives and investigates complaints and then sends out a notice of violation. The notice includes a recommendation that the violator contact their local Conservation District within the next ten days to begin work on a water quality management plan. A copy of the notice is sent to the Conservation District.

The violator then has 6 months to develop a water quality management plan, with or without the Conservation District's assistance, and 18 months to implement it. If these time frames are not adhered to or the violator is non-cooperative, the Conservation District can refer the violator back to Ecology for potential enforcement action.

The Conservation District would like to be able to preform more follow-up inspections to ensure that management plans are being complied with. However, they have limited staff. *What is the status of hiring new personnel to enable more follow-ups?*

Cost-share funds are available from the Agricultural Stabilization and Conservation Service for farmers to develop and implement their management plans as long as they are not involved in an enforcement action. Also, if the facilities installed with cost-share funds are not maintained, farmers may have to return the cost-share monies.

Wetlands

The Soil Conservation Service (SCS) identifies and inspects wetlands to insure farmers are in compliance with the federal Farm Bill. A new staff person has been added to perform wetlands determinations. *What will be the boundaries within which wetlands are designated? Are there Whatcom County personnel performing wetlands determinations, and if so, how will the SCS work overlap with the County's? What requirements will SCS develop to protect wetlands?*

Education

The Conservation District writes a waste management news article that the Whatcom County Cooperative Extension publishes monthly in the Whatcom County Dairyline. The District would like to have their own quarterly or bimonthly newsletter at sometime in the future. *What is the status of a newsletter by the District?*

The District has a 3-day conservation camp, in association with the Georgia Pacific tree farm at Lake Whatcom. The camp teaches 6th graders about the value of soil conservation.

In conjunction with the Whatcom County Cooperative Extension, the Conservation District is developing two videos on farm animal waste management. The first video will address waste pond management and maintanence and the second waste use. *What is the status of these videos? How are they made available to the public?*

The Conservation District also has a brochure which addresses conservation practices for farmers.

Dairy Waste Management Committee

The Conservation District will be serving on the industry-sponsored Whatcom County Dairy Waste Management Committee. *What is the status of this committee? What is its function? What authority does it have, or is it more of a cooperative and/or advisory committee?*

Permitting of Nonpoint Pollution

Permitting of wastes from concentrated animal feed lots, was originally established in the Federal Clean Water Act, Section 208. This idea is being revisited by a committee on which the Conservation District will serve. *What is the status of this committee? What will be their authority, cooperative and/or advisory?*

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will be held this summer to discuss and comment on the draft plan. Prior to the finalization of the plan, public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response letter, feel free to call me at 649-7272 (SCAN 354). Please have your response letter to me by Friday, May 31st.

I appreciate your support of this process and look forward to your response.

Sincerely,

Lucille T. Pebles

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator

LTP:lp

Whatcom County Conservation District

AGRICULTURAL SERVICE CENTER - 6975 HANNEGAN ROAD - LYNDEN, WASHINGTON 98264 PHONE (206) 354-2035 FAX (206) 354-0318

RECEIVED
MAY 31 1991
DEPT. OF ECOLOGY

May 30, 1991

To: Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator
DEPARTMENT OF ECOLOGY
Bellevue, WA 98008-5452

From: Chuck Timblin/Resource Technician Chuck

RE: Bellingham Bay Action Plan

Enclosed is a response to the summary and questions regarding the Bellingham Bay Action Project.

Watershed Management

Implementation of the Kamm Creek Watershed Plan began nearly a year ago. Funding to get this project under way was provided by a Water Quality Special Project grant of $475,000 from the Agricultural Stabilization and Conservation Service (ASCS). Technical assistance was provided by the SCS. At least 50% of the farm waste management plans have already been implemented. In addition, newsletters have been published and a fair booth was established last summer at the Northwest Washington Fair.

Tenmile Creek Plan implementation could begin this July. This project ranks 30th out of 80 projects being considered for CCWF grants.

Farmers in Bertrand-Fishtrap Creek Watershed continue to implement waste management plans, either voluntarily, or in response to notification of water quality violations (as provided by the conditions of the Compliance MOA that the District and Ecology agreed upon). There are no plans for water quality monitoring at this time. Personally, I would like to do some followup monitoring in portions of this watershed where implementation has been fairly intense to determine whether this effort has been worthwhile. Perhaps your agency would be interested in joining in this effort?

Farm BMPs Program

The SCS recently placed one additional person in the Lynden field office (Lee Ko started work here in September of last year). Much of Lee's time is spent doing followup.

ASCS funds for cost-share assistance are not denied to farm operators who have received notification of water quality violation, only those that fail to heed the notification. This policy is very important because it gives the District considerable leverage in gaining voluntary cooperation from those that are notified of violations.

Wetlands

No new staff person has been added by SCS to perform wetland determinations (during our last meeting I may have had the erroneous notion that Lee Ko would be providing this service). The boundaries for SCS wetlands determinations are all of Whatcom County. At this time no Whatcom County personnel perform wetland determinations. The requirements SCS has developed to protect wetlands are those mandated by the most recent Farm Bill. In essence this bill requires no net loss of wetlands (something you probably already knew).

Education

The District will begin publication of a quarterly newsletter later this year. The funding source is a Conservation Commission sponsored CCWF grant.

The videos are still in the production phase. The project is now largely in the hands of Cooperative Extension. When completed (hopefully by June 30, 1991), the videos will be available through both the District and Extension.

Dairy Waste Management Committee

A coordinator has been hired for this committee. For more information about this committee contact:

Henry Bierlink
Nutrient Management Program Assistant
Courthouse Annex
1000 N. Forest St.
Bellingham, WA 98225
(206) 738-2531

Permitting of Nonpoint Pollution

This committee basically has an advisory role. The committee is currently waiting for Ecology to prepare the first permit draft. The draft should be available by August or September.

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 17, 1991

Ms. Becky Peterson
Whatcom County Council
of Governments
1203 Cornwall, Suite 104
Bellingham, WA 98225

Re: Bellingham Bay Action Plan

Dear ~~Ms. Peterson~~ Becky:

This letter is in follow-up to the September 27, 1990 meeting that Michael Jacobson (PTI Environmental Services), Jacques Faigenblum (EPA), Fran Solomon (Ecology), and I had with you regarding actions that the Whatcom County Council of Governments is taking to reduce pollution in Bellingham Bay. I have summarized below our understanding of the Council of Governments actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This letter, as well as your response, will be included in the draft Bellingham Bay Action Plan scheduled for release this July.

Silver Creek Watershed Management Plan

The Silver Creek Watershed Management Plan was approved by the Department of Ecology in April of 1990. In addition, Centennial Clean Water Funds have been obtained for implementation the management plan.

Plan implementation was scheduled to begin in January 1991, and includes the following source control programs for Silver Creek: Education, Monitoring, Agriculture, Pesticides, Solid Waste Disposal, Forestry, On-Site Septic Systems, Stormwater/Erosion Control and Household Hazardous Waste.

Under the education element, a "Watershed Educators" program would be implemented. This program would be similar to the Master Gardener program where volunteers would receive formal water quality and nonpoint pollution training. In exchange for the training, volunteers commit themselves to spending a set number of hours educating the public on water quality issues.

Monitoring will be performed by the Institute for Watershed Studies at Western Washington University. Water samples will be taken at eleven stations over a two year period, on a monthly or rain event basis. A single sediment sample will be taken at three locations sometime during the two year period. Water samples will be analyzed for conventional parameters and sediment samples for priority pollutants. An invertebrate survey will also be performed.

As part of the agriculture program, the Whatcom County Conservation District and the U.S. Soil Conservation Service will perform farm inventories to determine impacts to water quality. The farmers will then be encouraged to implement best management practices.

The on-site septic system program includes the addition of a Whatcom County Health Department staff person to oversee water quality issues.

What is the status of the various source control programs?

<u>Other Watershed Management Plans</u>

What is the possibility that the Council of Governments will develop the watershed management plan for Squalicum Creek?

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will be held this summer to discuss and comment on the draft plan. Prior to the finalization of the plan, public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response letter, feel free to call me at 649-7272 (SCAN 354). Please have your response letter to me by Friday, May 31st.

I appreciate your support of this process and look forward to your response.

Sincerely,

Lucille T. Pebles

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator

LTP:lp

WHATCOM COUNTY
COUNCIL OF GOVERNMENTS
WCCOG

RECEIVED
MAY 30 1991
DEPT. OF ECOLOGY

May 29, 1991

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Department of Ecology
Northwest Regional Office
3190 - 160th Ave., S.E.
Bellevue, WA 98008-5452

Re: Bellingham Bay Action Plan Correspondence

Dear Lucille:

This letter is in response to the questions posed in your May 17th correspondence. I will answer them point by point as outlined in your letter which I have attached a copy of for easy reference.

1. The status of the source control programs are as follows:

* Plan Implementation - Implementation was scheduled to begin in January of 1991. Although some of the recommended source control programs have seen slight delays, other work related to implementing the action plan (ie; drafting and negotiating contracts) did begin with the scheduled implementation date.

* Watershed Educators - The "Watershed Educators" program has been renamed the "Master Watershed" program. The "Master Watershed" program has begun. The first round of volunteers for the program is estimated at about 20. Training is scheduled to be completed on this first round by Mid-June. Additional funding was sought by and granted to WSU-Extension Service - Whatcom County for continuing the program beyond the funding allocated through the Silver Creek project.

* Monitoring - A contract has been drafted for services to be performed through the Institute for Watershed Studies at Western Washington University for monitoring in Silver Creek. The scheduled date of first sampling has been delayed from the original date stated in the Silver Creek plan. It is expected that monitoring will begin the first part of June 1991. The monitoring program still contains the same elements as those identified in the Silver Creek plan.

1203 CORNWALL #104 BELLINGHAM, WA 98225 676-6974 SCAN 644-6974

* Farm Inventories - The SCS through the Whatcom County Conservation District has not yet completed the farm inventories. This recommended action has been delayed from the scheduled date in the Silver Creek plan. The inventories, however, are still considered to be part of the implementation efforts and will be done during the time line set for Silver Creek implementation efforts.

* Health Department Staff - A temporary position was created at the Whatcom County Health Department to look at water resource issues on a county-wide basis. The issues that the staff person in this position is addressing are the same issues identified in the Silver Creek plan.

* Educational Efforts - Education efforts are an on-going part of the Silver Creek implementation. A contractor's manual developed by the AGC of Washington, which identifies best management practices, has been distributed to the Whatcom County Building and Codes Department and the City of Ferndale for distribution to contractor's when building permits are issued.

  Continued participation in the county fair is an opportunity to disseminate educational materials to the community on nonpoint pollution and water quality issues. This dissemination of information is a recommended source control program in the Silver Creek plan.

2. With regard to your question regarding the possibility that the Council of Governments will develop the watershed management plan for Squalicum Creek:

   Projects undertaken by the Council of Governments are decided upon by the Council of Governments' Executive Board. The usual procedure for consideration of a project is when a formal request is made to the Executive Board. As far as I am aware, there has not been an interest expressed by any of the jurisdictions within the Squalicum Watershed to request the Council of Governments to develop a watershed management plan.

If there are any further questions or comments regarding the above responses, please give me a call.

Sincerely,

Becky

Becky Peterson, Project Manager

attachment

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 17, 1991

Mr. Jerry Mixon
Whatcom County Public
Works Department
401 Grand Avenue
Bellingham, WA 98225

Re: Bellingham Bay Action Plan

Dear ~~Mr. Mixon:~~ Jerry

This letter is in follow-up to the October 31, 1990 meeting that Michael Jacobson (PTI Environmental Services), Fran Solomon (Ecology), and I had with you and John Tyler regarding actions that the Whatcom County Public Works Department is taking to reduce pollution in Bellingham Bay. I have summarized below our understanding of the Public Works Department's actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This letter, as well as your response, will be included in the draft Bellingham Bay Action Plan scheduled for release this July.

Lake Whatcom

The Development Standards for the Lake Whatcom watershed incorporate elements of the King County Surface Water Manual and the Department of Ecology Stormwater Management Manual. Specifically for the Lake Whatcom watershed, the Standards are part of a comprehensive study of the watershed being performed by the Bellingham Public Works Department. The Development Standards will include requirements for on-site detention, erosion and sediment control, and the treatment of stormwater. *What is the status of the standards? Is there a separate set of standards that currently apply to the rest of the County as well as the City? Will the current standards be revised according to the Lake Whatcom standards, or will the Lake Whatcom standards eventually be applied to the entire City and County? When will this occur?*

As part of the City of Bellingham study, Whatcom County Public Works is also inventorying storm drains and fuel tanks within the Whatcom County Watershed. *What is the status of these inventories? What actions will be taken based upon the inventories, when and by whom?*

Stormwater Issues

Regarding the maintenance of stormwater detention ponds for new developments, the developer is responsible for maintaining the ponds for the first two years and then the County assumes responsibility. The developer must compensate the County for the maintenance of the pond. *How frequently does the County maintain ponds they are responsible for? How are the removed sediments disposed of? Private property owners typically do not maintain their drainage systems very well. What are your thoughts on the possibility of applying the pond maintenance scenario to private drainage systems?*

To generate funds for stormwater management activities, such as those discussed above, a drainage district could be formed. The creation of a drainage district would involve public hearings and support by the County council via the passing of an ordinance. *What is the status of creating a drainage district?*

What requirements are currently in place to address erosion and sediment control, detention, stormwater treatment and system maintenance?

For 1991, the County has received a budget increase for the maintenance of ditches. It is expected that 200,000 cubic yards of material will be removed over the year. *Will funding be available on a continual basis? How frequently will the ditches be cleaned? How will the removed materials be disposed of? How often are the County's enclosed drainage systems maintained? How are materials removed from these systems disposed of? Is there any testing of the materials for toxic substances?*

The County would be willing to participate in a volunteer storm drain stencilling project. This type of project would involve the community in helping to reinforce the message that storm drains do connect to the surface waters they all enjoy.

Wetlands

What is being done in the County to address wetlands issues, for example: inventorying, mapping, and ordinances to provide protection?

Landfills

What role does the Public Works Department play in landfills? Who sites them? What is the status of siting new landfills?

Water Quality

The City of Bellingham is monitoring streams within the city limits on a monthly basis. Standard water quality parameters such as temperature, pH, dissolved oxygen, turbidity, and fecal coliforms are being analyzed. This type of sampling will provide invaluable information on the quality of water entering Bellingham Bay as well as provide a basis to potentially take corrective actions. *Could a monitoring program like this be implemented in the County? Would the County consider participating in a monitoring program like this if volunteer labor was available?*

The County has requirements for erosion and sediment control for all development activities and recently added requirements for land clearing operations. The land clearing ordinance includes seasonal restrictions and stiff penalties for non-compliance. *Does this apply to the Lake Whatcom watershed only, or to the entire City and County?*

What is being done in the County to address the contribution of herbicides, pesticides and fertilizers to the degradation of surface waters(e.g.public education, reduced use of these chemicals or use of alternative environmentally friendly products by the City and the City's contractors)?

What role does the Public Works Department play in addressing the contribution of dairy wastes to water quality problems?

Squalicum Creek

Squalicum Creek has a number two priority, behind Drayton Harbor, for the development of a watershed management plan. The Whatcom County Council of Governments is developing the plan for Drayton Harbor. *Who will be undertaking the Squalicum Creek watershed management plan and when?*

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will be held this summer to discuss and comment on the draft plan. Prior to the finalization of the plan, public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response letter, feel free to call me at 649-7272 (SCAN 354). Please have your response letter to me by Friday, May 31st.

I appreciate your participation in this process and look forward to your response.

Sincerely,

Lucille T. Pebles

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator

LTP:lp

Whatcom County DEPARTMENT OF PUBLIC WORKS

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RECEIVED
JUN 06 1991
DEPT. OF ECOLOGY

May 30, 1991

Lucille T. Pebles, Coordinator
Bellingham Bay Action Program
Department of Ecology
NW Regional Office
3190-160th Ave. S.E.
Bellevue, WA 98008-5452

Dear Ms. Pebles:

In response to your letter to Jerry Mixon, I will attempt to answer the questions posed in your letter.

1. The progress of our Stormwater Standard has been delayed somewhat as the disk with the text of the water quality plan has been delayed in the Department of Ecology.

2. Currently there are separate standards regarding stormwater treatment, drainage, and design for the City of Bellingham and Whatcom County.

3. It is the County's intent to adopt the standards currently being prepared for the entire county as well as areas of the city as they apply to the Lake Whatcom Watershed. The City of Bellingham has not yet indicated their intentions for adopting a set of standards.

4. Depending upon the date of arrival of the information from D.O.E., it is our intention to have the standards completed and adopted by September 1991.

5. The inventory for the stormwater drains and the underground fuel storage tanks in the Lake Whatcom Watershed has been completed.

6. We intend to adopt an ordinance governing underground fuel storage tanks in the watershed area which fall below the exempt levels currently contained in state regulations. We have followed state guidelines so as to have consistent enforcement practices.

7. The standards will be available to interested parties by late June. Actions, including enforcement of new regulations, will be in effect July 1st.

8. Maintenance of stormwater detention ponds is on an infrequent basis at present. Part of the current standards makes provisions for scheduling of maintenance. Currently any sediment which is removed from these ponds is deposited in fill sites throughout the county.

9. We have not gotten far enough into maintenance to regulate private drainage systems. Currently, the standards do not make provisions for regulating private systems by agreement they are maintained by the County two years after the development is completed. The creation of a county-wide drainage district is a matter of discussion in town meetings throughout the county. Whatcom County Public Works supports a county-wide drainage district and will continue to pursue establishing the same.

10. Currently, sedimentation and erosion control, detention ponds, stormwater treatment and systems maintenance are covered in the existing County Development Standards and by Chapter 70 of the Uniform Building Code as modified by County ordinance.

11. Funding for an increase in the maintenance of ditches will continue on an annual basis provided that the County Council approves the budget. It is anticipated that they will continue to approve these allocations. Present plans provide for maintenance of 2,000 miles of ditches on a 15 year cleaning cycle.

12. Plans for siting landfills have been abandoned due to the nature of the soils found in Whatcom County. Most proposed landfill sites contain wetlands. Therefore, we have been unsuccessful at addressing the problem of locating new landfill sites. We feel that by conscientious practices of recylcling, composting, and incineration together with developing uses for the ash from incineration, our current needs can be met for disposal of solid waste without having a landfill site.

    I am referring your questions regarding water quality to our new Water Quality Manager, Sue Blake with a request that she respond to your concerns.

13. A program is currenly under way in Whatcom County that has been described as a model program. We feel we are a leader nationwide in vegetation management. The County has a full-time person who oversees vegetation management practices including herbicide application, noxious weed control, mowing, etc.

    We also have enforcement ordinances limiting the application of pesticides and herbicides by the County which addresses the application of vegetation management in several sensitive areas including the Lake Whatcom Watershed, Lummi Island, and several other areas throughout the county where citizens participate in "owner will maintain" agreements. We have

participated on State and Regional Boards in order to maintain our status as leaders in these efforts.

14. Regarding the animal (dairy) waste problem, Whatcom County Public Works is in an advisory position only. There are indications that through Soil Conservation, Cooperative Extension, and the dairy farmers themselves in cooperation with DOE, that this problem is being adequately addressed. The County supports these actions but we have no regulatory position at this time.

I hope that I have adequately answered your questions. Please let me know if I can be of further assistance.

Sincerely yours,

John R. Tyler

John R. Tyler
Deputy Director Public Works

JRT:dp

c:\work\100\pebics.doc

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 17, 1991

Ms. Diane Harper
Whatcom County Planning
Department
401 Grand Street
Bellingham, WA 98225

Re: Bellingham Bay Action Plan

Dear ~~Ms. Harper~~ Diane:

This letter is in follow-up to the October 9, 1990 meeting that Michael Jacobson (PTI Environmental Services), Fran Solomon (Ecology), and I had with you and Jerry Mixon regarding actions that the Whatcom County Planning Department is taking to reduce pollution in Bellingham Bay. I have summarized below our understanding of the Planning Department's actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This letter, as well as your response, will be included in the draft Bellingham Bay Action Plan scheduled for release this July.

Shoreline Master Plan

The Whatcom County Planning Department has completed revisions to the Whatcom County Shoreline Master Plan. The revisions addressed issues including sitting moorage and community docks, increasing public access, increasing drainage provisions, and determining approaches to modify development setbacks. The Plan was scheduled to go before the County Council in December of 1990. *What is the status of adoption and implementation of the plan? Why was the plan revised?*

Wetlands

The County has performed a wetlands inventory through an aerial photo survey. An independent community group is developing an ordinance to protect these sensitive areas. This group will submit the proposed ordinance to the County Council.

If the council agrees to develop such an ordinance, the Planning Department would set up a committee to examine the proposed ordinance. The planning commission would then send any approved ordinance to the County Council for final approval. *What is the status of the sensitive areas ordinance?*

Nooksack River

The Planning Department, in conjunction with the Lummi Tribe as the lead agency, applied for Centennial Clean Water Funds (CCWF) to perform a study of the Nooksack River. The study would establish baseline data on the river and access impacts from logging and agricultural practices. The information gathered on the Nooksack would be placed on a GIS computer system. This application was not accepted. *Will another attempt be made to obtain CCWF monies, or other monies, to perform this study?*

Water and Sewer Plan

The County is developing a water and sewer plan as part of their comprehensive land use plan. The water and sewer plan will address both groundwater and surface water protection. Issues to be covered in the plan include jurisdictional conflicts over regulatory authority; water rights for the Nooksack River and county groundwater supplies; and water quality impacts from logging, agriculture, development, and waste disposal. As part of the plan, a Nooksack groundwater study will evaluate the pattern of groundwater and surface water interchange. *What is the status of these efforts? How are the issues above addressed in the plan? Will the Nooksack basin study also access water quality?*

Development Standards

The Whatcom County Public Works Department has created development standards for the Lake Whatcom watershed. *What ordinances might be developed to implement these standards? Will they eventually apply to the entire City and County? If so, when? What requirements are currently in place regarding erosion and sediment control, stormwater treatment(e.g. oil/water separators and grassy swales), detention, and system maintenance?*

Water Resource Issues

The County has requested that Public Utility District #1 become the water resource lead agency and be the lead coordinator for nonpoint pollution issues.

The county commissioners are pursuing this approach. *What is the status of this effort? What specifically would be their responsibility? If this does not occur, who will be actively addressing water resource issues in the County?*

Sewage Disposal

The State Department of Health has revised their On-Site Sewage System Regulations (Chapter 248-96 WAC). *Is Whatcom County adopting ordinances to implement the State regulations?*

The County has loan funds available for improvements to septic systems for qualifying home owners. *Are these loan funds frequently applied for?*

It is difficult for the County to pursue enforcement on septic tank violations because it must go through the prosecuting attorney. There is a need to create a civil penalty to avoid the court system. *What actions are being taken to move in this direction?*

Squalicum Creek

Under the County's prioritization of watershed management plans Squalicum Creek ranked number two, behind Drayton Harbor, to receive a watershed management plan. Due to the fact that the bulk of this watershed falls within the jurisdiction of the City of Bellingham, the City would probably be the lead agency in the development of a watershed management plan. *Are you aware of any interest by the City or any other agency in developing a watershed management plan for Squalicum Creek? The Whatcom County Council of Governments developed the Silver Creek Watershed Management Plan and is working on the Drayton Harbor Plan. Could the Council of Governments be a potential candidate to develop the Squalicum Creek plan?*

Clearing Permit

A Washington Department of Natural Resources Forest Practices Permit is not required if a clearing operation results in less than 5000 board-feet of timber, or if the timber quantity is greater than 5000 board-feet and is not being sold. The county now requires developers to obtain a clearing permit for both of these situations to prevent large stands of trees from being totally cleared and destroyed. The clearing permit is required under amendments to the Whatcom County Development Standards.

The amendments also address buffers for streams, lakes, and wetlands, as well as perimeter buffers. Violation of the ordinance is considered a civil offense and carries a penalty of 1000 dollars per day. *Has the ordinance been generally adhered to by developers?*

Landfills

What role does the Planning Department play in siting new landfills? Are any new sites currently being considered?

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will be held this summer to discuss and comment on the draft plan. Prior to the finalization of the plan, public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response letter, feel free to call me at 649-7272 (SCAN 354). Please have your response letter to me by Friday, May 31st.

I appreciate your participation in this process and look forward to your response.

Sincerely,

Lucille T. Pebles

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator

LTP:lp

WHATCOM COUNTY HEALTH DEPARTMENT

Community Health Center - 509 Girard Street
P.O. Box 935
Bellingham, Washington 98227
SCAN 738-2167 FAX 676-7646

FRANK E. JAMES M.D.
Health Officer

Lucille T. Pebles, P.E.
Bellingham Bay Action Program Coordinator
Department of Ecology
Northwest Regional Office
3190 160th Ave N.E.
Bellevue, WA 98008-5452

Re: Bellingham Bay Action Plan

Dear Ms. Pebles:

The purpose of this letter is to respond to questions which you asked in your letter to Diane Harper on May 17, 1991. Diane requested my assistance with two questions; the first related to sewage disposal and the second related to Squalicum Creek.

Sewage Disposal:
I discussed the questions which you raised with Bert Brainard, director of Environmental Health. Because you have sent a list of similar questions to him which he is in the process of answering, I will defer to his responses in relation to your questions in this area.

Squalicum Creek:
I have discussed your questions regarding Squalicum Creek with personnel in the City of Bellingham and the Council of Government. There are a number of programs related to the Creek being carried out by the City of Bellingham. There is not however, any action underway to develop a watershed management plan for the Creek. Becky Peterson at the Council of Government (COG) indicated the City of Bellingham or Whatcom County would have to formally request assistance from the COG if they were to become involved in developing a management plan.

If I can be of additional assistance please do not hesitate to contact me. I look forward to reviewing the draft Bellingham Bay Action Plan which you indicated would be scheduled for release in July.

Sincerely,

Sue Blake

Sue Blake
Water Resource Protection Manager

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 17, 1991

Mr. Bert Brainard
Whatcom County Health
Department
509 Grand Street
Bellingham, WA 98227

Re: Bellingham Action Plan

Dear ~~Mr. Brainard~~ Bert:

This letter is in follow-up to the October 9, 1990 meeting that Michael Jacobson (PTI Environmental Services), Fran Solomon (Ecology), and I had with you, Dave Bader and Paul Chudek, regarding actions that the Whatcom County Health Department is taking to reduce pollution in Bellingham Bay. I have summarized below our understanding of the Health Department's actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This letter, as well as your response, will be included in the draft Bellingham Bay Action Plan scheduled for release this July.

On-site Sewage Disposal

In January of 1990, the Whatcom County Health Department began the Lake Whatcom Watershed Sewage Disposal Survey. The survey was conducted in response to the identification of on-site sewage disposal as an area of concern by the Lake Whatcom Management Plan. A final report of the survey was completed in July 1990 and indicates an eight percent overall failure rate of on-site sewage systems within the Lake Whatcom watershed.

The Survey has a number of recommendations addressing areas having the highest failure rates:

1) More intensive survey of older seasonal residences during recreational season. Inadequate systems should then be upgraded to conform as closely as possible to current standards.

2) Consideration of extension of public sewer service into the Academy Street, Haggin Street and Toad Lake Road areas.

3) Public education program to encourage proper septic system maintenance. Mail brochures describing septic system functioning, care and proper maintenance to all watershed residences having on-site sewage disposal systems. Place all such residences onto a computer database and send septic tank pumping reminder notices to them every three to five years.

4) Perform an on-site sewage disposal survey within the watershed, a minimum of once every five years.

Also within the Lake Whatcom watershed, the County has strict requirements concerning vertical separation and drainfield slope for new septic systems.

Regarding recommendation #3 of the survey, there was some discussion in our meeting about a 1/2 cent per gallon septage fee being levied for discharges to the Post Point Wastewater Treatment Plant and that these funds ($18,000?)would be used for the education program. *What is the status of the septage fee plan and of the education program itself? If you have not yet developed the brochure, the Whatcom County Conservation District has a reprint of a pamphlet titled "Know Your Septic System" which may be of some use to you. Is the $18,000 figure a cap, that when attained the fee will no longer be charged?*

What is the schedule for implemention of recommendations 1, 2 and 4 of the Lake Whatcom Watershed On-site Sewage Disposal Survey? Regarding recommendation #1, please define recreational season.

What are the County's requirements concerning vertical separation and drainfield slope for new septic systems within the Lake Whatcom watershed and outside of it? Do they equal or exceed the Washington Department of Health's On-Site Sewage System Regulations?

County-wide, to ensure that all new septic tanks are installed properly, the Health Department has a comprehensive training program for all new inspectors. *Please describe the comprehensive training.*

Are you aware of any failing septic system problems in the portion of the County that is adjacent to Bellingham Bay or in any other areas of the County that are within the Bellingham Bay watershed? What actions are being taken to address these problem areas?

Household Hazardous Waste and Recycling

The Whatcom County Health Department, in conjunction with Whatcom County and City of Bellingham Public Works Departments, operates a permanent household hazardous waste drop-off site, as well as publishes a useful household hazardous waste chart/pamphlet. *How is this pamphlet made available to the public? Regarding the suggestion for disposal of antifreeze in the chart; isn't it accepted at the City/County drop-off site for recycling? How frequently is the chart updated?*

The County also publishes an informative resource guide to recycling called "Whatcom County Recycles".

How is this guide made available to the public?

Whatcom County and the City of Bellingham have completed management plans for household hazardous wastes and moderate risk wastes. *Will the City be involved in preparing educational brochures on the program and the County involved in the screening and collection of wastes? What is the schedule for implementation of the activities outlined in the plan?*

Shellfish Issues

If it was determined that the harvesting of shellfish was a threat to public health, the County would notify the public through various media: radio, newspaper, posting of signs at recreational shellfish areas, development of a poster for placement at fishing stores, marinas, and other similar businesses, and/or development of a brochure. *Would the County or the State Department of Health post signs at recreational shellfish areas? This issue is part of the memorandum of agreement (MOA) that is being drawn up between the County and the State. What is the status of the MOA? If it has been completed, how are the responsibilities defined?*

The State Department of Health's Recreational Water Quality Study indicated high fecal coliform counts in their May 1990 sampling of a few stations near Chuckanut Village. Also, data from the City of Bellingham's 1990 stream monitoring program shows some stations with high fecal coliforms.

Who is responsible for investigating the cause of these high counts and taking corrective actions? Does the County Health Department do the actual lab work for the City's stream monitoring program?

Landfills

There are over 20 closed landfills in Whatcom County. In accordance with Department of Ecology regulations, landfills that have been closed since 1985 are adhering to implementation schedules and have groundwater monitoring systems in place. Active landfills have groundwater monitoring and are required to have approved closure and post closure plans. All facilities are monitored quarterly. *Please state the facilities that are closed, but are being monitored, and the active facilities. Has the data collected from these sites indicated ground or surface water contamination? If it has, what actions were or will be taken? Do all of the active facilities have approved closure and post closure plans, which meet the requirements of Chapter 173-304 WAC? If not, what is the status of developing plans that meet the regulatory requirements?*

The following two landfills have been brought to my attention, please tell me what you know about them (e.g. what was disposed of, how large the site was, when materials were disposed of and who the current property owner is): 1178 Marine Drive and Georgia Pacific landfill on Y Road.

Are any new landfill sites are being considered?

Dairy Wastes

Whatcom County contains a high density of dairies, which can potentially have a greater impact on water quality than failing septic tanks. *What plans does the Health Department have to assess this impact and to take mitigative actions? What is the Health Department's role in the dairy waste issue?*

Personnel

The Department of Health has hired a water resource manager. Her duty will be to develop a water resource plan for Whatcom County by the spring of 1992. The plan will focus on potable water supplies.

The Silver Creek Watershed Management Plan recommended that the Health Department add staff to allow an increase in time spent on water quality related programs, "such as addressing on-site sewage disposal problems and developing and coordinating special field surveys." Will the new water resource manager be undertaking these efforts as well? Will she be undertaking any other water quality related projects?

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will be held this summer to discuss and comment on the draft plan. Prior to the finalization of the plan, public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response letter, feel free to call me at 649-7272 (SCAN 354). Please have your response letter to me by Friday, May 31st.

I appreciate your participation in this process and look forward to your response.

Sincerely,

Lucille T. Pebles

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator

LTP:lp

WHATCOM COUNTY HEALTH DEPARTMENT

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FRANK E. JAMES M.D.
Health Officer

RECEIVED
JUN 0 3 1991
DEPT. OF ECOLOGY

May 30, 1991

Lucille T. Pebles, P.E.
Department of Ecology
3190 - 160th Avenue SE
Bellevue, Washington 98008-5452

Dear Ms. Pebles:

This is in response to questions in your letter dated May 17, 1991, regarding the Bellingham Action Plan.

On-site Sewage Disposal

The City of Bellingham is currently charging 1/2 cent per gallon of septage deposited at the sewage treatment plant. this money is dedicated to a septic tank system maintenance educational program. There is no cap on the total amount collected each year. The estimated amount to be collected in 1991 is about $18,000.00.

All dwellings with failing on-site sewage systems found during the Lake Whatcom Survey have been resurveyed and the necessary repairs made so that all are in compliance with the sewage control regulations. No time table has been set for public sewer installation or future on-site sewage system survey work. Recreational season means the period of the year from June through August.

In the Lake Whatcom Watershed, septic tank drainfields are required to have a vertical separation of at least four feet and be located where the slope is not greater than 15 percent. Outside the Lake Whatcom Watershed, a vertical separation of two feet is required. These requirements equal or exceed the State requirements. The training program for new inspectors is on-the-job and occasional attendance at workshops and seminars.

There are some problem areas of failing septic tank systems within the Bellingham Bay Watershed, however no action is being taken to survey these areas because of a lack of funding.

Household Hazardous Waste and Recycling

The Household Hazardous Waste pamphlet is available upon request. The chart is updated

Administrative & Nursing	Environmental Health	AIDS Education & Testing Center	Immunization Clinic	Communicable Disease Hotline:	Well Child Clinic	WIC Clinic
Phone 676-6720 County 384-1528	Phone 676-6724 County 384-1565	Phone 676-4593 County 384-5848	Phone 738-2508 County 384-1336	Phone 738-2503	Phone 738-2522 County 384-0574	Phone 738-2505 County 384-1633

yearly. Currently in the moderate risk waste program, the Health Department does the screening, Whatcom County Solid Waste Division does education and the City of Bellingham operates the facility.

Shellfish

There is no MOA between the local health department and the state health department. High fecal counts in Bellingham Bay and adjacent streams would be the responsibility of the health department, if the cause was thought to be failing septic tank systems. The City of Bellingham does their own laboratory work.

Landfills

The only closed landfill that has a water monitoring program is Cedarville. This site has shown some ground water contaminants, probably originating from a landfill closed prior to 1985. Active landfills being monitored are Recomp, Olivine, Intalco and Georgia Pacific. As to the two specific landfills brought to your attention located on Marine Drive and 'Y' Road, we do not have any information on them a they were closed before an operating permit was required. All landfills under permit have closure plans.

Dairy Waste

We do not have a role in the dairy waste issue. We understand that the Department of Ecology is planning on requiring all dairies to have waste discharge permits.

Personnel

The Water Resource Manager was hired by the Whatcom County Executive and is not a staff member of the Environmental Health Section. We cannot comment on her activities.

Sincerely,

Bert Brainard

Bert Brainard, M.P.H.
Environmental Health Director

BB:dmi

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 17, 1991

Mr. Don Ellis, P.E.
Port of Bellingham
P.O. Box 1737
Bellingham, WA 98227

Re: Bellingham Bay Action Plan

Dear ~~Mr. Ellis:~~ Don

This letter is in follow-up to the October 24, 1990 meeting that Michael Jacobson (PTI Environmental Services), Fran Solomon (Ecology), and I had with you and Bill Hagar regarding actions that the Port of Bellingham is taking to reduce pollution in Bellingham Bay. I have summarized below our understanding of the Port's actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This letter, as well as your response, will be included in the draft Bellingham Bay Action Plan scheduled for release this July.

Boater Education

The Port currently publishes a bi-monthly newspaper entitled "Port Report". An upcoming issue will contain the results of Washington's 1988 Recreational Boater Survey, which includes information on the types of waste disposal equipment and practices used aboard boats, and the facilities and programs that are needed to control boat wastes. A future issue of the "Port Report" will also include information on boater: sewage, used oil and maintenance wastes, litter and plastic debris, and safety and education. The Port remains open to featuring environmentally oriented educational information in future issues as well. *In which issues will the above information appear? Please send me a copy of each of these issues.*

Port of Bellingham Properties-General

The Port will be working with their lease holders to minimize the potential contamination of their properties.

Beginning in 1991, the Port will use a combination of education, questionnaires, and field investigations to encourage tenants to employ business practices which will keep pollutants out of surface and ground waters. As part of the education element, applicable environmental regulations will be distributed to the tenants. *What is your schedule for accomplishing this effort? Will you hold discussions with tenants to help them understand how the regulations apply to them? Do you plan on strengthening future leases to place some liability for contamination on to the tenant?*

Please send me a listing and/or a map of Port properties and lease holders.

I am aware that the Coastal Zone Management Act was reviewed in December of 1990. Did you gain control of any Department of Natural Resources lands as a result of the review? If so, are any of the properties contaminated and what actions will the Port take to clean them up?

Are the storm drain systems on Port properties owned and maintained by the Port? Non-point pollution from storm drains is a significant contributor to the degradation of surface waters. Therefore, system maintenance is very important. How frequently are the Port's systems cleaned? How is the removed material disposed of? What are the Port's thoughts on stencilling storm drains on Port properties?

I am aware that the Bellingham Parks and Recreation Department has prepared a draft site management plan for Little Squalicum Park. The plan calls for, "maintaining the majority of the site east of Marine Drive bridge in a natural state, while improving the west meadow portion of the site west of the Marine Drive bridge for more intense human uses involving more traditional park improvements." What are the Port's thoughts on this plan?

What are the Port's plans for future marinas in Bellingham Bay? Where might they be located?

Whatcom Waterway

In September of 1990, the Port sampled sediments in Whatcom Waterway, I & J Waterway, and Squalicum Harbor. The purpose of the sampling was to determine if materials dredged from these areas could be disposed of in deep water at a designated Puget Sound Dredged Disposal and Analysis (PSDDA) site. Whatcom Waterway samples contained concentrations of chemical contaminants which could prohibit deep water disposal if the associated biological analyses do not meet PSDDA requirements. *What is the status of the biological analyses? Please send me a copy of these results. If deep water disposal requirements are not met, will uplands disposal be considered? When would dredging begin? What is the status of dredging I & J and Squalicum Waterways?*

Alaska Ferry Terminal

What types of monitoring will occur at the Alaska Ferry Terminal? When, where and how often? Please send me a copy of the monitoring results.

Repair Grids

The Port of Bellingham has boat repair grids at Squalicum Harbor which potentially have an adverse effect on water quality. *Does the Port have other repair grids? What actions will the Port take to mitigate the environmental problems associated with them? Will sampling occur at these locations in conjunction with the Alaska Ferry Terminal sampling?*

4th and Harris Property

This site was used for storage of diesel fuel tanks and has contaminated soils. The Port has contracted for its cleanup, and work should begin soon. *What is the status of the cleanup?*

Tollycraft

The Tollycraft site is listed as a suspected contaminated site and is in non-compliance with the Washington State Dangerous Waste Regulations and the Federal Land Disposal Restrictions. *What actions have been or will be taken to address these issues?*

Recycling

The Port operates collection facilities at Squalicum Marina for cardboard, aluminum, scrap metal and wood, plastics and boat garbage, nets and waste oil. Plastics and boat garbage are not currently being recycled. *Some plastics can now be recycled; would the Port consider plastics collection and recycling?*

The Squalicum Harbor collection program was initially developed in conjunction with Sea Grant. Another product of this venture was an educational brochure which addresses the marine waste problem, efforts to solve it, and what individuals can do. The brochure also contains a map showing the various waste disposal sites. *How is this brochure made available to the public? Could it be included in the Port's billings or in the Port Report?*

Development Standards

The Port would like to create Development Standards for their properties. *What requirements do you currently have for erosion and sediment control, detention and stormwater treatment? What is the status of the Port's proposed Development Standards?*

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will be held this summer to discuss and comment on the draft plan. Prior to the finalization of the plan, public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response letter, feel free to call me at 649-7272. Please have your response letter to me by Friday, May 31st.

I appreciate your cooperation in this process and look forward to your reply.

Sincerely,

Lucille T. Pebles

Lucille T. Pebles, P.E.
Bellingham Bay Action
Program Coordinator

LTP:lp

PORT OF BELLINGHAM
Washington State

May 28, 1991

RECEIVED
MAY 29 1991
DEPT. OF ECOLOGY

Lucille Pebles, P.E.
Bellingham Bay Action Coordinator
Washington State Dept. of Ecology
Northwest Regional Office
3190 160th Ave. S.E.
Bellevue, Wa. 98008-5452

Re: Correspondence Dated 5/17/91

Dear Ms. Pebles,

The following responses are offered in the same order as questions raised in your letter referenced above.

1. The issue of the Port Report which has the boater information has been mailed to you under separate cover.

2. Although discussions have occurred with tenants on an ad hoc basis, the overall environmental program has been delayed until later this year. Our standard lease language reacted to contamination liability is attached.

3. A directory of Port of Bellingham properties and tenants is enclosed.

4. A new management agreement with DNR has not been finalized. If any new properties are secured and any are contaminated the Port would expect the previous responsible party to clean it up.

5. Some storm drains are owned and maintained by the Port of Bellingham; others are owned by the City of Bellingham and/or other third parties. For Port owned facilities, catch basins are cleaned annually or more often if needed. The Port does not have any objection to some other agency stenciling our storm drains.

6. Part of the Little Squalicum Park plans relate to Port owned property. Any surplusing of the property would have to be through the Port Commissioners. They have not been asked nor have taken any such action in regard to that proposal. Port staff has concerns relative to how existing and proposed businesses would be impacted.

COMMISSIONERS
EDWARD GRIEMSMANN KENNETH McAULAY PETER ZUANICH
ADMINISTRATIVE OFFICES
625 Cornwall Avenue/P.O. Box 1737/Bellingham, Washington 98227-1737
(206) 676-2500/County 398-2600/FAX 206-671-6411

7. Because of the high demand for moorage, the Port is always trying to assess future marina possibilities. There are about 150 more slips possible but not yet constructed within Squalicum Harbor. A small marina in Fairhaven is a possibility. A committee of citizens is being formed to review that location.

8. A sample by "Chrysler Pete's" failed. The results should be available through the State's Site Hazard Assessment of the waterway. All alternatives for disposal will be considered. Dredging for the areas of the I & J and Squalicum waterways which are suitable for deep water disposal will begin about September with the bid call going out in late May or June.

9. No sediment testing near the Alaska Ferry is contemplated unless the quarterly soundings show substantial displacement of sediment previously tested. The next sounding will take place about July.

10. There is only the repair grid at Squalicum Harbor. We are taking sediment samples at that location.

11. The diversion to the sewer treatment plant of the seepage at the northwest corner of the site will occur shortly. However, on-site excavation work has revealed the presence of a pocket of bunker "c" oil. A new plan is being formulated in response to the discovery.

12. Dane Armstrong is the lessee of the Tolley-Craft site and the letters from the Dept. of Ecology were directed toward him. It is my understanding that he has responded and the Port has heard nothing further from either Mr. Armstrong or Ecology on the matter.

I hope this adequately responds to your letter. If you have any further questions please do not hesitate to contact me.

Sincerely,

D. W. Ellis, P.E.
Director of Operations

5.3 **LIENS:** Lessee agrees to keep the property described herein free and clear of all liens and charges whatsoever.

5.4 **INDEMNIFICATION AND HOLD HARMLESS:** The Lessee agrees that it will protect, save, defend, hold harmless and indemnify the Lessor, its officers, employees and agents from any and all demands, claims, judgments, or liability for loss or damage arising as a result of accidents, injuries, or other occurrences, occasioned by either the negligent or willful conduct of the Lessee, its agents or any person or entity holding under the Lessee or any person or entity on the leasehold as a result of Lessee's activity regardless of who the injured party may be.

5.4.1 Lessee shall indemnify and hold Lessor harmless from any and all claims, demands, judgments, orders, or damages resulting from hazardous substances on the leasehold caused in whole or in part by the activity of the Lessee, its agents, subtenants, or any other person or entity on the leasehold during any period of time that Lessee has occupied all or a portion of the leasehold during the term of the lease. It is the intent of the parties that Lessee shall be responsible and shall hold Lessor harmless from any hazardous substances that have or may occur on the leasehold since Lessee first occupied the leasehold through this lease or any previous lease with Lessee. The term "hazardous substances", as used herein, shall mean any substance heretofore or hereafter designated as hazardous under the Resource Conservation and Recovery Act, 42 U.S.C. Sec 6901 et seq.; the Federal Water Pollution Control Act, 33 U.S.C. Sec. 1257 et seq.; the Clean Air Act, 42 U.S.C. Sec. 2001 et seq.; the Comprehensive Environmental Response Compensation and Liability Act of 1980, 42 U.S.C. Sec. 9601 et seq.; or the Hazardous Waste Cleanup-Model Toxic Control Act, RCW 70.105D all as amended and subject to all regulations promulgated thereunder.

5.5 **LAWS AND REGULATIONS:** Lessee agrees to conform to and abide by all lawful rules, codes, laws and regulations in connection with his use of said premises and the construction of improvements and operation of Lessee's business thereon and not to permit said premises to be used in violation of any lawful rule, code, law, regulation or other authority.

5.5.1 The Lessee's obligations herein shall include, but in no way be limited to, the obligation to comply with all State and Federal environmental laws and regulations. The Lessee covenants and agrees that it will indemnify and hold harmless the Lessor from any fine, penalty, or damage which may be imposed by any lawful authority, which may arise as a result of the Lessee's failure to comply with the obligations of this paragraph.

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 17, 1991

Mr. Ed Melvin
Sea Grant
19 Harbor Mall
Bellingham, WA 98225

Re: Bellingham Bay Action Plan

Dear ~~Mr. Melvin~~ Ed:

This letter is in follow-up to the October 24, 1990 meeting that Michael Jacobson (PTI Environmental Services), Jacques Faigenblum (Environmental Protection Agency), Fran Solomon (Ecology), and I had with you regarding actions that Sea Grant is taking to reduce pollution in Bellingham Bay. I have summarized below our understanding of the Sea Grant's actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This letter, as well as your response, will be included in the draft Bellingham Bay Action Plan scheduled for release this July.

North Puget Sound Marine Sanctuary

The National Oceanic and Atmospheric Administration (NOAA) is considering designating north Puget Sound as a marine sanctuary. The boundaries of the sanctuary could potentially extend from Cape Flattery to the Canadian border, including Bellingham Bay. Sea Grant will be involved to educate the marine fisheries user group as to how this designation would affect them and how to deal with the process. *What is the status of this designation? How would it protect water quality and fish resources in Bellingham Bay?*

Education/Technical Assistance

Sea Grant is willing to participate in educational efforts designed to improve water quality in Bellingham Bay, through involvement in planning and perhaps leading one or two activities.

In addition, Sea Grant is willing to provide technical assistance through their various resources across the country.

Waste Reduction and Recycling

Sea Grant worked with the Port of Bellingham to develop improved waste collection facilities at Squalicum Harbor. Currently facilities exist for the collection of: plastics and boat garbage, cardboard, aluminum, scrap wood and metal, nets waste oil, sewage, and hazardous materials. Cardboard, aluminum and scrap wood and metal are recycled.

This venture also resulted in the creation of an educational brochure which addresses: the marine waste problem, efforts to solve the problem and what individuals can do. The brochure also contains a map showing the various waste disposal sites at Squalicum Harbor.

How is the brochure distributed? Are there plans to reprint this document?

Water Quality

Are there any other activities which Sea Grant is involved in that pertain to improving water quality in Bellingham Bay?

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will be held this summer to discuss and comment on the draft plan. Prior to the finalization of the plan, public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response letter, feel free to call me at 649-7272. Please have your response letter to me by Friday, May 31st.

I appreciate your participation in this process and look forward to your response.

Sincerely,

Lucille T. Pebles

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator

LTP:lp

Washington Sea Grant
Marine Advisory Program
19 Harbor Mall
Bellingham, WA 98225

(206) 676-6429
SCAN 522-6429

June 5, 1991

Lucille T. Pebles
Department of Ecology
Northwest Regional Office
3190 160th Ave. S. E.
Bellevue, WA 98008-5452

Dear Ms. Pebles:

This letter is in response to your letter of May 17, 1991 requesting my comments of your summary of our meeting in October, 1990 on Sea Grant activities that reduce pollution in Bellingham Bay. It is my understanding that this information will be incorporated into the Bellingham Bay Action Plan. I will address the specific questions you pose in your letter as well as the summary. As we discussed I will not address your questions regarding the proposed National Marine Sanctuary in North Sound since that information is available within the Department of Ecology as lead state agency for the project.

Washington Sea Grant is committed to improving the water quality of Puget Sound including Bellingham Bay. The North Sound office of Washington Sea Grant has limited programmatic resources and works with a wide variety of marine users and issues in Whatcom, Skagit, Island, San Juan, and north Snohomish Counties. Sea Grant is interested in participating in planning educational efforts to improve water quality in Bellingham Bay to the extent that our programmatic resources allow, and may participate in actual education events depending on the priorities that emerge from the Action Plan process, available resources, and existing programmatic commitments. Access to the national network of Sea Grant institutions and their resources may be of value to the Action Plan process.

Washington Sea Grant does not have programs in place that address specifically water quality in Bellingham Bay at this time. As you point out in your letter, Sea Grant lead the establishment of collection and recycling facilities in Squalicum Harbor and published three educational brochures on problems with marine debris and how recreational boaters and commercial fishermen can help address this serious problem. These brochures are available for $ 0.50 each through this office and Washington Sea Grants main

office in Seattle on the University of Washington campus. Sea Grant is currently considering reprinting these publications, but no decision has been made thus far. This project certainly addresses water quality in Bellingham Bay, but the impacts of this program are likely to be broader and include Puget Sound in general. I have enclosed copies of the three marine debris brochures I have mentioned for your information.

I hope that my comments are useful to you in your preparation of the Bellingham Bay Action Plan. If I can be of further assistance please contact me.

Sincerely,

Edward F. Melvin
North Sound Field Agent

cc: M. Spranger

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 24, 1991

TO: Citizen Work Group Members

FROM: Lucille T. Pebles, NWRO
Bellingham Bay Action Program Coordinator

SUBJECT: Bellingham Bay Action Plan

This memo is in follow-up to the October 24, 1990 meeting that Michael Jacobson (PTI Environmental Services), Jo Harrison (Senior Environmental Corps volunteer), Fran Solomon (Ecology), and I had with you regarding actions that the citizens of Bellingham are taking to reduce pollution in Bellingham Bay. I have summarized below our understanding of your actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This memo, as well as your response, will be included in the draft Bellingham Bay Action Plan scheduled for release this July.

Concerned Southside Citizens

Concerned Southside Citizens (CSC) have been actively involved in shoreline development issues in the southern area of Bellingham Bay. As a result of their efforts, the Port of Bellingham will be taking quarterly soundings at the Alaska Ferry Terminal to track scouring. In addition, they have taken actions to ensure that the cleanup of a contaminated site at 4th and Harris proceeds in a timely manner. CSC continue to closely track shoreline development impacts to Bellingham Bay. *What other activities are the CSC currently involved in?*

CSC also has been involved in a Padden Lagoon enhancement project. *How does this work mesh with the Bellingham Parks and Recreation Departments habitat enhancement and public access project for Padden Creek?*

North Cascades Audubon Society

The North Cascades Audubon Society (NCAS) is involved in monitoring bird populations in Bellingham Bay to establish baseline information. They also have formed a conservation committee to respond to oil spills and rescue oiled birds.

What types of birds are monitored, how frequently, and where?

The NCAS has applied for Public Involvement and Education funds on two occasions, but was not awarded any monies. *What were these funds to be used for? Will you apply for these funds again?*

Puget Sounders

The Puget Sounders are involved in a number of activities:

1) Annual or semi-annual garbage pickups on beaches

2) Oiled bird rescues

3) Stream tours to educate the public about stream ecology

4) Low cost portable exhibits on various environmental issues

5) Public forums on shoreline development issues (e.g. Alaska Ferry Terminal and Fairhaven Masterplan)

6) Volunteer program to eradicate the invasive plant purple loose strife from wetlands, as well as "how to" brochure.

In addition, the Puget Sounders have also received funds from the Puget Sound Water Quality Authority (PSWQA) to create standardized/regionalized low cost portable educational exhibits.

What subjects are addressed in the portable exhibits? Were the monies obtained from PSWQA from their Public Involvement and Education fund? Please elaborate on the standardization and regionalization of the portable educational exhibits.

Other Community Groups

The Fairhaven Neighbors are very active in the Padden Creek enhancement effort. *Is this part of the City of Bellingham Parks and Recreation Department habitat enhancement and public access project?*

The Friends of Lake Whatcom are actively educating the public about the importance of protecting water quality. *What mechanisms are used to accomplish this?*

Consumers United for Safe Paper are working to build demand for recycled paper products and to discourage the use of the chlorine bleaching process. *How is this accomplished?*

The Bellingham Cooperative School is involved in the enhancement effort at Padden Creek as well as storm drain stencilling. *Is the Padden Creek enhancement work part of the City of Bellingham Parks and Recreation Department habitat enhancement and public access project? What area of Bellingham was stencilled by the school and when? What coordination took place with the City of Bellingham Public Works Department?*

Bellingham/Samish Bay Salmon Enhancement Group- *What activities are they involved in?*

Western Washington University

Are there any recent or planned studies related to pollution in Bellingham Bay?

General

What actions are the citizens of Bellingham taking as individuals (e.g. recycling, buying recycled products, using environmentally friendly products; reducing or eliminating the use of pesticides, herbicides, and fertilizers; composting, using mass transit)?

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will be held this summer to discuss and comment on the draft plan. Prior to the finalization of the plan, public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response, feel free to call me at 649-7272. Please have your response letter to me by Friday, June 7th.

I appreciate your participation in this process and look forward to your response.

RECEIVED
JUN 07 1991
DEPT. OF ECOLOGY

June 4, 1991

Dear Lucy,

The following is a response to your request for information about CSC activities:

CSC continues to monitor implementation of our 1989 agreement with the Port of Bellingham and City of Bellingham. We are also involved in protecting the Padden watershed from damage to wetlands from proposed development and participated in the scoping process for an Environmental Impact Statement required for a proposed 140 unit development. We have participated in workshops to refine a proposed wetlands ordinance for the City of Bellingham. CSC members continue to track development on the Southside of Bellingham with special regard to water quality issues. CSC is helping to sponsor a Candidate Forum on Environmental Issues this fall which will give the public an opportunity to examine candidates running for County, City and Port offices with regard to their stand on environmental issues. CSC members are keeping informed about possible dredging projects in

Whatcom, Squalicum, and Padden Waterways which will affect Bellingham Bay.

Padden Lagoon Enhancement Project

CSC is cooperating with Bellingham Parks and Recreation Department to enhance the habitat in the 100' setback, obtained thru our agreement in 1989 with the Portland City. Members of CSC have attended and actively participated in the planning meetings for this project. Just recently the project was approved by the Shoreline Committee of the City's Planning Commission. When work begins this summer CSC will be providing funds and citizen labor to make this plan reality.

I hope this answers your questions. If you need any further information you can call me at 676-5254. Early morning or late afternoon are the best times to reach me. Hope things are going well for you.

Sincerely,

Jacqueline Anderson

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 17, 1991

Mr. John Anderson
Environmental Control Director
Georgia Pacific Corp.
P.O. Box 1237
Bellingham, WA 98227

Re: Bellingham Bay Action Plan

Dear ~~Mr. Anderson~~ John:

This letter is in follow-up to the October 8, 1990 meeting that Michael Jacobson (PTI Environmental Services), Fran Solomon (Ecology), Marc Crooks (Ecology), Don Kjosness (Ecology), and I had with you and Ed Dahlgren regarding actions that Georgia Pacific is taking to reduce pollution in Bellingham Bay. I have summarized below our understanding of Georgia Pacific's actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This letter, as well as your response, will be included in the draft Bellingham Bay Action Plan scheduled for release this July.

Stormwater

Surface water runoff from the Georgia Pacific site is collected and conveyed to a secondary treatment lagoon and is therefore addressed under the NPDES permit for the discharge from the lagoon. Georgia Pacific is also working to reduce releases to the storm drain system. *What specific steps are being taken to reduce discharges to the drainage system? Are these steps currently being implemented or is there an implementation schedule?*

NPDES Permit

Georgia Pacific's new NPDES permit has been issued. The permit can be appealed within the next 30 days (Approximately the middle of June, 1991)

Waste Reduction and Recycling

Georgia Pacific has reduced its water consumption from 50 mgd to 37 mgd through recycling and new process equipment. *Are you planning any other conservation efforts? Can any of your waste products be reused by another industry or composted for resale as a soil enhancer? The Industrial Materials Exchange might be able to connect you with companies that could use your wastes. Are you aware of their services? If not I would be happy to send you some information. If you have contacted them, have they found any potentially interested parties?*

Bleaching Process/Recycled Paper Products

Georgia Pacific has experimented with bleaching agents other than chlorine, and has sold the pulp around the Pacific rim to test its marketability. At this point however, there are no plans to change to an alternative method. *What are the other bleaching agents you have experimented with? What is the market for pulp bleached via a non-chlorine process? What requirements would have to met in order for an alternative to be permanently incorporated into your process?*

Paper products made from recycled paper have become quite common and appear to be increasing in popularity. What role will recycled paper products play in Georgia Pacific's future?

Landfills

Georgia Pacific has the following historic and currently active off-site woodwaste landfills:

1) Airport Woodwaste Landfill, 12 acres, active

2) Hilltop Farms Woodwaste Landfill, 30 acres, active

3) Y-Road Landfill, closed

4) 1178 Marine Drive, 10 acres, closed

Is this list complete and accurate? What types of materials are (have been) disposed of at these sites? How long were the closed sites in operation? How long have the active landfills been in service?

Nonprocess Wastes

Georgia Pacific has had all PCB-containing capacitors and transformers removed from the site.

The plant has two above ground petroleum storage tanks and no underground tanks. Solvents and waste paints are removed by a contractor. *What procedures are in place to contain/cleanup a spill?*

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will be held this summer to discuss and comment on the draft plan. Prior to the finalization of the plan, public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response letter, feel free to call me at 649-7272. Please have your response letter to me by Friday, May 31st.

I appreciate your participation in this process and look forward to your response.

Sincerely,

Lucille T. Pebles

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator

LTP:lp

Georgia-Pacific Corporation
P.O. Box 1236
Bellingham, Washington 98227
Telephone (206) 733-4410
Teletype (910) 442-2370 GEOBLHM BLH
Telecopy (206) 676-7217

RECEIVED
MAY 30 1991
DEPT. OF ECOLOGY

May 29, 1991

Ms. Lucille T. Pebles, P.E.
Bellingham Bay Action Program Coordinator
Department of Ecology, Northwest Regional Office
3190 - 160th Ave. S.E.
Bellevue, Washington 98008-5452

Dear Ms. Pebles:

This letter is written in response to your letter dated May 17, 1991. Outlined below are comments and responses to your summary and questions.

Stormwater

Surface water run-off from the Georgia-Pacific site is collected and conveyed to the secondary treatment lagoon and is therefore addressed under the NPDES permit for discharge to Bellingham Bay. Run-off is from precipitation and constitutes a small fraction of secondary treatment influent. There are no current plans to reduce flow.

NPDES Permit

Georgia-Pacific's NPDES permit was reissued May 15, 1991.

Waste Reduction and Recycling

Georgia-Pacific has reduced its water consumption from 50 mgd to 35 mgd through recycling and new process equipment. No further water use reduction is anticipated in the near future.

Approximately ten percent of primary treatment solid waste is currently re-used by another local industry. Other potential outlets for re-use are under consideration. Georgia-Pacific has participated in the Industrial Materials Exchange.

A project to press and burn primary treatment solid waste for fuel is underway with start-up anticipated early in 1992.

Bleaching Process/Recycled Paper Products

Georgia-Pacific has developed a non-chlorine pulp bleaching process utilizing caustic soda, oxygen and peroxide. The present market for this pulp is primarily in Europe for tissue products. Additional production of non-chlorine bleached pulp at Georgia-Pacific will depend on market demand, cost of production and regulatory developments.

Recycled fiber is not presently used in tissue products manufactured at the Bellingham facility. A corporate wide review is underway to consider use of recycled fiber in Georgia-Pacific tissue products.

Landfills

Georgia-Pacific has the following historic and currently active off-site woodwaste landfills:

1) Airport Woodwaste Landfill, 12 acres, - active

2) Hilltop Farms Woodwaste, 30 acres - active

3) Y-Road Landfill - closed

4) 1178 Marine Drive - closed

Primary treatment and secondary treatment solid wastes have been deposited at the Airport Woodwaste Landfill site. The Airport site has been active since 1984. The Hilltop Farms Landfill site has been active since 1976. Currently, only logyard waste is deposited at the Hilltop Farms Landfill site. Primary treatment solid waste was also deposited there for a period of time.

No facility records currently exist for the two closed sites.

Non-process Wastes

All electrical capacitors and transformers at the Georgia-Pacific facility contain less than 50 ppb polychlorinated biphenyls (PCB's).

The plant has 14 above ground petroleum storage tanks; no underground storage tanks, as defined by EPA, are in use. All solvents and waste paints are removed from the site by contractors.

The facility has a spill prevention control and counter-measure plan. On-site personnel and out-side contractors, as needed, would be utilized to mitigate and clean-up a spill.

If I can provide additional clarification or information, please contact me at (206) 676-7208.

Sincerely,

John L. Andersen

John L. Andersen
Environmental Control Director

JLA/bbl

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 17, 1991

Mr. Michael Rogers
Maritime Contractors, Inc.
201 Harris Avenue
Bellingham, WA 98225

Re: Bellingham Bay Action Plan

Dear ~~Mr. Rogers~~ Michael:

This letter is in follow-up to the September 27, 1990 meeting that Michael Jacobson (PTI Environmental Services), Fran Solomon (Ecology), and I had with you regarding actions that Maritime Contractors is taking to reduce pollution in Bellingham Bay. I have summarized below our understanding of your actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This letter, as well as your response, will be included in the draft Bellingham Bay Action Plan scheduled for release this July.

Best Management Practices

With assistance from the Coast Guard, Maritime Contractors, Inc. (MCI) has developed a hazardous waste management and contingency plan. The plan calls for containment booms to be in place when pier side work is performed and small sorbent booms, sorbent pads and kitty litter, to be available for upland spill containment. All employees will receive training on the plan.

MCI has two dry docks and one marine railway. Dry dock sandblasting is performed with canvas curtains during windy conditions to contain the airborne particulates. The dry docks are cleaned, prior to being sunk, by hand sweeping and shoveling the sandblast grit into piles. These piles are then scooped up by a Bobcat, deposited into small bins which are in turn dumped into a large storage bin. The large storage bin is an old truck trailer which is water tight on the bottom and sides but is open on top. *How is the sandblast grit ultimately disposed of?*

National Point Discharge Elimination System Permit

MCI has applied for an NPDES permit, and it is currently being written by Ecology's water quality program. The permit will cover the entire site and will have monitoring requirements.

Dangerous Waste Regulations

Sandblast grit, paint residues from cleaning, and still bottoms from solvent recycling, are all covered under the State's Dangerous Wastes program. Therefore, MCI must follow strict State requirements for hazardous waste generation, storage, handling, transport and disposal. *Are there any other wastes which are considered Dangerous wastes or will be considered Dangerous wastes under the new Toxicity Characteristic Leaching Procedure testing requirement?*

New Construction

MCI is considering the construction of an additional pier as well as the extension of an existing stub pier located on the other side of the Alaska Ferry Terminal. *What is the status of these projects? What steps will be taken to ensure minimal environmental impact?*

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will be held this summer to discuss and comment on the draft plan. Prior to the finalization of the plan, public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response letter, feel free to call me at 649-7272. Please have your response letter to me by Friday, May 31st.

I appreciate your participation in this process and look forward to your response.

Sincerely,

Lucille T. Pebles

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator

LTP:lp

MARITIME CONTRACTORS INC.
201 HARRIS AVENUE
BELLINGHAM, WA 98225-7018
(206) 647-0080

MAY 23, 1991

LUCILLE T. PEBLES
DEPARTMENT OF ECOLOGY
3190 - 160TH AVENUE S.E.
BELLEVUE, WA 98008-5452

RE: BELLINGHAM BAY ACTION PLAN
YOUR LETTER DATED MAY 17, 1991

DEAR LUCY:

ACTIONS MARITIME CONTRACTORS HAVE TAKEN TO REDUCE POLLUTION IN BELLINGHAM BAY ARE AS FOLLOWS:

BEST MANAGEMENT PRACTICES

PRESENTLY OUR CONTINGENCY PLAN CALLS FOR A CONTAINMENT BOOM TO BE READILY AVAILABLE WHEN PIER SIDE WORK IS IN PROGRESS. WE ARE GOING TO MODIFY IT SO THE CONTAINMENT BOOM WILL BE DEPLOYED DURING PIER SIDE WORK.

ALL DRY-DOCK SANDBLASTING WILL BE DONE WITH FABRIC CURTAINS IN PLACE. SANDBLAST GRIT WILL NOW BE STORED IN A CONCRETE BUNKER AND COVERED WITH A TARP. THE GRIT IS REMOVED FROM OUR SITE AND RECYCLED BY A COMMERCIAL CARRIER. (INDUSTRIAL SERVICES)

DANGEROUS WASTE REGULATIONS

WE WILL HAVE NO OTHER DANGEROUS WASTES THAT WE ARE AWARE OF.

NEW CONSTRUCTION

THE EXISTING STUB PIER BELONGS TO THE PORT OF BELLINGHAM. THE MCI PIER EXTENSION HAS NOT BEEN APPROVED BY THE BELLINGHAM PLANNING COMMITTEE AS YET. ALL ISSUES INCLUDING ENVIRONMENTAL HAVE BEEN ADDRESSED. CONSTRUCTION MATERIALS WILL BE STEEL AND CONCRETE AND CONSTRUCTION TIME FRAMES WILL BE AS DIRECTED BY THE DEPARTMENT OF FISHERIES.

IF WE CAN BE ANY FURTHER SERVICE, PLEASE GIVE US A CALL.

SINCERELY,

MICHAEL J. ROGERS
SAFETY - Q.A. MANAGER

MJR:PS

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 17, 1991

Mr. Michael Clausen
Bellingham Cold Storage
P.O. Box 895
Bellingham, WA 98227

Re: Bellingham Bay Action Plan

Dear ~~Mr. Clausen~~ Michael:

This letter is in follow-up to the October 3, 1990 meeting that Michael Jacobson (PTI Environmental Services), Jacques Faigenblum (EPA), Fran Solomon (Ecology), and I had with you regarding actions that Bellingham Cold Storage is taking to reduce pollution in Bellingham Bay. I have summarized below our understanding of your actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This letter, as well as your response, will be included in the draft Bellingham Bay Action Plan scheduled for release this July.

Permits

Bellingham Cold Storage (BCS) has reapplied for a NPDES permit. The permit will cover non-contact cooling water as well as process water. Ecology is currently writing the draft.

Waste Reduction

The cost of discharging to the Post Point treatment plant will increase when the plant goes to secondary treatment in 1993. Therefore, to minimize this expense BCS is looking at several options for reducing water consumption:

1) Closed Glycol Cooling System- BCS currently has a closed glycol cooling system in Engine Room 1 and is considering this type of system for Engine Room 2.

2) Chilled Water/Chlorination System- Product transfer water is hydro-chilled, screened, and chlorinated for reuse.

In addition to the above conservation measures, BCS is also discussing with Bellingham Frozen Foods (BFF), the possibility of discharging non-contact cooling water to BFF's new land application system. The implementation of any of these activities is contingent upon their economic feasibility. *What is the status of these various efforts?*

Stormwater Runoff

The BCS drainage system discharges to the bay at approximately ten locations. The system does have catch basins to collect sediments but does not have oil/water separators. The property is owned by the Port of Bellingham and they are responsible for the drainage system. *Regarding the number of discharges to the bay, is this from the entire site including Icicle, Bellingham Frozen Foods, Trident Seafoods and San Juan Seafoods? Does the Port maintain the drainage system? How frequently?*

Best Management Practices

BCS does not intentionally dump materials into storm drains; however, there is no written policy on this. Waste oils are discharged into the two on-site waste oil containers which are then picked up by a private contractor. All forklifts on the site are electric and therefore the only oils being used are hydraulic and refrigeration oils. Ammonia and solvents are also used on the site. *What procedures are in place to contain/cleanup spills? Are employees familiar with these proceedures? Are you planning to develop a written policy to clearly delineate good housekeeping practices? Would formal training of employees be used to ensure implementation of such a policy?*

New Facilities

BCS will be constructing a new dry storage facility next to Bellingham Frozen Foods, as well as a new processing plant at their Orchard Drive property.

BCS currently has a plant on Orchard Drive and is in the process of obtaining permits to clear additional land. The property does include wetlands and BCS is hoping to trade other properties for these wetlands. *What is the status of the Orchard Drive project? How was the wetlands issue resolved?*

Will the new processing plant site provide for treatment of stormwater prior to discharging to the City of Bellingham's drainage system? Some potential treatment methods include: grass-lined swales, wet ponds, settling basins, and grass-crete parking areas.

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will be held this summer to discuss and comment on the draft plan. Prior to the finalization of the plan, public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response letter, feel free to call me at 649-7272. Please have your response letter to me by Friday, May 31st.

I appreciate your support of this process and look forward to your response.

Sincerely,

Lucille T. Pebles

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator

LTP:lp

BCS

RECEIVED
MAY 28 1991
DEPT. OF ECOLOGY

May 22,1991

Bellingham Cold Storage Company
Squalicum Waterway
P.O. Box 895
Bellingham, Washington 98227-0895
(206) 733-1640
FAX 206-671-1259

Ms. Lucille T. Pebles
Department Of Ecology
3190 160th Ave. S.E.
Bellevue, Wa. 98008-5452

Re: Bellingham Bay Action Plan

Dear: Lucille

In response to your letter regarding of the summary that will go into the Bellingham Bay Action plan draft.

(1) Permits, B.C.S. is still waiting for these permits.

(2) Waste Reduction, The cost of discharging to Post Point has already increased and will go up even more when the Project is completed. As to the feasibility of dumping into B.F.F. Land application system, We have no further information at this time. Everything else is still pending.

(3) Stormwater Runoff, the number of 10 is only an estimate and it covers the entire complex. The port does not maintain the drainage system and there is some question as to who is responsible for them at this time. B.C.S. cleans and maintains them at this time as needed.

(4) Best Management Practices, At this time all Maintenance, foremen, cleanup and most forklift personal are trained in these cleanup procedures and a policy is being written by our safety committee.

(5) New Facilities, B.C.S. has plans to build a new dry storage plant at the main plant for B.F.F., But has not been approved at this time. There are no plans to build a processing plant at the orchard Drive Plant. The wetlands issue has not been resolved and may not be resolved for some time.

If you need more information please call me.

Sincerely,

Bellingham Cold Storage

Michael A. Clausen
Chief Engineer

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 17, 1991

Mr. David Green
Bellingham Frozen Foods, Inc.
P.O. Box 1016
Bellingham, WA 98227

Re: Bellingham Bay Action Plan

Dear ~~Mr. Green~~ David:

This letter is in follow-up to the October 3, 1990 meeting that Michael Jacobson (PTI Environmental Services), Jacques Faigenblum (EPA), Fran Solomon (Ecology), and I had with you regarding actions that Bellingham Frozen Foods is taking to reduce pollution in Bellingham Bay. I have summarized below our understanding of your actions and have asked additional questions. Please confirm or modify the summary and address the new questions through a written response. This letter, as well as your response, will be included in the draft Bellingham Bay Action Plan scheduled for release this July.

Land Treatment Facility

Construction of Bellingham Frozen Foods (BFF) land treatment facility is scheduled to begin in May or June of 1991, and to be completed by the end of the summer. The facility is expected to be operational, with the City wastewater treatment facility as a backup, through 1992. In 1993, BFF plans to be fully operational with no City backup. *How will you dispose of wastewater when soils are saturated and cannot absorb any more liquids? What is the current schedule for the project?*

The EIS for the project has been approved and finalized, and the necessary permits are being obtained. A draft NPDES permit is currently available for public review and comment. The State Waste Discharge Permit is currently being written. *What is the status of the other required permits?*

Waste Reduction

Three years ago BFF began recirculating the water used to transport carrots, through a closed loop system. This system hydro-chills and screens the water and then treats it with chlorine dioxide. The implementation of this process reduced BFF's water use by 400,000 gallons per day during the carrot season, which runs about 60 days.

BFF is currently looking at this system for the bean line, although the water savings will not be as great as for carrots. *What is the status of implementing the recirculation system for other products?*

BFF is also investigating the possibility of eliminating water transport for some products; a conveyor belt system would be used instead. *What is the status of this investigation? What products would be transported via the conveyor system?*

The draft Action Plan will be distributed for review to each member of the Bellingham Bay Action Program Work Group. A full work group meeting will be held this summer to discuss and comment on the draft plan. Prior to the finalization of the plan, public comments will also be solicited.

If you would like to discuss or clarify any issues prior to sending your response letter, feel free to call me at 649-7272. Please have your response letter to me by Friday, May 31st.

I appreciate your participation in this process and look forward to your response.

Sincerely,

Lucille T. Pebles

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator

LTP:lp

BFF
BELLINGHAM
FROZEN FOODS

RECEIVED
MAY 30 1991
DEPT. OF ECOLOGY

May 29, 1991

Lucille T. Pebles, P.E.
Bellingham Bay Action Program
Coordinator
Department of Ecology
3190 - 160th Avenue S.E.
Bellevue, Washington 98008-5452

RE: Bellingham Bay Action Plan

Dear Ms. Pebles:

This letter is in response to your letter of May 17, 1991, in which you summarized Bellingham Frozen Foods' (BFF) actions at reducing impacts on Bellingham Bay. I would like to clarify several points as follows:

Land Treatment Facility

All the necessary permits have been obtained, and we have begun construction of our land treatment system. This system includes a 20 million gallon storage lagoon. This lagoon will allow us to store wastewater when soil conditions do not allow us to irrigate. The current schedule should see construction continuing through this summer with completion in late fall.

Waste Reduction

Your summary describes our hydro-chilling recirculation system. This system is used for peas, not carrots. We have implemented a system for the 1991 processing season which will reduce water consumption for corn processing by approximately 200,000 gallons per day. This same system will be used during carrot processing and save approximately 120,000 gallons per day.

Future Projects

BFF is investigating other ways to reduce water consumption in its processing, and may see other systems changed in the future.

If you have any questions, please contact me.

Sincerely,

David B. Green
Plant Manager

p.o. box 1016 bellingham, washington 98227 (206) 734-4040

APPENDIX B

Available Funding Sources: Urban Bay Action Plan Implementation

AVAILABLE FUNDING SOURCES:
URBAN BAY ACTION PLAN IMPLEMENTATION

September 1991
(Updated - Ecology, NWRO)

Prepared for the Department of Ecology
by Jo Anne Harrison

INTRODUCTION

The Washington State Department of Ecology (Ecology) recognizes that some local governments with limited financial resources face serious water pollution control needs. While the trend in solving environmental problems is toward equal responsibility between federal, state, and local governments, creative options in meeting local match requirements are available to help communities take advantage of funding sources without straining local revenues. Ecology stands ready to assist local governments in exploring these options in order to solve environmental problems in a manner that does not cause undue financial hardship.

The local share may be funded by taxes, sales of bonds, formation and assessment of construction permits and grants or loans from other state or federal agencies. The Washington State Revolving Fund (SRF) for Water Pollution Control can provide low interest financing of local match for state grants. Grants from the Centennial Clean Water Fund (CCWF) and loans from SRF may be combined, so applicants need only deal with Ecology staff for complete financing of water pollution control projects.

The Washington State Legislature and the U.S. Congress have passed major legislation to protect water resources. State legislation includes the Centennial Clean Water Fund and Aquatic Lands Enhancement Account. Federal legislation includes the Clean Water Act and the Coastal Zone Management Act of 1972. Amendments are added to the Clean Water Act as the need arises.

Brief descriptions of possible funding sources for implementation of urban bay action plans are presented here for your information. A chart listing grant and loan programs, requirements, time lines, and contact persons is attached.

The Washington State Centennial Clean Water Fund

The Centennial Clean Water Fund (CCWF) is a major source of financial assistance providing grants and loans for water quality projects. The CCWF is a partnership between the state and local governments. Created by the state legislature in 1986, the continuation of the fund has been authorized through the year 2021. The CCWF helps local communities meet water quality, health and safety requirements. It is dedicated to protecting the waters of Washington State for current and future generations.

Through the year 1995, 50 percent of the annual fund of $45 million is earmarked for marine water facilities, which include secondary sewage treatment plants, reduction of combined sewer overflows (CSOs), stormwater discharges or other facilities which empty directly into marine waters. Facilities receive a base 50% of the total eligible cost; an additional grant and/or loan is possible if the local match would cause the community financial hardship. Most activities receive a grant covering 75 percent of the total eligible project costs. Other funding categories include nonpoint pollution control, groundwater and freshwater projects. Activities include planning, research, monitoring and education. The CCWF does not fund cleanup projects. In special cases, the discretionary category can provide up to 100 percent of the eligible project cost. Strong local support and the seriousness of the problem are rating criteria for grant and loan awards.

Centennial grants in the Groundwater Category are providing $5.5 million in funds for fiscal year (FY) 91. Funding is available for the designation of local Groundwater Management Areas (GWMAs) and for protection of groundwater quality and quantity.

THE WASHINGTON STATE REVOLVING FUND (SRF) FOR WATER POLLUTION CONTROL

The Washington State Revolving Fund (SRF) for Water Pollution Control provides low interest loans for high priority water quality needs. Congress established the SRF as part of the Clean Water Act Amendments of 1987 as a way to phase out federal grants and phase in state loans. The U.S. Environmental Agency (EPA) will "seed" the SRF with yearly capitalization grants, subject to Congressional appropriation, until 1994. The state must contribute 20 percent matching funds during this period. After 1994, federal and state capitalization will end. Loan repayments, with interest, will sustain the SRF from then on in perpetuity.

Eighty percent of the money is earmarked for the planning, design or construction of water pollution control facilities. Ten percent can go for nonpoint sources control projects, and 10 percent of the SRF can go to conservation and management projects for federally designated estuaries like Puget Sound. Projects in this category may include purchases of wetlands, the construction of boat pumpout facilities and other projects. The SRF can provide financing for the local match for state grants under certain conditions such as financial hardship.

The sooner the borrower repays the SRF loan, the lower the interest rate. For now, for a 0-5 year term, no interest will be charged; for a 6-14 year term, the interest rate will be 4 percent; and, for a 15-20 year term, the interest rate will be 5 percent. After 1992, SRF interest rates will be 60 - 75 percent of the current market rate. If all federal requirements are satisfied, SRF can provide refinancing of local funds already spent on planning and design not covered by grants as well as financing to make up some ineligible portions of state or federal grants.

COASTAL ZONE MANAGEMENT 306 GRANTS

Ecology's Shorelands and Coastal Zone Management Program administers $400,000 in 306 grant funds annually (provided to Ecology through the federal Coastal Zone Management Act) for local shoreline master program (SMP) improvements and special shoreline projects.

Preparation of SMP amendments, including public involvement, legislative review and process necessary for local adoption, can address such issues as: public access policies and regulations; environment mapping and redesignations; waterfront revitalization policies and standards; beach and dunes management provisions; use activity provisions such as aquaculture, marinas, etc.; site planning and design for public access improvements, waterfront restoration and interpretive centers; and, public information and education programs. The grant project must enhance the local shoreline master program, improve management of shoreline resources and go beyond routine shoreline management activities.

205J GRANTS

Each year approximately $334,000 in grant funds is provided to the state from the Federal Clean Water Act, subject to Congressional appropriations. Fifty percent of the funds go to state agencies and 50 percent is available for pass-through to local governments. The grants cover water quality planning activities only. One of the current priorities is the restoration and maintenance of a healthy and productive Puget Sound. Ecology can provide information on what is currently available.

WASTE MANAGEMENT GRANT PROGRAMS

Many grant programs are available to address waste management problems. Hazardous waste planning grants provide financial assistance for updating local comprehensive hazardous waste management plans. Local health departments can apply for solid waste enforcement grants. Financial assistance is available for planning and carrying out household hazardous waste collection events. Local governments may apply for financial assistance for installation of groundwater monitoring wells at municipal landfills, for the purpose of identifying potential contamination of groundwater. Waste reduction and recycling grants provide funds for the design of programs that promote Washington's solid waste management priorities.

In 1989 the Legislature authorized several new waste reduction and recycling grants. Projects include: tire recycling, removal, and enforcement programs; developing public informational materials; establishing the feasibility of composting food and yard waste; Phases 2 and 3 - waste reduction and recycling grants; and, hazardous waste planning implementation grants.

Public participation grants are available to citizen groups of three or more persons and not-for-profit public interest groups organized for the purpose of working on environmental issues or providing involvement services. Citizen/Proponent negotiations grants can be awarded to local governments affected by the development of a dangerous waste management facility, to establish a citizen negotiating committee that will discuss mitigation of potential impacts on the community with the facility proponent.

AQUATIC LANDS ENHANCEMENT ACCOUNT

In 1984 the Legislature created the Aquatic Lands Enhancement Account (ALEA). The ALEA was established to provide funding for state and local projects designed to enhance state-owned aquatic lands by providing public access, recreation and environmental protection. The account is funded by lease revenue received from various uses of state aquatic lands under the Department of Natural Resources (DNR).

Projects may involve acquisition of marine tidelands and/or adjacent uplands. Examples of eligible public access/recreation projects are: planting shellfish for recreational use; creating water-oriented interpretive

displays; establishing open-water swimming areas; providing nonmotorized boat launches and temporary moorage facilities; and building fishing piers and reefs. The ALEA program is not available for source control projects.

ALEA projects in Whatcom County include the acquisition of approximately 300 linear feet of tidelands abutting Birch Bay State Park and expanding and improving an existing trail system along Whatcom Creek in downtown Bellingham. The Whatcom Creek project includes a viewpoint and deck at the historic location of an old mill.

AGRICULTURAL WATER SUPPLY LOANS/GRANTS

Referendum 38, (approved by the voters in 1980), authorizes the State Finance Committee to issue State General Obligation Bonds in the amount of $125 million for water supply facilities. Fifty million dollars of the authorization is to be used for agricultural water supply facilities alone or in combination with fishery, recreational, or other beneficial uses of water. The $50 million is to be administered by the Department of Ecology.

Ecology may use or permit the use of the bond proceeds, subject to legislative appropriation, by direct expenditure, and by grants or loans to public bodies. This includes grants to public bodies as matching funds in any case where federal, local, or other funds are made available on a matching basis.

REMEDIAL ACTION

Remedial action funds are available for investigation of suspected hazardous waste sites and for the cleanup of confirmed sites. For fiscal year (FY) 89-91, $15,902,000 was made available to applicants. Fifty thousand dollars is the ceiling amount for routine cleanup and also for site hazard assessment. Fifty percent funding is available for investigation and cleanup; 100 percent for routine cleanups and site hazard assessments; and, for economically disadvantaged communities an additional 25 percent supplement may be awarded.

FUNDING PROGRAMS

PROGRAM	DESCRIPTION	REQUIREMENTS	NEXT APPLICATION PERIOD	CONTACT*
Centennial Clean Water Fund (CCWF)	Financial & technical assistance for water pollution control activities and facilities	Only water quality projects; 1/2 of local share must come from local sources or loans	Jan. - Feb. 1991	Helen Bresler (206)459-6096
State Revolving Fund for Water Pollution Control (SRF)	Low interest loans for water pollution control projects	Meet state Nonpoint Plan or Puget Sound Plan if relevant	June - July 6, 1991	Dan Filip (206)459-6061
Coastal Zone Management 306 Grants	Planning grants and special projects to implement shoreline master programs	Write or call	Jan. - Feb. 1991 Jan. - Feb. 1991	Steve Craig (206)459-6780 Jim Scott (206)459-6781
205J Grants	Planning for water quality projects	Planning activities only	Jan. - Feb. 1991	Helen Bresler (206)459-6096
Ground Water Management Area Program	For designation of GWMAs and protection of groundwater quality & quantity	Must be on Ecology's General Schedule	Ongoing	Doug Rushton (206)459-6120
Household Hazardous Waste Collection Events	Planning and carrying out collection days for households	Call for info.	Call for deadline info.	Mike Drumright (206)459-6297
Public Participation	Investigating and remedying hazardous substance release	Chptr. 173-321 WAC or grant	Feb. - March 1991	Laurie Davies (206)438-7562
Citizen/ Proponent Negotiations	Negotiationg committee to meet with proponents of dangerous waste management facilities	WAC 173-303-902 and grant guidelines	Ongoing	Laurie Davies (206)438-7562
Aquatic Lands Enhancement Account	Land acquisition, public access/ recreation projects	Call for info.	June 30, 1991 Deadline	Robert Brandow (206)586-9033
Agricultural Water Supply Loan/Grant	Agricultural water supply facilities	Call for info.	Call for deadline info.	Ray Newkirk (206)459-6165
Remedial Action	Investigation and cleanup of hazardous waste sites	WAC Chptr. 173-322 and grant guidelines	Early summer 1991	Julia Woods (206)438-7265

* Note: To call Ecology staff on the SCAN system, use "585" instead of "459" or "438."

APPENDIX C

Public Involvement Processes

Public Involvement Processes

The information contained in this appendix has been excerpted from various regulations and guidelines and are intended for general use only. More detailed information can be obtained from the following Washington Department of Ecology staff members:

Shoreline Management Act	Peter Skowlund	438-7430
State Environmental Policy Act	Vernice Santee	459-6020
Model Toxics Control Act	Dawn Hooper	438-3013
National Pollutant Discharge Elimination System	Mary Kautz	649-7036
Puget Sound Dredged Disposal Analysis	Tom Gries	438-7706

For information on the Section 10/404 permit process, contact David Fox of the U.S. Army Corps of Engineers at 764-3768.

Shoreline Management Act

Note: The Shoreline Master Program is addressed on pages C-4 through C-6. Shoreline permits are addressed on pages C-7 through C-9. The public notice requirements on page C-7 apply to the shoreline permit process.

SHORELINE MANAGEMENT IN WASHINGTON

Managing the Shorelines of Washington State

The State's Shoreline Management Act of 1971 grew out of a public initiative, involving concerned citizens and all levels of government. It represents the goals of the people of Washington State to protect this limited and fragile resource while providing for appropriate uses. This legislation makes the Washington Department of Ecology responsible for developing a program to manage the state's shorelines. The act provides for local governments, and the Department of Ecology, to prepare Shoreline Master Programs for all shorelines of the state within their jurisdiction, and implement these programs through a local permit process with state overview.

Local Shoreline Master Programs

Uses and activities along the state shorelines are managed through city and county shoreline master programs. Each Master Program is both a plan and a set of regulations created specifically for the shorelines of that community. While Master Programs are tailored to local issues and physical constraints, they must conform to statewide guidelines, goals, and policies. Local governments and the Department of Ecology are jointly responsible for development of local Shoreline Master Programs and administration of the shoreline permit program. While issues in the Master Programs are established primarily by local governments, Ecology acts in a supportive and review capacity with primary emphasis on insuring compliance with the policies and provisions of the Shoreline Management Act.

"How do I know if I need a permit?"

ASK. Some projects are specifically exempt from certain permit processes. However, they still must be consistent with the Master Program requirements. Check with your local planning or building department for application or exemption forms, environmental checklists and other information.

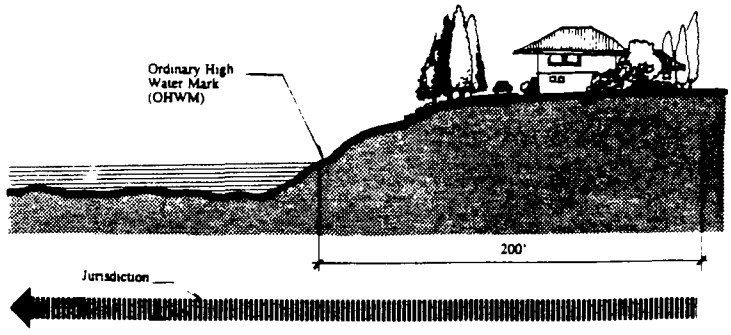
"What do I need to know to design a project?"

The local Master Program gives each stretch of shoreline a *specific environmental designation* which sets out the allowable uses and regulations that must be met. The first step is to check the master program for the location and designation pertaining to your project.

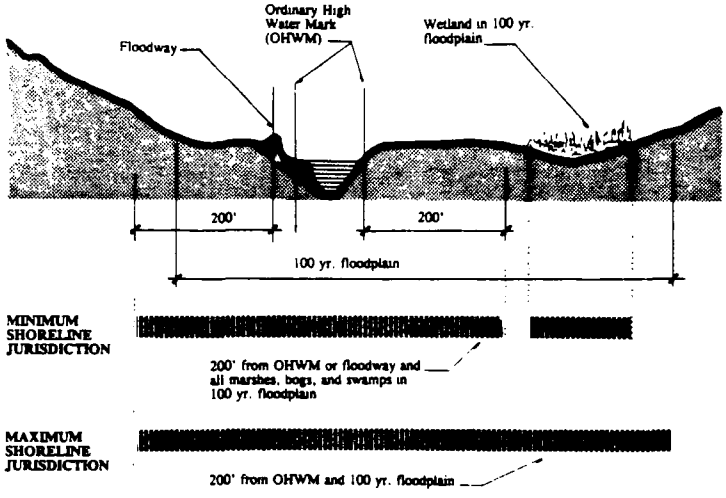
The Shoreline Management Act gives preference to uses which are *water oriented*. Most waters and submerged lands are held in *Public Trust* by the state. Your project may require some form of public access, preservation of certain views, habitat management or shoreline rehabilitation.

"What is involved in obtaining shoreline permits?"

Local planning or building departments supply the applications and most of the necessary information. It is also at the local level that the permits are processed. It is important to remember that a project *must also comply with* local zoning ordinances, State Environmental Policy Act (SEPA) requirements, and other applicable laws. For most projects the shoreline permit will *not* be the only permit required.



Coastal Shorelines



River Shorelines

Shoreline Jurisdiction

- Lakes 20 acres or larger.
- Streams with a mean annual flow greater than 20 cubic feet per second.
- All marine waters.
- Associated marshes, bogs, swamps and river deltas.
- An area 200 feet landward from the water's edge.
- Areas within 200 feet of designated flood ways.
- Some or all of the 100 year floodplain including all associated wetlands within the entire floodplain.

Chapter 3
Process to Amend Shoreline Master Programs

Introduction

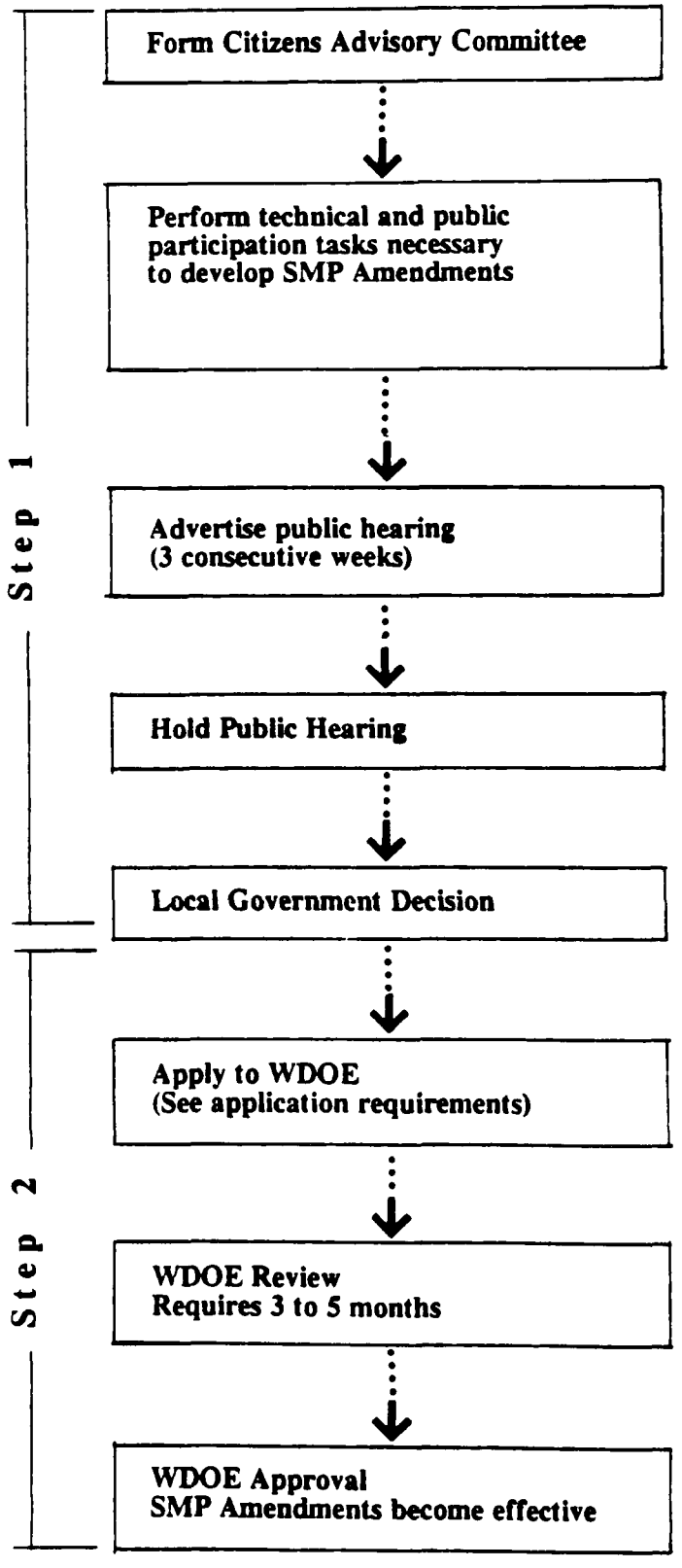
Generally speaking, amending (updating) a local Shoreline Master Program (SMP) involves a two step process (see figure 3-1):

- Step 1 - Preparation of amendments for review and adoption at the local level (WAC 173-19-060 & 061). Note: A "draft" of proposed amendments must be sent to WDOE for review and comment before local action is taken.

- Step 2 - Transmittal of the proposed amendments to WDOE who must then review and process the proposals (WAC 173- 19-062(4)). Note: All master program amendments must be reviewed and adopted by the Washington State Department of Ecology (WDOE) before they become effective.

Figure 3-1 Process to Update Master Programs

PROCESS TO AMEND MASTER PROGRAMS



Public Participation

Any comprehensive master program update must incorporate public input and coordinate with public agencies. The Shoreline Management Act states that all people should have an opportunity for involvement in the development and implementation of SMPs and that WDOE and the local governments shall actively encourage participation by the public and federal, state, and local agencies (RCW 90.58.130).

WAC 173-16-040 suggests a process to comply with the SMA's public participation requirement consisting of the following actions:

a. Appoint a citizen advisory committee to guide the master program formulation;

b. Hold at least 3 public meetings during SMP development and environment designation process. Public notice should be given 7 days before each meeting and a record should be kept of the proceedings. The final meeting should be at least 7 days prior to the required public hearing;

c. Notice of the public hearing must appear in a newspaper of general circulation in the area in each of the three weeks preceding the hearing date (WAC 173-19-061(2));

d. Publish a newsletter to publicize the process schedule, meeting times and location, and purpose; and

e. Publicize the master program update effort through radio and local news media.

The procedures detailed in the WAC have been generally found to be effective in building a consensus on shoreline management issues if representatives from a broad spectrum of civic groups and interests are included. The number of meetings and public notification steps may vary upon the size of community and complexity of issues.

SHORELINE PERMITS

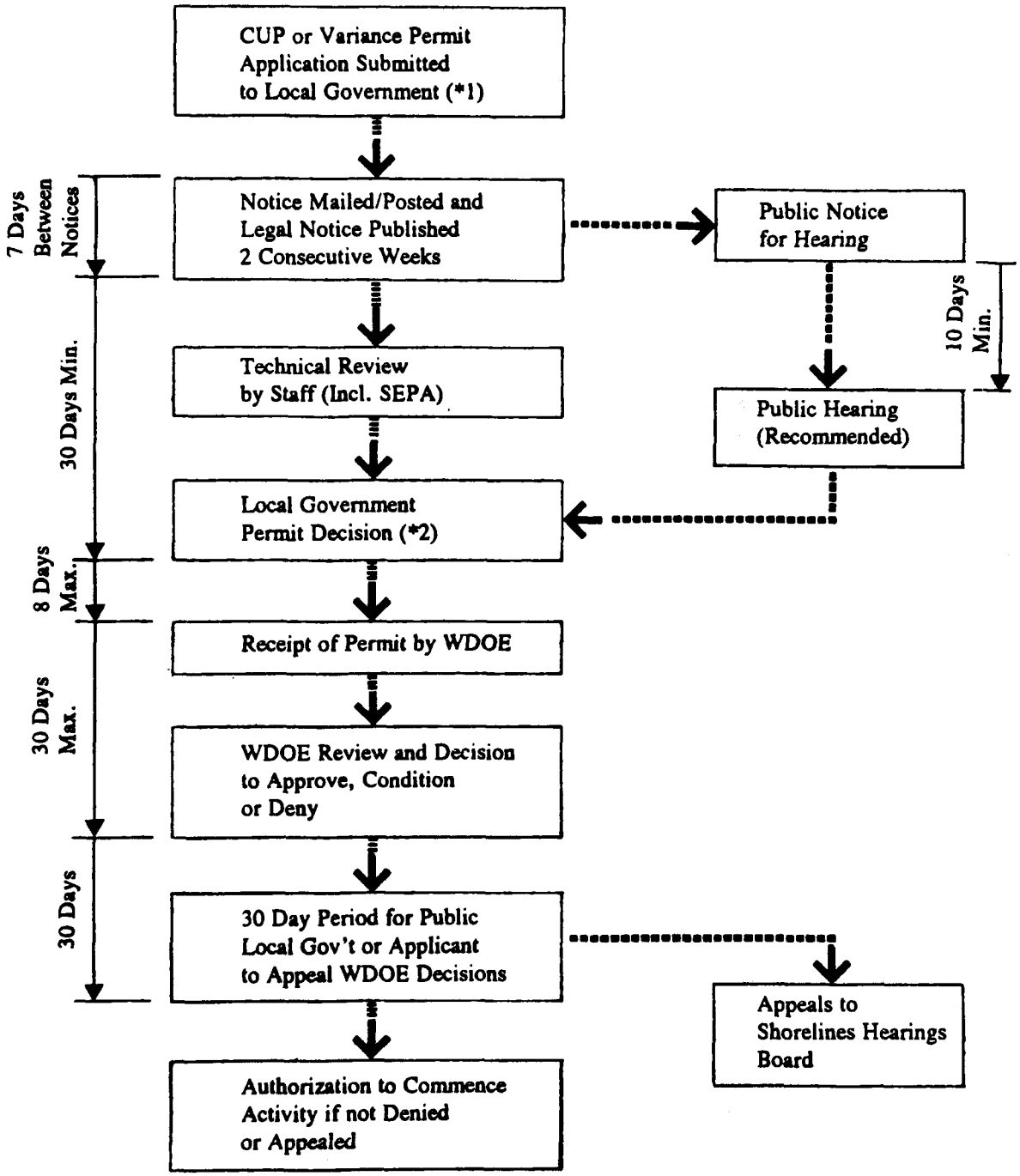
Public Notice Requirements

The SMA gives local government discretion in structuring its permit process. Local administrators should follow the procedures for permit processing described in the local master program. Once an application has been submitted, local government must solicit **public comment** on the proposal. At a **minimum**, the applicant must **publish notices** of the application in a local newspaper for **two consecutive weeks**. An **affidavit** that notice has been properly published and/or posted must be affixed to the application. In addition, local government **must provide additional public notice** such as mailing information to adjacent property owners and community groups, posting of conspicuous notices on the property, or other methods. See WAC 173-14-070. Interested members of the public are allowed 30 days to submit comments to the local jurisdiction.

Depending on the requirements outlined in the local master program, a **public hearing** may be held. Hearings are typically required of large or controversial projects, and for projects requiring a variance or conditional use permit. Hearings can be used to assure that interested citizens are appraised of the development proposal and will have opportunity to comment on it. Options for hearings may be specified in the shoreline master program, but could include a hearing before the city or county council, planning commission, planning department or before a hearings examiner.

Figure 4-1

Conditional Use Permit (CUP) or Variance Review Process



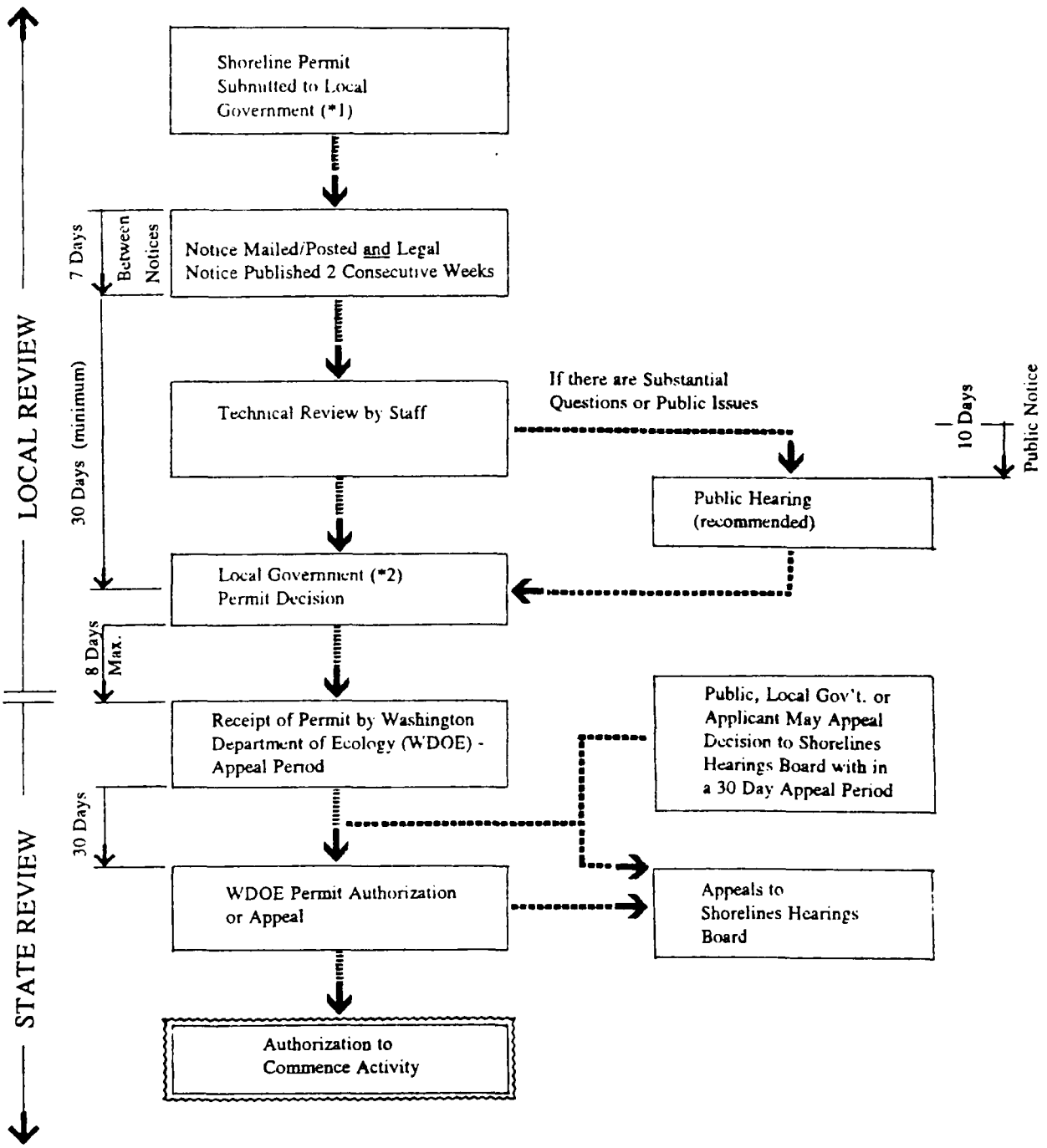
Notes*

*1 SEPA checklist must be submitted with application

*2 SEPA requirements must be completed prior to local permit decisions

Figure 4-2

Shoreline Substantial Development Permit Review Process



Notes*

*1 SEPA checklist must be submitted with application

*2 SEPA requirements must be completed prior to local permit decisions

*3 WDOE may approve or appeal substantial development permit to SHB. WDOE may approve, condition, or deny a CUP or Variance application.

State Environmental Policy Act

PURPOSE OF SEPA

The State Environmental Policy Act (SEPA), Chapter 43.21C RCW, is intended to ensure that environmental values are considered (in addition to technical and economic considerations) by state and local government officials when making decisions. SEPA contains specific policies and goals which apply to actions at all levels of government within the state, except the judiciary and state legislature. The SEPA Rules (Chapter 197-11 WAC) were adopted to implement SEPA and to establish uniform requirements and guidance for compliance with SEPA.

SEPA has four primary purposes as listed in Chapter 43.21C RCW:

1. To declare a state policy which will encourage productive and enjoyable harmony between people and their environment,

2. To promote efforts which will prevent or eliminate damage to the environment and biosphere,

3. To stimulate the health and welfare of people, and

4. To enrich the understanding of ecological systems and natural resources important to the state and the nation.

The SEPA process starts when someone submits a permit application to an agency or when an agency proposes to take some official action. Prior to taking any action (issuing permits, approvals, etc.) on a nonexempt project, agencies must follow specific procedures to assure that appropriate consideration has been given to the environment. The severity of potential environmental impacts associated with a proposed project will determine whether an environmental impact statement is required. If an environmental impact statement is not issued, a determination of nonsignificance must be issued.

After completion of the environmental impact statement or determination of nonsignificance, agencies may act upon the permit application or other approval required for the project. Administrative or legal appeals and challenges concerning SEPA compliance must be linked to a specific governmental action (e.g., permit) and be brought in a timely manner.

Early Coordination

One of the primary purposes of SEPA is to evaluate the environmental impacts of a proposed project and identify methods to reduce the impacts. If there appear to be major problems with a proposal, the lead agency

should discuss the project with the applicant as early as possible and explain the areas of difficulty. If the lead agency is aware that major changes will be required to allow a project to proceed, the applicant should be given the opportunity to withdraw the project prior to complying with SEPA.

A handy tool which has worked for us is the early interagency meeting with the applicant. This can be done either before SEPA begins, during checklist review, or during scoping. Applicants with whom we have worked have responded quite positively to an early thorough discussion of issues, options, and time frames. Feasibility and critical issues can be identified, discussed and, in many cases, worked out before the process begins. The applicant can then make informed and reasoned choices about how to proceed.

Public Involvement

The goal of SEPA is much more than simply procedural. Projects are modified, mitigation is accommodated and the public is made to feel more comfortable in a successful SEPA process. The latter function cannot be achieved by performing the process in a "black box". Indeed, public involvement has been found to be the key to preventing public suspicion of the process. Repeated efforts should be made to involve the public. Whereas scoping and DEIS review have mandated public interfaces, we have found additional efforts very useful. Agency/citizen committees which meet several times with the applicant and the lead agency can give everyone a feeling for the complexities of the issues and an opportunity to participate in the environmental analysis. Informal public meetings have also proved useful.

Whatever the form, an open and fluid public involvement process is a key to avoiding polarized positions which can lead to needless and unpleasant conflict.

Even when there are strong conflicting differences regarding a decision, SEPA through its public involvement process can provide (at a minimum) a reasonably equal level of understanding of the issues and facts surrounding a proposal.

WAC 197-11-510 Public notice. (1) When these rules require notice to be given under this section, the lead agency must use reasonable methods to inform the public and other agencies that an environmental document is being prepared or is available and that public hearing(s), if any, will be held. The agency may use its existing notice procedures.

Examples of reasonable methods to inform the public are:

(a) Posting the property, for site-specific proposals;

(b) Publishing notice in a newspaper of general circulation in the county, city, or general area where the proposal is located;

(c) Notifying public or private groups with known interest in a certain proposal or in the type of proposal being considered;

(d) Notifying the news media;

(e) Placing notices in appropriate regional, neighborhood, ethnic, or trade journals; and/or

(f) Publishing notice in agency newsletters and/or sending notice to agency mailing lists (either general lists or lists for specific proposals or subject areas).

(2) Each agency shall specify its method of public notice in its SEPA procedures, 197-11-904 and 197-11-906. If an agency does not specify its method of public notice or does not adopt SEPA procedures, the agency shall use methods (a) and (b) in subsection (1).

(3) Documents which are required to be sent to the department of ecology under these rules will be published in the SEPA REGISTER, which will also constitute a form of public notice. However, publication in the SEPA REGISTER shall not, in itself, meet compliance with this section.

WAC 197-11-535 Public hearings and meetings. (1) If a public hearing on the proposal is held under some other requirement of law, such hearing shall be open to consideration of the environmental impact of the proposal, together with any environmental document that is available. This does not require extension of the comment periods for environmental documents.

(2) In all other cases a public hearing on the environmental impact of a proposal shall be held whenever one or more of the following situations occur:

(a) The lead agency determines, in its sole discretion, that a public hearing would assist it in meeting its responsibility to implement the purposes and policies of SEPA and these rules; or

(b) When fifty or more persons residing within the jurisdiction of the lead agency, or who would be adversely affected by the environmental impact of the proposal, make written request to the lead agency within thirty days of issuance of the draft EIS; or

(c) When two or more agencies with jurisdiction over a proposal make written request to the lead agency within thirty days of the issuance of the draft EIS.

(3) Whenever a public hearing is held under subsection (2) of this section, it shall occur no earlier than fifteen days from the date the draft EIS is issued, nor later than fifty days from its issuance. Notice shall be given under 197-11-502(6) and 197-11-510 and may be combined with other agency notice.

(4) If a public hearing is required under this chapter, it shall be open to discussion of all environmental documents and any written comments that have been received by the lead agency prior to the hearing. A copy of the environmental document shall be available at the public hearing.

(5) Comments at public hearings should be as specific as possible (see 197-11-550).

(6) Agencies and their designees may hold informal public meetings or workshops. Such gatherings may be more flexible than public hearings and are not subject to the above notice and similar requirements for public hearings.

WAC 197-11-545 Effect of no comment. (1) *Consulted agencies.* If a consulted agency does not respond with written comments within the time periods for commenting on environmental documents, the lead agency may assume that the consulted agency has no information relating to the potential impact of the proposal as it relates to the consulted agency's jurisdiction or special expertise. Any consulted agency that fails to submit substantive information to the lead agency in response to a draft EIS is thereafter barred from alleging any defects in the lead agency's compliance with Part Four of these rules.

(2) *Other agencies and the public.* Lack of comment by other agencies or members of the public on environmental documents, within the time periods specified by these rules, shall be construed as lack of objection to the environmental analysis, if the requirements of 197-11-510 are met.

WAC 197-11-550 Specificity of comments. (1) Comments on an EIS, DNS, scoping notice or proposal shall be as specific as possible and may address either the adequacy of the environmental document or the merits of the alternatives discussed or both.

(2) Commenters shall briefly describe the nature of any documents referenced in their comments, indicating the material's relevance, and should indicate where the material can be reviewed or obtained.

(3) *Methodology.* When an agency criticizes a lead agency's predictive methodology, the commenting agency should describe, when possible, the alternative methodology which it prefers and why.

(4) *Additional information.* A consulted agency shall specify in its comments whether it needs additional information to fulfill other applicable environmental reviews or consultation requirements and what information it needs, to the extent permitted by the details available on the proposal.

(5) *Mitigation measures.* When an agency with jurisdiction objects to or expresses concerns about a proposal, it shall specify the mitigation measures, if any are possible, it considers necessary to allow an agency to grant or approve applicable licenses.

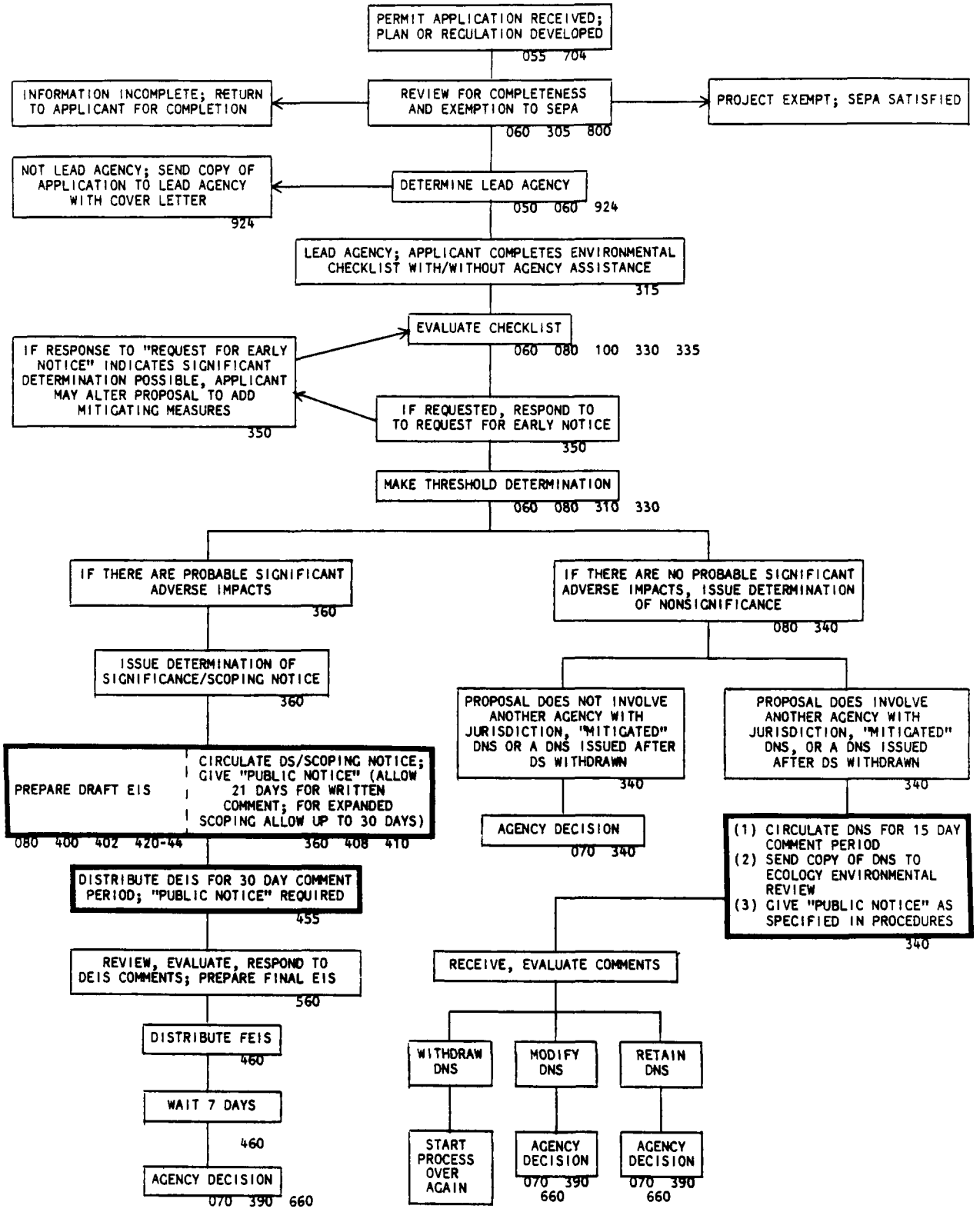
(6) *Comments by other agencies.* Commenting agencies that are not consulted agencies shall specify any additional information or mitigation measures the commenting agency believes are necessary or desirable to satisfy its concerns.

(7) *Citizen comments.* Recognizing their generally more limited resources, members of the public shall make their comments as specific as possible and are encouraged to comment on methodology needed, additional information, and mitigation measures in the manner indicated in this section.

(8) An agency shall consider and may respond to comments as the agency deems appropriate; the requirements for responding in a FEIS shall be met (197-11-560).

SEPA PROCESS

FROM SEPA RULES, CHAPTER 197-11; NUMBERS LISTED REFER TO WAC SECTIONS



Model Toxics Control Act

PART I--OVERALL CLEANUP PROCESS

WAC 173-340-100 PURPOSE.

This chapter is promulgated under the Model Toxics Control Act. It establishes administrative processes and standards to identify, investigate, and cleanup facilities where hazardous substances have come to be located. It defines the role of the department and encourages public involvement in decision making at these facilities.

The goal of this chapter is to implement the policy declared by chapter 70.105D RCW. This chapter provides a workable process to accomplish effective and expeditious cleanups in a manner that protects human health and the environment. This chapter is primarily intended to address releases of hazardous substances caused by past activities although its provisions may be applied to potential and ongoing releases of hazardous substances from current activities.

WAC 173-340-110 APPLICABILITY.

(1) This chapter shall apply to all facilities where there has been a release or threatened release of a hazardous substances that may pose a threat to human health or the environment. Under this chapter, the department may require or take those actions necessary to investigate and remedy these releases.

(2) Nothing herein shall be construed to diminish the department's authority to address a release or threatened release under other applicable laws or regulations. The cleanup process and procedures under this chapter and under other laws may be combined. The department may initiate a remedial action under this chapter and may upon further analysis determine that another law is more appropriate, or vice versa.

(3) If a hazardous substance remains at a facility after actions have been completed under other applicable laws or regulations, the department may apply this chapter to protect human health or the environment.

AMENDATORY SECTION (Amending WSR 90-08-086, filed 4/3/90, effective 5/4/90)

WAC 173-340-120 OVERVIEW.

(1) Purpose. This section provides an overview of the cleanup process that typically will occur at a site where a release of a hazardous substance has been discovered. If there are any inconsistencies between this section and any specifically referenced sections, the referenced section shall govern.

(2) Site discovery. Site discovery includes:

(a) Release reporting. A reporting program is established to help identify potential hazardous waste sites. Owners and operators who know of or discover a release of a hazardous substance due to past activities must report the release to the department within ninety days of discovery, under WAC 173-340-300. Most current releases of hazardous substances must be reported to the department under the state's hazardous waste underground storage tank, or water quality laws. The term "hazardous substance" includes a broad range of substances as defined by chapter 70.105D RCW.

(b) Initial investigation. Within ninety days of learning of a hazardous substance release, the department will conduct an initial investigation of the site under WAC 173-340-310. For sites that may need further remedial action, an early notice letter will be sent to the owner and operator informing them of the department's decision.

(3) **Site priorities.** Priorities for further remedial action are set by the following process:

(a) Site hazard assessment. Based on the results of the initial investigation, a site hazard assessment will be performed if necessary, under WAC 173-340-320. The purpose of the site hazard assessment is to gather information to confirm whether a release has occurred and to enable the department to evaluate the relative potential hazard posed by the release. If the department decides that no further action is required, it will notify the public of that decision through the site register.

(b) Hazardous sites list. The department will maintain a list of sites that require further remedial action. Sites will be after the completion of a site hazard assessment. Sites placed on the list will be ranked using the department's hazard ranking method. The department may remove a site from the hazardous sites list if the cleanup action at the site has achieved the cleanup standards and all remedial actions except confirmational monitoring have been completed. See WAC 173-340-330.

(c) Biennial program report. Every even-numbered year, the department will prepare a biennial program report for the legislature. The hazard ranking, along with other factors, will be used in this report to identify the projects and expenditures recommended for appropriation. See WAC 173-340-340.

(4) **Detailed site investigations and cleanup decisions.** The following steps will be taken to ensure that the proper method of cleanup is chosen for the site.

(a) Remedial investigation and feasibility study. A state remedial investigation/feasibility study will be performed at ranked sites under WAC 173-340-350. The state remedial investigation/ feasibility study defines the extent of the problems at the site and evaluates alternative cleanup actions.

(b) Selection of cleanup action. The department will evaluate the remedial investigation/feasibility study, establish cleanup levels and the point or points at which they must be complied with in accordance with the procedures provided for in WAC 173-340-700 through 173-340-760 and select a cleanup action that will protect human health and the environment and meet the other requirements of WAC 173-340-360. At some sites, restrictions on the use of the land and resources (institutional controls) will be required to insure continued protection of human health and the environment. See WAC 173-340-440. The cleanup action will be set forth in a draft cleanup action plan that addresses cleanup requirements for hazardous substances at the site. After public comment on the draft plan, a final cleanup action plan will be issued by the department. (See WAC 173-340-700 for additional overview discussion of these requirements.)

(5) **Site cleanup.** Once the appropriate cleanup action has been selected for the site, the actual cleanup will be performed.

(a) Cleanup actions. WAC 173-340-400 describes the design and construction requirements for implementing the cleanup action plan.

(b) Compliance monitoring and review. The cleanup action must include compliance monitoring under WAC 173-340-410 and in some cases periodic review under WAC 173-340-420 to ensure the long-term effectiveness of the cleanup action.

(6) **Interim actions.** Under certain conditions it may be appropriate to take early actions at a site prior to completing the process described in subsections (2) through (5) of this section. WAC 173-340-430 describes when it is appropriate to take these early or interim actions and the requirements for such actions.

(7) Leaking underground storage tanks. Underground storage tank (UST) owners and underground storage tank operators regulated under chapter 90.76 RCW are required to perform specific actions in addition to what other site owners and operators would do under this chapter. Such additional actions include reporting of a confirmed release within twenty-four hours, follow-up investigation, free product removal and immediate assessment of the threat to human health and the environment at the site. A written report describing the site and the actions taken must be submitted within ninety days of release confirmation. Depending on the results of these actions, additional remedial actions may be required. WAC 173-340-450 describes these and other requirements for leaking underground storage tanks.

(8) Procedures for conducting remedial actions.

(a) Remedial action agreements. The department has authority to take remedial actions or to order persons to conduct remedial actions under WAC 173-340-510 and 173-340-540. However, the department encourages agreements for investigations and cleanups in appropriate cases. These agreements can be agreed orders or consent degrees reached under the procedures of WAC 173-340-520 and 173-340-530.

(b) Independent remedial actions. Persons may decide to perform investigations and cleanups without department approval under this chapter. The department will use the appropriate requirements contained herein in its evaluation of the adequacy of any independent remedial actions performed. Nothing in this chapter prohibits persons from performing such actions before the department is ready to act at the site; however, all interim and cleanup actions must be reported to the department under WAC 173-340-300. Furthermore, independent remedial actions are done at the potentially liable person's own risk and the department may take or require additional remedial actions at these sites at any time. (See WAC 173-340-510.)

(c) Public participation. The public will receive notice and an opportunity to comment on most of the steps in the cleanup process. At many sites, a public participation plan will be prepared to provide opportunities for more extensive public involvement in the cleanup process.
These requirements are described in WAC 173-340-600.

PART VI--PUBLIC PARTICIPATION

WAC 173-340-600 PUBLIC NOTICE AND PARTICIPATION.

(1) Purpose. Public participation is an integral part of the department's responsibilities under the Model Toxics Control Act. The department's goal is to provide the public with timely information and meaningful opportunities for participation which are commensurate with each site. The department will meet this goal through a public participation program that includes: The early planning and development of a site-specific public participation plan; the provision of public notices; a site register; public meetings or hearings; and the participation of regional citizens' advisory committees.

(2) Criteria. In order to promote effective and meaningful public participation, the department may determine that public participation opportunities in addition to those specifically required by chapter 70.105D RCW or this chapter, are appropriate and should be provided. In making this determination, the department may consider: (a) Known or potential risks to human health and the environment that could be avoided or reduced by providing information to the public;

(b) Public concerns about the facility.

(c) The need to contact the public in order to gather information about the facility;

(d) The extent to which the public's opportunity to affect subsequent departmental decisions at the facility may be limited or foreclosed in the future;

(e) The need to prevent disclosure of confidential, unverified, or enforcement-sensitive information;

(f) The routine nature of the contemplated remedial action; and

(g) Any other factors as determined by the department.

(3) Public notice. Whenever public notice is required by Chapter 70.105D RCW, the department shall at a minimum provide or require notice as described in this section except as specified for the biennial report in WAC 173-340-340.

(a) Request. Notice shall be mailed to persons who have made a timely request. A request for notice is timely if received prior to or during the public comment period for the current phase of remedial action at the facility. However, the receipt of a request for notice shall not require the department to extend the comment period associated with the notice.

(b) Mail. Notice shall be mailed to persons who reside within the potentially affected vicinity of the proposed action. The potentially affected vicinity shall include all property adjoining the site and any other area that the department determines to be directly affected by the proposed action.

(c) Newspaper publication. Notice of the proposed action shall be published in the newspaper of largest circulation in the city or county of the proposed action, by one or more of the following methods: Display ad; legal notice; or any other appropriate format, as determined by the department.

(d) Other news media. Notice of the proposed action shall be mailed to any other news media which the department determines to be appropriate. The department may consider how a medium compares with the newspaper of largest circulation in terms of: Audience reached; timeliness; adequacy in conveying the particular information in the notice; cost; or other relevant factors.

(e) Comment periods. All public notices shall indicate the public comment period on the proposed action. Unless stated otherwise, comment periods shall be for thirty days at a minimum.

(f) Combining public comment requirements. Whenever reasonable, the department shall consolidate public notice and opportunities for public comment under this chapter with public notice and comment requirements under other laws and regulations.

(4) Public meetings. During any comment period announced by a public notice issued under this chapter, if ten or more persons request a public meeting on the subject of

the public notice, the department shall hold a public meeting for the purpose of receiving comments.

(5) Additional methods. In addition to "public notice" required by chapter 70.105D RCW, or this chapter, the department may use any of the following methods to provide information to the public:

(a) Press releases;

(b) Fact sheets;

(c) Public meetings

(d) Publications;

(e) Personal contact by department employees;

(f) Posting signs at the facility;

(g) Notice in the site register;

(h) Any other methods as determined by the department.

(6) Site register. The department shall regularly publish and maintain a site register, giving notice of the following:

(a) Determinations of no further action under WAC 173-340-320;

(b) Results of site hazard rankings;

(c) Availability of annual and biennial reports; (d) Issuance of enforcement orders, agreed orders, or proposed consent decrees;

(e) Public meetings or hearings;

(f) Scoping notice of department-conducted state remedial investigation/ feasibility study;

(g) Availability of state remedial investigation/feasibility study reports and draft and final cleanup plans;

(h) Change in site status or placing sites on or removing sites from the hazardous sites list under WAC 173-340-330;

(i) Availability of engineering design reports under WAC 173-340-400;

(j) Schedules developed under WAC 173-340-140;

(k) Reports of independent cleanup actions received under WAC 173-340-300;

(l) Commencement of negotiations or discussions under WAC 173-340-520 and 173-340-530;

(m) Deadline extensions or missed deadlines under WAC 173-340-140; and

(n) Any other notice that the department deems appropriate for inclusion.

(7) Evaluation. As part of requiring or conducting a remedial action at any facility, the department shall evaluate public participation needs at the facility, including an identification of the potentially affected vicinity for the remedial action.

(8) Public participation plans.

(a) Scope. The public participation plans required by this section are intended to encourage a coordinated and effective public involvement tailored to the public's needs at a particular facility. The scope of a plan shall be commensurate with the nature of the proposed remedial actions; the level of public concern; and the risks posed by the facility.

(b) Early planning encouraged. In order to develop an appropriate plan, the department or potentially liable person (if submitting a plan to the department) should engage in an early planning process to assess the public participation needs at the facility. This process may include identifying and conferring with individuals, community groups, local governments, tribes, public agencies, or any other organizations that may have an interest in or knowledge of the facility.

(c) Plan development. The department shall develop the plan, or work with the potentially liable person to develop the plan. If a plan already exists for a facility, the department shall consider whether the existing plan is still appropriate, or whether the plan should be amended. For example, a plan originally developed to address a state remedial investigation/ feasibility study may need to be amended to address implementation phases.

(d) Plans required. As part of requiring or conducting a remedial action, except emergency action, at any site that has been assigned a hazard ranking score, the department shall ensure that a public participation plan is developed and implemented. The department may also require the development of a public participation plan for facilities which have not been assigned a hazard ranking score as part of an agreed order or consent decree with a potentially liable person. (e) Plan as part of order or decree. A potentially liable person will ordinarily be required to submit a proposed public participation plan as part of its request for an agreed order or a consent decree. If a plan already exists for the facility, the potentially liable person may either submit the existing plan with any proposed amendments or submit an entirely new proposed plan. The proposed plan may be revised during the course of discussions or negotiations on the agreed order or consent decree. The final public participation plan may become part of the agreed order or consent decree.

(f) Contents. The public participation plan shall include the following:

(i) Applicable public notice requirements and how these will be met, including: When public notice will occur; the length of the comment periods accompanying each notice; the potentially affected vicinity and any other areas to be provided notice, to the extent known.

(ii) Information repositories. The plan should identify at least one location where the public can review information about the remedial action. Multiple locations may be appropriate.

(iii) Methods of identifying the public's concerns. Such methods may include: Interviews; questionnaires; meetings; contacts with community groups or other organizations which have an interest in the site; establishing citizen advisory groups for sites; or obtaining advice from the appropriate regional citizens' advisory committee.

(iv) Methods of addressing the public's concerns and conveying information to the public. These may include any of the methods listed in subsection (5) of this section.

(v) Coordination of public participation requirements. The plan should identify any public participation requirements of other applicable federal, state or local laws, and address how such requirements can be coordinated. For example, if Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) applies to the proposed action, the plan should explain how CERCLA and this chapter's public comment periods will be coordinated.

(vi) Amendments to the plan. The plan should outline the process for amending the plan. Any amendments must be approved by the department.

(vii) Any other elements that the department determines to be appropriate for inclusion in the final public participation plan.

(g) Implementation. The department shall retain approval authority over the actions taken by a potentially liable person to implement the plan.

(9) Consent decrees. In addition to any other applicable public participation requirements, the following shall be required for consent decrees.

(a) A public participation plan which meets the requirements of subsection (8) of this section shall be developed when required by subsection (8)(d) of this section.

(b) Notice of negotiations. When the department decides to proceed with negotiations it shall place a notice in the site register advising the public that negotiations have commenced. This notice shall include the name of the facility, a general description of the subject of the order and the deadlines for negotiations.

(c) Notice of proposed decree. The department shall provide or require public notice of proposed consent decree. The notice may be combined with notice of other documents under this chapter, such as a cleanup action plan, or under other laws. The notice shall briefly:

(i) Identify and generally describe the facility;

(ii) Identify the person(s) who are parties to the consent decree;

(iii) Generally describe the remedial action proposed in the proposed consent decree;

(iv) Indicate the date, place, and time of the public hearing on the proposed consent decree; and

(v) Invite the public to comment at the public hearing or in writing. The public comment period shall run for at least thirty days from the date of the issuance of the notice.

(d) Public hearing. The department shall hold a public hearing on the proposed consent decree for the purpose of providing the public with an opportunity to comment.

(e) Revisions. If the state and the potentially liable person agree to substantial changes to the proposed consent decree, the department shall provide additional public notice and opportunity to comment.

(f) Extensions. The department shall publish in the next site register the extension of deadlines for designated high priority sites.

(10) Agreed orders. In addition to any other applicable public participation requirements, the following shall be required for agreed orders under WAC 173-340-530.

(a) Public participation plan. A plan meeting the requirements of subsection (8) of this section shall be developed when required by subsection (8)(d) of this section.

(b) Notice of discussions. When the department decides to proceed with discussions it shall place a notice in the site register advising the public that

discussions have commenced. This notice shall include the name of the facility. a general description of the subject of the order and the deadlines for discussions.

(c) Notice of agreed orders. Public notice shall be provided by the department for any agreed order. For all agreed orders, notice shall be mailed no later than three days after the issuance of the agreed order. For agreed orders covering a state remedial investigation/feasibility study, the comment period shall be at least thirty days and shall be completed before the agreed order becomes effective. For other agreed orders, the agreed order may be effective before the comment period is over, unless the department determines it is in the public interest to complete the public comment period prior to the effective date of the agreed order. The department may determine that it is in the public interest to provide public notice prior to the effective date of any agreed order or to hold a public meeting or hearing on the agreed order. This notice shall briefly:

(i) Identify and generally describe the facility;
(ii) Identify the person(s) who are parties to the order;
(iii) Generally describe the remedial action proposed in the proposed order; and
(iv) Invite the public to comment on the proposed order.

(d) Revisions. If the department and the potentially liable person agree to substantial changes to the proposed order, the department shall provide additional public notice and opportunity to comment. (e) Extensions. The department shall publish in the next site register the extension of deadlines for designated high priority sites.

(11) Enforcement orders. In addition to any other applicable public participation requirements, the department shall provide public notice of all enforcement orders. Except in the case of emergencies, notice shall be mailed no later than three days after the date of the issuance of the order. In emergencies, notice shall be mailed no later than ten days after the issuance of the order.

(a) Contents of notice. All notices shall briefly:

(i) Identify and generally describe the facility;
(ii) Identify the person(s) who are parties to the order;
(iii) Generally describe the terms of the proposed order; and

(b) The department may amend the order on the basis of public comments. The department shall provide additional public notice and opportunity to comment if the order is substantially changed.

(12) State remedial investigation/feasibility study. In addition to any other applicable public participation requirements, the following shall be required during a state remedial investigation/feasibility study.

(a) Scoping. When the department elects to perform a state remedial investigation/feasibility study. public notice and an opportunity to comment on the scope of the state remedial investigation/ feasibility study will be provided.

(b) Extensions. The department shall publish in the next site register the extension of deadlines for designated high priority sites.

(c) Report. The department shall provide or require public notice of state remedial investigation/feasibility study reports prepared under WAC 173-340-350. This

public notice may be combined with public notice of the draft cleanup action plan. At a minimum, public notice shall briefly:

(i) Describe the site and state remedial investigation/feasibility study results;

(ii) If available, identify the department's selected cleanup action and provide an explanation for its selection;

(iii) Invite public comment on the report. The public comment period shall extend for at least thirty days from the date of mailing of the notice.

(13) Selection of cleanup actions. In addition to any other applicable public participation requirements, the department shall:

(a) Provide a notice of availability of draft or final cleanup action plans and a brief description of the proposed or selected alternative in the site register;

(b) Provide public notice of the draft cleanup action plan. A notice of a draft cleanup plan may be combined with notice on the state remedial investigation/feasibility study. Notice of a draft cleanup action plan may be combined with notice on a draft consent decree or on an order. At a minimum, public notice shall briefly:

(i) Describe the site;

(ii) Identify the department's proposed cleanup action and provide an explanation for its selection;

(iii) Invite public comment on the draft cleanup action plan. The public comment period shall run for at least thirty days from the date of issuance of the public notice.

(14) Cleanup action implementation. In addition to any other applicable public participation requirements, the following shall be required during cleanup action implementation.

(a) Public notice and opportunity to comment on any plans prepared under WAC 173-340-400 that represent a substantial change from the cleanup action plan.

(b) When the department conducts a cleanup action, public notice and an opportunity to comment shall be provided on the engineering design report and notice shall be given in the site register.

(15) Routine cleanup and interim actions. In addition to any other applicable public participation requirements, the following will be required for routine cleanup actions and interim actions.

(a) Public notice shall be provided for any proposed routine cleanup or interim actions under WAC 173-340-130 or 173-340-430. This public notice shall be combined with public notice of an order or settlement whenever practicable.

(b) At a minimum, public notice shall briefly:

(i) Describe the site;
(ii) Identify the proposed action;
(iii) Identify the likely or planned schedule for the action;
(iv) Reference any planning documents prepared for the action;
(v) Identify department staff who may be contacted for further information; and

(vi) Invite public comment on the routine cleanup or interim action.

The public comment period shall extend for at least thirty days from the date of the mailing of notice.

WAC 173-340-610 REGIONAL CITIZENS' ADVISORY COMMITTEES.

(1) The department shall establish regional citizens' advisory committees as part of a public participation program. The regional citizens' advisory committees are intended to promote meaningful and effective public involvement in the department's remedial action program under chapter 70.105D RCW. The committees will advise the department as to the concerns of citizens locally and regionally regarding the remedial actions within each committee's region, with emphasis on issues that affect the region as a whole, rather than site-specific concerns.

(2) Location. There shall be a regional citizens' advisory committee representing each geographic region of the state served by a regional office of the department.

(3) Membership. At any time, each committee shall have no fewer than five and no more than twelve members. The director shall, no later than July 1, 1990, appoint five members to each committee to represent citizens' interests in the region. These members shall serve three-year terms that may be renewed at the director's discretion. These members should represent citizen interests in the region.

(a) The director may appoint up to seven additional members to represent communities that may be affected by the remedial actions within each region. These members shall serve two-year terms that may be renewed at the director's discretion.

(b) At no time shall more than twenty-five percent of the membership of any committee consist of persons who are elected or appointed public officials or their representatives.

(c) The department shall advise the public as to whether any vacancies exist on the committees, and shall accept applications from interested citizens.

(d) The following persons shall not be eligible to serve on any committee:

(i) Persons whom the department has found are potentially liable persons under WAC 173-340-500 with regard to any facility that is currently the subject of department investigative, remedial, or enforcement actions, not including compliance monitoring;

(ii) Agents or employees of such potentially liable persons as described in (d)(i) of this subsection; and

(iii) Agents or employees of the department.

(e) A member shall refrain from participating in a committee matter if that member for any reason cannot act fairly and in the public interest with regard to that matter.

(f) The director may dismiss a member for cause in accordance with the terms of the regional citizens' advisory committee charter.

(4) Meetings. The committees shall meet at least twice a year at the regional offices or elsewhere as agreed upon by a committee and the department. Appropriate department staff may attend these meetings. The department shall brief the committees on the program's major planned and ongoing activities for the year.

(a) The department and the committees may agree to additional meetings.

(b) Each committee will designate one of its members to serve as chair. The committee chairs shall meet every year with the program manager or his/her designee.

(c) All committee meetings shall be open to the public. The department shall inform the public of committee meetings.

(5) Resources to be allocated to the committees.

(a) The department shall determine, after consulting with the committees, the amount of staff time and other department resources that shall be available to the committees for each biennium.

(b) The department shall designate staff to work with the committees.

(c) Members shall be reimbursed for travel expenses (as provided for in chapter 43.03 RCW) for any meetings approved by the department.

(6) Responsibilities. The committees are directed to:

(a) Meet at least twice annually;

(b) Inform citizens within each region as to the existence of the committees and their availability as a resource;

(c) Review the department's biennial program priorities, and advise the department of citizen concerns regarding the program priorities;

(d) Advise the department on a timely basis of citizen concerns regarding investigative or remedial activities within each region, and where possible, suggest ways in which the department can address those concerns;

(e) Annually prepare a brief report to the department describing:

(i) Major citizen concerns that have been brought to the committee's attention during the past year;
(ii) Any committee proposals or recommendations to address these concerns;
(iii) The committee's plans for the coming year; and
(iv) Any other information or issues which the committee believes appropriate for inclusion.

(7) The committees are encouraged to work with the department and the public to develop additional committee goals or responsibilities.

National Pollutant Discharge Elimination System

Chapter 173-220 WAC
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT PROGRAM

WAC 173-220-010 Purpose. The purpose of this chapter is to establish a state permit program, applicable to the discharge of pollutants and other wastes and materials to the surface waters of the state, operating under state law as a part of the National Pollutant Discharge Elimination System (NPDES) created by section 402 of the Federal Water Pollution Control Act (FWPCA). Permits issued under this chapter are designed to satisfy the requirements for discharge permits under both section 402(b) of the FWPCA and chapter 90.48 RCW. [Statutory Authority: RCW 90.54.020 and chapter 90-.48 RCW. 88-22-059 (Order 88-9), § 173-220-010, filed 11/1/88; Order DE 74-1, § 173-220-010, filed 2/15/74.]

WAC 173-220-020 Permit required. No pollutants shall be discharged to any surface water of the state from a point source, except as authorized by an individual or general permit issued pursuant to this chapter. [Statutory Authority: RCW 90.54.020 and chapter 90-.48 RCW. 88-22-059 (Order 88-9), § 173-220-020, filed 11/1/88. Statutory Authority: RCW 90.48.035 and 90.48.260. 82-24-078 (Order DE 82-39), § 173-220-020, filed 12/1/82; Order DE 74-1, § 173-220-020, filed 2/15/74.]

WAC 173-220-050 Public notice. (1) Public notice of every draft permit determination regarding an individual permit or general permit, and request for coverage by a general permit, shall be circulated in a manner designed to inform interested and potentially affected persons of the proposed discharge and of the proposed determination to issue or deny a permit for the proposed discharge, as follows:

(a) For individual permits, notice shall be circulated within the geographical area of the proposed discharge; such circulation may include any or all of the following, as directed by the department:

(i) Posting by the applicant for a period of thirty days in the post office, public library, and public places of the municipality nearest the premises of the applicant in which the effluent source is located;

(ii) Posting by the applicant for a period of thirty days near the entrance of the applicant's premises and nearby places;

(iii) Publishing by the applicant, at his own cost within such time as the director shall prescribe, through a notice form provided by the department, in major local newspapers of general circulation serving the area in which the discharge occurs: *Provided*, That if an applicant fails to publish notice within thirty days of the time prescribed by the director, the department may publish the notice and bill the applicant for the cost of publication;

(iv) Publishing by the applicant of paid advertisements;

(v) Publishing by the department of news releases or newsletter articles.

(b) For general permits, such circulation shall include the following:

(i) Publishing by the department of a notice of intent to issue a general permit in a major local newspaper of general circulation in each affected area; and

(ii) Posting or publishing by the applicant of a request for coverage by a general permit in accordance with any or all methods listed in (a)(i), (ii), (iii), (iv), or (v) of this subsection, as directed by the department.

(c) Notice shall be mailed to any person upon request; and

(d) The department shall add the name of any person upon request to a mailing list to receive copies of notices within the state or within a certain geographical area.

(2) The department shall provide a period of not less than thirty days following the date of the public notice during which time interested persons may submit their written views on a draft permit determination or a request for coverage by a general permit. All written comments submitted during the thirty-day comment period shall be retained by the department and considered in the formulation of its final determination with respect to the application. The period for comment may be extended at the discretion of the department.

(3) The department shall prepare the contents of the public notice, which shall, at a minimum, summarize the following:

(a) Name, address, phone number of agency issuing the public notice;

(b) Except when unknown in the case of general permit issuance, name and address of each applicant, and if different, of the facility or activity to be regulated;

(c) Each applicant's activities or operations which result in a discharge (e.g., municipal waste treatment, steel manufacturing, drainage from mining activities);

(d) Except in the case of general permit issuance, name of waterway to which each discharge is made and the location of each discharge on the waterway, indicating whether such discharge is a new or an existing discharge;

(e) The tentative determination to issue or deny a permit for the discharge;

(f) Where coverage by a general permit is replacing a current individual permit, notice of termination of the individual permit;

(g) The procedures for the formulation of final determinations, including the thirty-day comment period required by subsection (2) of this section and any other means by which interested persons may comment upon those determinations; and

(h) Address and phone number of state premises at which interested persons may obtain further information.

(4) The department shall provide copies of permit applications, draft permit determinations, requests for coverage, and general permits upon request.

(5) The department shall notify the applicant and persons who have submitted written comments or requested notice of the final permit decision. This notification shall include response to comments received and reference to the procedures for contesting the decision. [Statutory Authority: RCW 90.54.020 and chapter 90-.48 RCW. 88-22-059 (Order 88-9), § 173-220-050, filed 11/1/88. Statutory Authority: RCW 90.48.035 and 90.48.260. 82-24-078 (Order DE 82-39), § 173-220-050, filed 12/1/82; Order DE 76-20, § 173-220-050, filed 5/19/76; Order 74-7, § 173-220-050, filed 5/1/74; Order DE 74-1, § 173-220-050, filed 2/15/74.]

WAC 173-220-060 Fact sheets. (1) The department shall prepare a fact sheet for every draft permit determination regarding major dischargers, minor dischargers, and general permits. Such fact sheets shall, at a minimum, summarize the following:

(a) The type of facility or activity which is the subject of the application;

(b) The location of the discharge in the form of a sketch or detailed description;

(c) The type and quantity of the discharge, including at least the following:

(i) The rate or frequency of the proposed discharge;

(ii) For thermal discharges, the average summer and winter temperatures; and

(iii) The average discharge in pounds per day, or other appropriate units, of any pollutants which are present in significant quantities or which are subject to limitations or prohibition under RCW 90.48.010, 90.52-.040, 90.54.020 and sections 301, 302, 306, or 307 of the FWPCA and regulations published thereunder;

(d) The conditions in the proposed permit;

(e) The legal and technical grounds for the draft permit determination, including an explanation of how conditions meet both the technology-based and water quality-based requirements of the FWPCA and chapters 90.48, 90.52, and 90.54 RCW;

(f) The effluent standards and limitations applied to the proposed discharge;

(g) The applicable water quality standards, including identification of the uses for which receiving waters have been classified;

(h) How the draft permit addresses use or disposal of residual solids generated by wastewater treatment; and

(i) The procedures for the formulation of final determinations (in more detailed form than that given in the public notice) including:

(i) The thirty-day comment period required by WAC 173-220-050(2);

(ii) Procedures for requesting a public hearing and the nature thereof; and

(iii) Any other procedures by which the public may participate in the formulation of the final determinations.

(2) The department shall send a fact sheet to the applicant and, upon request, to any other person.

(3) The department shall add the name of any person upon request to a mailing list to receive copies of fact sheets. [Statutory Authority: RCW 90.54.020 and chapter 90.48 RCW. 88-22-059 (Order 88-9), § 173-220-060, filed 11/1/88. Statutory Authority: Chapter 43-.21A RCW. 86-06-040 (Order 86-03), § 173-220-060, filed 3/4/86. Statutory Authority: RCW 90.48.035 and 90.48.260. 82-24-078 (Order DE 82-39), § 173-220-060, filed 12/1/82; Order DE 74-1, § 173-220-060, filed 2/15/74.]

WAC 173-220-070 Notice to other government agencies. The department shall notify other appropriate government agencies of each draft permit determination or request for coverage and shall provide such agencies an opportunity to submit their written views and recommendations. Such notification shall include the following:

(1) Unless the regional administrator has agreed to waive review, transmission of an application, fact sheet, and draft permit to the regional administrator for comment or objection within thirty days (ninety days for general permits), or a longer period if requested up to a maximum of ninety days.

(2) At the time of issuance of public notice pursuant to WAC 173-220-050, transmission of the public notice to any other states whose waters may be affected by the issuance of a permit. Each affected state shall be afforded an opportunity to submit written recommendations to the department and to the regional administrator which the department may incorporate into the permit if issued. Should the department fail to incorporate any written recommendations thus received, it shall provide to the affected state or states (and to the regional administrator) a written explanation of its reasons for failing to accept any of the written recommendations.

(3) Unless waived by the respective agency, the public notice shall be sent to the appropriate district engineer of the Army Corps of Engineers, the United States Fish and Wildlife Service, the National Marine Fisheries Service, the state departments of fisheries, natural resources, wildlife, and social and health services, the archaeology and historic preservation office, the agency responsible for the preparation of an approved plan pursuant to section 208(b) of the FWPCA, applicable Indian tribes and any other applicable government agencies.

(4) A copy of any written agreement between the department and an agency identified in subsection (3) of this section which waives the receipt of public notices shall be forwarded to the regional administrator and shall be made available to the public for inspection and copying.

(5) Copies of public notices shall be mailed to any other federal, state, or local agency, Indian tribe or any affected country, upon request. Such agencies shall have an opportunity to respond, comment, or request a public hearing pursuant to WAC 173-220-090. [Statutory Authority: RCW 90.54.020 and chapter 90.48 RCW. 88-22-059 (Order 88-9), § 173-220-070, filed 11/1/88. Statutory Authority: RCW 90.48.035 and 90-.48.260. 82-24-078 (Order DE 82-39), § 173-220-070, filed 12/1/82; Order DE 74-1, § 173-220-070, filed 2/15/74.]

WAC 173-220-080 Public access to information. (1) In accordance with chapter 42.17 RCW, the department shall make records relating to NPDES permits available to the public for inspection and copying.

(2) The department shall protect any information (other than information on the effluent) contained in its NPDES permit records as confidential upon a showing by any person that such information, if made public, would divulge methods or processes entitled to protection as trade secrets of such person.

(3) Any information accorded confidential status, whether or not contained in an application form, shall be disclosed, upon request, to the regional administrator.

(4) The department shall provide facilities for the inspection of information relating to NPDES permits and shall insure that employees honor requests for such inspection promptly without undue requirements or restrictions. The department shall either (a) insure that a machine or device for the copying of papers and documents is available for a reasonable fee, or (b) otherwise provide for or coordinate with copying facilities or services such that requests for copies of nonconfidential documents may be honored promptly. [Statutory Authority: RCW 90.54.020 and chapter 90.48 RCW. 88-22-059 (Order 88-9), § 173-220-080, filed 11/1/88. Statutory Authority: RCW 90.48.035 and 90.48.260. 82-24-078 (Order DE 82-39), § 173-220-080, filed 12/1/82; Order DE 74-1, § 173-220-080, filed 2/15/74.]

WAC 173-220-090 Public hearings. The applicant, any affected state, any affected interstate agency, any affected country, the regional administrator, or any interested agency or person may request a public hearing with respect to a draft permit determination or request for coverage by a general permit. Any such request for a public hearing shall be filed within the thirty-day period prescribed in WAC 173-220-050(2) and shall indicate the interest of the party filing such request and the reasons why a hearing is warranted. The department shall hold a hearing if it determines there is a significant public interest. Instances of doubt will be resolved in favor of holding the hearing. Any hearing brought pursuant to this subsection shall be held at a time and place deemed appropriate by the department. [Statutory Authority: RCW 90.54.020 and chapter 90.48 RCW. 88-22-059 (Order 88-9), § 173-220-090, filed 11/1/88. Statutory Authority: RCW 90.48.010, 90.48.035, and 90.58.260. 83-10-063 (Order DE 83-14), § 173-220-

WAC 173-220-100 Public notice of public hearings. (1) The department shall circulate public notice of any hearing held pursuant to WAC 173-220-090 at least as widely as was the notice pursuant to WAC 173-220-050. Procedures for the circulation of public notice for hearings held under WAC 173-220-090 shall include at least the following:

(a) Notice shall be published in at least one major local newspaper of general circulation within the geographical area of the discharge;

(b) Notice shall be sent to all persons and government agencies who received a copy of the notice pursuant to WAC 173-220-050 or the fact sheet;

(c) Notice shall be mailed to any person upon request; and

(d) Notice shall be effected pursuant to (a) and (c) of this subsection at least thirty days in advance of the hearing.

(2) The contents of public notice of any hearing held in pursuant to WAC 173-220-090 shall include at least the following:

(a) Name, address, and phone number of agency holding the public hearing;

(b) A reference to the public notice issued pursuant to WAC 173-220-050, including identification number and date of issuance;

(c) The time and location for the hearing;

(d) The purpose of the hearing;

(e) Address and phone number of premises at which interested persons may obtain information;

(f) The nature of the hearing;

(g) The issues raised by the persons requesting the hearing, and any other appropriate issues which may be of interest to the public;

(i) Except when unknown in the case of general permit determinations, the name and address of each applicant whose proposed discharge will be considered at the hearing;

(ii) Except when unknown in the case of general permit determinations, the name of waterway to which each discharge is made and the location of each discharge on the waterway. [Statutory Authority: RCW 90.54.020 and chapter 90.48 RCW. 88-22-059 (Order 88-9), § 173-220-100, filed 11/1/88. Statutory Authority: RCW 90.48.035 and 90.48.260. 82-24-078 (Order DE 82-39), § 173-220-100, filed 12/1/82; Order DE 74-1, § 173-220-100, filed 2/15/74.]

Puget Sound Dredged Disposal Analysis

CHAPTER 1

INTRODUCTION

1.1 Puget Sound Dredged Disposal Analysis

PSDDA is an interagency program for the management of unconfined, open-water disposal of dredged material into Puget Sound, Washington. The PSDDA program was developed jointly by the U.S. Army Corps of Engineers (Corps) Seattle District, the U.S. Environmental Protection Agency (EPA) Region 10, the Washington Department of Natural Resources (DNR) and the Washington Department of Ecology (Ecology). The Management Plans for the PSDDA program identify disposal sites, describe dredged material evaluation procedures, and establish site monitoring and management practices. The plans also commit the agencies to a cooperative annual review process which evaluates disposal site use and conditions, dredged material testing results, and new scientific information, in order to determine if changes to the evaluation procedures and/or disposal site management practices are needed.

1.2 PSDDA Annual Review Process

The PSDDA annual review process currently involves preparation of various annual reports by the PSDDA agencies (Corps, DNR, EPA, Ecology), an annual review meeting (ARM), and a public notice of program changes resulting from the annual review.

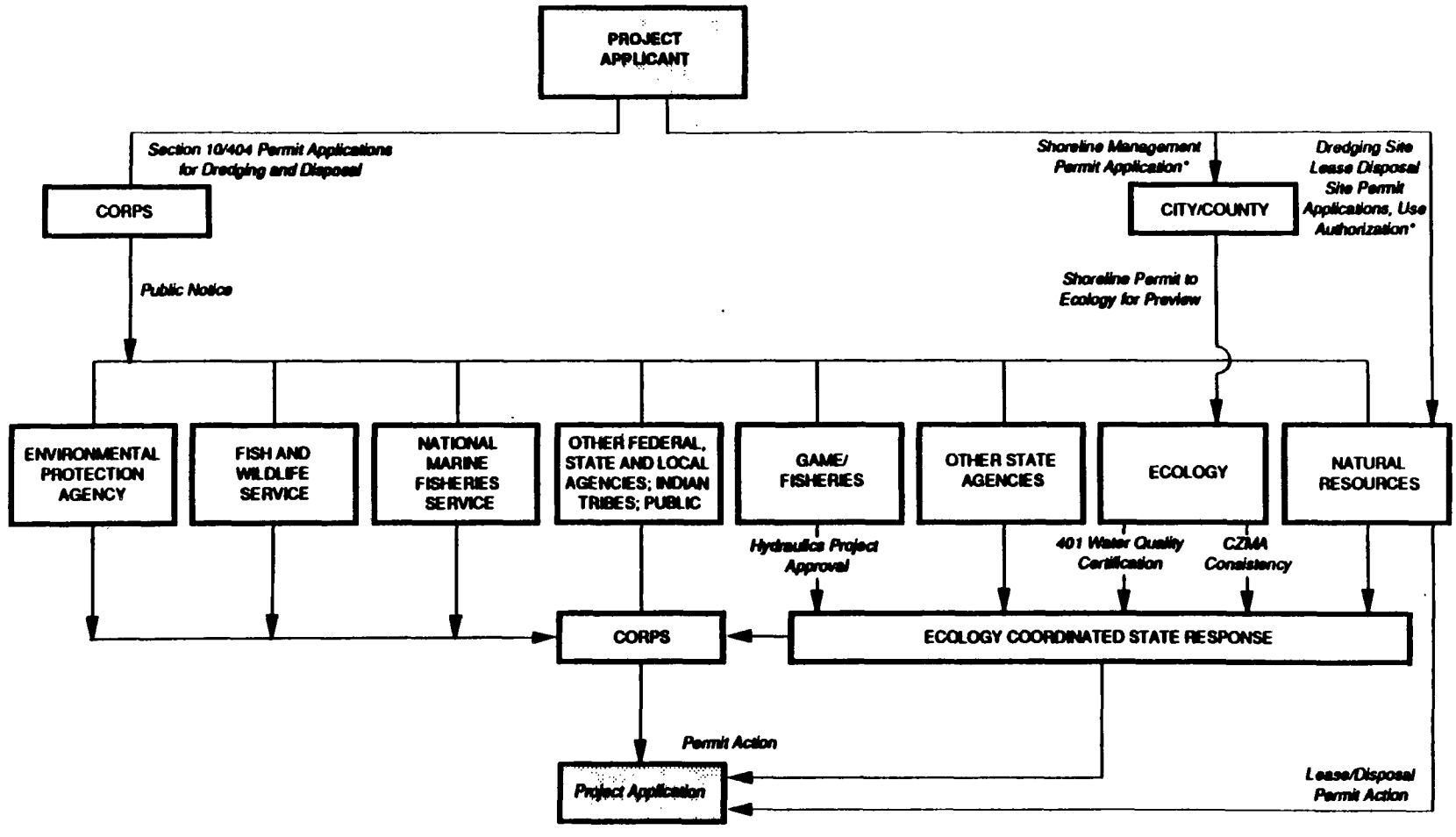
The process calls for the following annual reports to be prepared:

- a report by DNR summarizing the dredging activity and site use
- a report by the Corps summarizing dredged material sampling, testing, and application of disposal guidelines
- a report by the Corps describing the results of disposal site physical monitoring
- a report by DNR describing the results of disposal site chemical and biological monitoring
- a report prepared by Ecology summarizing the results of disposal site environmental monitoring; and
- a report by Ecology summarizing potential issues and changes to the PSDDA Management Plan

The Corps announces the ARM by letter, accompanied by Ecology's annual Management Plan Assessment Report and any key program issue papers. Comments on the report, issue papers and any changes to the PSDDA Management Plan which the public deem appropriate are specifically requested. The latter must be submitted in writing and may be briefly presented at the ARM.

After the ARM, PSDDA agencies consider all of the agency and public comments, summarize the ARM and report on any changes to the PSDDA Management Plan. This summary is usually prepared and mailed to interested parties in May or June.

Note: In addition to involvement in the PSDDA annual review process, the public can also participate in the permitting process for dredging and dredge disposal activities through the Corps of Engineers Section 10/404 Permit. The following figure illustrates public involvement opportunities in this permitting process.



*A fee is associated with this permit application.

Note: This figure is currently being revised for clarification.

Figure 3-1. Dredging and unconfined, open-water disposal permitting process for non-Corps projects

Public Notice

"(a) *General.* The public notice is the primary method of advising all interested parties of the proposed activity for which a permit is sought and of soliciting comments and information necessary to evaluate the probable impact on the public interest. The notice must, therefore, include sufficient information to give a clear understanding of the nature and magnitude of the activity to generate meaningful comment. The notice should include the following items of information:

(1) Applicable statutory authority or authorities;

(2) The name and address of the applicant;

(3) The name or title, address and telephone number of the Corps employee from whom additional information concerning the application may be obtained;

(4) The location of the proposed activity;

(5) A brief description of the proposed activity, its purpose and intended use, so as to provide sufficient information concerning the nature of the activity to generate meaningful comments, including a description of the type of structures, if any, to be erected on fills or pile or float-supported platforms, and a description of the type, composition, and quantity of materials to be discharged or disposed of in the ocean;

(6) A plan and elevation drawing showing the general and specific site location and character of all proposed activities, including the size relationship of the proposed structures to the size of the impacted waterway and depth of water in the area;

(7) If the proposed activity would occur in the territorial seas or ocean waters, a description of the activity's relationship to the baseline from which the territorial sea is measured;

(8) A list of other government authorizations obtained or requested by the applicant, including required certifications relative to water quality, coastal zone management, or marine sanctuaries;

(9) If appropriate, a statement that the activity is a categorical exclusion for purposes of NEPA (see paragraph 7 of Appendix B to 33 CFR Part 230);

(10) A statement of the district engineer's current knowledge on historic properties;

(11) A statement of the district engineer's current knowledge on endangered species (see § 325.2(b)(5));

(12) A statement(s) on evaluation factors (see § 325.3(c));

(13) Any other available information which may assist interested parties in evaluating the likely impact of the proposed activity, if any, on factors affecting the public interest;

(14) The comment period based on § 325.2(d)(2);

(15) A statement that any person may request, in writing, within the comment period specified in the notice, that a public hearing be held to consider the application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing;

(16) For non-federal applications in states with an approved CZM Plan, a statement on compliance with the approved Plan; and

(17) In addition, for section 103 (ocean dumping) activities:

(i) The specific location of the proposed disposal site and its physical boundaries;

(ii) A statement as to whether the proposed disposal site has been designated for use by the Administrator, EPA, pursuant to section 102(c) of the Act;

(iii) If the proposed disposal site has not been designated by the Administrator, EPA, a description of the characteristics of the proposed disposal site and an explanation as to why no previously designated disposal site is feasible;

(iv) A brief description of known dredged material discharges at the proposed disposal site;

(v) Existence and documented effects of other authorized disposals that have been made in the disposal area (e.g., heavy metal background reading and organic carbon content);

(vi) An estimate of the length of time during which disposal would continue at the proposed site; and

(vii) Information on the characteristics and composition of the dredged material.

(b) *Public notice for general permits.* District engineers will publish a public notice for all proposed regional general permits and for significant modifications to, or reissuance of, existing regional permits within their area of jurisdiction. Public notices for statewide regional permits may be issued jointly by the affected Corps districts. The notice will include all applicable information necessary to provide a clear understanding of the proposal. In addition, the notice will state the availability of information at the district office which reveals the Corps' provisional determination that the proposed activities comply with the requirements for issuance of general permits. District engineers will publish a public notice for nationwide permits in accordance with 33 CFR 330.4.

(c) *Evaluation factors.* A paragraph describing the various evaluation factors on which decisions are based shall be included in every public notice.

(1) Except as provided in paragraph (c)(3) of this section, the following will be included:

"The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people."

(2) If the activity would involve the discharge of dredged or fill material into the waters of the United States or the transportation of dredged material for the purpose of disposing of it in ocean waters, the public notice shall also indicate that the evaluation of the inpact of the activity on the public interest will include application of the guidelines promulgated by the Administrator, EPA, (40 CFR Part 230) or of the criteria

established under authority of section 102(a) of the Marine Protection, Research and Sanctuaries Act of 1972, as amended (40 CFR Parts 220 to 229), as appropriate. (See 33 CFR Parts 323 and 324).

(3) In cases involving construction of artificial islands, installations and other devices on outer continental shelf lands which are under mineral lease from the Department of the Interior, the notice will contain the following statement: "The decision as to whether a permit will be issued will be based on an evaluation of the impact of the proposed work on navigation and national security."

(d) *Distribution of public notices.* (1) Public notices will be distributed for posting in post offices or other appropriate public places in the vicinity of the site of the proposed work and will be sent to the applicant, to appropriate city and county officials, to adjoining property owners, to appropriate state agencies, to appropriate Indian Tribes or tribal representatives, to concerned Federal agencies, to local, regional and national shipping and other concerned business and conservation organizations, to appropriate River Basin Commissions, to appropriate state and areawide clearing houses as prescribed by OMB Circular A-95, to local news media and to any other interested party. Copies of public notices will be sent to all parties who have specifically requested copies of public notices, to the U.S. Senators and Representatives for the area where the work is to be performed, the field representative of the Secretary of the Interior, the Regional Director of the Fish and Wildlife Service, the Regional Director of the National Park Service, the Regional Administrator of the Environmental Protection Agency (EPA), the Regional Director of the National Marine Fisheries Service of the National Oceanic and Atmospheric Administration (NOAA), the head of the state agency responsible for fish and wildlife resources, the State Historic Preservation Officer, and the District Commander, U.S. Coast Guard.

(2) In addition to the general distribution of public notices cited above, notices will be sent to other addressees in appropriate cases as follows:

(i) If the activity would involve structures or dredging along the shores of the seas or Great Lakes, to the Coastal Engineering Research Center, Washington, DC 20016.

(ii) If the activity would involve construction of fixed structures or artificial islands on the outer continental shelf or in the territorial seas, to the Assistant Secretary of Defense (Manpower, Installations, and Logistics (ASD(MI&L)), Washington, DC 20310; the Director, Defense Mapping Agency (Hydrographic Center) Washington, DC 20390, Attention, Code NS12; and the Charting and Geodetic Services, N/CG222, National Ocean Service NOAA Rockville, Maryland 20852, and to affected military installations and activities.

(iii) If the activity involves the construction of structures to enhance fish propagation (e.g., fishing reefs) along the coasts of the United States, to the Director, Office of Marine Recreational Fisheries, National Marine Fisheries Service, Washington, DC 20235.

(iv) If the activity involves the construction of structures which may affect aircraft operations or for purposes associated with seaplane operations, to the Regional Director of the Federal Aviation Administration.

(v) If the activity would be in connection with a foreign-trade zone, to the Executive Secretary, Foreign-Trade Zones Board, Department of Commerce, Washington, DC 20230 and to the appropriate District Director of Customs as Resident Representative, Foreign-Trade Zones Board.

(3) It is presumed that all interested parties and agencies will wish to respond to public notices; therefore, a lack of response will be interpreted as meaning that there is no objection to the proposed project. A copy of the public notice with the list of the addresses to whom the notice was sent will be included in the record. If a question develops with respect to an activity for which another agency has responsibility and that other agency has not responded to the public notice, the district engineer may request its comments. Whenever a response to a public notice has been received from a member of Congress, either in behalf of a constitutent or himself, the district engineer will inform the member of Congress of the final decision.

(4) District engineers will update public notice mailing lists at least once every two years.

APPENDIX D

EPA Technical Studies in Support of Urban Bay Action Programs

EPA Technical Studies

Armstrong, J., and A. Copping (Eds.) 1990. Proceedings of the Forum on Status and Trends of Puget Sound's Biological Resources. EPA 910/9-90-001; NTIS PB90-198839. Environmental Protection Agency Region 10, Seattle, WA.

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City of Seattle. 1987. Lake Union and Ship Canal water quality management plan: data summary report addendum. City of Seattle, Office for Long Range Planning, WA.

City of Seattle. 1987. Lake Union and Ship Canal water quality management plan: data summary report. EPA 910/9-89-037; NTIS PB90-197906. City of Seattle, Office for Long Range Planning, WA.

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Curl, H., E. Baker, and T. Bates, et al. 1987. Contaminant transport from Elliott Bay and Commencement Bay. EPA 910/9-88-177; NTIS PB89-143267. National Oceanic and Atmospheric Administration, Pacific Marine Environmental Laboratory, Seattle, WA.

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E.V.S. and Tetra Tech. 1985. Elliott Bay toxics action program. Cruise Summary Report: Benthic Infauna and Sediment Quality Survey, September 25 - October 16, 1985. E.V.S. Consultants, Seattle, WA, and Tetra Tech, Inc., Bellevue, WA.

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Envirosphere and Cooper. 1985. Summary of historical Puget Sound contaminant mass loading analysis. EPA 910/9-88-235. Envirosphere Company, Bellevue, WA, and Cooper Consultants, Bellevue, WA.

Envirosphere and Cooper. 1985. NPDES monitoring recommendations to improve contaminant loading data availability. EPA 910/9-88-237. Envirosphere Company, Bellevue, WA, and Cooper Consultants, Bellevue, WA.

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Faigenblum, J. 1988. Chemicals and bacteriological organisms in recreational shellfish. EPA 910/9-88-245; NTIS PB90-131129. Washington State Department of Social and Health Services, Olympia, WA.

Malins, D., and A. Jensen (Eds.). 1988. Aquatic toxicology. Toxic Chemicals and Aquatic Life: Research and Management. Volume 11. In: Proceedings of symposium on Elsevier Science Publishers, B.V.-Amsterdam.

PTI. 1988. Briefing report to the EPA Science Advisory Board: The apparent effects threshold approach. EPA 910/9-89-013; NTIS PB90-217913. PTI Environmental Services, Bellevue, WA.

PTI. 1988. Sediment quality values refinement: Vol. II: Evaluation of PSDDA sediment quality values. EPA 910/9-88-247 a & b; NTIS PB89-229827 & PB89-229835. PTI Environmental Services, Bellevue, WA.

PTI. 1988. SEDQUAL contaminated sediments database users manual. PTI Environmental Services, Bellevue, WA.

PTI. 1988. Elliott Bay action program: 1988 action plan. EPA 910/9-88-240. PTI Environmental Services, Bellevue, WA.

PTI. 1988. Sediment quality values refinement: Volume I: 1988 update and evaluation of Puget Sound AET. EPA 910/9-88-246 a & b; NTIS PB89-200398 & PB89-200406. PTI Environmental Services, Bellevue, WA.

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PTI. 1989. Comparison of bioassays for assessing sediment toxicity in Puget Sound. PTI Environmental Services, Bellevue, WA.

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PTI. 1990. Overview and summary recommendations; November 15-16, 1989 Seasurface Microlayer Workshop. EPA 910/9-90-008; NTIS PB90-227331. PTI Environmental Services, Bellevue, WA.

PTI. 1990. Sinclair and Dyes inlets action program: 1990 action plan. EPA 910/9-90-013. PTI Environmental Services, Bellevue, WA.

PTI. 1990. Development of a *Neanthes* sediment bioassay for use in Puget Sound. EPA 910/9-90-005; NTIS PB90-202904. PTI Environmental Services, Bellevue, WA.

PTI. 1991. Bellingham Bay action plan. PTI Environmental Services, Bellevue, WA.

PTI. 1991. Budd Inlet action plan. PTI Environmental Services, Bellevue, WA.

PTI. 1991. Pollutants of concern in Puget Sound. PTI Environmental Services, Bellevue, WA.

PTI. 1991. Characterization of toxic chemicals in wildlife associated with Puget Sound. Report and Monitoring Recommendations. PTI Environmental Services, Bellevue, WA.

PTI. 1991. Contaminant levels in Puget Sound harbor seals. PTI Environmental Services, Bellevue, WA.

PTI. 1991. Dioxin levels in Puget Sound Dungeness crab. PTI Environmental Services, Bellevue, WA.

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PTI. 1991. A project manager's guide to requesting and evaluating chemical analyses. PTI Environmental Services, Bellevue, WA.

PTI. 1991. Reconnaissance survey of chemical contamination and biological effects in southern Puget Sound. PTI Environmental Services, Bellevue, WA.

PTI and DOH. 1991. Chemical contaminant levels in Puget Sound sea cucumbers. PTI Environmental Services, Bellevue, WA, and State of Washington Department of Health, Olympia, WA.

PTI and Tetra Tech. 1988. Elliott Bay action program: analysis of toxic problem areas. EPA 910/9-88-213; NTIS PB90-219064. PTI Environmental Services, Bellevue, WA, and Tetra Tech, Inc., Bellevue, WA.

PTI and Tetra Tech. 1988. Everett Harbor action program: analysis of toxic problem areas. EPA 910/9-88-241 & -241a; NTIS PB90-227117. PTI Environmental Services, Bellevue, WA, and Tetra Tech, Inc., Bellevue, WA.

PSWQA. 1988. Proceedings, first annual meeting on Puget Sound research. Volumes 1 and 2. Puget Sound Water Quality Authority, Seattle, WA.

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Simenstad, C., and C. Tanner. 1991. An estuarine habitat restoration monitoring protocol for Puget Sound. University of Washington, Fisheries Research Institute, Seattle, WA.

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Tetra Tech. 1985. Field report: Elliott Bay source sampling program. September 23 - October 17, 1985. Tetra Tech, Inc., Bellevue, WA.

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U.S. EPA. 1990. Recommended guidelines for measuring selected environmental Variables in Puget Sound. U.S. Environmental Protection Agency Region 10, Seattle, WA. 13 chapters:

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Recommended Protocols for Fish Pathology Studies in Puget Sound (7/87).

Recommended Protocols for Measuring Conventional Water Quality Variables and Metals in Fresh Waters of the Puget Sound Region (12/89).

Recommended Protocols for Sampling Soft-Bottom Demersal Fishes by Beach Seine and Trawl in Puget Sound (12/89).

Recommended Protocols for Measuring Conventional Marine Water Column Variables in Puget Sound (In preparation).

Recommended Protocols for Marine Mammal Tissue Sampling and Analysis (In preparation).