

United States
Environmental Protection
Agency

Office of External Affairs
Region 10
1200 Sixth Avenue
Seattle WA 98101

Water

January 1981

Clean Streams Handbook

A Citizen's Manual for Building a Clean Water Community



Clean Streams Handbook

A Citizen's Manual for Building a Clean Water Community

Prepared by the Sierra Club with funds provided by:

**The Environmental Protection Agency
and the Municipality of Metropolitan Seattle (Metro)**

for Alaska, Idaho, Oregon and Washington

January 1981

Writing and Research: Ken Ensroth

Editing: Mickey Riley, Philip Morley, Dennis Wilson

Design and Layout: Kay Pilcher

Graphics: Kate Allen

Cover Photograph: Eric Meyerson

This Handbook has been financed in part with federal funds from the Environmental Protection Agency under contract number 6800200 and local funds from the Municipality of Metropolitan Seattle (METRO). The contents do not necessarily reflect the views and policies of EPA or Seattle METRO.

EPA Publication No. 910/9-80-073

**Copies are available from: EPA, Office of External Affairs,
1200 Sixth Avenue, Seattle, Washington 98101; Metro Water
Quality Planning, 821 Second Avenue, Seattle, Washington 98104;
Sierra Club, Northwest Office, 4534½ University Way N.E., Seattle,
Washington 98105.**

Table of Contents

Introduction	How To Use This Handbook	1
Chapter 1	The Stream Environment	3
	The Importance of Clean Streams	3
	Stream Ecology/ Fish Biology	4
Chapter 2	Types of Stream Pollution	6
Chapter 3	Immediate Pollution Hazards and Immediate Actions You Can Take	9
	Pollution-spotting: Tips on Field Observations	9
	A Note on Land Ownership	10
	Point vs Non-point Source Pollution	11
	Pollution Sources	12
	Point Sources	12
	Erosion and Sedimentation from Construction Sites ..	13
	Sewage	14
	Agricultural Runoff	15
	Urban Runoff	16
	Logging	17
	Mining	18
	Solid and Hazardous Wastes	19
	Pesticides	20
	Physical Disruption of Streams	21
	Small Dams	22
	Water Withdrawals and Minimum Flows	23
	Geothermal Sources	24
	Oil and Hazardous Spills	25
	Phone Calls: To Help Make Your Call Productive	26
	Tips on Letter Writing	26
Chapter 4	Long-range Solutions to Pollution Problems.	29

Appendix A	Agency Listings	35
Appendix B	Additional Organizations to Contact about Water Pollution	42
Appendix C	The Laws	43
	Local Laws	43
	State Laws	44
	Water Rights	44
	Pesticide Registration	45
	Logging	46
	Solid and Hazardous Wastes	46
	Alaska	47
	Idaho	47
	Oregon	48
	Washington	49
	Permit Information Centers	50
	Federal Laws	51
	Clean Water Act	51
	Safe Drinking Water Act	53
	Toxic Substances Control Act	53
	Resource Conservation and Recovery Act	54
	Federal Insecticide, Fungicide and Rodenticide Act ...	54
	National Environmental Policy Act	55
	A Note on Federal Permits	55
Appendix D	Additional Publications on Streams and Pollution	56

Introduction

How to Use this Handbook

This Handbook is intended for use by anyone who cares about streams and wants to know: How can I attain and maintain a clean stream? It is a tool which identifies types of water pollution, immediate and long-term corrective actions and pollution control laws and agencies.

When confronted with an *immediate water pollution control hazard*:

1. Read Chapter 2, *Types of Stream Pollution* to determine what type of pollution that hazard is and check the possible sources.
2. Turn to Chapter 3, *Immediate Pollution Hazards and Immediate Actions You Can Take* and find the table for the pollution source you suspect is causing the problem.
3. Use the table on that pollution source to find out what the applicable laws are in your state, what the contact agency is for each law and what you can do. The addresses and phone numbers for water pollution control agencies in the Northwest and Alaska are listed in Appendix A.

For more details on the laws and what they cover, turn to Appendix C. For helpful ideas on how to go about taking action on pollution hazards, see the following sections in Chapter 3: *Pollution-spotting: Tips on Field Observations*, *Phone Calls: to Help Make your Call Productive* and *Tips on Letter Writing*.

If you're faced with a long-term or recurring stream-pollution problem, and you aren't sure what to do, read Chapter 4, *Long-range Solutions to Pollution Problems*.

Lastly, when using this Handbook, enjoy it or enjoy the process. Helping to maintain clean streams in our country can be challenging and informative — to say nothing of the satisfaction you'll feel knowing you've made a contribution to your environment and community.



Chapter 1

The Stream Environment

The Importance of Clean Streams

- | | |
|------------------------|--|
| Fish | Many streams in the Northwest and Alaska support resident or anadromous (migratory) fish populations. Sport and commercial fisheries provide food, recreation and a boost to the economy. Abundant salmon runs feed wildlife populations and contribute to the biological productivity of the region as a whole. |
| Wildlife | Streams and stream-side (riparian) vegetation provide food and habitat for a wide variety of wildlife species further benefitting the surrounding ecosystem. |
| Public Health | Streams that are severely polluted can be dangerous to public health. Sewage can carry infectious diseases, and repeated or prolonged exposure to toxic chemicals in water can cause serious health problems and has been linked to cancer. |
| Flood Control | Most streams help prevent flooding by “absorbing” heavy rains in their meandering courses and associated wetlands. |
| Quality of Life | All of the above benefits improve the quality of our daily lives. Well-maintained streams provide visual beauty as well as the opportunity to appreciate and partake of our natural environment. |

Stream Ecology / Fish Biology

Moving Water: a Transient Environment

Living in moving water poses unique problems for aquatic organisms since they are constantly being pushed downstream. Because of this, most streams are fairly low in primary productivity (i.e., they grow few plants). Insects and fish in streams must usually depend on outside food sources, such as insects and plant materials that fall into the stream. Thus, streams with their generally cold temperatures become rather difficult places to live, occupied only by specially-adapted organisms. One example is the stonefly larva, with its flat body and clinging forelegs which allow it to hold its ground in fast water. Due to these natural stresses, stream organisms are quite sensitive to pollution impacts, and are a good “gauge” of stream water quality.

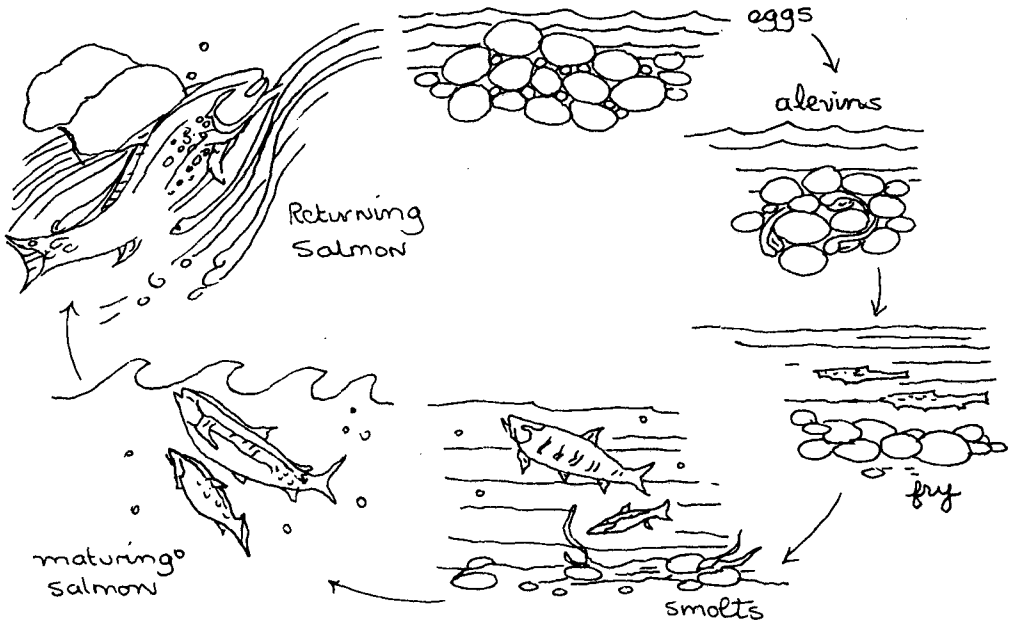
One advantage of moving water is that, if the polluting activity stops, clean water will come down to flush out the polluted area. But the damage to aquatic organisms is usually done quickly and repaired slowly.

Green Lands: the Sponge Effect

Water in streams comes from rainfall running off of the lands around it. Vegetation and soil act as a sponge and the rain water soaks directly into the porous ground or trickles down plant roots. Growing plant roots make soil less compacted providing channels for water to travel through.

Like a sponge, vegetated soil soaks up water and releases it over time as the water slowly works its way through the myriad of microscopic channels or is taken up and transpired by plants. For Pacific Northwest-type rains, interception by evergreen vegetation is important for lowering or delaying peak runoff flows.

Land covered with a water barrier, such as asphalt, concrete, buildings or other impermeable surfaces can't absorb any water and runoff is fast and high in volume. Imagine tipping a piece of concrete under a faucet versus a piece of sod-grass.



Salmon Life Cycle

The resulting rush of water from impervious surfaces can cause flooding and scouring of streambanks and wash out fish and insects or their habitat. Pollutants lying on the top of impermeable surfaces, like car oil, are washed into the stream and can also harm aquatic organisms. Moreover, impervious surfaces reduce ground water recharge and the slow continuous release of water to maintain stream flow.

Salmon and Clean Streams

Salmon are not only a symbol of the beauty of the Pacific Northwest, they are also valuable in terms of our recreation and economy. Salmon were on the planet long before humans and their pollution appeared. Their continued existence requires clean streams for the following reasons:

Basic metabolism: they have rather narrow oxygen, pH and temperature limits;

Food: they depend on insects that have adapted to clear moving waters;

Migration: they need an uninterrupted flow of water for their journey to and from ocean waters;

Spawning: their eggs must be laid in clean gravel so that the eggs and fry will be protected from predators and water can flow through to provide oxygen;

Rearing: the stream must have a mix of pools and riffles to provide resting and feeding areas. Eggs and fry are especially vulnerable to pollutants.

Chapter 2

Types of Stream Pollution

Siltation Siltation is caused by fine particles of dirt that become suspended in runoff waters and subsequently washed into streams and deposited on stream bottoms.

How to recognize: Look for cloudy or muddy water, sandy or dusty gravel, mucky stream bottoms or deposits of silt.

Stream impacts: Silt can fill in the spaces in the gravel of spawning beds, taking away sites for adult salmon to spawn or suffocating already spawned eggs or fry. Silt harms insects and microorganisms through direct kill and habitat disruption. The abrasive character of silty water can damage fish gills and plants, and scour or break down streambanks causing further siltation downstream. Streams filled with silt flood more often and with more damaging effects.

Possible sources: Erosion and sedimentation from construction sites; agricultural runoff, urban runoff, logging operations, mining operations, and physical disruptions of streams.

Flow Flow increases or decreases caused by human activities can have serious adverse effects on the stream ecosystem.

How to recognize: The flooding of a stream even after moderate rainfall. Banks are broken down or gullied or there is increased stream meandering. The stream may practically dry up in the warm summer months.

Stream impacts: Excessively high flows can damage fish and other aquatic organisms either by direct kill or habitat disruption. Stream channels may be damaged, leading to sedimentation downstream. Flooding can cause property damage. Low flows can strand young salmon, block migration, kill insects, and may contribute to higher stream temperatures.

Possible sources: Urban runoff; physical disruption of streams and surrounding vegetation, including the filling of wetlands; and water withdrawals that cause low flows.

Nutrients All plants require a certain quantity of nutrients, minerals and organic compounds in order to grow. However, when these materials are present in excessive amounts it can cause nutrient pollution.

How to recognize: Luxuriant growth of plants and algae. In later stages, much dead and decaying plant material, often accompanied by a foul odor.

Stream impacts: A large input of nutrients to a stream can cause a boom in plant growth, particularly algae, since the growth of aquatic plants is normally limited by scarce nutrients. The algae later die in mass quantities when the nutrients are used up. Bacteria which break down the plant material require oxygen and can deplete the stream's oxygen, literally suffocating fish and other aquatic organisms. In addition, the dead plant material can become a bio-sediment problem, filling in gravel spaces.

Possible sources: Point discharges; fertilizers and animal wastes in agricultural and urban runoff.

Physical Disruption Physical disruption can be defined as changing the streambed or channel in any way, from digging holes in the stream bottom to rerouting the stream course.

How to recognize: Any major disruptions should be fairly easy to spot, with exposed earth, construction works or other evidence of abrupt man-caused change. Downstream, sedimentation may also be evident.

Stream impacts: In addition to sedimentation impacts, there may be significant aquatic habitat disruption, damage to streambanks and hydrological (flow) changes.

Possible sources: Heavy equipment for logging or construction operations; installation of culverts for road crossings; dredge and fill operations; dredge mining; diking, riprapping, changing stream course; homeowner landscaping; livestock in streams; and other physical disruptions.

Toxics Toxics are substances that chemically damage living organisms — literally, poisons.

How to recognize: Toxic pollution is often hard to recognize in the field without chemical testing equipment, unless the impacts are severe. Look for fish kills, discoloration of water, "barren" stream bottoms with few or no insects, strange smells, dying or dead plants in the riparian zone or other abnormalities.

Stream impacts: Toxics may kill fish and other aquatic organisms immediately, hurt their ability to reproduce or weaken their resistance to disease and predation. The migratory abilities of anadromous fish may be weakened and people eating fish containing toxics may suffer health problems.

Possible sources: Pesticides from agricultural runoff, logging operations and other sources; drainage from mining operations or solid and hazardous waste dumps; geothermal sources; point sources; and oil and hazardous substances spills.

Chapter 3

Immediate Pollution Hazards and Immediate Actions You Can Take

Pollution-spotting: Tips on Field Observations

Enforcement of existing pollution laws, and demonstration of the need for new ones may depend on how much information you can bring to bear on a pollution situation. This means close observation and detailed reporting. And since streams are a moving medium, the pollution you see may not be there in an hour (though the effects may linger). Thus, your *immediate recording* of the event, both in pictures and detailed notes, can be critical.

Get in the habit of carrying a pencil and a piece of paper. When you see a stream pollution or disruption incident jot down some notes. If you don't have writing materials with you, write down the details as soon as you can, while they're still fresh in your mind. Important things to note are:

1. The *exact* location. Be as specific as you can. Check a map of the area for the township and section number.
2. The name of the stream.
3. The time and date.
4. A brief description of what you see: color of water, condition of stream bottom, flow, any dead fish or animals, smell (don't taste the water), and other details.
5. The source of the problem. Investigate upland if you can, but do not trespass. What is the adjacent land activity?
6. The name of individuals involved.
7. Weather conditions: has it been raining?
8. Any other relevant details you can observe.

If you have a camera with you, take a picture and note the exact time.

Make sure your notes are clear. Check this handbook or another reference source for what laws may be applicable. As soon as possible, call the agency you think most appropriate (see *Phone Calls: to Help Make Your Calls Productive*).

A Note on Land Ownership

For most pollution problems, and especially for those caused by runoff from non-point sources (see *Point vs Non-point Source Pollution*), who owns the land has a great deal to do with what laws apply and what can be done. Publicly-owned lands, such as parks or forest lands, are managed by state or federal agencies. Those agencies may place more stringent conditions or regulations on activities on those lands beyond the state and federal pollution laws. Contact the management agency for details. If you are unsure of who owns a piece of land, consult a map, or call the county planning department.

Ownership of the streambed is normally retained by the local property owner. If a person owns property on both sides of the stream, he owns the whole streambed. If the stream is the property line, he owns the streambed to the halfway point between the two banks. However, ownership does *not* mean complete freedom to do whatever he wants, since the water itself belongs to the public (see below: *Physical Disruption of Streams*).

Point vs Non-point Source Pollution

When trying to decide whether an activity constitutes a “point” or “non-point” source of water pollution, a basic guideline is whether you can actually *point* to a single source, such as a pipe or a ditch. If you can, it is a point source. If you cannot, and the pollution comes from many points (i.e., the source is spread out), as with an agricultural field, a logging area or a parking lot, it is a non-point source.

Generally, pollution abatement of point sources uses some treatment technology at or before the point of discharge, either chemical or biological. All point sources must obtain an NPDES permit for their discharge (see Appendix C: *The Laws*).

Pollution abatement of non-point sources usually requires changing the extent or method of a land-based activity, for example using contour plowing on sloped agricultural fields. These changes are often called “best management practices” (BMPs) since they detail the best way to practice an activity in order to minimize pollution. BMPs are usually developed through a process of 208 Water Quality Planning (see Appendix C: *Clean Water Act — Section 208*).

In some cases, a pollution source can be both a point and a non-point source. Parking lot runoff can collect sediment and oil spread out over its surface, but when a storm drain collects that runoff and pipes it into a stream, it becomes a point source.

Pollution Sources



Point Sources

What to look for Discoloration of water traceable to one discharge point Smell, excess algae Dead fish, plants or animals	Pollution effects (types) Siltation Nutrients Flow Physical disruption Toxics	Possible sources Industrial plants Cattle or dairy feed lots Storm drains from urban runoff Mining operations Geothermal sources Others
Applicable laws Section 301 of Clean Water Act: NPDES permits (see Appendix C)	Contact agencies <i>Alaska:</i> Dept. of Environmental conservation, or EPA State Operations Office <i>Idaho:</i> Dept. of Health and Welfare, or EPA State Operations Office <i>Oregon:</i> Dept. of Environmental Quality <i>Washington:</i> Dept. of Ecology	
What you can do Report discharges that are pollution hazards to contact agency Write letter to agency to document Comment on permit application or renewal during public review period Ask for a public hearing		Pollution abatement methods Chemical or biological treatment of wastewater Composting or land application of nutrients Recycling and recovery of usable materials Redesign of waste-producing process



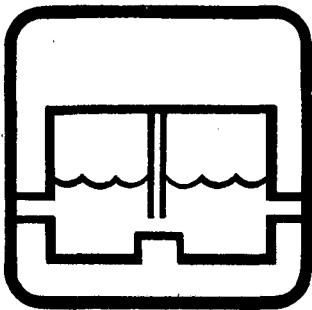
Erosion and Sedimentation from Construction Sites

Grading and clearing operations can leave exposed soil. Rainfall can then wash it off the site into nearby streams. Improper washing of cement trucks can also pollute streams.

What to look for Cloudy, silty water "Dusty" looking stream Gravel Erosion gullies or trail of dirt from work-site	Pollution effects (types) Siltation Damage to aquatic habitat Mortality to aquatic organisms Stream scouring Flooding	Possible sources Residential developments Site clearing for homes Commercial construction Road building associated with construction
Applicable laws City or county grading and clearing ordinances (see Appendix C) State Water Quality Standards (if severe)	Contact agencies City or county planning or public works department Statewide water quality management agency	
What you can do Talk to construction site manager Report pollution hazards to lead agency Work for passage of new ordinance (see Chapter 4, <i>Long-range Solutions to Pollution Problems</i>)	Pollution abatement methods Leaving green areas to act as runoff filters Placing hay bales or nylon mesh across slope as silt dams Using temporary retention ponds to hold runoff, letting silt settle Grading across slope line Planning construction for dry season, minimizing time soil is left exposed	

Sewage

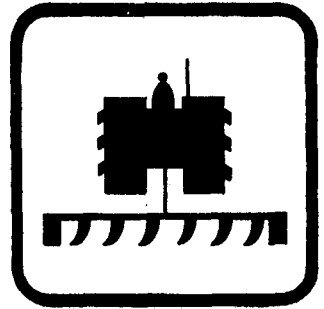
Sewage disposal problems, and the effort and money required to solve them, increase with population density. The ability of the land to handle nutrients and liquids from sewage varies but it is finite. When the land and disposal facilities are overloaded, systems fail and leak or overflow, leading to sewage contamination of streams and ground water.



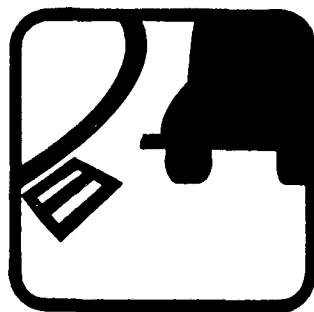
What to look for Algae blooms Smell, discoloration of water Seeping or trickling liquid (usually amber-colored) near homes	Pollution effects (types) Nutrients If severe, can be a public health hazard	Possible sources Septic tanks and drainfields Community sewage systems, or "package treatment plants" Overflows from combined (i.e., both domestic and storm-water) sewers during or after heavy rainfall
Applicable laws County health code Other county ordinances State Water Quality Standards State or local 208 Water Quality Plan Section 201 of Clean Water Act	Contact agencies County health department Statewide water quality management agency Statewide or areawide water quality management agency EPA State Operations Office	
What you can do Report pollution hazards to agency (start with county health department) Ask state and areawide agencies about priority of sewage cleanup for your area in state and areawide 208 Water Quality Plans If necessary, contact EPA regarding sewage treatment systems	Pollution abatement methods Maintenance of home septic systems Pumping tanks regularly; inspection and repair of drainfields Construction of regional sewage collection and treatment systems Separation of combined sewers	

Agricultural Runoff

The type and extent of pollution problems associated with agricultural runoff vary widely with the region, climate and kind of agricultural activity.



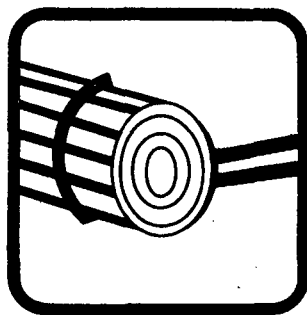
<p>What to look for Muddy water or signs of sedimentation Nutrient, toxic pollution</p>	<p>Pollution effects and their sources Sedimentation, pesticide (toxic) and fertilizer (nutrient) contamination from plowed fields Nutrient contamination from livestock areas (dairy and feedlots) Physical disruption of streambanks from grazing livestock</p>
<p>Applicable laws Irrigated and plowed fields: best management practices (BMPs) developed under Statewide 208 Planning Feedlots: NPDES permit for any discharge to stream</p>	<p>Contact agencies U.S.D.A. Soil Conservation Service Local Soil and Water Conservation Districts Statewide water quality management agency <i>Alaska and Idaho:</i> EPA State Operations Office <i>Oregon:</i> Dept. of Environmental Quality <i>Washington:</i> Dept. of Ecology</p>
<p>What you can do Report pollution hazards to Soil Conservation Service or local Conservation office, and if severe, to statewide water quality agency Report discharges to agency Write letter; comment on any permit application or renewal</p>	<p>Pollution abatement methods Irrigation: regulate amount, time of year of flow in ditches, change routes Plowed fields: use contour plowing across slope; plant all fallow fields with cover crop Livestock areas: install and maintain drainage system; recycle nutrients as fertilizer; fence animals out of streams</p>



Urban Runoff

Urban runoff is a relatively new, but increasingly widespread problem, that is all too often dealt with in retrospect (i.e., after an area is developed). Problems are caused by rain hitting impervious surfaces, running off quickly, and taking with it dirt and chemicals (car oil, heavy metals from exhaust). Industrial and lawn chemicals and animal wastes may also contaminate runoff.

<p>What to look for Heavy flooding even in moderate rains; damage to stream channel Signs of sedimentation: cloudy water, dusty gravel, silt deposits Excess algae or other plant growth</p>	<p>Pollution effects (types) Toxic and nutrient pollution Sedimentation Flooding and scouring of streambanks from high flows</p>	<p>Possible sources Streets, parking lots; any developed area with a lot of impermeable surfaces Residential and commercial developments</p>
<p>Applicable laws Comprehensive drainage plan for city or county; provision for purchase of land for retention basins, other capital improvements Statewide Water Quality Standards drainage control ordinance: place requirements on new developments to install retention/detention facilities; limit runoff rate from property</p>	<p>Contact agencies City or county planning or public works departments Areawide or statewide water quality management agency</p>	
<p>What you can do Contact city or county planning or public works department, or areawide or state water quality agency Find out status of drainage control laws, existing or planned, in your area Write letter to city/county councils/commissions, recommending passage of drainage control ordinances</p>	<p>Pollution abatement methods Stormwater retention ponds or catch basins, where runoff is held and released slowly; sediments and some pollutants settle out and groundwater is recharged Urban areas: stormwater retention in sewer pipes, roof tops, parking lots, porous pavement, planted areas in parking lots</p>	



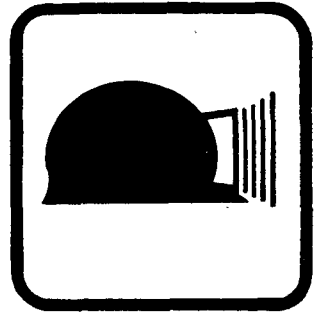
Logging

The extent of pollution problems from logging operations varies widely with soil, climate, terrain and operation.

<p>What to look for</p> <p>Sedimentation; mud and debris slides</p> <p>Nutrient, toxic pollution</p> <p>Debris in streams</p> <p>Damage to streambed or bank</p>	<p>Pollution effects/sources</p> <p>Erosion and sedimentation from improper road construction and siting is the biggest pollution problem</p> <p>Improperly designed or poorly maintained stream and drainage culverts lead to flooding, sedimentation and debris in streams</p> <p>Culvert installation or debris left in streambeds may cause physical disruption</p> <p>Erosion and sedimentation from harvest sites</p> <p>Cut areas may expose stream to sun, causing excessive warming and harming fish and insects</p> <p>Forest chemicals (insecticides, herbicides, fertilizers) may cause toxic pollution</p>
<p>Applicable laws</p> <p><i>Alaska:</i> State Forest Practices Act (new, not yet implemented)</p> <p>State Water Quality Standards</p> <p>Title 16 (work in streams affecting anadromous fish)</p> <p><i>Idaho:</i> State Forest Practices Act</p> <p>State Water Quality Standards</p> <p>Stream Channel Protection Act</p> <p><i>Oregon:</i> State Forest Practices Act</p> <p>State Water Quality Standards</p> <p>State code (fill or removal of more than 50 cubic yards of material)</p> <p><i>Washington:</i> State Forest Practices Act</p> <p>State Water Quality Standards</p> <p>Hydraulics Project Approval</p>	<p>Contact agencies</p> <p><i>Alaska:</i> Dept. of Natural Resources</p> <p>Dept. of Environmental Conservation</p> <p>Dept. of Fish and Game</p> <p><i>Idaho:</i> Dept. of Lands</p> <p>Dept. of Health and Welfare</p> <p>Dept. of Water Resources</p> <p><i>Oregon:</i> Dept. of Forestry</p> <p>Dept. of Environmental Quality</p> <p>Division of State Lands</p> <p><i>Washington:</i> Dept. of Natural Resources</p> <p>Dept. of Ecology</p> <p>Dept. of Fisheries</p> <p>Dept. of Game</p>
<p>What you can do</p> <p>Report pollution hazards to lead agency — give exact location, other details</p> <p>Write letter to agency for documentation</p> <p>Get copy of State Forest Practices Act, Rules and Regulations; become familiar with basic provisions for future field trips</p>	<p>Pollution abatement methods</p> <p>Planning roads to fit topography; avoiding erosion hazard areas</p> <p>Planning road building and instream work for dry season</p> <p>Proper design of culverts</p> <p>Cleaning up debris</p> <p>Minimizing harvesting and heavy equipment use on steep or erosion-prone slopes</p> <p>Leaving uncut buffer strips along streams</p> <p>Leaving unsprayed buffer strips along streams</p>

Mining

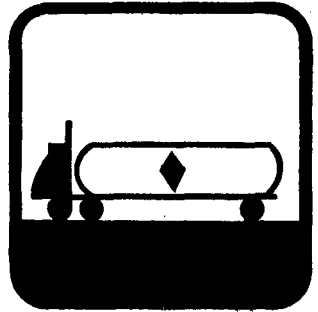
Most mining-related pollution problems in the Pacific Northwest are associated with placer mines, sand and gravel operations, and dredge-mining. There are also some problems with acid-mine drainage from old coal and other mines.



What to look for Cloudy water; dusty gravel Scouring of streambanks Dead fish; discolored water Dredging or other heavy equipment in or near stream Discharge traceable to mining operation	Pollution effects Acid-mine drainage: severe toxic pollution Others: sedimentation; physical disruption; nutrients	Possible sources Sand and gravel operations; dredge mining for gold; placer mines for gold or other minerals Tailings ponds or waste dumps from mining operations Drainage from mining pits or trenches
Applicable laws <i>Alaska</i> NPDES permit (point discharges) Title 16 (work affecting anadromous fish) Water rights <i>Idaho</i> NPDES permit (point discharges) Dredging permit <i>Oregon</i> NPDES permit (point discharges) State code (fill or removal of more than 50 cubic yards of material) Shoreline permit <i>Washington</i> NPDES permit (point discharges) Hydraulics Project Approval (work in streams) Shoreline permit <i>All states</i> Dredge and fill permit (Clean Water Act — Section 404)		Contact agencies <i>Alaska</i> EPA State Operations Office Alaska Dept. of Fish and Game Alaska Dept. of Natural Resources <i>Idaho</i> EPA State Operations Office Idaho Dept. of Water Resources <i>Oregon</i> Oregon Dept. of Environmental Quality Oregon Division of State Lands County planning department <i>Washington</i> Washington Dept. of Ecology Washington Dept. of Fisheries and Dept. of Game County planning department <i>All states</i> U.S. Army Corp of Engineers
What you can do Contact lead agencies; find out if permit is issued; if pollution severe, ask for on-site inspection Write letter to agency Write comment letters on any permits applied for	Pollution abatement methods Settling ponds for runoff Careful siting of waste dumps, mines; provisions for drainage control; chemical treatment of wastewater Avoidance of spawning periods during dredge mining Reclamation of mined areas; replanting vegetation	

Solid and Hazardous Wastes

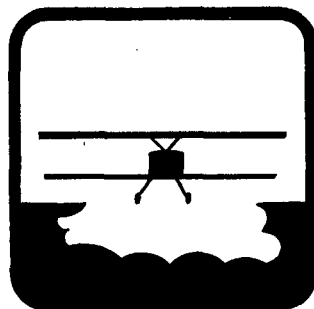
The improper disposal (dumping) of toxic chemicals or other hazardous wastes from manufacturing, and the subsequent contamination of ground and surface waters is now recognized as one of the most dangerous and widespread environmental problems we face. Solid waste dumps and landfills may also contain toxic chemicals in trash that may leach into streams and ground water. Illegal "midnight dumping" is increasingly common. The dumping of trash or refuse directly into stream channels may disrupt flow, damage banks and cause toxic or nutrient pollution.



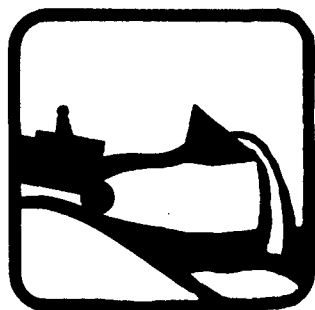
What to look for Signs of toxic pollution; unusual health problems Suspicious activity near industrial sites; strange trucks dumping material in woods or empty lots, espe- cially at night; pits or lagoons with strange looking mate- rials in them Oozing liquid from dumpsites	Pollution effects (types) All possible effects of toxics on streams Nutrient pollution Health effects on local resi- dents from contamination of drinking water supplies	Possible sources Disposal sites for manufac- turing and industrial wastes Landfills, waste dumps Illegal dumping of wastes Refuse dumping in or near streams
Applicable laws <i>All states</i> Resource Conservation and Recovery Act (RCRA) <i>Alaska</i> State solid waste law <i>Oregon</i> State solid waste law <i>Washington</i> State solid waste law	Contact agencies <i>All states</i> EPA, Region 10 Office <i>Alaska</i> Alaska Dept. of Environmental Conservation <i>Oregon</i> Oregon Dept. of Environmental Quality <i>Washington</i> Washington Dept. of Ecology	
What you can do Report all illegal dumping or suspicious activities to EPA or state solid waste agency Report problems with dumps or landfills to state solid waste agency	Pollution abatement methods Reprocessing or reuse of wastes for industrial or other uses High temperature incineration Carefully monitored long-term storage Drainage collection and treatment system for dumps	

Pesticides

Pesticides are used in a wide variety of situations, including agriculture, silviculture, roadside vegetation management, and home lawn and garden use, for the control of pest (unwanted) plants or animals. Pesticides become a water pollution problem when they get into streams through runoff or inadvertent direct application.



What to look for Fish kills; decrease in insect populations Health effects Pesticide residue in water samples (agency testing)	Pollution effects (types) Toxic effects on fish and aquatic organisms Possible contamination of drinking water supplies	Possible sources Roadside vegetation management (spraying) Agricultural, silvicultural operations Domestic lawn and garden use Other pest control programs
Applicable laws <i>All states</i> Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) State Forest Practices Acts BMPs under 208 Water Quality Plan <i>Idaho, Oregon, Washington</i> State pesticide registration law	Contact agencies <i>Idaho, Oregon, Washington</i> State Department of Agriculture <i>Alaska</i> Alaska Dept. of Environmental Conservation	
What you can do Report all incidents of improper use, disposal of pesticides to FIFRA lead agency and EPA Write letter to agencies with exact details; request investigation and a response; follow up Recommend to EPA and/or state agency a change in registration of pesticide	Pollution abatement methods Use of Integrated Pest Management techniques to minimize quantity applied, maximize effectiveness, or develop biological pest controls Use of buffer strips along streams during aerial spraying Use of ground application only Careful procedures during application and disposal	



Physical Disruption of Streams

Any activity that alters streambed or banks may disrupt the stream ecosystem. Impacts vary. See Chapter 2: *Types of Stream Pollution*, for a discussion of the pollution effects of physical disruption.

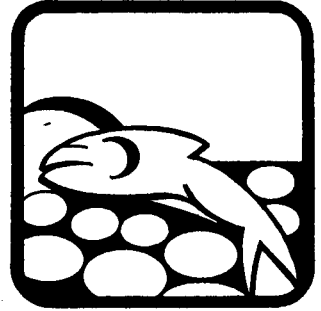
<p>What to look for</p> <p>Heavy equipment in or near streams and wetlands; signs of construction work</p> <p>Legal notices; other announcements in paper or posted locally</p> <p>Exposed earth, cloudy water in streams, dusty gravel, piles of mucky material (dredge spoils)</p>	<p>Pollution effects (types)</p> <p>Sedimentation</p> <p>Disruption of aquatic and riparian habitat</p>	<p>Possible sources</p> <p>Heavy equipment in streams for logging or construction operations</p> <p>Dredge and fill operations for deepening channels, construction of marinas, docks, other activities</p> <p>Installation of culverts for road crossings</p> <p>Dredge mining for gold, other minerals (see <i>Mining</i>)</p> <p>Diking, riprapping, changing stream course, etc.</p>
<p>Applicable laws</p> <p><i>All states</i></p> <p>Dredge and fill permit (Clean Water Act, Section 404)</p> <p>NPDES permit (point discharges — sometimes)</p> <p><i>Alaska</i></p> <p>Title 16 (work affecting anadromous fish)</p> <p><i>Idaho</i></p> <p>Stream Channel Protection Act (work in streams)</p> <p><i>Oregon</i></p> <p>State code (fill or removal of more than 50 cubic yards of material)</p> <p><i>Washington</i></p> <p>Hydraulics Project Approval (work in streams)</p>	<p>Contact agencies</p> <p><i>All states</i></p> <p>U.S. Army Corp of Engineers</p> <p><i>Alaska</i></p> <p>Alaska Dept. of Fish and Wildlife</p> <p><i>Idaho</i></p> <p>Idaho Dept. of Water Resources</p> <p><i>Oregon</i></p> <p>Oregon Division of State Lands</p> <p><i>Washington</i></p> <p>Washington Dept. of Fisheries and Game</p> <p>Washington Dept. of Game</p>	
<p>What you can do</p> <p>Contact lead agency; find out if permit issued; if pollution or disruption is severe, ask for on-site inspection as soon as possible</p> <p>Write letter to agency to document the incident; follow up</p> <p>Write comment letters on any permits applied for</p>	<p>Pollution abatement methods</p> <p>Reduce size of disruption; time the work for low stream flows; avoid fish spawning and migration periods</p> <p>Plan work to minimize activities in streams</p> <p>Don't do work</p>	

Small Dams

While small dams are principally used for irrigation and other water withdrawals, there has also recently been more interest in the Northwest in so-called "low-head hydro": hydroelectric generation on a small scale for local consumption, using small turbines in low dams.



What to look for Public notices in local papers; legal announcements; notice posted in area Signs of construction or withdrawals	Pollution effects (types) If the dam is high enough, it may block fish passage Pooling of water can cause rise in temperature from longer exposure to sun Withdrawal can lead to low flow problems Dam construction can cause physical disruption of stream	Possible sources Irrigation dams for agriculture, golf courses, commercial or domestic uses Small dams for hydroelectric generation
Applicable laws <i>All states</i> Same laws as applicable to <i>Physical Disruption</i> (see above) <i>Alaska</i> Plan review for dam construction, modification <i>Oregon</i> Plan review if dam more than 10 feet high, will generate more than 75 kilowatts <i>Washington</i> Plan review for dam safety		Contact agencies <i>All states</i> U.S. Army Corp of Engineers <i>Alaska</i> Alaska Dept. of Natural Resources <i>Oregon</i> Oregon Dept. of Water Resources <i>Washington</i> Washington Dept. of Ecology
What you can do Contact lead agencies; find out all you can about proposed dam Write letter to agency Write comment letters on permits applied for	Pollution abatement methods Satisfy need for dam with other available alternatives (e.g., energy or water conserva- tion, alternative generation) Designing dams to allow for fish passage Minimize withdrawal impacts on stream flows	



Water Withdrawals/ Minimum Flows

When too much water is withdrawn from a stream, this may result in excessively low flows which damage aquatic organisms and their habitat.

What to look for Evidence of low flows/ disruption Public notices in local papers; legal announcements	Possible sources Irrigation withdrawals for agriculture, golf courses, domestic uses Withdrawals for commercial, industrial uses	
Pollution effects Damage to fish and other aquatic organisms and their habitat	Applicable laws <i>All states</i> Water rights law <i>Oregon, Washington</i> Establishment of minimum flows for stream	Contact agencies <i>Oregon:</i> Dept. of Environmental Quality <i>Washington:</i> Dept. of Ecology
What you can do Contact lead agency; make sure withdrawal is not exceeding water right permit In <i>Washington and Oregon</i> find out if stream has minimum flow provisions; if not, can it be designated for establishment of a minimum flow level? In <i>Alaska and Idaho</i> , write state legislature recommending passage of minimum flow law		Pollution abatement methods Use water conservation practices or alternative methods for the activity Reduce impacts on fish by minimizing withdrawals during migration or spawning



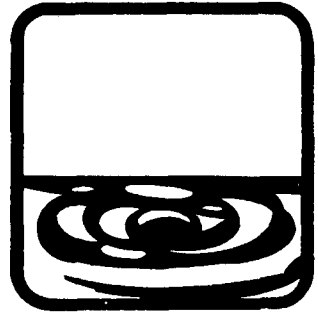
Geothermal Sources

While not widespread in the Northwest, geothermal sources for energy and hot water are used presently in Idaho, and are being closely investigated in other states, as the costs of energy go up.

<p>What to look for Public notices in local paper; legal announcements Signs of construction</p>	<p>Pollution effects (types) Poorly understood — depends greatly on type, quality of geothermal source, whether is super-heated steam or luke-warm water Liquid or steam may be caustic or acidic or contain heavy metals, toxic chemicals or nutrients; risk of leakage to streams Possible waste-disposal problems after use Possible disruption of underground hydrology, causing slumping, disruption of stream flow</p>
<p>Possible sources Great variety; found only in certain geological areas</p>	
<p>Applicable laws <i>All states</i> NPDES permit for any point discharge (see <i>Point Sources</i>) Laws applicable to any physical disruption (see above)</p>	<p>Contact agencies <i>Alaska</i> Alaska Dept. of Environmental Conservation <i>Idaho</i> Idaho Dept. of Health & Welfare, Division of Environment <i>Oregon</i> Oregon Dept. of Environmental Quality <i>Washington</i> Washington Dept. of Ecology</p>
<p>What you can do Contact state water quality agency or EPA Write comment letters on any proposed major development of geothermal source</p>	<p>Pollution abatement methods <i>Careful</i> development of geothermal source May need chemical treatment of wastewater</p>

Oil/Hazardous Spills

With the tremendous number of tanker-trucks, barges, and train cars shipping gasoline, oil, industrial waste products, and toxic chemicals, and the huge number of transfer operations of these substances to and from manufacturing and storage operations, spills are inevitable. But the extent of the spills and the pollution problems can be reduced through concerted action.



<p>What to look for Strange looking or smelling slicks on water surface, or mixed in water, on shores Fish kills; other wildlife or plant mortality</p>	<p>Pollution effects (types) Variety of toxic chemical effects on stream organisms and people; can have fire damage if spill is flammable</p>	<p>Possible sources Overturned tank trucks, ruptured storage tanks, leaks from gasoline stations, accidents at chemical manufacturing plants, railroad derailments Illegal dumping of wastes</p>
<p>Applicable laws Many sanctions, depending on spill location Clean Water Act Resource Conservation and Recovery Act (RCRA) Toxic Substances Control Act (TOSCA) Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) Safe Drinking Water Act</p>		<p>Contact agencies See Appendix A: <i>Agency Listings</i> under oil/hazardous spills, or Call EPA State Operations Office</p>
<p>What you can do When you see a spill, <i>immediately</i> call nearest response team or EPA (see Appendix A).</p>	<p>Pollution abatement methods Most important is containing and picking up the spill; technology varies with location and type of spill: boom may be placed across stream, spill vacuumed, spill that sinks may require dredging Spill response teams may have variety of technologies</p>	

Phone Calls: to Help Make Your Call Productive

1. *Call your local agency* or representative first, then the state, then federal.
2. *Plan your presentation.* Give a brief and well-organized report. Make some notes and a list of questions, or just go over it in your mind, but know what you want to say. Write down the person's name and keep it for future reference.
3. *Be as specific as you can.* When you are reporting a pollution hazard, give exact details on what, where, when and who. When you're requesting information or documents, try to cite specific references, names or titles. If you're making a recommendation, give constructive suggestions your listener can follow through on.
4. *Be persistent.* Get a commitment from the listener to take some specific action. Don't accept verbal promises; get them in writing.
5. *Be patient.* Remember that what you have to say is worth saying to the right person.
6. *Be courteous.* You may be upset, but a courteous and friendly approach is more likely to get results. Turning off your listener may turn off your solution.

Tips on Letter Writing

Everything government does, and almost everything it thinks, is motivated and directed by paperwork. The ultimate reasons for this is that our legal system is based on the written word, not the spoken promise. "Get it in writing" certainly applies to cleaning up streams.

Whether you are requesting information, reporting an incident, or requesting some specific action, your concerns become much more tangible to agency staff or elected officials when they are expressed in writing. Most government agencies are required to respond to letters. Responding to constituents' letters is one of the ways an elected representative can be of service and show attention to an individual's concerns. Letters you send and receive give you legal

documentation of who said what, when. *Always* keep a copy of your correspondence on your stream for future reference. The following are some general guidelines for letter-writing:

- Who to write** Check Chapter 3, *Immediate Pollution Hazards*, under the specific pollution source for applicable laws and appropriate agencies to contact. Write your local agency or representative first, then state or federal if necessary. When writing to your elected representative, choose the level of government that corresponds to the law (i.e., county council/commission for county ordinances, U.S. Congress for federal laws). If possible, make a phone call to get the name of a specific individual. It will speed up their reply, and it will probably net you a better response.
- Length** Make your letter as short as you can and still include all relevant details — ideally two pages or less. The quicker the person can read and comprehend your letter, the quicker he or she can start to do something about it. Use separate fact sheets, tables or copies of articles to keep the basic letter brief.
- Content** State the *reason* for your writing (e.g., “I am writing to you because of my concern about the increasing pollution of Colter Creek.”). Make reference to any previous contact you had with this person (e.g., “as per our phone conversation on July 25th”). State *what* it is you saw or heard about (e.g., a major mudslide or a proposed shopping mall), *where* it is (be as specific as possible), *when* it happened or is planned, and *who* was involved. Try to get this basic information into the first paragraph or two. (Writing an outline beforehand of the problem, solution and desired action will help organize your letter so it reads smoothly and efficiently.)

In the rest of the letter, give added details and background information. State what you think is wrong, or what you believe is the impact of the pollution threat. If possible, cite relevant pollution laws. Include copies of any *pictures* you have to give visual evidence of the problem.

Complete the letter with what exactly you want the person to do: send you information, check on a permit, take enforcement action, sponsor a local ordinance, etc. If the person made a previous commitment to do something, mention that commitment in your letter. Request a timely *written* reply. Don't accept verbal promises as final.

Tone Write a letter that you would like to receive yourself. Give constructive comments or recommendations (i.e., speak in favor of stream protection, not in opposition to any project). Keep in mind who your reader is and the effect you want to achieve.

Follow-up Always *keep a copy* of your letter for your records for future reference.

If you have trouble getting a response, write to the next higher authority — your city or county council/commission representative in the case of a local agency; your state legislator or EPA in the case of a state agency; EPA Region 10 in the case of a state water quality agency or federal agency; or your U.S. representative or senator in the case of EPA or other federal agencies. Include copies of your previous correspondence, and ask for assistance in obtaining the information. But don't "bump-up" your inquiry until you've exhausted the most direct route.

Chapter 4

Long-range Solutions to Pollution Problems

In this section are listed some suggestions for things you can do for the long-term cleanup/protection of your stream. The list is intended as a starting point not a prescription, since each stream and community is different and what will work for one may not for another. Use your imagination, be creative, and try whatever you think might work.

Get to Know Your Stream

The more you know about your stream, the more you will appreciate it, and the better you will understand its problems and be able to recognize new threats to its existence.

Get maps of the stream, take walks along it and investigate nooks and brooks. Take pictures of the stream in different seasons and weather conditions. Ask any long-time residents about the history of the stream. Find out about its fish population from the state fisheries agency.

Ask the state or local water quality agency about the stream's water quality standards and any pollution problems, and what priority for cleanup it has in state and local 208 plans. Watch the papers for announcements of construction or other projects near the stream. Get to know who uses the stream for fishing, swimming, boating, etc., for support in your efforts.

Build Foundations for Clean Water

Agency/Government Staff

Enlist the help of others including regular contacts with agency/government staff working on your stream or area. Get to know them, and get them acquainted with you and your stream. Arrange on-site visits and informal meetings with them to go over the problems.

Elected Representatives

Communicate often with your representatives and their staff by phone and letter. Arrange informal meetings where you can talk to them about the problems, what you want them to do, and the benefits to the community that would result from their actions. Arrange on-site visits, include neighbors and agency

staff and plan ahead what you want them to see. Invite your representatives to your community club meetings, church socials and other community events.

Give your representative written background material on the stream's problems, with documentation; the costs to the community of the problem; your proposed solution, and what it will cost; and who supports your solution. Lend your support in reelection campaigns; *nothing is more effective for getting officials on your side.*

Friends and Neighbors — Mobilize Your Community

Talk with people in your community about your stream. Take stream walks together; have picnics by the stream.

Put up stream signs at road crossings. (Contact your public works department before you put signs up.) If the stream is clogged with trash and debris, you can organize a stream cleanup work party. (You must get prior approval from the state fisheries agency.)

Give your group a name (e.g., Friends of the _____). Make up a one-page leaflet on the stream and distribute it door-to-door. The brochure might include a map of the stream showing fish, recreation areas (even if it's just a place to sit), sensitive areas (eroding banks, fish spawning area), and problem areas (construction, septic pollution, stormwater drains).

If you are trying to pass an ordinance, or get some other action, tell people to write letters. Pass out a copy of your letter to inspire them. The more people that write, the more likely you'll get results.

Pass out copies of water quality brochures from your state or areawide water quality agency; or write to Division of Planning, King County Courthouse, Seattle, Washington 98104, for copies of "More Tips for Clean Streams."

Have a stream slide-show at your house, local library or club house. Invite speakers, teachers or professors from local



schools to talk about pollution and stream ecology. Check your library for films to loan.

Schools, Scout Troops, 4H Clubs

Take stream walks and have kids draw a stream. Have poster contests and paper boat races at the stream. Encourage science classes to focus on the stream as an example for biology and ecology lessons. Write to Project Ecology, High-line Public Schools, P.O. Box 66100, Seattle, Washington 98166, for a copy of "The Drip Impact," a high school or elementary curriculum; or contact the Water Quality Planning Division, Seattle METRO, Seattle, Washington 98104, (206) 447-6361, for information on their "salmon enhancement" curriculum (see below).

The Media

Newspapers, magazines, community newsletters, church or club bulletins, and local radio and TV stations can all be contacted.

Get the names of reporters who work on community or ecology issues. Send them information on your stream with pictures. Follow up with a phone call. Meet with the reporter for coffee or lunch to talk and arrange a stream walk. Give suggestions for articles and the names of others to talk to. Give him or her a one-page write-up on the history of the stream as you know it, the problems or threats to the stream, and your suggested solution. Call the reporter back with updates and to check on the progress of the article.

Passing a New Law/Ordinance

If you have talked to the agencies, your neighbors, and elected representatives, feel you really need a new ordinance, and have community support, make an honest assessment of the free time you can devote to the effort, who is willing to help and what you expect to gain with a new ordinance. Passing a new law, even on the local level, is not easy, but there can be significant long-term paybacks.

When you have decided to work for the passage of a new law or ordinance: *first*, make sure you know your stream and its problems and you have demonstrated support for a new law. Once you have that knowledge and support, the rest should go smoothly; without it you'll have an uphill battle.

Second, get as much information as you can on comparable existing ordinances in the state. Contact your state or area-wide water quality agency or EPA (see Appendix A, *Agency Listings*) to get copies of any such ordinances. Pass on any information on model ordinances to your mayor and city and county councils, with a note on your ordinance idea and who supports it.

Third, work with the staff of your city or county council/ commission representative who has said she or he will sponsor a new ordinance. Give them documentation they can use in introducing the ordinance and in persuading other council members on the value of the stream, pollution problems and need for an ordinance, details on the proposed ordinance and its costs to administer, the benefits to the community and demonstrated support.

When the ordinance is brought up for consideration, attend the council meeting to show support and be available for explanations. If you have done your homework, you will likely know much more about the problem *and* the solutions than the members of the council. This is, in fact, a desirable situation, since they are more likely to defer to your judgment on the details.

Fourth, when the ordinance comes due for a vote, get as many people as you can to write the council members and attend meetings to show support. Bring kids with "save our stream" signs to the meetings. Get letters of support from community groups and developers if you can show a broad base of support.

If your resolution passes, congratulate your representative and fellow workers, express thanks to all who helped, have a celebration party and invite your council representative, and in general *give yourself a big pat on the back*. You've done a good job!

Maintaining Momentum: Enforcement

Passing a pollution control ordinance is only one step towards clean streams, though it is a major one. An ordinance must be enforced to be effective. You must ensure that the city or county allocates sufficient staff hours to become educated on the issue, to develop procedures and regulations to implement and enforce the legislation and to process paperwork (permits, complaints, etc.) with minimum delay. (The surest way to get an ordinance repealed is to let it become a bureaucratic quagmire.) You must also make sure that staff will review permit applications without rubberstamping them, make on-site inspections and take enforcement actions.

What You Can Do

Enforcement takes money. Because inflation and other governmental programs might limit how much money can go into enforcing water quality laws, you and your stream friends must push to make water quality enforcement a priority in the city's or county's budget. It's almost like passing another law. Talk to staff enforcing the ordinance and find out how well they are managing the load.

Find out when the council/commission makes the yearly budget for the enforcement agency. Write to the council/commission. Document enforcement cases (or lack of them) and recommend an enforcement budget. Get others to do the

same; demonstrate support for enforcement. Try to gain support within the council/commission.

Above all, keep contacting the agencies when you see pollution incidents and send copies of letters to elected officials. Remember the squeaky wheel *does* get the grease.

Salmon Enhancement

In the Cedar and Green River basins of King County, Washington, a number of state and local governments have been working together for clean streams and fish in a regional "Salmon Enhancement Program." The program combines a number of components to work for improved water quality and the reestablishment of salmon runs through community education, including: programs in elementary and high school biology classes; the construction and placement of egg incubation boxes by citizen volunteers and fisheries agencies; and evening and weekend classes on salmon, streams and pollution. The program has done much to increase the awareness of stream-side residents of the great value of their streams, and how land use affects them. Through extensive media coverage, many other county residents have become interested in clean streams and salmon.

Seattle METRO, the Areawide 208 Water Quality Planning Agency for the Cedar and Green River basins is currently working with the State Office of Environmental Education to develop a curriculum on clean water, streams and fish for use in elementary and high schools. Their experience has been that once the kids are involved, their parents and communities soon follow.

If you want information on the Salmon Enhancement Program, and how it or a similar program might be applied in your area, contact the Water Quality Planning Division, METRO, 821 Second Avenue, Seattle, Washington 98104, (206) 447-5886.

Insert for the Clean Streams Handbook

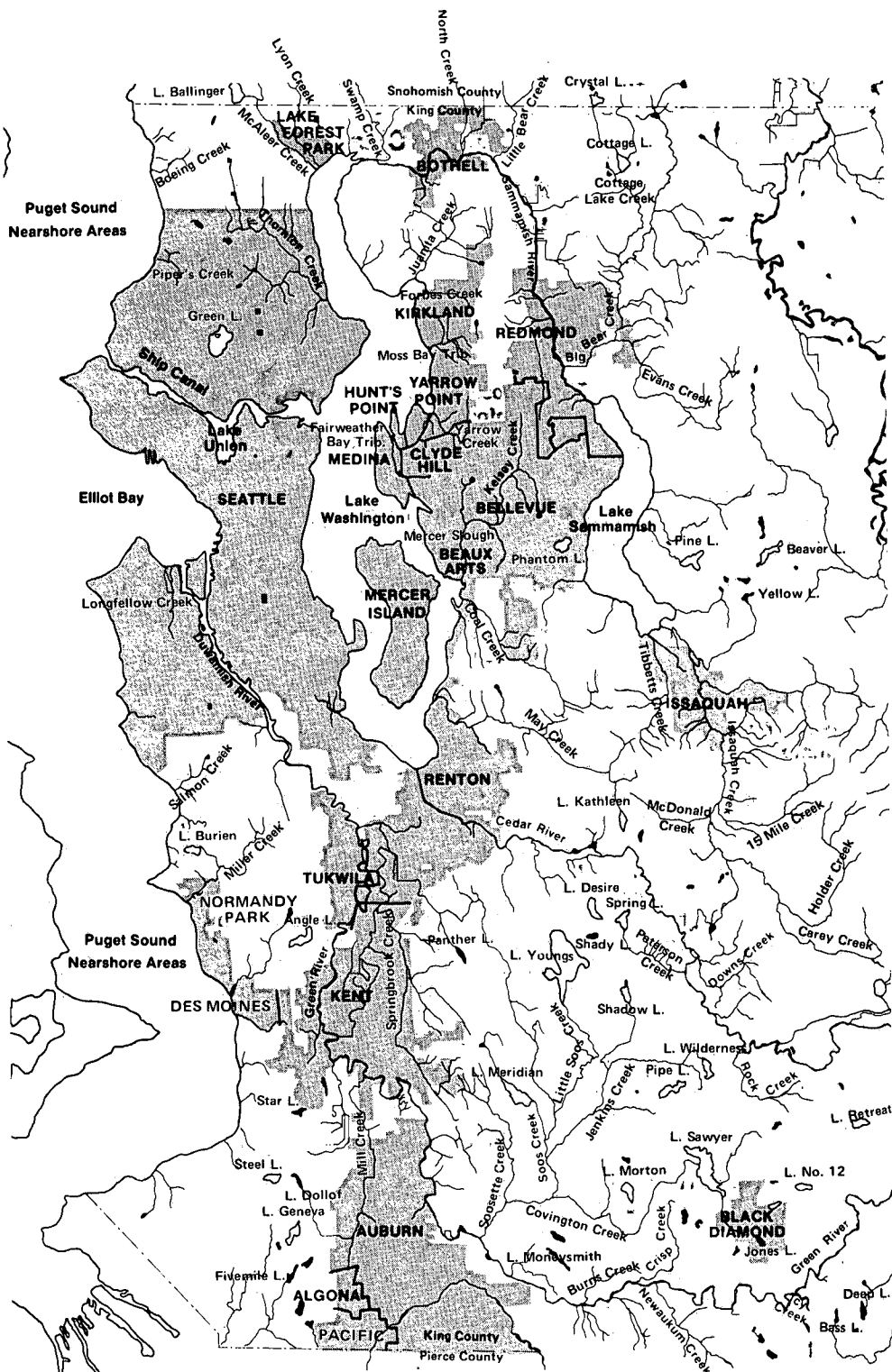
Cedar and Green River Basins of King County, Washington

The purpose of this insert is to aid King County residents seeking information and/or enforcement for pollution-regulation measures for local streams.

How to Use this Insert

1. Check the map for the location of your stream. In which government jurisdiction or incorporated area does it lie?
2. Line up the jurisdiction on the matrix with the pollution category. Check the status of the applicable laws/plans for that category in your area.
3. Call the phone number for your jurisdiction listed in "Who to Call" at the end of this insert. Briefly outline your concern. Make reference to any existing laws or plans and ask what will be done and when. Follow up with a letter to the jurisdiction. If there is no applicable law or plan in your jurisdiction, recommend the adoption of such a provision. Be persistent.
4. For descriptions of stream protection provisions in Bellevue, King County and Seattle see below.
5. For descriptions of the general types of local stream protection laws, see Appendix C of the *Clean Streams Handbook*.

This insert was developed by the Sierra Club under funds provided by Seattle METRO, with the assistance of the Water Quality Planning Division, 821 Second Avenue, Seattle WA 98104; (206) 447-5886.



Cedar and Green River Basins
Seattle Metropolitan Area

Matrix of Pollution Laws in the King County Area by Political Jurisdiction (December 1980)

Pollution Categories and Applicable Laws and Plans

Political Jurisdiction

Algona	Auburn	Beaux Arts	Bellevue	Black Diamond	Bothell	Clyde Hill	Enumclaw	Hunts Point	Issaquah	Kent	Kirkland	Lake Forest Park	Medina	Mercer Island	Redmond	Renton	Tukwila	Yarrow Point	Seattle	King County
--------	--------	------------	----------	---------------	---------	------------	----------	-------------	----------	------	----------	------------------	--------	---------------	---------	--------	---------	--------------	---------	-------------

A. Erosion/ Sedimentation

Grading ordinance	-	-	-	*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*	*
Drainage ordinance	-	-	-	*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*	*
Sensitive areas ordinance	-	-	-	*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*	*
Special building permit provisions	-	-	+	*	-	*	+	-	-	*	*	*	-	*	+	+	+	-	*	*

B. Floodplain Protection

Ordinance on building, filling in floodplain	-	-	-	*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*	*
--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

C. Stormwater Runoff

Stormwater drainage master plan	-	-	-	*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*	*
Stormwater drainage utility	-	-	-	*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
On-site runoff controls	-	-	+	*	-	*	+	-	-	*	*	*	-	*	+	+	+	-	*	*

D. Sewage

Comprehensive plan for sewerage, non-sewered areas	+	+	-	+	-	*	-	*	-	*	*	-	-	*	*	+	*	-	*	*
Priority ratings for sewerage projects	-	-	-	-	-	*	-	-	-	-	*	-	-	-	-	-	-	-	*	-
Septic management program	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

E. Toxic Spills

Fire Department Toxic Chemicals Inventory	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

* completed
+ in progress
- no progress

Floodplain Development Ordinances

Bellevue "1. Encroachments, including fills, new construction, substantial improvements, and other developments within the regulatory floodway (100-year floodplain) that would result in any increase in flood levels during the occurrence of the 100-year flood discharge shall be prohibited.

2. The placement of any mobile homes within the regulatory floodway shall be prohibited."

Lead agency: Bellevue Planning Department.

King County Major construction or filling in the "floodway" (i.e. where there would be moving water during the 100-year flood) is prohibited.

Where the preparation of a SEPA checklist or EIS is required, County may place special conditions on work in floodplain.

A County Shoreline Permit may be required for construction beside designated streams and rivers.

Lead agency: King County Division of Surface Water Management

Seattle 1. Developments along streams are subject to the requirements of the City Shoreline Management Program.

2. It is unlawful to obstruct a watercourse so as to increase the risk of flooding or erosion during the 10-year design storm.

Lead agency: Seattle Engineering Department.

Clearing and Grading Ordinances

Permit with drainage control plan required for:

Bellevue 1. Clearing of an area greater than 1000 square feet, *or*

2. Removal of more than 50 cubic yards of material.

King County 1. Removal of more than 500 cubic yards of material, *or*

2. Any 5 foot cut or 3 foot fill.

- Seattle**
1. Removal of more than 100 cubic yards of material,
 2. A 3 foot cut or more,
 3. Creation of slopes greater than 1 foot vertical to 3 feet horizontal, and
 4. Any grading in an environmentally sensitive area.

Drainage Control Ordinances: Provisions

- Bellevue**
1. Comprehensive plan for acquisition of land for stormwater retention ponds and absorption areas.
 2. Drainage utility for obtaining capital, with charge based on area of impermeable surface.
 3. Runoff from new construction must remain at pre-development quality, quantity, and velocity "within the bounds of best practicable treatment."

- King County**
1. Drainage control plan required as part of building permit for developments larger than 1000 square feet.
 2. For such developments, post-development *rate* of runoff must equal pre-development rate.
 3. In certain "critical areas" where there are known drainage problems, post-development *volume* must also equal pre-development volume.
 4. Erosion must be controlled to prevent siltation in streams, rivers, and lakes.

- Seattle**
1. Drainage control plan required as part of (a) building permit for single family or duplex homes, or development with more than 2000 square feet of impermeable surface or (b) grading permit; specific structures for absorption, retention, or detention required.
 2. Runoff must be limited to 0.2 cubic feet/second/acre during the 10-year design storm, unless discharge is to: Duwamish River; Puget Sound; Lake Washington; Lake Union and Lake Washington Ship Canal; or into storm drain with adequate capacity to carry the additional runoff into one of the above.

Sensitive Areas

Bellevue (Part of Clearing & Grading Ordinance)

1. Stream relocations and wetland fills require permit *and* are allowed only where it benefits the overall water system and improves aquatic wildlife habitat.
2. Work in wetlands on unstable slopes may be subject to special stringent conditions.

King County (Sensitive Areas Ordinance)

Special review process required (in addition to SEPA) for development in mapped sensitive areas.

Categories:

1. High erosion hazard
2. Coal mine hazard
3. High risk landslide hazard
4. High risk seismic hazard
5. Wetlands
6. Fish (anadromous) bearing waters
7. Flood hazard

Seattle (Sensitive Areas Ordinance)

Similar to King County's.

Who to Call about Stream Pollution/Protection in King County

Street Utilities
Superintendent
402 Warde Street
Algona, WA 98002
931-3010

Director of Public Works
City of **Auburn**
425 East Main St.
P.O. Box 989
Auburn, WA 98002
833-2741

Beaux Arts
Town Clerk
10526 SE 28th
Bellevue, WA 98004
454-8580

Director of Public Works
City of **Bellevue**
P.O. Box 97
Bellevue, WA 98009
Complaints, especially
construction:
Construction Inspections
Dept.
455-6977
General information:
Drainage Utility
455-6990

Black Diamond
City Clerk
886-2560

Director of Public Works
City of **Bothell**
18310 - 101st NE
Bothell, WA 98011
8am-5pm: 486-2768
After hours: 486-0544

Clyde Hill
Town Hall
9615 NE 24th
Bellevue, WA 98004
454-2351

Enumclaw
City Engineer
1339 Griffin
Enumclaw, WA 98022
825-3591

Hunts Point
City Clerk
3000 Hunts Point Rd.
Bellevue, WA 98004
M, W, F 8am-4pm: 455-1834

Director of Public Works
City of **Issaquah**
P.O. Box "M"
Issaquah, WA 98027
392-8080
Emergencies: 392-7595

Director of Public Works
City of **Kent**
P.O. Box 310
Kent, WA 98031
872-3383
After hours emergencies:
872-3300

Director of Public Services
City of **Kirkland**
Second and Central Way
Kirkland, WA 98033
822-9271

City Administrator
City of **Lake Forest Park**
1711 Ballinger Way NE
Seattle, WA 98155
365-7711

Medina
City Hall
501 Evergreen Pt. Rd.
Bellevue, WA 98004
454-9222

Director of Utilities
City of **Mercer Island**
3505 - 88th Ave. SE
Mercer Island, WA 98040
232-6400

Director of Public Works
City of **Redmond**
15670 NE 85th
Redmond, WA 98052
885-2300 x260

Director of Public Works
City of **Renton**
200 Mill Avenue S.
Renton, WA 98055
235-2569

Director of Public Works
City of **Tukwila**
6230 Southcenter Blvd.
Tukwila, WA 98067
625-2875

Yarrow Point
City Clerk
4705 - 91st NE
Bellevue, WA 98004
454-6944

City Engineer
City of **Seattle**
910 Municipal Bldg.
Seattle, WA 98104
Drainage ordinance
information and complaints:
Engineering Dept.
625-2314
Grading permits:
Building Dept.
625-2280

King County
Surface Water Management
King County Administration
Bldg.
Seattle, WA 98104
Grading, sensitive ordinances
information:
Dept. of Building and Land
Development (BALD)
344-7900
Drainage ordinance
information or drainage
hazards:
Surface Water
Management Division
344-2585
Erosion hazard
(BALD)
344-4034

Washington Department of Fisheries,
Habitat Management Division 1-753-6650

Washington Department of Ecology — Redmond
24 hours 885-1900

Washington Department of Game 464-7764

METRO — Water Quality Planning 447-5886

Appendix A Agency Listings

Alaska Designated Areawide 208 Water Quality Management Agency

Municipality of Anchorage
City Hall Annex
Pouch 6-650
Anchorage, AK 99502
(907) 274-2525

Department of Environmental Conservation (statewide water quality management agency)

State Headquarters
Pouch O
Juneau, AK 99811
(907) 465-2602

Wasilla Field Office
P.O. Box 1064
Wasilla, AK 99687
(907) 376-5038

**Southcentral Regional Office
and Permit Information
Center**
437 'E' St.
2nd Floor
Anchorage, AK 99501
(907) 274-2533
(907) 279-0254
(Permit Info Ctr)

Valdez Field Office
Drawer 1709
Valdez, AK 99686
(907) 835-4698

Soldotna Field Office
P.O. Box 1207
Soldotna, AK 99669
(907) 262-5210

**Southeast Regional Office
and Permit Information Ctr.**
Box 2420
Juneau, AK 99803
(907) 789-3151
(907) 465-2615
(Permit Info Ctr)

**Northern Regional Office and
Permit Information Center**
P.O. Box 1601
Fairbanks, AK 99707
(907) 452-1714
(907) 452-2340
(Permit Info Ctr)

Sitka Field Office
P.O. Box 540
Sitka, AK 99835
(907) 747-8614

Ketchikan Field Office
P.O. Box 7998
Ketchikan, AK 99901
(907) 225-6200

**Department of Fish
and Game**

State Headquarters
333 Raspberry Rd.
Anchorage, AK 99502
(907) 344-0541

**Department of Natural
Resources**

District Office
941 E. Dowling Rd.
Anchorage, AK 99502
(907) 349-4524

Soil Conservation Service

2221 E. Northern Lights Blvd.
Suite 129
Anchorage, AK 99504
(907) 276-4246

**Idaho Designated Areawide 208 Water Quality
Management Agencies**

Ada Planning Association
650 Main St.
Boise, ID 83702
(208) 384-4445

**Southeast Idaho Council of
Governments**

Box 4169
403 N. Main
Pocatello, ID 83201
(208) 232-4311

Panhandle Area Council
P.O. Box 880
Coeur d'Alene, ID 83814
(208) 667-1556

Shoshone - Bannock Tribes
P.O. Box 306
Fort Hall, ID 83203

**Department of Health and Welfare
Division of Environment
(statewide water quality management agency)**

State Headquarters
Statehouse
450 W. State St.
Boise, ID 83720
(208) 334-4059

**Field Office (north-central
area)**
1118 'F' St.
P.O. Drawer B
Lewiston, ID 83501
(208) 746-2651 x430

**Field Office (northern
five counties)**
2110 Ironwood Parkway
Coeur d'Alene, ID 83814
(208) 667-3524

Field Office (southeast area)
1120 Blue Lakes Blvd.
P.O. Box 1626
Twin Falls, ID 83301
(208) 734-4000 x275

Field Office (southwest area)
801 Reserve St.
Boise, ID 83720
(208) 334-3823

Field Office (eastern area)
636 Pershing
Pocatello, ID 83201
(208) 236-6160

**Fish and Game
Department
State Headquarters**
600 S. Walnut
Box 25
Boise, ID 83707
(208) 334-3700

**Department of Water
Resources
State Headquarters**
450 W. State St.
Boise, ID 83720
(208) 334-4440

**Department of Lands
Bureau of Private Forestry
State Headquarters**
P.O. Box 670
701 River Ave.
Coeur d'Alene, ID 83814
(208) 664-2171

**Department of Agriculture
(pesticides)
Pesticide Branch**
Idaho Dept. of Agriculture
P.O. Box 790
Boise, ID 83701
(208) 334-3243

**Oregon Designated Areawide 208 Water Quality Management
Agencies**

Metropolitan Service District
527 SW Hall
Portland, OR 97201
(503) 221-1646

**Mid Willamette Valley
Council of Governments**
400 Senator Building
220 High St., NE
Salem, OR 97301
(503) 588-6177

**Lane Council of
Governments**
Public Service Building
125 - 8th Ave. E.
Eugene, OR 97401
(503) 687-4283

**Rogue Valley Council of
Governments**
P.O. Box 3275
Central Point, OR 97502
(502) 664-6674

**Department of Environmental Quality
(statewide water quality management agency)**

Headquarters Office
522 SW 5th Ave.
P.O. Box 1760
Portland, OR 97207
(503) 229-5696/5630

Central Region Office
2150 NE Studio Rd.
Bend, OR 97701
(503) 382-6446

Coos Bay Branch Office
490 N. 2nd
Coos Bay, OR 97420
(503) 269-2721

Eastern Region Office
424 SW 6th
Pendleton, OR 97801
(503) 276-4063

Klamath Falls Branch Office
403 Pine Street
P.O. Box L
Klamath Falls, OR 97601
(503) 883-5606

SW Region-Medford Office
210 W. Main St.
Medford, OR 97501
(503) 776-6010

Northwest Region Office
522 SW 5th Ave.
Portland, OR 97207
(503) 229-5263

Roseburg Branch Office
1937 W. Harvard Blvd.
Roseburg, OR 97470
(503) 440-3338

**Willamette Valley Region
Salem Office**
1095 25th, SE
Salem, OR 97310
(503) 378-8240

**Land Conservation and
Development Commission
(LCDC)**
1175 Court St. NE
Salem, OR 97310
(503) 378-4926

**Department of Fish and
Wildlife**
P.O. Box 3503
Portland, OR 97208
(503) 229-5680

**Department of Forestry
State Headquarters**
2600 State St.
Salem, OR 97310
(503) 378-2560

Division of State Lands
1445 State St.
Salem, OR 97310
(503) 378-3059

**Department of Geology
and Mineral Resources
Mine Land Reclamation
Office**
1129 SE Santiam Rd.
Albany, OR 97321
(503) 967-2039

**Department of Water
Resources**
555 - 13th St.
Salem, OR 97310
(503) 378-3739

**Department of Agriculture
Pesticide Supervisor**
Agriculture Bldg.
635 Capital St. NE
Salem, OR 97310
(503) 378-3776

Washington Designated Areawide 208 Water Quality Management Agencies

**Municipality of Metropolitan
Seattle (METRO)**
821 Second Ave.
Seattle, WA 98104
(206) 447-5886

**Regional Planning Council of
Clark County**
1408 Franklin St.
Vancouver, WA 98660
(206) 699-2361

**Snohomish County Metro
Municipal Corporation
(SNOMET)**
Snohomish County
Administration Building
Everett, WA 98201
(206) 259-9311

Department of Ecology (Statewide water quality management agency)

State Headquarters
Olympia, WA 98504
(206) 753-2800
(206) 753-3889 (permit coord.)

Central Region
Union Gap, WA 98903
(509) 575-2800

Eastern Region
Spokane, WA 99207
(509) 456-2926

Northwest Region
Redmond, WA 98052
(206) 885-1900

Southwest Region
Olympia, WA 98504
(206) 753-2353

**Department of Fisheries
Habitat Management Division**
Room 115
General Administration Bldg.
Olympia, WA 98504
(206) 753-6650

Seattle Fisheries Patrol
(206) 464-7611

**Department of Game
Statewide Hydraulics
Coordinator**
600 North Capitol Way
Olympia, WA 98504
(206) 753-5713

**Eastern Regional Fisheries
Biologist**
N. 8707 Division St.
Spokane, WA 99218
(509) 456-4082

**Department of Agriculture
Pesticide Branch (W. Wash.)**
Dept. of Agriculture
406 General Administration
Bldg.
Olympia, WA 98504
(206) 753-5064

Pesticide Branch (E. Wash.)
Dept. of Agriculture
2015 S. First St.
Yakima, WA 98903
(509) 575-2746

**Department of Natural
Resources
State Headquarters**
Olympia, WA 98504
(206) 753-5315 (Forestry)

Federal Agencies

Environmental Protection Agency (EPA) Region 10 Headquarters

1200 Sixth Ave.
Seattle, WA 98101

Permits Section	(206) 442-1270
Dredge & Fill Permit Section	(206) 442-1096
Solid Waste Program	(206) 442-1253
Pesticides & Toxic Substances Branch	(206) 442-1090
Drinking Water Programs	(206) 442-1223
Water Planning Branch	(206) 442-1216
External Affairs	(206) 442-1203

EPA State Operations Offices

(work closely with state and local agencies supervising EPA planning and enforcement grants and checking on EPA permits)

Alaska

Room E 535
Federal Bldg.
701 C St.
Anchorage, AK 99501
(907) 271-5083

Idaho

422 W. Washington St.
Boise, ID 83792
(208) 384-1450

Washington

4224 6th Ave. S.E.
Lacey, WA 98503
(206) 753-9437

Oregon

522 SW 5th Ave.
Yeon Bldg. 2nd floor
Portland, OR 97204
(503) 221-3250

U.S. Army Corps of Engineers (Dredge & Fill Permits)

Seattle District (WA, ID, & MT)

P.O. Box C-3755
Seattle, WA 98124
(206) 764-3495

Anchorage District (AK)

P.O. Box 7002
Anchorage, AK 99510
(907) 752-2333

Portland District (OR)

P.O. Box 2946
Portland, OR 97208
(503) 221-6996

U.S. Fish & Wildlife Service

1500 NE Irving
P.O. Box 3737
Portland, OR 97208
(503) 234-5263

Oil/Hazardous Spills: Who to Call**State Agencies**

Idaho, Dept. of Health and Welfare (208) 384-2433 (day)

Oregon, Dept. of Environmental
Quality 1-800-452-0311 (toll free)
within Oregon only,
Emergency Services (503) 378-4124 (24 hour)

Washington, Dept. of Ecology
NW Region (Redmond) (206) 885-1900 (24 hour)
SW Region (Olympia) (206) 753-2353 (24 hour)
Central Region (Yakima) (509) 575-2490 (24 hour)
Eastern Region (Spokane) (509) 456-2926 (24 hour)

National Response Center 1-800-424-8802 (toll free,
24 hour)

U.S. EPA Region 10 (206) 442-1263 (24 hour)

U.S. Coast Guard National Strike Team
(Pacific) (915)883-3311

Chem-Trec — Transportation
Emergencies 1-800-424-9300 (toll free, 24 hour)

U.S. Coast Guard
13th District Operations Center (206) 442-5886 (24 hour)
Seattle Captain of the Port (206) 442-1856 (24 hour)
Portland Captain of the Port (503) 221-6330 (24 hour)

Appendix B Additional Organizations to Contact About Water Pollution

Alaska Center for the Environment

913 W. 6th Ave.
Anchorage, AK 99501

Idaho Conservation League

P.O. Box 844
Boise, ID 83701
(208) 345-6933

Oregon Environmental Council

2637 SW Water Avenue
Portland, OR 97201
(503) 222-1963

Oregon Clean Water Project

Box 53
Lewis & Clark College
Portland, OR 97219
(503) 244-6161 x316

Washington Environmental Council

107 S. Main
Seattle, WA 98104
(206) 623-1483

League of Women Voters

1406 - 18th
Seattle, WA 98122
(206) 329-4848

Isaac Walton League

c/o John McGlenn
9007 Points Dr.
Bellevue, WA 98004
(206) 455-1986

Sierra Club

4534 ½ University Way N.E.
Seattle, WA 98105
(206) 632-6157

Clean Water Action Project

1341 'G' Street NW
Suite 200
Washington, DC 20005
(202) 638-1196

Friends of the Earth

4512 University Way N.E.
Seattle, WA 98105
(206) 633-1661

Northwest Steelheaders

c/o Gene Smaldino
7210 - 6th Ave. N.W.
Seattle, WA 98117
(206) 783-8246

Northwest Regional Foundation

N. 910 Washington
Spokane, WA 99201
(509) 327-5596

Environmental Action Foundation

724 Dupont Circle Bldg.
Washington, DC 20036
(202) 223-9138

Appendix C The Laws

Local Laws

City or county ordinances can be the most important regulatory mechanism for local stream protection. Local ordinances generally apply to construction, land-clearing, drainage, septic tanks, or other activities associated with growing populations. Such ordinances tend to be more numerous and detailed in urban and developing areas.

Grading and Clearing Ordinances

Grading and clearing ordinances usually require some sort of permit for earth-moving operations above a certain size. That size may be determined by the amount of earth (cubic yards) moved, the area altered or disturbed (square feet), the depth of cutting or filling, or all three. The operator is then required to obtain a permit from the public works or engineering department which may contain:

- a plan for how to keep sediment from leaving the site during the operation;
- a drainage control plan;
- information on soils, geology, hydrology, seismic, or other conditions at the site;
- specific grading standards or practices to minimize erosion, flooding, or excessively steep slopes;
- a timetable for the operation, including the reestablishment of vegetative cover; and
- other special provisions.

Drainage Control Ordinances

Drainage control ordinances are primarily designed to reduce or prevent flooding problems caused by rapid runoff from impermeable surfaces in developed areas. In controlling runoff they also help prevent creek-scouring and pollution. Such ordinances may require that a drainage control plan be submitted as part of a grading or building permit for operations above a certain size. A drainage control plan may require the operator to:

- maintain the natural drainage (creek meanders, swales, depressions, etc.);
- limit the runoff rate, and sometimes volume, during and/or after construction to pre-development rates (usually through on-site detention or retention);
- incorporate absorptive areas or structures (e.g., plantings or infiltration) into final landscape plan; and
- limit the quantities of silt or other pollutants in runoff.

**Sensitive Areas
Ordinances**

Sensitive areas ordinances designate certain areas on a map as requiring special considerations before they are developed. These areas have localized conditions that may make them more sensitive to the effects of construction activities, such as highly erodible or unstable slopes, wetlands, floodplains, important fish and wildlife habitat, or other features. Development in sensitive areas may then be modified, limited, or excluded altogether.

**Flood Plain Development
Ordinances**

Flood plain development ordinances may limit or exclude development activities in areas that regularly flood during periods of spring runoff or heavy rains. Dredging, filling, or other physical disruption in the floodplain may be regulated through a permit system which may place special conditions on the operation. In addition, a county shoreline or coastal zone management program may require permits for, or prohibit, construction in or near certain rivers and major streams.

**County Health Code
and Regulations**

In most areas, the county health code and regulations govern where (in what soil types) septic tanks and drainfields may be placed, and how they must be constructed. The code and regulations also apply to septic tank pollution when it constitutes a health hazard. In some areas, passage of an ordinance requiring regular inspection and maintenance of septic tanks and drainfields may be preferable to the expense and community impacts of a central sewage treatment plant and collection system.

If in doubt about whether there is an existing local ordinance governing a specific stream-pollution problem in your area, contact your city or county public works or planning department or your local health department.

State Laws

State pollution laws, although passed by a state's legislature to apply only within that state's boundaries, are often an outgrowth of federal pollution laws. Where a state law and a federal law are in conflict, usually (though not always) the federal law has precedence. Water rights law is a notable exception, where the state has primary authority.

Water Rights

The amount of water an individual can withdraw from a stream, and perhaps most importantly, who gets water first when there is not enough to go around, is determined by state water rights law in Alaska, Idaho, Oregon and Washington. The laws are fairly complex, but as in most western states, the basic rule is: "first in time, first in right" (i.e., the older a water right is, the higher its priority).

The demand for irrigation water in many areas of the Northwest continues to grow. The time of the highest demands usually coincides with the hot, dry period during the end of summer, when runoff and streamflow are at their lowest point. As a result of the water withdrawals, some streams go dry, killing aquatic organisms and blocking fish passage.

Oregon and Washington have passed legislation enabling establishment of so-called "minimum flows" on streams and rivers to protect in-stream recreational and biological uses. Once a minimum flow is established, it has water rights status from that date (i.e., anyone with a newer water right may withdraw water only so long as any prior water rights are not affected, including the minimum flow).

The state agencies that administer water rights laws in Region 10 are:

<i>Alaska:</i>	Alaska Department of Environmental Conservation
<i>Idaho:</i>	Idaho State Department of Water Resources
<i>Oregon:</i>	Oregon State Department of Water Resources
<i>Washington:</i>	Washington State Department of Ecology

Pesticide Registration

Idaho, Oregon and Washington each have legislation requiring registration for the use of pesticides. Pesticides are also registered under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) (see below: *Federal Laws*).

A state pesticide law can be *more* stringent than FIFRA in registering a pesticide, either by further limiting its use or banning it altogether in that state, but it cannot be less stringent. Thus, if 2, 4-D damages grape crops when used on adjacent alfalfa fields in Eastern Washington, the state may put additional restrictions on its use not included in the FIFRA registration. But the State of Oregon can't let foresters in the state use DDT against the Tussock Moth because the federal law has already prohibited such use.

The state agencies that administer FIFRA certification and compliance also administer the state pesticide laws. They are:

<i>Idaho:</i>	Idaho State Department of Agriculture
<i>Oregon:</i>	Oregon State Department of Forestry
<i>Washington:</i>	Washington State Department of Agriculture

Logging All four states, Alaska, Idaho, Oregon and Washington, now have state Forest Practices Acts that govern pollution associated with commercial logging operations. All four Acts have specific provisions for the protection of streams from *sedimentation* caused by road construction or timber harvest operations; *nutrient or toxic pollution* associated with the use of forest chemicals; and *physical disruption* of stream channels caused by road culvert installation, timber harvest operations; or debris left in streams:

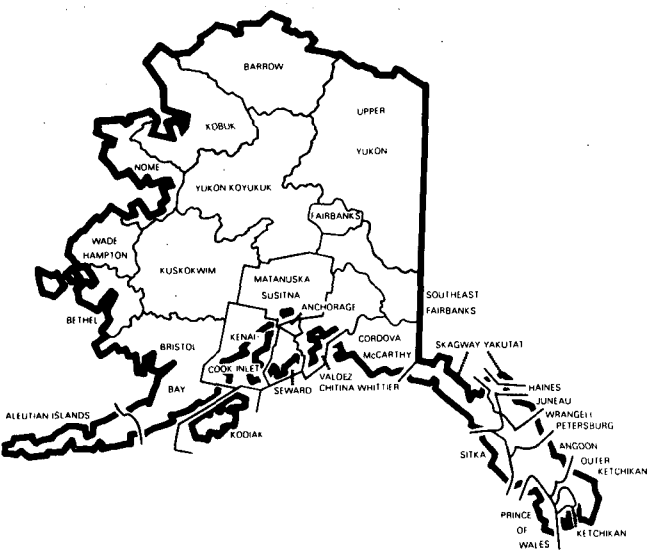
Idaho, Oregon, and Washington have enforcement mechanisms and notification or approval systems between the operator and the lead agency for certain forest practices affecting streams.

For more information and a copy of the Forest Practices Act in your state, contact the lead agency:

- Alaska:* Alaska Department of Natural Resources
 - Idaho:* Idaho Department of Lands
 - Oregon:* Oregon Department of Forestry
 - Washington:* Washington Department of Natural Resources
- (See Appendix A: *Agency Listings* for addresses and phone numbers.)

Solid and Hazardous Wastes

Both Washington and Oregon have state laws regulating solid and hazardous waste disposal that are somewhat similar to the federal law RCRA (see below: *Federal Laws — RCRA*). For detailed information, contact the Washington State Department of Ecology or the Oregon Department of Environmental Quality.



Counties in Alaska

Oregon
*Oregon Coastal Zone
Management Act*

This state law seeks to regulate development and other activities along shorelines in order to protect natural resources through county shoreline programs. At this writing, the counties were in the process of finalizing their comprehensive plans for managing their shorelines, under guidelines developed by the state lead agency, the Land Conservation and Development Commission (LCDC). For more information, contact LCDC (see Appendix A: *Agency Listings*).

Mine Land Reclamation Act

This Act is primarily designed to insure that after lands are mined, they are returned to productive use. It also has provisions to prevent mining operations from polluting streams through properly designed drainage and gravel-washing systems.

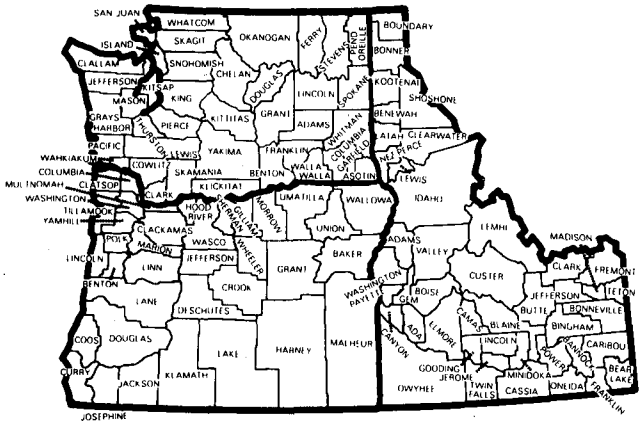
For more information, contact the lead agency, the Oregon Department of Geology and Mineral Industries (see Appendix A: *Agency Listings*).

Removal and Fill Operations

This part of the Oregon State Code regulates operations that remove or place more than 50 cubic yards of material in streams. This covers most dredge and fill operations, major road crossings, most dredge-mining and major construction. For activities covered, a permit is required from the lead agency, the Oregon Department of Water Resources.

Water Resources is the coordinating agency for regulation of all major in-stream work in Oregon and circulates permit applications and other information to other agencies with jurisdiction. The Department works closely with the Oregon Department of Fish and Wildlife on streams where fish are present. Contact the Department of Water Resources for further information (see Appendix A: *Agency Listings*).

*Counties in Washington,
Oregon and Idaho*



Washington Work in Streams

The Washington State Code requires that a Hydraulics Project Approval (HPA) be obtained from the Washington Departments of Fisheries and Game prior to any action that will "use, divert, or obstruct" the bed of state waters. This covers dredging, filling, construction, road crossings, dredge-mining, and other work in stream channels (i.e., below the mean high water mark).

For more information, contact the Department of Fisheries or the Department of Game (see Appendix A: *Agency Listings*).

Small Dams

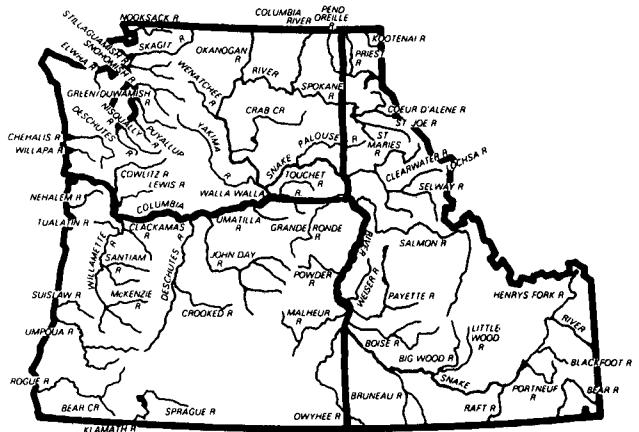
Any structure for the storage and control of more than 10 acre feet of water in streams must have the plans reviewed for dam safety by the Department of Ecology (DOE). For any dam over 10 feet high, a construction permit from DOE is required.

State Environmental Policy Act (SEPA)

This state law was modelled after the federal law NEPA (see below: *Federal Laws*) and requires the preparation of an environmental checklist, or an EIS, for actions that significantly affect the environment.

Shoreline Management Act

Washington was the first state to pass a law aimed at protecting public resources along waterways. In fact, the Washington Shoreline Management Act was used as a model during the development of the federal Coastal Zone Management Act.



Major Rivers in
Washington, Oregon and Idaho

Under the Washington Act, "Shorelines of Statewide Significance" are slated for special protection from development activities. Other coastal areas are classified as "natural," "conservancy," "rural," or "urban." The Act also contains guidelines for regulation of a variety of use-activities in shoreline areas. A permit must be obtained from the county or city planning department for any construction activity or project in shoreline areas valued at \$1000 or more, or one which interferes with the public's use of water.

For further information on the Act and how it affects a particular stream, contact the lead agency, the Department of Ecology, or your county planning department.

Permit Information Centers

Because of the increasing complexity and number of permits an individual must get before proceeding with construction and other activities, Alaska and Washington have established phone numbers for finding out what permits are needed and what they involve.

In Alaska, you may call collect for information on state and federal permits to any of three permit information centers maintained by the Alaska Department of Environmental Conservation. The locations and phone numbers of the permit information centers are:

Anchorage	(907) 279-0254
Fairbanks	(907) 452-2340
Juneau	(907) 465-2615

In Washington, the Department of Ecology maintains a central phone number for information on permits. The number is: (206) 753-3889.

In addition, as mentioned earlier, the two Departments of Water Resources in Idaho and Oregon coordinate information for permits on streams. The phone numbers are:

Idaho Department of Water Resources
(208) 334-4440

Oregon Department of Water Resources
(503) 378-3739

Federal Laws

The Clean Water Act

Passed by the United States Congress in 1972, and amended in 1977, the Act mandates that all U.S. waters shall be "fishable and swimmable" by 1983, and gives the Environmental Protection Agency the legal authority and funding provisions to regulate water pollution.

Section 201 — Sewage Treatment

This section allows EPA to authorize federal money for the planning and construction of sewage collection systems and treatment plants.

Section 208 — Water Quality Management Planning

Intended as the overall planning and pollution assessment mechanism of the Act, Section 208 mandates that all areas will develop and implement a "208 Plan" to evaluate and attempt to solve all major water pollution problems in an area on a priority basis. In practice, 208 Planning has concentrated on non-point source pollution from agricultural, silvicultural, and urban runoff. It is not in itself a regulatory program, but a planning program. But because it prioritizes agency work on water quality it may give you added leverage to clean up your stream.

In most areas, the statewide water quality management agency prepares and implements the 208 Plan. In some areas (often around major cities), an areawide water quality management agency does the plan (see Appendix A: *Agency Listings*).

For more details on the 208 Planning Process, get a copy of *Setting a Course for Clean Water* and other 208 brochures from the Office of External Affairs, EPA, 1200 Sixth Avenue, Seattle WA 98101; (206) 442-1203 or your statewide or areawide water quality agencies.

Section 301 — National Pollution Discharge Elimination System (NPDES — point discharges)

All point dischargers of pollutants into U.S. waters must have an NPDES permit which sets limits on the amount and chemical composition of the discharge. The permit should put the discharger on track to meet the clean water goals of the Act (i.e. the water must be "fishable" and "swimmable" by 1983).

The following discharges are *exempted* from NPDES permit requirements:

- Irrigation return flows;

- Vessels when being used for transportation (e.g. ferries);

- Discharges of dredge and fill materials regulated by Section 404 (see below);

Normal agricultural and silvicultural activities that produce pollutants through runoff. (Permits *are* required for discharges from concentrated animal feeding operations, aquaculture projects, and certain silvicultural activities such as stream crossings.)

In Alaska and Idaho, the EPA State Operations Offices handle NPDES permits. In Oregon, the Department of Environmental Quality and, in Washington, the Department of Ecology, issue and enforce the permits.

Section 303 — Water Quality Standards

The State Water Quality Standards classifies streams and specifies chemical and physical parameters for each major water body that must be maintained by class (e.g. in Washington, the temperature of all Class AA waters shall not exceed 16 degrees Celsius due to human activities; dissolved oxygen shall not fall below 9.5 mg/l.)

Water quality standards are based on the designated use for each water body (waste disposal cannot be a designated use), such as fishing, swimming, agricultural water supply, etc. State Water Quality Standards are established and enforced by the statewide water quality management agency. The State standards must meet or exceed minimum standards set by EPA. The State Water Quality Standards are very important since they determine how much pollution is legally allowable in any given reach of stream.

Note: EPA regulations require each state to have an "anti-degradation policy" in force (i.e. existing high water quality which exceeds the standards set for a designated use cannot be lowered unless, after sufficient public participation, it is determined to be economically or socially necessary). In all cases, existing uses (such as fishing and swimming) and the quality of waters of outstanding national significance must be protected.

Section 311 — Oil and Hazardous Substances Spills

This section requires that oil storage of 600 gallons above or 42,000 gallons below ground must have a Spill Prevention, Control, and Countermeasures Plan. It also assigns liability for the costs of clean-up and rehabilitation in the event of an oil or hazardous spill.

**Section 404 — Dredge and
Fill Activities**

Section 404 regulates discharges of dredged and filled materials within "navigable" water (effectively all waters) of the United States. Discharge of dredged or filled materials in estuaries, streams or associated wetlands requires a permit from the U.S. Army Corps of Engineers. (Note: the Corps also regulates the placement of structures, such as dikes, jetties and riprapping in waterways.) The 404 permit program is intended to help protect wetlands and riparian and aquatic habitat.

The Corps permit is only issued after any necessary shoreline permits are obtained from the county or city planning department. Corps permits are issued after review and comment by local, state and federal fish, wildlife, and water pollution control agencies. EPA has veto authority over issuance of Section 404 permits.

**The Safe Drinking Water
Act (SDWA)**

Underground water is the source of many streams. One part of SDWA seeks to protect underground sources of drinking water, including aquifers, by means of a regulatory program. A permit from EPA is required for underground injection wells: of hazardous wastes; of other industrial or municipal wastes near drinking water supplies; for oil and gas extraction; for extraction of minerals or energy; and for disposal of radioactive wastes near drinking water supplies.

**Toxic Substances Control
Act (TOSCA)**

This relatively new and complex law requires EPA to develop a program to regulate the development, manufacture and use of all chemicals that may be toxic to human health, excluding pesticides, drugs, radiation and any other toxic materials covered by other federal laws. This includes testing, registration and, if necessary, limitation or prohibitions on the manufacture and use of new chemicals, and the inventory, testing and reevaluation of existing chemicals for use-registration.

Given the tremendous number of new and existing chemicals, this massive undertaking is proceeding rather slowly. However, it is an important component of stream protection because of its long-term effect of limiting toxic pollution.

**Resource Conservation
and Recovery Act (RCRA)**

One of the provisions of RCRA requires safe disposal of discarded materials and regulates the management of hazardous wastes. A "cradle to grave" manifest system for tracking hazardous wastes from production to disposal site seeks to eliminate improper or illegal dumping. Hazardous waste treatment and disposal sites must register with EPA, and must obtain EPA or state permits to operate.

Ultimately, implementation of RCRA will result in much better control of hazardous waste disposal, which should greatly reduce stream and groundwater contamination by waste leachate.

RCRA is currently administered by the EPA Region 10 Hazardous Waste Office. Two states, Oregon and Washington, are seeking EPA approval to administer RCRA in conjunction with their existing state hazardous waste program. For more information, contact EPA's Region 10 Office, the Washington State Department of Ecology, or the Oregon State Department of Ecology.

**Federal Insecticide,
Fungicide and Rodenticide
Act (FIFRA)**

FIFRA regulates the manufacture and use of pesticides for agricultural; silvicultural and other activities. Important sections of the Act and the corresponding implementation regulations include the following.

Section 3 — Registration

This section gives guidelines for scientific studies the manufacturer must perform on the potential hazards of the pesticide to people and the environment before EPA will register it. Each registered pesticide has certain restrictions on its use, depending on those hazards. Pesticides are registered either for *general use* (i.e. anyone can buy it and use it) or for *restricted use*, where only certified pesticide applicators may purchase and use it.

***Section 4 — Certification of
Applicators***

Applicators of restricted use pesticides must be certified by the state administering agency. Specific training is required prior to certification.

Section 26 — Enforcement

Primary enforcement responsibility is given to the state administering agency. However, there are provisions for EPA to take enforcement action in lieu of the state agency in certain cases.

The state agencies that administer FIFRA certification and enforcement programs are:

Alaska:

Alaska Department of Environmental Conservation

Idaho:

Idaho State Department of Agriculture

Oregon:

Oregon State Department of Agriculture

Washington:

Washington State Department of Agriculture

See Appendix A: *Agency Listings* for their addresses and phone numbers.

National Environmental Policy Act (NEPA)

Considered by some to be the foundation of environmental protection law, NEPA requires that any major federal action that will significantly affect the quality of the environment must be accompanied by an Environmental Impact Statement (EIS) that describes the proposed action and alternatives to it. NEPA does not in itself regulate water pollution or damage to the environment. But it does provide for the compilation and dissemination of information on a proposed project, in order to facilitate a better decision on that project. NEPA is thus an information handle on potentially polluting activities. Having the information beforehand, you may be able to prevent the pollution.

A Note on Federal Permits

Pollution-control permit programs under several federal laws were recently combined into one *Consolidated Permit Program*. Since many activities require more than one permit, it was felt by Congress and EPA that consolidating would improve agency coordination, decrease redundancy, and minimize unnecessary delays. The program covers most permits issued by EPA that relate to streams, as well as some state permit programs. Under the Consolidated Permit Program, citizens can learn one consistent set of procedures for the permit process, including public review and comment required for issuance of permits and appeal procedures.

For more information on the Consolidated Permit Program, call EPA's State Operations or Region 10 Offices, or get a copy of *A Guide to the Consolidated Permit Regulations* from the Office of External Affairs, EPA, 1200 Sixth Avenue, Seattle WA 98101; (206) 442-1203.

Appendix D Additional Publications on Streams and Pollution

EPA Publications

Available from Office of External Affairs, EPA, 1200 Sixth Avenue, Seattle WA 98101.

Copies of the federal laws

Quality Criteria for Water

A Guide to the Consolidated Permit Regulations

Hazardous Wastes Information: fact sheets

Oil and Hazardous Substances Response Manual (includes phone directory)

Pesticide Registration – How It Protects You, Your Family, and the Environment

Suspended and Cancelled Pesticides

Status Report on Rebuttable Presumption Against Registration (of pesticides)

Setting the Course for Clean Water: A Citizen's Guide to the Section 208 Water Quality Management Program

State Agency Publications

Contact your statewide water quality management agency.

Copies of state laws, regulations, brochures (available from your statewide water quality management agency)

Directory of Permits (Alaska, available from any of the three permit information centers listed in Appendix B)

Permit Problems? (Washington, available from the Department of Ecology)

Gold and Fish (Washington, available from the Department of Fisheries)

METRO/King County Publications

Available from METRO, 821 Second Avenue, Seattle WA 98104.

Home Tips for Clean Streams

Toxic Substances in Your Home

Save our Salmon

Salmon Enhancement Curriculum

- Sierra Club Publications** Available from the Sierra Club, 4534 ½ University Way N.E., Seattle WA 98105.
- Hunt the Dump* (hazardous wastes)
- Others** Many more publications on particular pollution problems: contact EPA or state water quality agency to inquire.
- Project Ecology* (Highline Public Schools, P.O. Box 66100, Seattle WA 98166)
- The Drip Impact* (high school curriculum on streams and pollution; elementary curriculum also available)