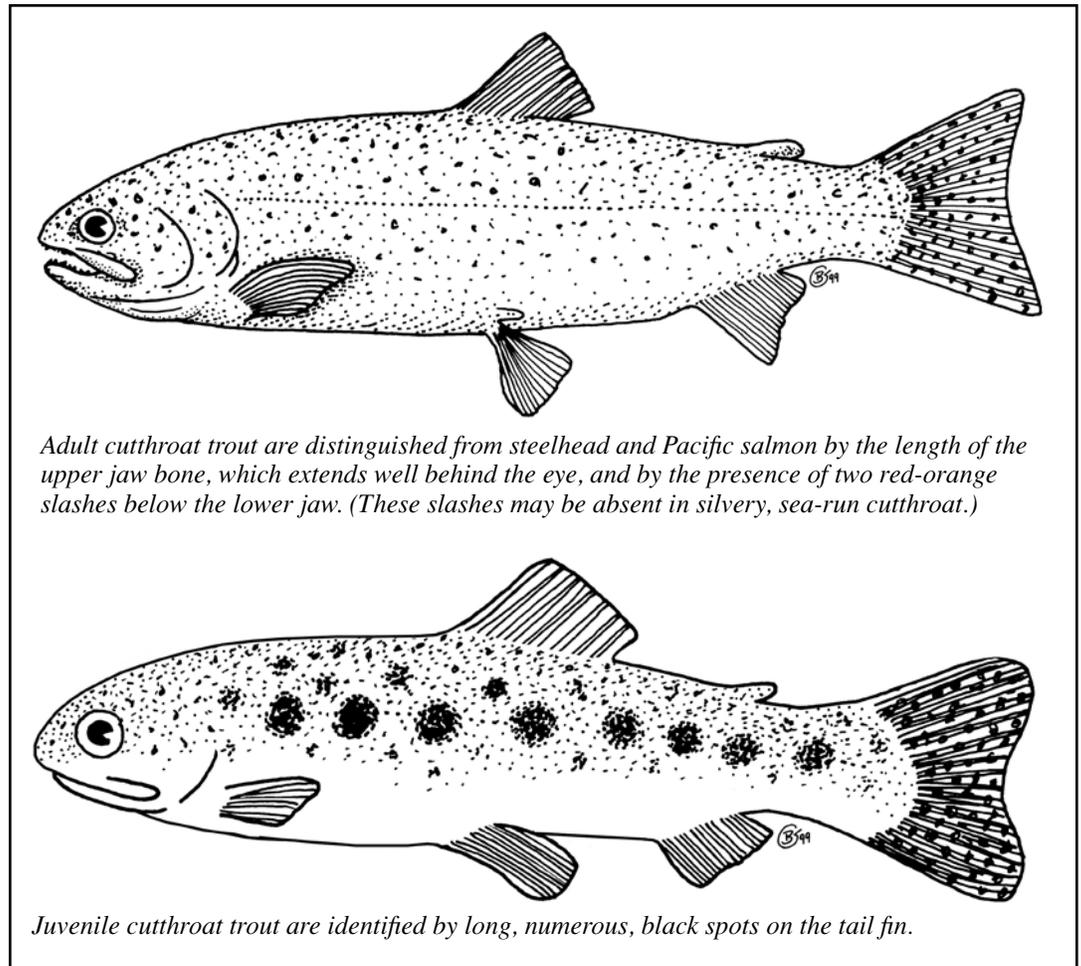


COASTAL CUTTHROAT TROUT: LIFE IN THE WATERSHED

Coastal cutthroat trout is one of three cutthroat subspecies found in Oregon. The coastal subspecies, which is closely related to steelhead/rainbow trout and Pacific salmon, displays the most diverse and flexible life history of any of the Oregon salmonids. Coastal cutthroat can be found in streams and rivers from the Eel River in northern California to Prince William Sound in Alaska.

In Oregon, coastal cutthroat use various life history strategies to occupy a variety of ecosystems in most coastal and lower Columbia River streams. This distribution closely follows the coastal rain forest belt. Mature fish may range from 6 inches, in populations that remain in small headwater streams throughout the life cycle, to 20 inches, in populations that migrate to and from the ocean.

Current abundance is not known, but many scientists believe that populations have declined substantially since the 1950s and 1960s. The federal government listed the coastal cutthroat trout as endangered throughout the Umpqua River basin below natural barriers in August 1996, and the state government considers populations in the lower Colum-



bia to be sensitive. The lack of good population information for the remaining coastal streams and rivers, along with the cutthroat's demonstrated sensitivity to habitat disturbance, makes vigilance the rule.

Efforts to restore and conserve cutthroat trout must focus on improving habitat in the watersheds

where they live. At the same time, we must address other factors that threaten cutthroat, such as harvest and hatchery effects.

Coastal residents have a critical role to play in improving fish habitat in watersheds. Improving watersheds will prevent extinction of species and

benefits individuals and communities by enhancing water quality and quantity.

This publication is designed to help you understand how, where, and when cutthroat trout live in watersheds and the role you can play in conserving and restoring this natural heritage.

THE FLEXIBLE, YET FRAGILE, EXISTENCE OF CUTTHROAT TROUT

Because it is a master at solving the problems of living in many diverse environments, the coastal cutthroat trout has been likened to the canary in the coal mine—if its populations are declining, what does that say about our coastal environment?

Although cutthroat trout share many characteristics with their cousins the Pacific salmon, they differ (along with steelhead trout) in that some adult cutthroat survive spawning to reproduce again.

Coastal cutthroats come in all sizes and spots. Scientists typecast them into four major categories: resident, fluvial, adfluvial, and anadromous.

Resident cutthroats, darker with prominent spots, dominate most of the headwater tributaries and small coastal streams in Oregon. These environments are often closed to larger salmon and trout by barriers, but the small cutthroats found there thrive, rarely venturing far from the site in which they hatched.

Fluvial cutthroats are found in larger river systems throughout the coast. These fish remain in the rivers for most of their adult lives, leaving only briefly to migrate into smaller tributaries to spawn or to seek refuge in winter months.

Adfluvial populations,

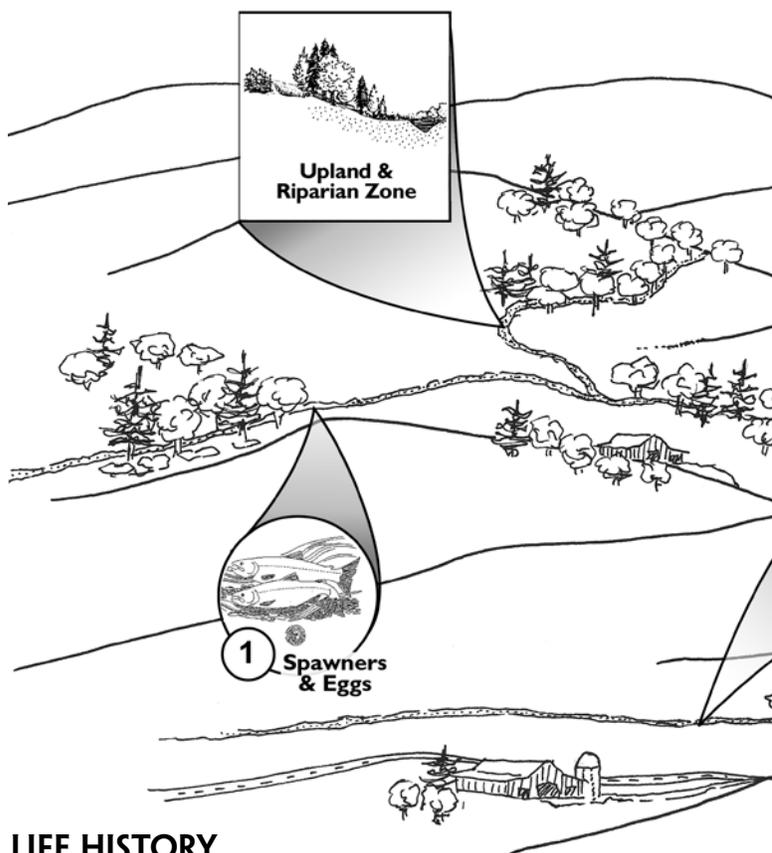
like the other cutthroats, spawn in tributaries; however, juveniles and post-reproductive adults migrate to coastal lakes rather than the ocean or large rivers. These lakes may be either isolated or connected to the ocean.

Anadromous (or sea-run) populations of cutthroat migrate as juveniles to estuaries and the ocean in the spring, like their salmon and steelhead cousins. However, the fish stay in the estuaries or nearshore waters, rarely migrating more than 40 miles offshore, and usually return to freshwater later that same year in summer or fall. These returnees, silvery and lacking spots, may either spawn in streams that first winter or spring or return to the sea for yet another cycle of growing and maturing.

This flexibility in life patterns means that cutthroats use all parts of coastal watersheds. Yet cutthroats are the least aggressive of the salmon and trout found in these waters and are often pushed to marginal habitat by more aggressive coho salmon and steelhead trout. This means that cutthroats teeter on the brink, making them critically dependent on functioning watersheds to provide refuge.

Watersheds are the circulatory system of the land, draining ridgetops through streams and then rivers and finally coming to a confluence in a lake or the ocean. (Evaporation from the ocean falls on the highlands in the form of rain or snow to complete the circuit.) Fire,

WE LIVE IN WATERSHEDS . . .



LIFE HISTORY

1 Resident cutthroats grow, mature, and spawn often very close to the location from which they hatched. Adult cutthroat trout may be as small as 6 inches long, but most mature at a length between 10 and 20 inches.

Fluvial and adfluvial cutthroats migrate to spawning streams in the spring, usually to the streams in which they hatched (natal streams), and spawn in spring or summer in small streams.

Sea-run cutthroats migrate into freshwater in late summer to late fall, usually to their natal streams, and spawn from late winter to spring. The adults migrate back to the ocean shortly after spawning.

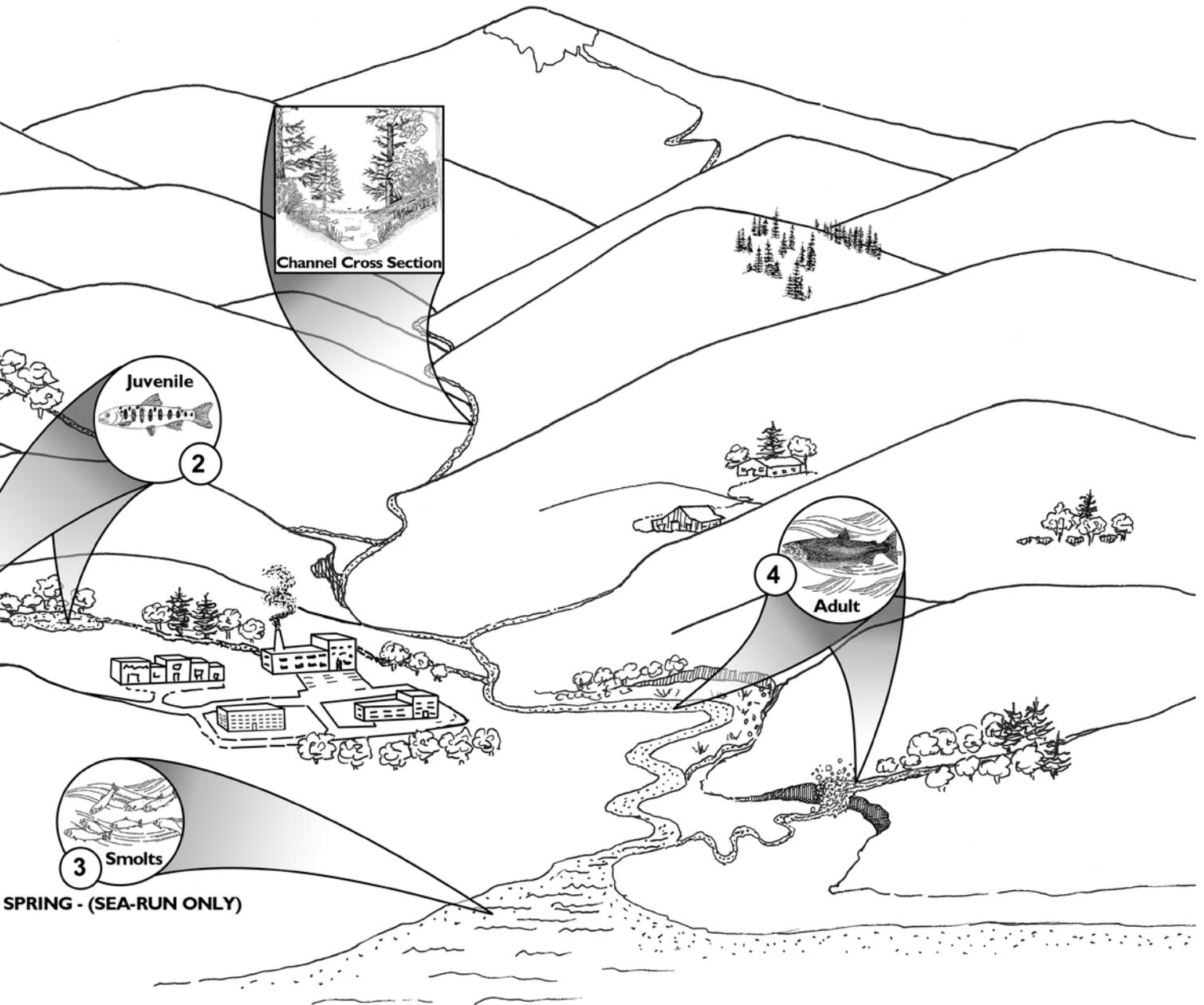
The eggs hatch in summer, the precise time depending on water temperature.

2-3 Resident cutthroat fry emerge in spring or summer and remain in their natal streams.

Fluvial and adfluvial cutthroat fry also emerge in spring or summer and may remain in their natal streams or migrate (usually the following spring) to other streams, rivers, or lakes.

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AND CUTTHROAT TROUT LIVE IN WATERSHEDS



Sea-run cutthroat fry migrate to lower reaches of streams after emerging from the gravel in spring or summer. As early as the following spring, but more often two to four springs later, juvenile cutthroat trout migrate to estuaries and the ocean as seawater-adapted “smolts.”

For successful production, juvenile cutthroat trout that live at the edges of streams or in backwater areas depend on the presence of streambank vegetation and abundant instream structure created by logs and root wads.

4 In the marine environment, cutthroat trout tend to grow about an inch every month, feeding on a variety of small crustaceans and fish. Their residency in seawater is brief—usually only a few months—and they tend to stay close to the freshwater streams and rivers from which they came. The fish return to freshwater later the same year in autumn to spawn or to spend another year growing and developing before undertaking another seaward migration.

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landslides, erosion, and flooding occur naturally in watersheds, helping to create and maintain the conditions and habitats in which cutthroat and other species have evolved.

For example, woody debris and boulders create structural complexity

in stream pools, which in turn provide cutthroat trout shelter from their aggressive coho and steelhead cousins. The creation of this habitat relies on periodic disturbances that occur naturally within a watershed. Human activities sometimes modify the watershed drastically or frequently, exaggerating

the natural disturbances to a stream and compromising fish survival.

Functioning watersheds are important to us and to fish. We've come to depend on watersheds for timber, suitable land for farming and grazing, and drinking and irrigation water. The lands that people manage

provide large wood, boulders, gravel, shade, and food that build healthy stream habitats for trout and salmon. It's a fact: we share the watershed, so we must care for the watershed. We, and other living things, depend on it.

YOU CAN HELP SALMON

Oregon's coastal cutthroat trout—and coho, steelhead, and chinook—can be saved! Land owners and managers play an important part in this effort. Whether your land covers hundreds of acres or a residential lot in town, you can help.

The first way is by simply being aware of your place in the watershed and of your local fish runs.

The second way is to help provide the habitat conditions the fish need. Here are a few helpful tips for different kinds of land-owners.

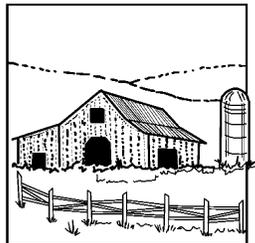


FOREST OPERATIONS

- Protect streamside trees and other vegetation at least consistent with the Oregon Forest Practices Act requirements.

- Leave good natural features, such as a beaver pond or natural side channel, alone. These are important rearing areas for fish.

- Check areas where your roads cross streams. If your culverts have a drop or are above the stream channel, they could be barriers to fish passage. Consider redesigning problem culverts or replacing them completely with a bridge structure.



AGRICULTURAL BUSINESSES

- Create streamside (riparian) pastures that can be managed for grazing during times when livestock will prefer pasture grasses over riparian trees and shrubs. Provide a trough or watering tank away from the stream.

- Plant willows, cottonwood, poplar, or other shrubs and trees along your waterways. They help stabilize the banks, filter out sediments from runoff, and provide cooling shade.

- If riparian pastures are not viable options for your operation, consider using fencing to keep animals away from the water's edge.

- Protect wetlands, rivers, and estuaries through careful animal waste management and from the effects of poor fertilizer or herbicide application.



LAND DEVELOPERS, HOMEOWNERS, BUSINESSES

- While state and federal law may allow filling wetlands or estuaries (with the

proper review and permits), loss of such habitat can harm fish. Consider options that preserve these habitats.

- Construction can cause serious sediment problems, even well away from a waterway, if storm-water runoff is not properly contained. Although smaller operations may not need permits, they still can have significant impacts. Check with the state Department of Environmental Quality or local construction companies about responsible runoff management at your site.

- If possible, homeowners and businesses should connect to a sewage treatment and disposal facility. Poorly performing septic tanks can contaminate groundwater and nearby streams, lakes, and bays. If you must use a septic tank, be certain it is properly designed, located, and maintained.

- Dispose of household chemicals such as used motor oil, antifreeze, pesticides, and paints at approved collection facilities in your area.

MORE ABOUT SALMON

Field Guide to the Pacific Salmon. Robert Steelquist. Seattle: Sasquatch Books, 1992. 64 pages. Partial proceeds from the guide's sale (\$5.95) go to the Adopt-A-Stream Foundation.

Pacific Salmon Life Histories. C. Groot and L. Margolis, editors. Vancouver, B.C.: University of British Columbia Press, 1991. 608 pages. The standard reference work, available in larger libraries.

Oregon Department of Fish & Wildlife publications are available from the department's Information Services office: 2501 SW First Ave., Portland, OR 97207; 503-872-5264, ext. 5366. All listed below, except *Stream Scene* curriculum, are free:

Oregon's Migratory Fish Species. Leaflet.

Oregon's Threatened and Endangered Species. Leaflet.

Stream Care. A Salmon/Trout Enhancement Program (STEP) publication.

ODFW "Backgrounders":

- *Coho Salmon*
- *Oregon's Coastal Salmon and Trout*
- *Oregon's Wild Fish Management Policy*
- *Instream Water Rights*
- *Fish Screening*
- *The Stream Scene: Watersheds, Wildlife and People.* 500 pages. Call for price. A curriculum package for watershed awareness.

MORE ABOUT WATERSHEDS

A Watershed Assessment Primer. F. D. Euphrat and B. P. Warkentin. U.S. Environmental Protection Agency, 1994. 270 pages. Available from USEPA, Region 10, 1200 Sixth Avenue, EXA-124, Seattle, WA 98101, or call 206-553-1200. (Document EPA 910/B-94-005.) Free (if in stock).

Healing the Watershed workbook series. Includes *A Guide to the Restoration of Watersheds and Native Fish in the Pacific Northwest* and *A Citizen's Guide to Funding Watershed and Wild Salmon Recovery Programs*. The Pacific Rivers Council, Inc. Available from Pacific Rivers Council, P.O. Box 10798, Eugene OR 97440. \$15 per book. To order, call 541-345-0119.

A Guide to Placing Large Wood in Streams and Forest Practices Notes Series. Available from Oregon Department of Forestry, Forest Practices Section, 2600 State Street, Salem, OR 97310. Free. To order, call 503-945-7470.

The Return of the Salmon—Restoring the Fish to Rivers and Watersheds. Thirty-minute video produced by Oregon Sea Grant. Sea Grant Communications, A402 Kerr Administration, Oregon State University, Corvallis, OR 97331. \$30. To order, call 1-800-375-9360.

The Streamkeeper's Field Guide: Watershed Inventory and Stream Monitoring Methods. Thomas Murdoch, Martha Cheo, and Kate O'Laughlin. Adopt-A-Stream Foundation, 600 128th St. SE, Everett, WA 98208. 310 pages. \$29.95 + shipping. To order, call 425-316-8592.

ORGANIZATIONS, INSTITUTIONS, AND PROGRAMS

You can obtain additional information about salmon and watersheds by directly contacting organizations, institutions, and programs. A sampling is presented below.

Adopt-A-Stream Foundation
600 128th St. SE
Everett, WA 98208
425-316-8592

Fish Restoration and Enhancement Program
Oregon Department of Fish & Wildlife
PO Box 59
Portland, OR 97207
503-872-5252, ext. 5429

For the Sake of the Salmon
319 SW Washington
Ste. 706
Portland, OR 97204
503-223-8511
Fax 503-223-8544
www.4sos.org/

Oregon Sea Grant: Extension Sea Grant Program
Hatfield Marine Science Center
2030 S. Marine Science Dr.
Newport, OR 97365
541-867-0368
seagrant.orst.edu

Oregon State University Extension Service
Publication Orders
Extension & Station Communications
OSU
422 Kerr Administration
Corvallis, OR 97331-2119
541-737-2513
eesc.orst.edu

continued

ORGANIZATIONS, INSTITUTIONS, AND PROGRAMS *continued*

Partners for Wildlife Program
US Fish & Wildlife Service
2600 SE 98th Avenue
Suite 100
Portland, OR 97266
503-231-6179

RELATED MANAGEMENT AGENCIES

Governor's Watershed Enhancement Board
255 Capitol St. NE
Salem, OR 97310
503-378-3589, ext. 831
Fax: (503) 378-3225

National Marine Fisheries Service
Enviro. & Tech. Services
525 NE Oregon St.
#500
Portland, OR 97232
503-230-5400
www.nmfs.gov/

Oregon Department of Agriculture
635 Capitol St. NE
Salem, OR 97310
www.oda.state.or.us

Oregon Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204
1-800-452-4011
www.deq.state.or.us

Oregon Department of Fish & Wildlife
2501 SW First Avenue
PO Box 59
Portland, OR 97207
503-872-5310
www.dfw.state.or.us

Oregon Department of Forestry, Forest Practices Program
503-945-7470 or contact local Forestry offices
www.odf.state.or.us

US Environmental Protection Agency
Watershed Branch
200 SW 35th
Corvallis, OR 97331
541-754-4389

For more information and for details on your local site, contact your local soil and water conservation district or watershed council, or a listed organization.



Oregon Sea Grant
Phone: 1-800-375-9360
E-mail: sea.grant.communications@orst.edu
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