

Chapter 10 Fish Populations and Habitat

updated Apr 2006

This chapter characterizes fish populations and habitat condition. It is organized by the key questions following:

1. What native and introduced fish species are documented in the assessment area?
2. What is the documented stocking history?
3. Which fish species are listed as *sensitive, threatened* or *endangered*?
4. Steps for Improvement to Fish Habitat and Survival

10.1 Documented Fish Species in the Assessment Area

Data regarding fish within the Coast Fork Willamette Basin is somewhat limited. As the watershed is located at the upper end of the Willamette River system, anadromous fish use has been relatively low, and consequently a low priority area to study.

Table 10-1 lists the fish that are recently known to use habitat in the assessment area. This list was primarily generated from Oregon Department of Fish and Wildlife (ODFW) data (Connolly, et al., 1992) and from more recent data collected from fish trapping projects. These traps were installed as part of the ODFW Salmon and Trout Enhancement Program, and represent many hours of volunteer monitoring.

Upstream migration hoop traps were placed in Bear Creek (2003), Gettings Creek (2004, 2005) and Hill Creek (2002, 2003), monitored by local volunteers.

Biologists designate cutthroat trout, such as those monitored on the tributaries, to be fluvial-type fish. These trout probably live most of the year in the Willamette River as far downstream as Harrisburg, OR. They migrate to small streams in the Coast Fork Willamette basin to spawn, returning to the same area where they emerged from the gravel after hatching several years earlier (VanDyke, et al., 2002).

Table 10-1 Native and Introduced Fish Species in the Assessment Area

Native Species	
Common Name	Scientific Name
Pacific lamprey	<i>Lampetra tridentata</i>
western brook lamprey	<i>Lampetra richardsoni</i>
spring chinook salmon	<i>Oncorhynchus tshawytscha</i>
Winter steelhead	<i>Oncorhynchus mykiss</i>
rainbow trout	<i>Oncorhynchus mykiss</i>
coastal cutthroat trout	<i>Oncorhynchus clarki clarki</i>
mountain whitefish	<i>Prosopium williamsoni</i>
Oregon chub	<i>Oregonichthys crameri</i>
chiselmouth	<i>Acrocheilus alutaceus</i>
peamouth	<i>Mylocheilus caurinus</i>
northern pike minnow	<i>Ptychocheilus oregonensis</i>
longnose dace	<i>Rhinichthys cataractae</i>
speckled dace	<i>Rhinichthys osculus</i>
leopard dace	<i>Rhinichthys falcatus</i>
redside shiner	<i>Richardsonius balteatus</i>
largescale sucker	<i>Catostomus macrocheilus</i>
three-spine stickleback	<i>Gasterosteus aculeatus</i>
sand roller	<i>Percopsis transmontana</i>
torrent sculpin	<i>Cottus rhotheus</i>
shorthead sculpin	<i>Cottus confusus</i>
Introduced Species	
Common Name	Scientific Name
Fall chinook salmon	<i>Oncorhynchus tshawytscha</i>
common carp	<i>Cyprinus carpio</i>
brown bullhead	<i>Ameiurus nebulosis</i>
yellow bullhead	<i>Ameiurus natalis</i>
mosquitofish	<i>Gambusia affinis</i>
pumpkinseed	<i>Lepomis gibbosus</i>
warmouth	<i>Lepomis gulosus</i>
bluegill	<i>Lepomis macrochirus</i>
largemouth	<i>Micopterus salmoides</i>
smallmouth bass	<i>Micopterus dolomieu</i>
black crappie	<i>Pomoxis nigromaculatus</i>
white crappie	<i>Pomoxis annularis</i>
yellow perch	<i>Perca flavescens</i>

A downstream migration screw trap was monitored in the Lower Coast Fork Willamette River in 2005, providing the largest seasonal sample size and species presence data in recent history.

Table 10-2 lists species that were confirmed to use habitat and migration corridors in the main channel of the Lower Coast Fork Willamette during the winter and spring of 2005.

Table 10-2 LCFW Screw Trap Species Count, February 24 – June 3, 2005*

Native Species	Species Subtotals	Percent of Total
Chinook salmon - Unclipped	123	4.80
Chinook salmon - Clipped	23	0.90
Rainbow trout	484	18.90
Cutthroat trout	221	8.63
Unknown trout fry	69	2.69
Mountain whitefish	77	3.01
Sculpin spp.	79	3.08
Northern pikeminnow	106	4.14
Redside shiner	161	6.29
Largescale sucker	241	9.41
Dace spp.	178	6.95
Lamprey spp.	61	2.38
Peamouth	15	0.59
Chiselmouth	4	0.16
Threespine stickleback	8	0.31
Crayfish	4	0.16
Introduced Species		
Bluegill	667	26.04
Pumpkinseed	16	0.62
Crappie spp.	8	0.31
Smallmouth bass	4	0.16
Bullfrog	11	0.43
Warmouth	1	0.04
Totals	2561	100.00

* Trap was functioning only intermittently due to weather, debris and flow extremes, and data represents a small percentage of all migrating individuals.

The Pacific Northwest Research Station of the USDA Forest Service (McIntosh, et al., 1989) compiled data from stream surveys conducted prior to dam construction in the Willamette Valley from 1934-1942. The Coast Fork basin was surveyed in 1938. These surveys state:

Cyprinids make up the bulk of the fish population. Suckers and cottids are also abundant. Trout fishing was reported good in the spring and poor in the summer. Cutthroat, rainbow and brook trout were observed in few numbers. Old residents of the region reported salmon runs some 20-30 years ago. The extent of this run could not be determined. In general the stream seems suitable for a large salmon population, however pollution and obstructions would have to be removed before a stocking policy could be carried out.

The main sources of pollution were listed to be from a slaughterhouse near the town of Cottage Grove, sewage from Cottage Grove, waste from a sawmill above Cottage Grove, and the upstream Black Butte mercury mine.

10.2 Stocking History

The ODFW Coast Fork Willamette Subbasin Fish Management Plan (Connolly et al., 1992) summarized species status and stocking history. This management plan is dated, however it does provide a source of well documented information.

Table 10-3 summarizes the information from this management plan, along with the current status in 1992.

Table 10-3 Status of Fish Species Within the Lower Coast Fork Willamette Basin

Species	Native	Stocking History	Status in 1992
Spring chinook	yes	Stocked in 1950, 1953, 1955 and 1983	No summary of status. Redd surveys prior to 1983 indicated few spawning.
Fall chinook	no	Tule stock introduced in 1967 and Cowlitz stock introduced from 1972 - 1974	A self-sustaining run probably does not exist
Winter steelhead	yes	Stocked from 1950 - 1960	Program to reestablish run failed.
Summer steelhead	no	Not addressed in the Management Plan	
cutthroat trout	yes	Limited stocking in 1967, 1972 and 1973	Widely distributed in accessible streams.
rainbow trout	yes	Stocked from 1955 - 1991	Policy made to continue natural and hatchery production.
warmwater game warmwater non	no yes	Many species introduced in 1800s. Smallmouth bass introduced in early 1980s	Game fish populations are small. Non-natives are abundant. All confined to valley floor streams.
Oregon chub	yes	No stocking	Species in decline. Listed in 1993 federal ESA. See below.

Map Figure 21 displays the current distribution and habitat use for anadromous fish. As mentioned above, anadromous fish use is relatively low, however, a recent stocking program of Spring Chinook in Mosby Creek (an un-dammed upstream tributary), may result in increased numbers. ODFW has placed Spring Chinook from Dexter hatchery in Mosby Creek. Lower Coast Fork Willamette 2005 trapping results may indicate that these fish are returning to spawn.

10.3 Sensitive, Threatened, Endangered or Candidate Species

Table 10-4 displays which fish within the assessment area are listed on the federal endangered species list or are of concern to the state. There are currently two federally listed fish that are found in the Lower Coast Fork Willamette basin.

In 1993, Oregon chub was, and remains listed as *Endangered* under the Federal Endangered Species Act (ESA). Spring Chinook salmon are listed as *Threatened* since 1999.

Oregon Chub is a small minnow found only in the Willamette River Basin. This little speckled fish reaches a maximum length of three inches. At one time, the Oregon chub thrived throughout the lowland areas of the Valley in shallow, slow moving waters such as sloughs, beaver ponds, oxbows and side channels. Historically, floods that created and destroyed Oregon chub habitat occurred on a regular basis. Rivers overflowed their banks, scouring some new side channels and backwater areas, while filling-in others. The Oregon chub was ideally adapted to this situation. However, flood control altered this dynamic process. Dams were built to reduce peak flows, causing river channels to become more stationary. Habitat loss also resulted from dike and revetment construction, channelization of streams, and draining and filling of wetlands.

Additionally, non-native species like bass, catfish and mosquitofish were introduced. These species are well suited to historic chub habitat and compete with, or prey on, Oregon chub.

The first documented population of Oregon chub found within Coast Fork Willamette Basin was at Camas Swale in 1993. However, more recent surveys in Camas Swale have found an abundance of non-native fish and no Oregon chub.

Oregon chub were found in side channels of the Coast Fork Willamette River in 2002, prior to a bridge re-construction project on Interstate 5, milepost 180, approximately six miles downstream from the city of Cottage Grove. In 2003, this population was estimated to be 130 fish (Scheerer, et al., 2004). Many other locations have been sampled along the valley floor of the Coast Fork Willamette, however, no other populations have been found.

Table 10-4. Fish species within the LCFW watershed with some level of sensitive status.

Common Name	Status	Notes
Spring Chinook	LT	All of the Lower Coast Fork Willamette River is included as critical habitat. Warm water releases (above 55 F) during incubation are thought to impair much of downstream habitat. Large numbers of hatchery stocks may have mixed with any remnant native populations.
Oregon Chub	LE	Occurs in backwaters and side channels. Flood control upstream has likely reduced the extent of habitat.
Steelhead	---	Winter steelhead are listed as federally threatened in the Upper Willamette River. However, critical habitat designations do not include any of the Upper Willamette basin above the Calapooia River (downstream in the Willamette mainstem at Albany, Oregon). Winter steelhead were native and have been stocked. Summer steelhead have been stocked for recreational fisheries and may be establishing a naturally reproducing population.
Cutthroat	C?	Willamette River native cutthroat are not currently listed, but are under consideration by US Fish & Wildlife Service.
Pacific Lamprey	SoC	Abundance of lamprey has declined along with other anadromous salmonids due to general deterioration of habitat, blockage by dams and culverts. As lamprey also rear in organic sediments for several years, they have similar habitat needs as Oregon chub and are also susceptible to pollutant accumulation occurring in sediments.
Sandroller	SoC	Listed as a stock of concern by ODFW due to suspected low numbers. Relatively little is known about the habitat needs, life history, population numbers, or trends.

SoC=Species of Concern State of Oregon, C=Candidate Species federal, LT=Listed Threatened federal, LE=Listed Endangered federal

10.4 Steps for Improvement to Fish Habitat and Survival

Information presented in this chapter and in the wetland, and water quality chapters indicates that water quality, instream habitat and riparian zone conditions are poorer in the non-forested lowland areas where urban development, agriculture and residential land predominates. These areas have the potential to be important aquatic habitat. Wetlands, side channels and oxbows provided extensive winter habitat for amphibians, turtles and young fish before many of these areas were either drained or channelized. Forested uplands provide important refuge during the summer when stream temperatures in the main stem of rivers become too high for some species. In order to maintain or improve fish habitat in these areas more large trees should be left in riparian zones. The presence

of impassible dams and culverts blocks access to important fish habitat and high water temperature and low dissolved oxygen levels severely impact sensitive fish and amphibians, especially in areas of low stream flows and sluggish and sluggish current.

The following is a list of activities the Council could undertake to improve habitat for aquatic species:

- Prioritize restoration and enhancement activities in portions of the watershed that have potential for fish, amphibian and turtle habitat. Use channel habitat type information as an initial screening tool followed by site visits and consultation with a fisheries and wildlife biologist.
- Facilitate riparian and/or instream improvement projects at sites with potential for high quality fish and amphibian habitat.
- Facilitate wetland restoration to increase habitat for wetland dependent amphibians and reptiles. Restoration could include converting permanent ponds into ephemeral wetlands which do not favor introduced species like bullfrog.
- Encourage creation of pond turtle habitat where landowners are interested and willing. Old oxbow segments of the Lower Coast Fork are especially valuable potential sites.
- Control of exotic plants and animals in the watershed. Bullfrogs are particularly problematic and are also not valued for recreational purposes as are warm water game fish.
- Promote land management (all inclusive: residential, industrial, agricultural and forest land) practices that protect aquatic habitat and water quality (e.g. protection of riparian zones, preventing sediment and synthetic chemicals from entering streams).
- Survey culverts to identify barriers to fish passage. Priority streams are urban creeks with no prior surveys.
- Locate funding to upgrade culverts that block upstream fish passage; prioritize sites with high quality upstream fish habitat.
- Locate funding to upgrade undersized culverts that may cause road washouts and sediment input to streams. Partner with Lane County on these projects.
- Provide landowners with an opportunity to participate in a survey of other fish passage barriers (recreational or livestock ponds that may be in-channel, etc.) and cost-share efforts to improve problem sites.
- Provide landowners with an opportunity to participate in a survey of those water diversion sites that may pose a risk to young fish; cost-share programs available to assist with screening.
- Collect information on stream flow for sub-basins with no previous information in order to more specifically target low flow problems.
- Participate in ODFW's Salmon Trout Enhancement Program (fish monitoring, habitat improvement projects, and community education).