

3.6 Fish Resources

The study area includes creeks, lakes, and other water bodies that may support fish. Only streams or water bodies with perennial flows that are affected by the project are discussed. (See Map 6, *Fisheries*.) Some intermittent streams may have fish present at times during the year, but usually in limited areas near a source of perennial water.

The most significant fish resources found within the study area are endangered anadromous salmonids such as salmon and steelhead. These fish are born and reared in small streams, then migrate down the Columbia River to the ocean. After several years in the ocean, they migrate upstream back to their native streams to spawn. Resident salmonids such as bull trout and rainbow trout are also important resources, as are a number of other cold and warm water fish species.

3.6.1 Segment A

Segment A crosses eight fish-bearing streams that drain the Wenatchee Mountains north of the study area and one fish-bearing stream in the YTC. The major fish issue facing these streams is the lack of access between the Yakima River and the **headwater** areas due to obstructions from irrigation and agricultural operations in the lower sections.

3.6.1.1 Wilson-Naneum Creek Crossing

The Wilson-Naneum Creek Complex is one of the more productive small streams in the study area. Fish species present here include steelhead, spring chinook salmon, western brook lamprey, rainbow trout, cutthroat trout, brook trout, mountain whitefish, three-spine stickleback, speckled dace, longnose dace, bridgelip sucker, mountain sucker, redbreast shiner, and torrent sculpin (WDFW, 2001, WDFW, unpub.). There are currently no adult **anadromous salmonids** or lamprey spawning in the upper part of the creek due to obstructions, but migratory juvenile salmonids use the lower 2.1 miles as rearing habitat. At the site of the proposed crossing, there are no anadromous fish present, however the **non-anadromous** species mentioned above are likely to be present.

Because the proposed crossing is at the very upper edge of the Kittitas Valley, the stream at this point is relatively unaffected by irrigation withdrawals and other agricultural activities. The habitat conditions near the proposed crossing are good, with clean substrate and good instream flows. Options 1 and 2, associated with the Sickler-Schultz Reroute, would cross different areas of Wilson Creek. Both areas have similar fish habitat.

➔ For Your Information

Headwater refers to the source of the river.

Anadromous fish are ones that migrate up rivers from the sea to breed in fresh water.

Salmonids belong to the family Salmonidea, salmon, trout, and whitefish.

Non-anadromous fish are ones that do not migrate to the sea and back during their life cycle.

3.6.1.2 Schnebly Creek Crossing

Schnebly Creek is a small stream with little suitable fish habitat near the study area. In summer, Schnebly Creek is dry where the project crosses it. In its upper reaches, the stream supports rainbow trout (WDFW, 2001, WDFW, unpub.). Fish may be present in the project area when flows are present, but they would most likely be passing through the area between more suitable habitat up-and downstream.

3.6.1.3 Coleman Creek Crossing

Fish species present in Coleman Creek are similar to those in Wilson and Naneum Creeks and include steelhead, spring chinook salmon, western brook lamprey, rainbow trout, cutthroat trout, brook trout, mountain whitefish, three-spine stickleback, speckled dace, longnose dace, bridgelip sucker, mountain sucker, redbside shiner, and torrent sculpin. Bull trout were last observed in 1970 (WDFW, unpub.). Coleman Creek has been channelized and diverted into Naneum Creek and no longer has its natural mouth. There are currently no adult anadromous salmonid spawning in this creek due to obstructions, but migratory juvenile salmonids use the lower 0.5 mile as rearing habitat.

The lower reach of Coleman Creek has some of the best salmonid rearing habitat in the northern Kittitas Valley area. Higher upstream, the riparian zone of the valley portions of this stream is extensively impacted by grazing and other agricultural practices. The proposed crossing of Coleman Creek is just above the Kittitas Valley floor. The stream flows through a shallow canyon with a narrow riparian area. Stream habitat is good, with clean substrates, good water quality and good year-round flows. WDFW PHS data (WDFW, unpub.) indicate that fish are present only from the mouth upstream to a point approximately 2 miles below where the proposed line crosses. However, Renfrow (2001), and WDFW (unpub.) have indicated that the stream near the proposed crossing probably contains many of the species present lower in the system, except anadromous fish.

3.6.1.4 Cooke Creek Crossing

Fish species present in Cooke Creek include rainbow trout, cutthroat trout, and brook trout. No anadromous salmonids are present due to downstream obstructions (WDFW, unpub.).

Segment A crosses Cooke Creek at Coleman Canyon Road. The stream is divided into multiple small channels in this area. A good riparian area with large cottonwoods and willows exists upstream of Coleman Canyon Road. Downstream of the road, the riparian vegetation consists of smaller shrubs and trees. Stream flow is good in this area, although the split channels may limit available fish habitat.

Stream substrate appears clean and the riparian areas are good, although livestock are present in the area upstream of the crossing. Like Coleman Creek, the WDFW PHS data (2001) indicates that fish species are probably only present downstream several miles from the proposed crossing. However, Renfrow (2001) indicated that the three trout species were probably present higher in the drainage above the study area, and may be present where the proposed line crosses.

3.6.1.5 Caribou Creek Crossing

Fish species present in Caribou Creek are probably limited to rainbow trout (WDFW, 2001, WDFW, unpub.). No anadromous salmonids are present due to obstructions lower in the system. Segment A crosses Caribou Creek adjacent to a large cultivated field. The creek channel here is very narrow, with a marginal riparian area and intermittent flows. It is unlikely that fish are present in this reach of Caribou Creek.

3.6.1.6 Parke Creek Crossing

Fish species present in Parke Creek are probably limited to rainbow trout (WDFW, 2001, WDFW, unpub.). No anadromous salmonids are present due to downstream obstructions. Segment A spans Parke Creek from high ridges on either side of it. The creek here is narrow and possibly intermittent, with a marginal riparian area. It is unlikely that rainbow trout are present in this reach of Parke Creek.

3.6.1.7 Middle Canyon Creek

The only documented fish species in Middle Canyon Creek is rainbow trout (U.S. Army, 1996). However, chinook salmon and steelhead trout in the Columbia River probably use the lowest reach for resting and juvenile rearing on their migrations up and down the river (Renfrow, 2001). However, the proposed line crosses the intermittent headwaters area of Middle Canyon, where no fish habitat is available.

3.6.2 Segment B

The affected environments for Segment B Options B_{NORTH} and B_{SOUTH} are very similar and are discussed together as Segment B. The proposed project would cross one Johnson Creek perennial drainage (although a small portion of B_{NORTH} is in the Middle Canyon Creek watershed discussed in Segment A, Section 3.6.1.7) and the Columbia River between the northern end of Segment C and the Vantage Substation. The perennial drainages drain the northeastern corner of the YTC. Extensive past grazing, military maneuvers and other disturbances have caused changes in flow regimes and a general reduction in the quality of fish habitat within Johnson Creek.

3.6.2.1 Johnson Creek

Fish species present in Johnson Creek include rainbow trout, possibly steelhead, chinook salmon, three-spine stickleback, prickly sculpin, large scale sucker, and redbreast shiner (U.S. Army, 1996). Chinook salmon utilize only the lower end of the creek near the Columbia River for juvenile rearing, and steelhead may be present in the lower reaches (Renfrow, 2001).

Base flows in Johnson Creek are low, because of increases in peak flows and a reduction of infiltration capacity as a result of unvegetated soils becoming compacted after years of cattle grazing and military land uses. A general lack of riparian vegetation, coupled with low base flows, causes high water temperatures during the warmer months. This may limit the distribution of salmonids to the lower reaches of the stream and limit resident fish to reaches where water is present year-round.

Segment B crosses in the middle reach of Johnson Creek, thus anadromous salmonids are unlikely to be present, although the other species known to exist in the creek could be present.

3.6.2.2 Columbia River Crossing

The Columbia River hosts approximately 40 species of fish. Chinook salmon, sockeye salmon, steelhead, and Pacific lamprey use the Columbia River near the river crossing as a migration corridor between the ocean and upstream spawning areas, and for spawning and rearing. The Wanapum dam **tailrace**, located directly underneath the proposed crossing, is an important fall chinook salmon spawning area (USDOE, 1999). Bull trout are occasionally present. Fish commonly pursued for sport include whitefish, small-mouth bass, sturgeon, catfish, walleye and perch. Rough fish such as squawfish, carp, suckers, and shiners are also present in large numbers (USDOE, 1999). The Columbia River is on the 303(d) list for high temperature, pH levels, and dissolved gas.

3.6.3 Segment C

Segment C crosses five major drainages, all of which drain the interior of the YTC directly to the Columbia River. Fish are present in five of the six drainages crossed (no fish are present in Cold Creek).

3.6.3.1 Johnson Creek

The crossing of Johnson Creek is similar to that discussed in Segment B.

➔ For Your Information

Tailrace is the part of the millrace below the turbine through which the spent water flows.

3.6.3.2 Hanson Creek

Fish species present in Hanson Creek include eastern brook trout and fall chinook (U.S. Army, 1996). Chinook salmon utilize only the lower reach of the creek near the Columbia River for juvenile rearing, and are not present near the proposed crossing.

3.6.3.3 Alkali Canyon Creek

Fish species present in Alkali Canyon Creek include rainbow trout, eastern brook trout, and fall chinook (U.S. Army, 1996). Chinook salmon utilize only the lower reach of the creek near the Columbia River for juvenile rearing, and are not present near the proposed crossing.

3.6.3.4 Corral Canyon Creek

Chinook salmon is the only fish species present in Corral Canyon Creek. They only utilize the lower reach of the creek near the Columbia River for juvenile rearing, and are not present near the proposed crossing (U.S. Army, 1996).

3.6.3.5 Cold Creek

No fish are known to be present in Cold Creek.

3.6.4 Segment D

Segment D crosses three drainages: Lower Crab Creek, the Columbia River, and Cold Creek. A series of irrigation canals and drains are crossed on the Wahluke Slope, however these are not considered fish habitat. Depending on conditions and the availability of stable flows, fish could exist temporarily in some canals, but would most likely be introduced by humans or carried by birds from other water bodies and would not continue to thrive.

3.6.4.1 Lower Crab Creek

Fish species present in Lower Crab Creek include rainbow trout, brown trout, chinook salmon, and possibly a remnant steelhead population (WDFW, 2001, Renfrow, 2001). Segment D crosses the extreme lower reach of Lower Crab Creek just upstream of its confluence with the Columbia River. Lower Crab Creek could be used by most of the 40 Columbia River fish species on a temporary basis as well.

3.6.4.2 Columbia River

The Columbia River is habitat for approximately 40 species of fish. Like the Segment B crossing, chinook salmon, sockeye salmon, steelhead, and Pacific lamprey use the Columbia River near the river crossing as a migration corridor to upstream spawning areas and for

spawning and rearing. Fish commonly pursued for sport include whitefish, small-mouth bass, sturgeon, catfish, walleye and perch. Rough fish such as squawfish, carp, suckers, and shiners are also present in large numbers (USDOE, HCP EIS, 1999).

The area directly under the Segment D crossing, just upstream from the Vernita Bridge, is an important spawning area for fall chinook salmon. This area represents the northern extent of the naturally spawning Hanford Reach population of fall chinook, which is approximately 50-60 percent of the total fall chinook runs in the Columbia River (USDOE, HCP EIS, 1999).

3.6.4.3 Cold Creek

No fish are known to be present in Cold Creek in the vicinity of the Segment D crossing, however, YTC staff have observed fish in pools in the YTC. The species are unknown (YTC, 2002).

3.6.5 Segment E

Segment E crosses two lakes and only two major drainages: Lower Crab Creek and the Columbia River. Like Segment D, a series of irrigation canals and drains are crossed on the Wahluke Slope, however these are not considered to be fish habitat.

3.6.5.1 No Wake Lake

No Wake Lake is a private constructed lake just north of Lower Crab Creek used for water skiing. It contains warm water fish species.

3.6.5.2 Lower Crab Creek

Segment E crosses Lower Crab Creek several hundred feet upstream of proposed Segment D. Fish habitat and species are similar to those discussed in the Segment D section.

3.6.5.3 Saddle Mountain Lake

Saddle Mountain Lake contains only warmwater fish species such as yellow perch, pumpkinseed, bluegill, and crappie.

3.6.5.4 Columbia River

Segment E crosses the Hanford Reach of the Columbia River. The fish species and habitats are similar to the crossing described for Segment D.

3.6.6 Segment F

Segment F crosses Nunnally Lake and two major drainages: Lower Crab Creek and the Columbia River. However, unlike Segments D and E, each drainage has wetland areas and ponds associated with each of these crossings.

3.6.6.1 Nunnally Lake

Nunnally Lake is a pothole lake in the Lower Crab Creek valley. It is a high-use recreational area. Rainbow trout are stocked for sport fishing. Warmwater species such as yellow perch, pumpkinseed, bluegill, and crappie may be present.

3.6.6.2 Lower Crab Creek

Segment F crosses Lower Crab Creek several hundred feet upstream of proposed Segments D and E. Fish habitat and species are similar to those discussed in Segment D.

3.6.6.3 Columbia River

Segment F crossing of the Columbia River uses the same alignment as proposed Segment E crossing and has fish habitat and species similar to those discussed in Segment D.

3.6.7 Fiber Optic Line

Several lakes, wetlands, and **wasteways** are crossed by the fiber optic line that could contain fish. These areas contain water due to seepage and return flow from Columbia Basin Project irrigation waters. Sand Hollow, a stream supported entirely by irrigation return flow, contains summer steelhead and fall chinook in the lowest reach where the fiber optic line would cross (WDFW, 2001). Lynch coulee also supports a small run of steelhead where the project crosses (WDFW, 2001). Several of the lakes in the Quincy Lakes Wildlife Area have fish that were introduced for sportfishing purposes, most notably including rainbow trout.

3.6.8 Threatened and Endangered Species

The project area is within the range of three species (which includes three **Evolutionarily Significant Units**, or ESU's and one **Distinct Populations Segment**, or DPS) of threatened or endangered fish: Upper Columbia River spring-run chinook salmon, Upper Columbia River steelhead, Middle Columbia River steelhead, and bull trout (See Table 3.6-1, *Fish Species Presence*, for their distribution within the project area). A full description of these species can be found in Appendix G, *Fish and Wildlife Technical Report*.

For Your Information

A **wasteway** is a drainage carrying irrigation return flow.

An **Evolutionarily Significant Unit (ESU)** is a population of a species with a distinct evolutionary history as defined by the National Marine Fisheries Service.

A **Distinct Population Segment (DPS)** is a population of a species with a distinct evolutionary history as defined by the U.S. Fish and Wildlife Service.

**Table 3.6-1
Fish Species Presence**

Perennial Water Name ¹	Segment Intercepting Waterbody						Fish Species Present In Waterbody ²	Comments
	A	B	C	D	E	F		
Wilson Creek	X						Chinook salmon (Federal Endangered State Candidate), Mountain sucker (State Candidate), Rainbow trout, Cutthroat trout, Brook trout, Mountain whitefish, 3-Spine stickleback, Speckled dace, Longnose dace, Redside shiner, Torrent sculpin, Brook lamprey	Wilson Creek has high quality fish habitat in the project area. Chinook salmon are only present in the lowest mile of the creek, and not in the project area. Mountain suckers are probably found in the project area.
Naneum Creek	X						Chinook salmon (Federal Endangered, State Candidate), Mountain sucker (State Candidate), Rainbow trout, Cutthroat trout, Brook trout, Mountain whitefish, 3-Spine stickleback, Speckled dace, Longnose dace, Redside shiner, Torrent sculpin, Brook lamprey	Naneum Creek has high quality fish habitat in the project area. Chinook salmon are only present in the lowest mile of the creek, and not in the project area. Mountain suckers are probably found in the project area.
Cave Canyon Creek	X						None	Fish habitat is present, but fish are not documented in this creek.
Schnebly Creek	X						Rainbow trout	Rainbow trout are present in the project area.
Coleman Creek	X						Chinook salmon (Federal Endangered, State Candidate), Bull trout (Federal Threatened, State Candidate), Rainbow trout	Chinook salmon habitat is high quality, but limited to the lowest three miles of the stream. Bull trout have not been observed since 1970.
Cooke Creek	X						Rainbow trout, Cutthroat trout, Brook trout	Cooke Creek is split into several small channels in the project area, which may limit the available fish habitat.
Caribou Creek	X						Rainbow trout	Caribou Creek has marginal fish habitat (<u>stream is intermittent where project crosses</u>).
Parke Creek	X						Rainbow trout	Rainbow trout are present in the project area.
Middle Canyon Creek	X						Rainbow trout	Project crosses the intermittent headwaters of Middle Canyon Creek. It is unlikely that habitat in this area is utilized by fish.
Johnson Creek		X	X				Chinook salmon (Federal Endangered, State Candidate), Steelhead trout (Federal Endangered/Threatened, State Candidate), Rainbow trout, 3-Spine stickleback, Prickly sculpin, Large scale sucker, Redside shiner	Juvenile chinook salmon only use the lowest reach of the stream for resting as they migrate down the Columbia River. Steelhead may spawn and rear in the lowest reach near the mouth. Resident fish habitat is degraded in the project area due to military operations, grazing and fires, but fish are present.
Hanson Creek			X				Chinook salmon (Federal Endangered, State Candidate), Rainbow trout, Brook trout	Juvenile chinook salmon only use the lowest reach of the stream for resting as they migrate down the Columbia River. Resident fish habitat is degraded in the project area due to military operations, grazing and fires, but fish are present.

Perennial Water Name ¹	Segment Intercepting Waterbody							Fish Species Present In Waterbody ²	Comments
	A	B	C	D	E		F		
Alkali Canyon Creek			X					Chinook salmon (Federal Endangered, State Candidate) , Rainbow trout, Brook trout	Juvenile chinook salmon only use the lowest reach of the stream for resting as they migrate down the Columbia River. Resident fish habitat is degraded in the project area due to military operations, grazing and fires, but fish are present.
Corral Canyon Creek			X					Chinook salmon (Federal Endangered, State Candidate)	Juvenile chinook salmon only use the lowest reach of the stream for resting as they migrate down the Columbia River. Resident fish habitat is degraded in the project area due to military operations, grazing and fires, and fish are not present.
Cold Creek			X	X				None	Cold Creek is intermittent in the project area, and no fish are present.
Crab Creek				X	X		X	Chinook salmon (Federal Endangered, State Candidate) , Steelhead trout (Federal Endangered/Threatened, State Candidate) , Rainbow trout, Brown trout, Various warmwater fish species	Crab Creek supports a wide variety of fish, including many of those found in the Columbia River.
Nunnally Lake							X	Rainbow trout, various warmwater species	Nunnally Lake is stocked with Rainbow trout for sportfishing.
Saddle Mountain Lake				X	X			Various warmwater species	Saddle Mountain Lake is an irrigation return flow lake.
Columbia River		X		X	X		X	Chinook salmon (Federal Endangered, State Candidate) , Steelhead trout (Federal Endangered/Threatened, State Candidate) , Pacific lamprey , Brook lamprey, Various warmwater species (40 different species all together)	The Columbia River supports approximately 40 different species of fish, and is the major migration corridor for anadromous species.
Sand Hollow							X	Steelhead trout, chinook salmon	Irrigation return flow supports spawning in lower 2 miles.

¹ Only streams or lakes that contain water year around are listed here.

² Fish species that may be present in the waterbody. In some cases fish may be present somewhere in the waterbody, but not where the proposed project crosses it. Bold species are federal or state listed species.

Table has been updated for the FEIS.