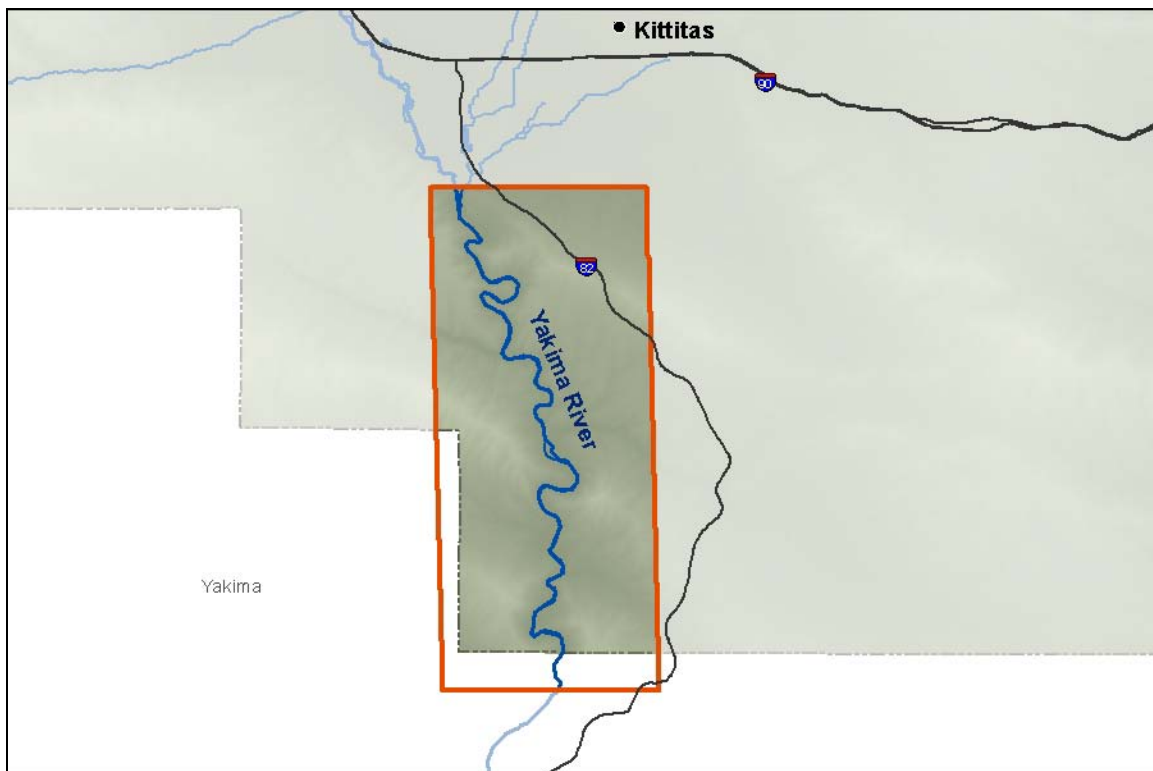


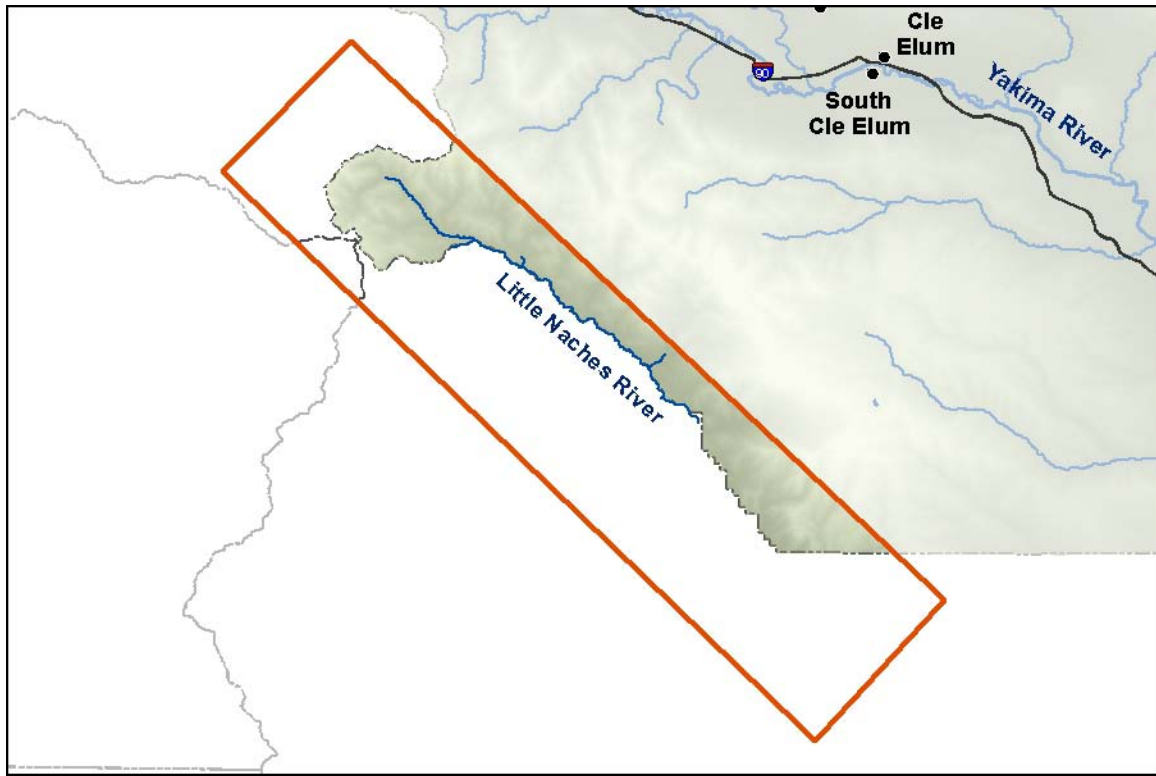
CHAPTER 5. YAKIMA CANYON AND LITTLE NACHES RIVER

This chapter describes the conditions within the shoreline inventory areas of the portions of the Yakima Canyon (Figure 5-1) and Little Naches River (Figure 5-2) that lie within Kittitas County. These stream reaches are described in terms of their physical characteristics, ecological conditions, and human environment/land use characteristics. Readers are encouraged to review Chapter 2 and the maps in Appendix A for additional context on the information presented here.

Figure 5-1. “Yakima Canyon” shoreline.



Characteristics for the shoreline reaches are summarized on “reach sheets” included in this chapter. The information on the reach sheet is based upon available county-wide data sources that describe key physical, ecological, and land use characteristics. A description of the available data sources, including data limitations, is presented in Appendix B.

Figure 5-2. “Little Naches River” shorelines.

5.1 Yakima Canyon

This section describes the portion of the Yakima River that flows through the Yakima Canyon (approximately 21 miles), from the Wilson Creek confluence downstream to the Kittitas-Yakima County boundary (approximately 1.5 miles downstream from Roza Dam). For this analysis, the portion of the Yakima River that flows through the Yakima Canyon was divided into 2 reaches: Reach 1 (1.6 miles) extends from the County boundary to Rosa dam and Reach 2 (19.1 miles) extends from Rosa Dam to the Wilson Creek confluence.

The Yakima River is designated as a “shoreline of statewide significance” because it has a mean annual flow of more than 200 cubic feet per second.

5.1.1 Physical Characterization

The Yakima River flows generally from north to south through the canyon and is relatively sinuous compared to the upstream reaches of the river. The landscape in the Yakima Canyon is arid, with little agricultural land and the only appreciable tree cover located in the narrow riparian corridor of the river.

Only a few river crossings are located over this stretch of river, including two railroad bridges and the Umtanum pedestrian bridge. Limited residential development is located along the river; however, a railroad corridor and State Route 821 (Canyon Road) parallel the right and left river banks, respectively, along the canyon bottom. An irrigation canal borders the right bank of the river, extending downstream approximately 0.4 mile from Roza Dam. Several parking lots are located on the left bank of the river, providing access for campers, rafters, and boaters.

The steep, deep-walled canyon confines the river into a single channel, with no side-channel complexes and few islands or backwater areas. The canyon is a transport reach, with confinement limiting channel complexity (Haring 2001).

Much of the land adjacent to the river is mapped as steep slopes, which indicates the potential for erosion or landslide hazards. Although there are no formally mapped landslide hazard areas along these reaches (WDNR 2010; Kittitas County 2012), a significant rain event in 1998 resulted in over 30 landslides upstream of Roza Dam. Many of these landslides narrowed the river by up to half (Haring 2001).

Due to the moderate to steep canyon slopes and relatively narrow area between these slopes, the floodplain is confined within a portion of the inventory area for the majority of these reaches (FEMA 1996). At several locations, where tributary streams drain to the river, the floodplain extents out of the inventory area and upstream into the tributaries. Identified channel migration zones are present throughout much of the inventory area, although some areas are disconnected from the active channel by Canyon Road.

Roza Dam, which is located near the downstream end of this portion of the river, was built in 1941 to divert water from the Yakima River for irrigation purposes. The dam impounds approximately 100 acres of water behind a 67-foot-high concrete dam. The dam has a fish passage facility.

5.1.2 Habitats and Species

5.1.2.1 Fish Use

Table 2-14 in Chapter 2 shows the listing status of all fish species in Kittitas County. Within the Yakima Canyon, the river provides rearing habitat for summer steelhead (federally listed as threatened) and both spawning and rearing habitat for spring Chinook salmon. This part of the river is also used by coho salmon, bull trout (federally listed as threatened), fall Chinook, mountain whitefish, rainbow trout, and westslope cutthroat (StreamNet 2010). The presence of sockeye salmon is also likely, due to the recent re-introduction of the species to Lake Cle Elum.

The Yakima River steelhead recovery plan (Conley et al. 2009) describes Roza Dam as a potential bottleneck for outmigrating smolts during low runoff. Smolts that are delayed in the pool above the dam may experience mortality, residualization, or delayed arrival in the lower Yakima River until periods when low flow, high temperature, and increased predator activity reduce survival. However, the Roza Dam spillway was modified in 2011, which may have resolved the smolt bottleneck (Sean Gross, personal communication).

A new fish ladder installed at Roza Dam in 1989 allows fish passage at minimum pool and full pool levels. However, the Yakima River steelhead plan (Conley et al. 2009) indicates there is no passage at water levels between these extremes, which occur while the pool is being drained or filled (a period of days for a few times each year).

The diversion of flow at Roza Dam has substantially altered the hydrologic regime downstream, with lower winter flows and higher flows during the summer irrigation season. Water is diverted from the river into the canal at Roza Diversion Dam and flows about 11 miles to the Roza Powerplant near Yakima. Flows return to the river below the powerplant. When power is being generated at the Roza Powerplant, there is a minimum flow target of 400 cubic feet per second (cfs) below Roza Diversion Dam. Power generation is terminated when the flow target cannot be met with the plant operating (Haring 2001, Reclamation and Ecology 2011a).

One measure proposed in the Yakima Basin Integrated Water Resource Management Plan is to further subordinate water diversions for power generation at Roza Dam to support outmigration of juvenile steelhead, Chinook, sockeye, and coho. Additional subordination would be subject to an agreement on mitigation and approval by the U.S. Bureau of Reclamation, the Bonneville Power Administration, and the Roza Irrigation District (Reclamation and Ecology 2011a).

Many other historic and ongoing events have contributed to the decline of Yakima basin fish populations, including land development, construction of storage dams in the upper watershed and on the Columbia River, and commercial fishing (Reclamation and Ecology 2011a).

Anadromous fisheries have improved in recent years as a result of better fisheries management, habitat and facility improvements, hatchery supplementation, and reintroduction efforts. Reintroduction of coho in the Yakima basin began in the mid-1980s. Summer Chinook reintroduction is currently being undertaken (Reclamation and Ecology 2011a). Efforts to restore coho salmon within the Yakima River basin rely largely upon releases of hatchery-produced fish. Natural reproduction of hatchery-reared coho salmon is now occurring in the Yakima River. The upper Yakima wild Chinook salmon population is supplemented with hatchery stock reared at the Cle Elum Supplementation and Research Facility (CESRF) and released

from three acclimation sites (Reclamation 2011, Reclamation and Ecology 2011a). The CESRF has been operating since 1997 and is managed by WDFW and the Yakama Nation.

Pacific lamprey is another native fish species that has recently become a focus of restoration efforts. The Columbia River basin historically supported abundant Pacific lamprey populations, but the population has steeply declined and is virtually non-existent in the upper Yakima watershed. Major factors in the species' decline include fish passage barriers, poor water quality, floodplain degradation, and highly altered stream hydrology (CRITFC 2011; USFWS 2011).

The Yakima Basin Integrated Water Resource Management Plan (2011) recommends acquisition of 15,000 acres in the Yakima River Canyon, including the valley bottom and eastern slopes, from the Yakima River to I-82. This would provide an opportunity to protect a large swath of shrub-steppe habitat along with the Yakima Canyon riparian area. Additional efforts to improve fish habitat and populations in the Yakima basin include the following (Reclamation and Ecology 2011a):

- The Yakima/Klickitat Fisheries Project, managed by WDFW and the Yakama Nation, is aiming enhance salmon populations through supplementation along with habitat protection and restoration. Species currently being enhanced include spring, summer and fall Chinook salmon, coho salmon, sockeye salmon, and steelhead trout.
- The Yakima River Side Channels Project, also managed by WDFW and the Yakama Nation through the Yakima/Klickitat Fisheries Project, focuses on restoring habitat in the Easton, Ellensburg, Selah, and Union Gap reaches on the Yakima River and the Glead reach in the lower Naches. Active habitat restoration actions include reconnecting structurally diverse alcoves and side channels, introducing large woody debris, fencing, and revegetating riparian areas.
- The Yakima Tributary Access and Habitat Program has numerous participants including the Kittitas County Conservation District. The program seeks to restore fish passage to Yakima River tributaries that historically supported salmon and to improve habitat through measures such as fish screening and fish passage improvements, riparian plantings, fencing, and irrigation system improvements.

As a component of the Yakima River Basin Water Storage Feasibility Study, the U.S Bureau of Reclamation (2007) is studying the Wymer Dam and Reservoir Project. The proposed project would pump water from the Yakima River and store it in a reservoir on Lmuma Creek, approximately 8 miles upstream of the Roza Diversion

Dam. The purpose of the project is to create additional storage in the Yakima River basin in order to:

- Improve anadromous fish habitat;
- Improve the water supply for irrigators; and
- Meet future municipal water supply

5.1.2.2 Water Quality

During spring and summer, levels of organochlorine pesticides, turbidity, and suspended sediments in the Yakima River basin sometimes exceed state water quality standards. In addition to concerns associated with turbidity in streams, suspended sediments also act as a transport mechanism for pesticides. Ecology completed an assessment of suspended sediment, turbidity, organochlorine pesticides, bacteria, and metals in the upper Yakima River basin in 1999, focusing on the mainstem river and major tributaries from Selah upstream to Cle Elum. A TMDL for suspended sediment, turbidity, and pesticides in the upper Yakima River and major tributaries was implemented in 2002 and a TMDL for temperature was implemented in 2005 (Ecology).

The Department of Ecology has recently undertaken the Yakima River Watershed Toxics Study to evaluate levels of toxic contaminants in streams, rivers, reservoirs, and lakes from the Yakima River's headwaters near Snoqualmie Pass to its confluence with the Columbia River. Levels of toxic compounds in Yakima River fish were recognized as a concern in the 1990s. During 2006 - 2008, Ecology collected hundreds of samples of fish and water to evaluate current levels of toxic compounds such as DDT, PCBs, and several others, many of which were historically used in agriculture or utilities but have been banned in recent years. These compounds attach to soil particles which are then washed downstream by precipitation or irrigation. Although the compounds have not been applied in recent years, they can persist in the environment. Ecology's study found that fish in the upper Yakima River are currently meeting or close to meeting human health criteria for all toxic substances tested except PCBs. The level of toxics generally increases in downstream areas. The months of greatest concern for human-caused turbidity, suspended sediment loading, and pesticide transport are during the irrigation season, April through October. Storms or rain-on-snow events can also mobilize sediments and pesticides at any time of the year (Johnson et al. 2010; Ecology 2009; Joy 2002).

Ecology found that irrigation returns are the dominant cause of degraded water quality in the Yakima River and are the most important sources to control for reducing turbidity, pesticides, and PCBs. However, urban stormwater runoff from

cities including Ellensburg also appears to be a significant source of these pollutants (Johnson et al. 2010).

The river within Yakima Canyon is on Ecology's 303(d) list for dioxin. However, dioxin was excluded from the Ecology 2006 water quality study due to budget constraints and because the fish tissue survey showed human health criteria were very close to being met (Johnson et al. 2010).

5.1.2.3 Riparian Habitat Conditions (Land Cover)

Riparian vegetation along the Yakima River within the canyon consists mainly of cottonwood and willow with scattered pine trees. Canyon Road and the railroad parallel the river leaving little space for natural riparian vegetation in some areas. The steep canyon walls support sparse plant cover, with sagebrush and various grasses amid rock outcrops. Shrubs are the dominant land cover in this part of the Yakima River corridor.

5.1.2.4 Wetlands

Less than 1 percent of the Yakima River shoreline inventory area in the canyon is mapped as wetland along the river. The small amount of wetland area is due to the relatively arid conditions within the steep, confined canyon.

5.1.2.5 Wildlife Habitats and Species

Priority wildlife species mapped in the Yakima River Canyon include bighorn sheep, elk, golden eagle, and mule deer. The canyon provides cliff/bluff habitats and serves as a migratory corridor for many species of birds, reptiles, amphibian and mammals.

Shrub-steppe habitat is a dominant vegetation community in the Yakima River canyon (USGS 1993). This habitat type is dominated by perennial bunchgrasses and shrubs such as sagebrush (WDFW 2008). Kittitas County has several types of shrub-steppe communities with different combinations of plant species, as described in Section 2.3.2 in Chapter 2.

Shrub-steppe habitat supports numerous unique plant and wildlife species (Azerrad et al. 2011). In the Yakima River canyon, two plant species associated with shrub-steppe communities have been mapped by the Washington Natural Heritage Program: Hoover's desert parsley and pauper milk vetch. While it was historically a common type of vegetation community in eastern Washington, shrub-steppe habitat has been largely converted to agriculture and is considered a priority habitat by WDFW (see Section 2.6.3.1).

5.1.3 Land Use

From the Wilson Creek confluence downstream to Roza Dam, the Yakima River is bordered by Canyon Road along the east bank and a railroad along the west bank. The railroad crosses the river near the dam and borders its east bank, between the river and Canyon Road. Outside of the transportation corridors, the surrounding shorelands are undeveloped and zoned for agriculture and forest/range. Over half of the land area bordering the river is state and federal lands (WDFW and BLM, respectively).

5.1.4 Public Access

The Yakima River Canyon supports a premier trout fishery and is a significant tourist attraction. Three sites, which include boat launches, provide access to the Yakima Canyon: Lmuma Creek, Big Pines, and Roza Recreation areas (Kittitas County 2011). In addition to these facilities, boat launch facilities are located at mileposts 8 and 10, and at the Umtanum Recreation Area. In addition, SR 821 parallels the majority of the reaches, providing informal access and views of the river.

5.1.5 Reach Sheets

YAKIMA RIVER-REACH 1

SHORELINE LENGTH:

1.6 Miles

REACH INVENTORY AREA:

121.7 Acres



PHYSICAL AND ECOLOGICAL FEATURES

CHANNEL CONFIGURATION

The reach flows as a single channel through a canyon with moderate topographic relief. The upstream portion of the reach is confined by the Roza Dam, bordered by an irrigation canal and is crossed by a railroad. Downstream, the railroad and Canyon Road parallel the channel.

LAND COVER (MAP FOLIO #3)

This reach contains shrubland (41%), open water (19%), grassland (15%), and riparian vegetation (13%). A number of other land cover types are also present, including: forest (9%), developed lands (2%), and unvegetated lands (1%).

HAZARD AREAS (MAP FOLIO #2 & APPENDIX C)

About half the reach area (49%) is located within the FEMA 100-year floodplain. No landslide hazard areas are mapped within the reach, although landslides have occurred on steep slopes bordering the canyon.

HABITATS AND SPECIES (MAP FOLIO #1)

WDFW maps show this reach provides spawning and known juvenile rearing habitat for summer steelhead and known spawning habitat for spring Chinook. The presence of sockeye salmon, coho salmon, bull trout, fall Chinook, mountain whitefish, rainbow trout, and westslope cutthroat is also identified.

WATER QUALITY

The reach is not listed on the State Water Quality Assessment list of 303(d) waters.

Limited wetland habitat is mapped along the river (<1% of the reach). Priority mule deer winter range, bighorn sheep winter range, elk winter range, cliffs/bluffs, and biodiversity areas and corridor are mapped along the reach. In addition, golden eagle is also mapped within the reach.

BUILT ENVIRONMENT AND LAND USE

| | |
|---|---|
| <p>SHORELINE MODIFICATIONS (MAP FOLIO #1)</p> <p>Roza Dam is located at the upstream end of the reach, and a railroad borders much of the east shoreline of the river. An irrigation canal, originating at Roza Dam, is located along the western shoreline at the upstream end.</p> | <p>PUBLIC ACCESS (MAP FOLIO #4)</p> <p>There is no public access to the reach, but SR 821 parallels the majority of the reach, providing views of the river.</p> |
| <p>EXISTING LAND USES AND OWNERSHIP (MAP FOLIO #4)</p> <p>Land use along the reach is primarily rural (80%), with agricultural land (20%) at the upstream end of the reach. Land ownership is 56% private and 44% public (BLM).</p> | <p>CONTAMINATED SITES</p> <p>No identified contaminated sites are located within this reach.</p> |
| <p>ZONING (MAP #5)</p> <p>Lands within the reach are zoned for forest & range (57%), agriculture (20%), and other (23%) [right-of-way].</p> | <p>CULTURAL AND ARCHAEOLOGICAL RESOURCES</p> <p>There are no recorded sites within the reach.</p> |

SHORELINE FUNCTION ANALYSIS

| | |
|---|---|
| <p>FISH HABITAT QUALITY</p> <p>Medium: The reach provides spawning and juvenile rearing habitat for priority fish species (including spring Chinook salmon), but habitat is altered upstream by Roza Dam.</p> | <p>TERRESTRIAL HABITAT QUALITY</p> <p>Medium: The eastern shoreline of the river is generally unaltered and connects to high-value habitat areas, but the western shoreline is altered by a railroad.</p> |
| <p>VEGETATION FUNCTIONS</p> <p>Medium: The river is bordered by dense shrub cover, but vegetation has been altered along the eastern bank by a railroad.</p> | <p>HYDROLOGIC FUNCTIONS</p> <p>Low: The Yakima Canyon functions primarily as a transport reach.</p> |

KEY MANAGEMENT ISSUES AND OPPORTUNITIES

- Upstream fish passage at Roza Dam is periodically impaired during high and low water levels.
- There is no formal public access to this reach.
- New development should be set back an adequate distance to protect stream functions and protect structures from flooding.
- Protect the high-quality wildlife habitat within the reach.
- The Integrated Plan for the Yakima Basin proposes acquisition of 15,000 acres in the Yakima River Canyon, including the valley bottom and eastern slopes, from the Yakima River to I-82. This area is a wildlife corridor and contains shrub-steppe habitat, a community type that is becoming increasingly rare.

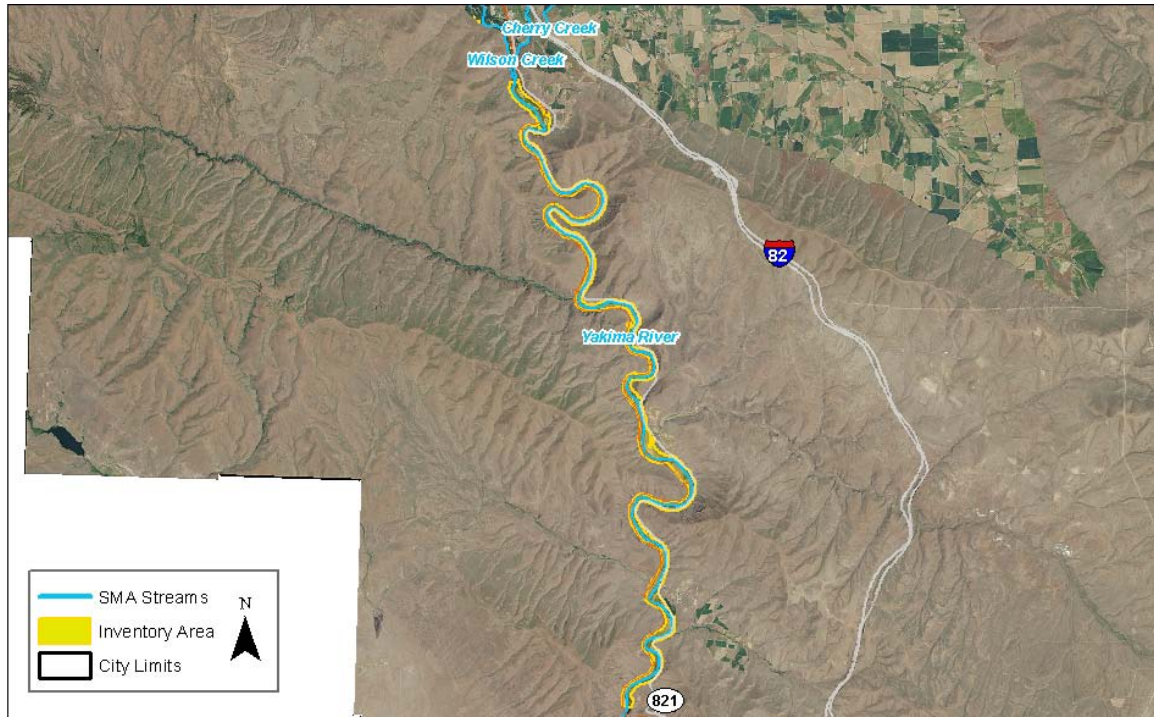
YAKIMA RIVER-REACH 2

SHORELINE LENGTH:

19.1 Miles

REACH INVENTORY AREA:

1,650.2 Acres



PHYSICAL AND ECOLOGICAL FEATURES

CHANNEL CONFIGURATION

The reach primarily flows as a single channel through a confined canyon with moderate topographic relief, generally flowing north to south. Low floodplain terraces have limited distribution within the reach.

LAND COVER (MAP FOLIO #3)

This reach is dominated by shrubland (25%), riparian vegetation (18%), grassland (15%), open water (15%), and developed lands (10%). Agricultural lands (8%), forest (7%), other (1%), and unvegetated lands (1%) are also mapped.

HAZARD AREAS (MAP FOLIO #2 & APPENDIX C)

A large extent of the reach area (60%) is located within the FEMA 100-year floodplain. No landslide hazard areas are mapped within the reach, although steep slopes bordering the river may occasionally slide. Approximately one-third of the reach (38%) has potential for channel migration.

HABITATS AND SPECIES (MAP FOLIO #1)

WDFW maps show this reach provides spawning habitat for spring Chinook and rearing habitat for Chinook and summer steelhead. The presence of coho salmon, sockeye salmon, bull trout, fall Chinook, mountain whitefish, rainbow trout, and westslope cutthroat is also identified.

WATER QUALITY

The reach is listed on the State Water Quality Assessment list of 303 (d) Category 5 waters for chlordane, dioxin, PCB, and temperature. TMDLs have been implemented for: 4,4'-DDE, 4, DDT, dieldrin and temperature.

Wetland habitat is mapped along the banks of the river and at multiple locations (9% of the reach). Priority mule deer winter range, bighorn sheep winter range, elk winter range, cliffs/bluffs, and biodiversity areas and corridor are mapped along the reach. In addition, golden eagle is also mapped within the reach.

BUILT ENVIRONMENT AND LAND USE

SHORELINE MODIFICATIONS (MAP FOLIO #1)

A railroad parallels much of the right bank of the river within the reach and a Canyon Road parallels the left bank

PUBLIC ACCESS (MAP FOLIO #4)

Three sites, which include boat launches, provide access to the Yakima Canyon: Lmuma Creek, Big Pines, and Roza Recreation areas (Kittitas County, 2011). In addition to these facilities, boat launch facilities are located at mileposts 8 and 9, and at the Umtanum Recreation Area. In addition, SR 821 parallels the majority of the reaches, providing informal access and views of the river.

EXISTING LAND USES AND OWNERSHIP (MAP FOLIO #4)

Land use along the reach is rural (55%) and agricultural (45%). Land ownership is 40% private and 60% public (State, BLM, and WDFW).

CONTAMINATED SITES

One leaking underground storage tank is mapped mid-reach.

ZONING (MAP #5)

Lands within the reach are zoned for agriculture (60%), forest & range (23%), and other (17%) [right-of-way].

CULTURAL AND ARCHAEOLOGICAL RESOURCES

A total of 9 recorded precontact sites and 3 recorded historic sites are located within the reach. The recorded precontact sites feature lithic debitage in addition to talus pits.

SHORELINE FUNCTION ANALYSIS

FISH HABITAT QUALITY

Medium: The reach provides spawning and juvenile rearing habitat for priority fish species (including spring Chinook salmon), but has several listed water quality impairments and adjacent hydromodifications.

TERRESTRIAL HABITAT QUALITY

Medium: Portions of generally unaltered habitat remain along the river, but the river is separated from adjacent habitat areas by transportation corridors (Canyon Road and a railroad).

VEGETATION FUNCTIONS

Medium: The river is bordered by dense shrub cover, but vegetation has been altered in many areas by Canyon Road and a railroad.

HYDROLOGIC FUNCTIONS

Low: The Yakima Canyon functions primarily as a transport reach.

KEY MANAGEMENT ISSUES AND OPPORTUNITIES

- There is generally limited development potential within the reach. Potential new development should be set back an adequate distance from the shoreline to protect shoreline functions.
- Several important archaeological sites are present within the reach.
- Encourage use of agricultural best management practices to reduce erosion and transport of legacy pesticides.
- Protect the shrub-steppe and wildlife habitat within the reach.
- The Yakima Canyon is a highly-used recreational area. Recreational activities should be managed to reduce impacts on vegetation and subsequent erosion. There may be opportunities to restore riparian vegetation when recreational facilities are improved or redeveloped in the future.

5.2 Little Naches River and Tributaries

The Little Naches River flows from northwest to southeast in southwestern Kittitas County, forming the boundary between Kittitas and Yakima Counties. The Little Naches River is a right-bank tributary to the Naches River (in Yakima County). Tributaries within Kittitas County with mean annual flows greater than 20 cfs are the Middle and North Forks of the Little Naches River, Bear Creek, and Quartz Creek. Downstream of the Bear Creek confluence, the Little Naches River is identified as a “shoreline of statewide significance” because the mean annual flow exceeds 200 cubic feet per second. The Little Naches River and its tributaries are located almost entirely on National Forest lands, and are briefly described below.

5.2.1 Physical Characterization

The Little Naches River is located in the southwestern portion of the county and flows from the northwest to southeast. The river traverses the Kittitas County border with Yakima County, crossing the county lines multiple times. The river reach is largely undeveloped aside from forest service roads, camping, and logging activities that are located adjacent to the river. The majority of the riparian area contains evergreen forest that contributes substantial woody material to the system. Topography is low to moderate with the single channel dominating the system. Forest Service roads cross the river eight times and the downstream extent of the river is paralleled by a Forest Service road. The Yakima Klickitat Fisheries Project, in conjunction with the Forest Service, is proposing to re-route a portion of Forest Service Road 1900 out of the floodplain of the little Naches River.

The North Fork Naches River branches with the Middle Fork Naches River at approximately RM 19 of the Little Naches River. The topography and habitat along the north and middle forks are similar to that of the mainstem with little development and forested riparian corridors. Bear and Quartz creeks are left bank tributaries to the Little Naches River and both are crossed by a forest service road near their confluence with the Little Naches River. Bear and Quartz creeks have similar physical characteristics as the Little Naches River.

Much of the northern and southern extents of the river are flanked by mapped steep slopes, and the majority of the inventory area of the Little Naches River and its tributaries is located within identified channel migration zones.

5.2.2 Habitats and Species

5.2.2.1 Fish Use

Fish use within the Little Naches River and its tributaries is summarized in Table 5-1. Road development and timber harvest in the watershed have had a number of negative impacts on the quality of river habitat. Large quantities of fine sediment and a lack of riparian tree cover have resulted in increased embeddedness, lack of deep pools and habitat complexity, and high water temperatures. Timber harvest has reduced the available of large wood that can be recruited to the river along lower Bear Creek. Large wood was removed from the lower 10 miles of the river as part of "channel cleaning" efforts following floods in the 1970s. The lower part of the Little Naches below Salmon Falls has been degraded by road building and channelization (Haring 2001).

Despite these alterations, the upper part of the Little Naches (upstream of Salmon Falls) is considered to provide good fish habitat, with abundant spawning gravel, excellent riparian condition, adequate summer flows, and plentiful large wood and instream cover. Many forest roads have been repaired or decommissioned and fine sediment in spawning gravels has been reduced (Haring 2001).

**Table 5-1. Fish Use in Little Naches River and Tributaries
(Source: StreamNet 2010)**

| Species | Little Naches River | NF Little Naches | MF Little Naches | Bear Creek | Quartz Creek |
|---------------------|---------------------|------------------|------------------|------------|--------------|
| Bull Trout | P/M | | | | P/M |
| Rainbow Trout | P/M | P/M | P/M | P/M | P/M |
| Westslope Cutthroat | P/M | P/M | P/M | P/M | P/M |
| Eastern Brook Trout | P/M | | | | P/M |
| Spring Chinook | R, S | S | | R | R |
| Summer Steelhead | S | S | S | S | P/M |

P/M = presence/migration; S = spawning; R= rearing

Installation of fish passage facilities at Salmon Falls (RM 4.4) in 1988 allowed anadromous fish to access approximately 18 miles of upstream habitat on the Little Naches River. There are no constructed barriers to migrating fish along any of the forks of the Little Naches River or the mouths of most tributary streams. A dewatered reach

along the North Fork, resulting from sediment loading, may inhibit access by spring Chinook (Haring 2001).

The Yakima Basin Integrated Water Resource Management Plan (Reclamation and Ecology 2011s) recommends acquisition of lands at the headwaters of the Little Naches River. Preservation of the upper reach is viewed as important maintaining for water quality, particularly cool temperatures for bull trout, as well as current or potential salmon and steelhead spawning grounds.

5.2.2.2 Water Quality

The North Fork Little Naches River is currently on Ecology's 303(d) list for high water temperatures. Removal of riparian vegetation and the subsequent lack of shade are likely the major reasons for high summer temperatures. A TMDL has been developed to address temperatures in the upper Naches River watershed (Ecology, 2004).

As described above, excess sediment is also an issue for water quality in the Little Naches River. Erosion has resulted from timber harvest, road building, wildfires, debris flows, and recreational use (Haring 2001).

5.2.2.3 Riparian Habitat Conditions (Land Cover)

Riparian vegetation along the Little Naches River and its tributaries is mainly coniferous forest in various stages of succession and harvest. Upstream of Salmon Falls, riparian vegetation is in excellent condition with the exception of areas along forest roads and camping areas. Riparian vegetation has been severely degraded downstream of the falls to the river mouth as a result of highway construction and channelization of the stream. Natural meadows along Bear Creek limit potential shade levels (Haring 2001).

5.2.2.4 Wetlands

Approximately one-third of the Little Naches River and North Fork shoreline inventory areas are mapped as wetland. Less than a third of the Quartz Creek shoreline is mapped as wetland, and a very small amount of the Bear Creek shoreline contains wetland areas. Mapped wetlands are mainly forested and scrub-shrub communities.

5.2.2.5 Wildlife Habitats and Species

Priority habitats and species mapped along the Little Naches River and its tributaries include elk calving areas, northern spotted owl (federally listed threatened species), talus slopes, and harlequin duck.

5.2.3 Land Use

With the exception of a private inholding at its upstream end, the Little Naches River flows through National Forest land. The North and Middle Forks of the river flow through a checkerboard of private and National Forest lands. Bear and Quartz Creeks flow through National Forest land. The private inholdings are zoned for commercial forestry and are inaccessible from public roads.

According to National Forest mapping data, there are two “special use” authorizations identified within the inventory area of the mainstem Little Naches River. A National Forest special use authorization allows for non-federal and temporary occupancy, use, rights, or privileges of National Forest lands.

5.2.4 Public Access

The middle portion of the Little Naches River within Kittitas County is accessible from a snowmobile trail/Forest Service road that parallels much of its length. The snowmobile trail/Forest Service road also crosses Quartz Creek near its confluence with the Little Naches River.

5.2.5 Reach Sheets

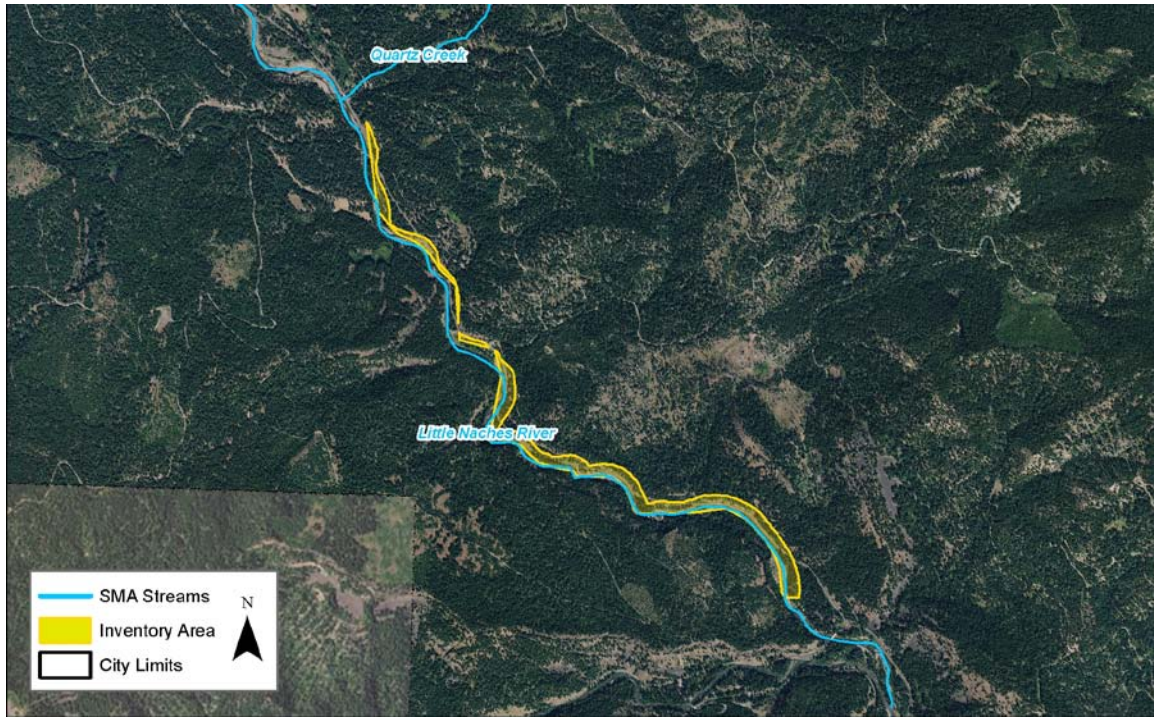
LITTLE NACHES RIVER-REACH 1

SHORELINE LENGTH:

1.6 Miles

REACH INVENTORY AREA:

66.5 Acres



PHYSICAL AND ECOLOGICAL FEATURES

CHANNEL CONFIGURATION

The reach flows to the southeast and is largely undeveloped.

LAND COVER (MAP FOLIO #3)

Land cover within the reach is conifer-dominated forest (100%).

HAZARD AREAS (MAP FOLIO #2 & APPENDIX C)

The reach is not located within the FEMA 100-year floodplain and no landslide hazard areas are mapped. The majority of the reach (77%) has potential for channel migration.

HABITATS AND SPECIES (MAP FOLIO #1)

WDFW mapping shows that the reach provides spawning habitat for spring Chinook and summer steelhead. The presence of bull trout, eastern brook trout, rainbow trout, and westslope cutthroat is also identified.

WATER QUALITY

The reach is listed on the State's Water Quality Assessment list of 303 (d) Category 5 waters for temperature, and a TMDL is required, but has not been implemented.

A small area (5%) of the reach is mapped as wetland. Priority elk calving area is mapped within the reach.

BUILT ENVIRONMENT AND LAND USE

SHORELINE MODIFICATIONS (MAP FOLIO #1)

A Forest Service road parallels the eastern bank of the stream.

PUBLIC ACCESS (MAP FOLIO #4)

A snowmobile trail/Forest Service road traverses through the upstream portion of the regulated stream area. The Sawmill Flat Campground is located adjacent to the eastern reach boundary.

EXISTING LAND USES AND OWNERSHIP (MAP FOLIO #4)

Land use within the reach is forestry (100%). Land ownership is 100% public (Forest Service).

CONTAMINATED SITES

No identified contaminated sites are located within this reach.

ZONING (MAP #5)

Lands within the reach are zoned for commercial forest (100%).

CULTURAL AND ARCHAEOLOGICAL RESOURCES

There are 6 recorded precontact sites, and 2 recorded historic sites located within the reach. The precontact sites feature rockshelters that were determined eligible for listing on the National Register.

SHORELINE FUNCTION ANALYSIS

FISH HABITAT QUALITY

High: The stream is largely unaltered and provides habitat for several priority fish species, including spawning and rearing habitat.

TERRESTRIAL HABITAT QUALITY

High: The reach is generally well-forested and is connected to a large area of contiguous forest habitat.

VEGETATION FUNCTIONS

High: The reach area generally consists of dense, mature forest cover.

HYDROLOGIC FUNCTIONS

Medium: The stream is largely unaltered, but is located within a relatively narrow floodplain.

KEY MANAGEMENT ISSUES AND OPPORTUNITIES

- Protect the high-quality forest habitat within the reach.
- Manage recreational activity to reduce impacts on vegetation and subsequent erosion.
- Decommission and revegetate any unused roads along the shoreline.

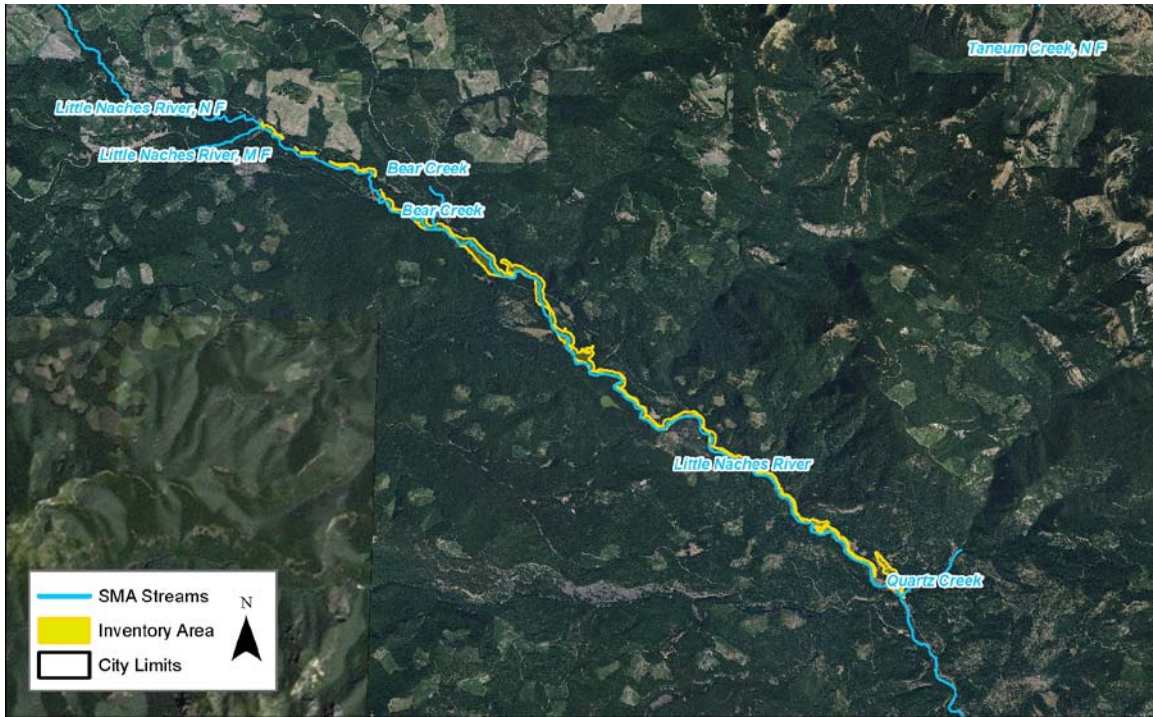
LITTLE NACHES RIVER-REACH 2

SHORELINE LENGTH:

4.4 Miles

REACH INVENTORY AREA:

271.7 Acres



PHYSICAL AND ECOLOGICAL FEATURES

CHANNEL CONFIGURATION

The reach flows to the southeast, and is generally undeveloped.

LAND COVER (MAP FOLIO #3)

Land cover within the reach is conifer-dominated (73%), riparian vegetation (8%), harvested forest (1%), shrubland (1%), and other (18%).

HAZARD AREAS (MAP FOLIO #2 & APPENDIX C)

The reach is not located within the FEMA 100-year floodplain and no landslide hazard areas are mapped. The majority of the reach (79%) has potential for channel migration.

HABITATS AND SPECIES (MAP FOLIO #1)

WDFW mapping shows that the reach provides spawning and rearing habitat for spring Chinook and spawning habitat for summer steelhead. The presence of bull trout, eastern brook trout, rainbow trout, and westslope cutthroat is also identified.

WATER QUALITY

The reach is listed on the State's Water Quality Assessment list of 303 (d) Category 5 waters for temperature, and a TMDL is required, but has not been implemented.

Over one-third (37%) of the reach is mapped as wetland. Priority Harlequin duck, Rocky Mountain elk, and elk calving area are mapped within the reach.

The Washington Natural Heritage Program maps the Little Naches River: Reach 2 shoreline inventory area as habitat for Oregon golden aster.

BUILT ENVIRONMENT AND LAND USE

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| <p>SHORELINE MODIFICATIONS (MAP FOLIO #1) A Forest Service road parallels the stream, and crosses in the stream in several locations.</p> | <p>PUBLIC ACCESS (MAP FOLIO #4) A snowmobile trail/Forest Service road traverses through portions of the downstream regulated stream area and crosses the stream approximately mid-reach.</p> |
| <p>EXISTING LAND USES AND OWNERSHIP (MAP FOLIO #4) Land use within the reach is forestry (100%). Land ownership is 2% private and 98% public (Forest Service).</p> | <p>CONTAMINATED SITES No identified contaminated sites are located within this reach.</p> |
| <p>ZONING (MAP #5) Lands within the reach are primarily zoned for commercial forest (86%); some areas are not zoned (14%).</p> | <p>CULTURAL AND ARCHAEOLOGICAL RESOURCES There are 7 recorded precontact sites, 3 historic sites, and 1 precontact and historic site located within the reach. The Naches Trail historic site was determined eligible for listing on the National Register.</p> |

SHORELINE FUNCTION ANALYSIS

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|---|--|
| <p>FISH HABITAT QUALITY High: The stream is largely unaltered and provides habitat for several priority fish species, including spawning and rearing habitat.</p> | <p>TERRESTRIAL HABITAT QUALITY High: The reach is generally well-forested and is connected to a large area of contiguous forest habitat.</p> |
| <p>VEGETATION FUNCTIONS High: The reach area generally consists of dense, mature forest cover.</p> | <p>HYDROLOGIC FUNCTIONS Medium: The stream is largely unaltered, but is located within a relatively narrow floodplain.</p> |

KEY MANAGEMENT ISSUES AND OPPORTUNITIES

- Protect the high-quality forest and wetland habitat within the reach.
- Manage recreational activity to reduce impacts on vegetation and subsequent erosion.
- Decommission and revegetate any unused roads along the shoreline.

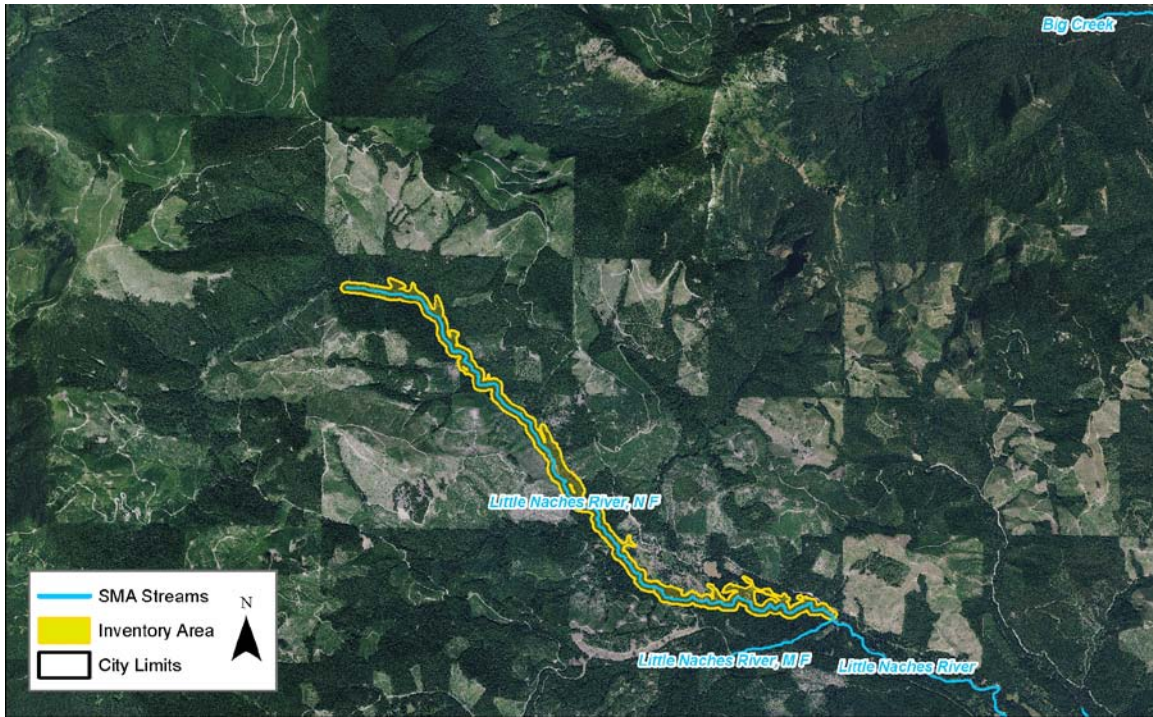
NORTH FORK LITTLE NACHES RIVER

SHORELINE LENGTH:

5.4 Miles

REACH INVENTORY AREA:

314.2 Acres



PHYSICAL AND ECOLOGICAL FEATURES

CHANNEL CONFIGURATION

The reach generally flows to the southeast within an undeveloped corridor. Clear-cut logging practices have occurred on the southern bank of the reach at several locations. The downstream bank topography is flatter than upstream.

LAND COVER (MAP FOLIO #3)

Land cover within the reach is conifer-dominated forest (82%), riparian vegetation (15%), and harvested forest (3%).

HAZARD AREAS (MAP FOLIO #2 & APPENDIX C)

The reach is not located within the FEMA 100-year floodplain and no landslide hazard areas are mapped. Almost the entire reach (96%) has potential for channel migration.

HABITATS AND SPECIES (MAP FOLIO #1)

WDFW mapping shows that the reach provides spawning habitat for spring Chinook and summer steelhead. The presence of bull trout, eastern brook trout, rainbow trout, and westslope cutthroat is also identified.

WATER QUALITY

The reach is listed on the State's Water Quality Assessment list of 303 (d) Category 5 waters for temperature, and a TMDL is required, but has not been implemented.

Approximately 29% of the reach is mapped as wetland. Priority elk calving areas are mapped within the reach.

| BUILT ENVIRONMENT AND LAND USE | |
|--|---|
| <p>SHORELINE MODIFICATIONS (MAP FOLIO #1) No shoreline modifications are identified within the reach.</p> | <p>PUBLIC ACCESS (MAP FOLIO #4) There is no known public access to the reach.</p> |
| <p>EXISTING LAND USES AND OWNERSHIP (MAP FOLIO #4) Land use within the reach is forestry (100%). Land ownership is 37% private and 63% public (Forest Service).</p> | <p>CONTAMINATED SITES No identified contaminated sites are located within this reach.</p> |
| <p>ZONING (MAP #5) Lands within the reach are zoned for commercial forest (100%).</p> | <p>CULTURAL AND ARCHAEOLOGICAL RESOURCES There are no recorded sites within the reach.</p> |

| SHORELINE FUNCTION ANALYSIS | |
|---|--|
| <p>FISH HABITAT QUALITY High: The stream is largely unaltered and provides habitat for several priority fish species, including spawning and rearing habitat.</p> | <p>TERRESTRIAL HABITAT QUALITY High: The reach is generally well-forested and is connected to a large area of contiguous forest habitat.</p> |
| <p>VEGETATION FUNCTIONS High: The reach area generally consists of dense, mature forest cover.</p> | <p>HYDROLOGIC FUNCTIONS Medium: The stream is largely unaltered, but is located within a relatively narrow floodplain.</p> |

| KEY MANAGEMENT ISSUES AND OPPORTUNITIES |
|--|
| <ul style="list-style-type: none"> • Protect the high-quality wetland and forest habitat within the reach. • There is no identified public access within the reach. • Decommission and revegetate any unused roads along the shoreline. • New development should be set back an adequate distance to protect stream functions. |

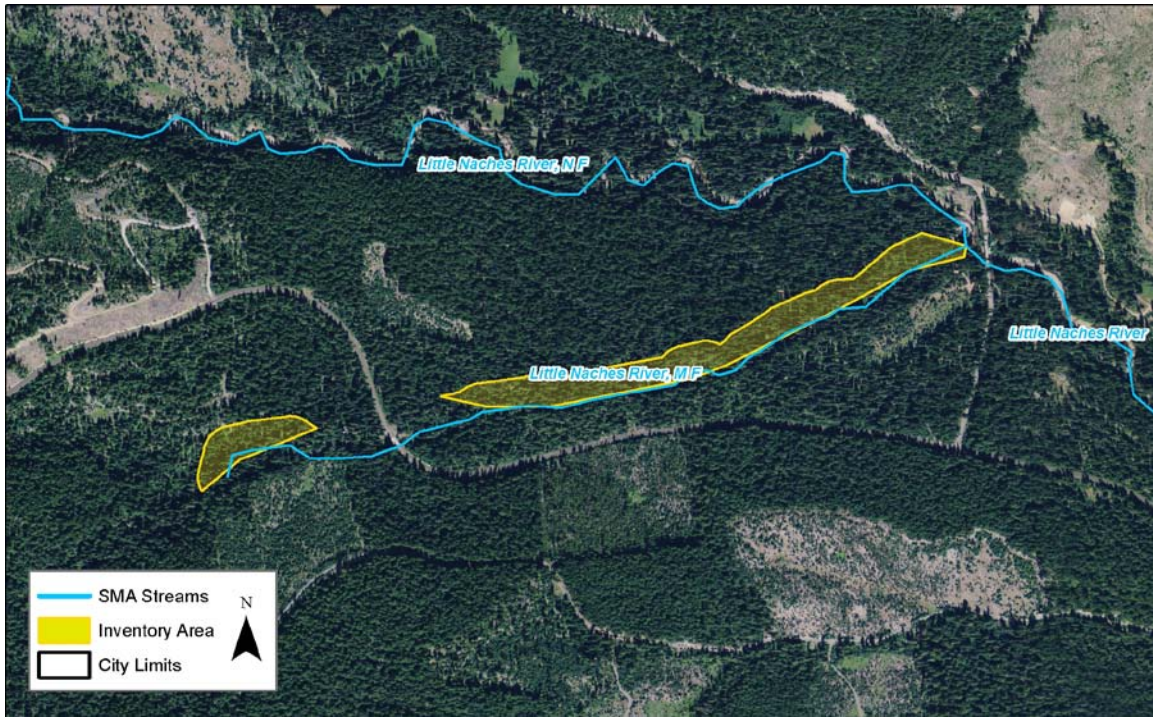
MIDDLE FORK LITTLE NACHES RIVER

SHORELINE LENGTH:

0.3 Miles

REACH INVENTORY AREA:

19.8 Acres



PHYSICAL AND ECOLOGICAL FEATURES

CHANNEL CONFIGURATION

The reach roughly flows west to east. The stream is undeveloped and flows through a heavily forested corridor.

LAND COVER (MAP FOLIO #3)

Land cover within the reach is conifer-dominated forest (90%) and riparian vegetation (10%).

HAZARD AREAS (MAP FOLIO #2 & APPENDIX C)

The reach is not located within the FEMA 100-year floodplain and no landslide hazard areas are mapped. Over half of the reach (55%) has potential for channel migration.

HABITATS AND SPECIES (MAP FOLIO #1)

WDFW mapping shows that the reach provides spawning habitat for summer steelhead. The presence of bull trout, eastern brook trout, rainbow trout, and westslope cutthroat is also identified.

WATER QUALITY

The reach is listed on the State's Water Quality Assessment list of 303 (d) Category 5 waters for temperature, and a TMDL is required, but has not been implemented.

No wetlands are mapped within the reach. Priority elk calving area is mapped within the entire reach.

BUILT ENVIRONMENT AND LAND USE

| | |
|--|---|
| <p>SHORELINE MODIFICATIONS (MAP FOLIO #1) No shoreline modifications are identified within the reach.</p> | <p>PUBLIC ACCESS (MAP FOLIO #4) There is no known public access to the reach.</p> |
| <p>EXISTING LAND USES AND OWNERSHIP (MAP FOLIO #4) Land use within the reach is forestry (100%). Land ownership is 12% private and 88% public (Forest Service).</p> | <p>CONTAMINATED SITES No identified contaminated sites are located within this reach.</p> |
| <p>ZONING (MAP #5) Lands within the reach are zoned for commercial forest (100%).</p> | <p>CULTURAL AND ARCHAEOLOGICAL RESOURCES There are 2 recorded precontact sites and 1 recorded precontact and historic site located within the reach. The Naches Pass Wagon Road is a historic trail that was determined eligible for listing on the National Register.</p> |

SHORELINE FUNCTION ANALYSIS

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|---|--|
| <p>FISH HABITAT QUALITY High: The stream is largely unaltered and provides habitat for several priority fish species, including spawning and rearing habitat.</p> | <p>TERRESTRIAL HABITAT QUALITY High: The reach is generally well-forested and is connected to a large area of contiguous forest habitat.</p> |
| <p>VEGETATION FUNCTIONS High: The reach area generally consists of dense, mature forest cover.</p> | <p>HYDROLOGIC FUNCTIONS Medium: The stream is largely unaltered, but is located within a relatively narrow floodplain.</p> |

KEY MANAGEMENT ISSUES AND OPPORTUNITIES

- Protect the high-quality forest habitat within the reach.
- There is no identified public access within the reach.
- Decommission and revegetate any unused roads along the shoreline.
- New development should be set back an adequate distance to protect stream functions.

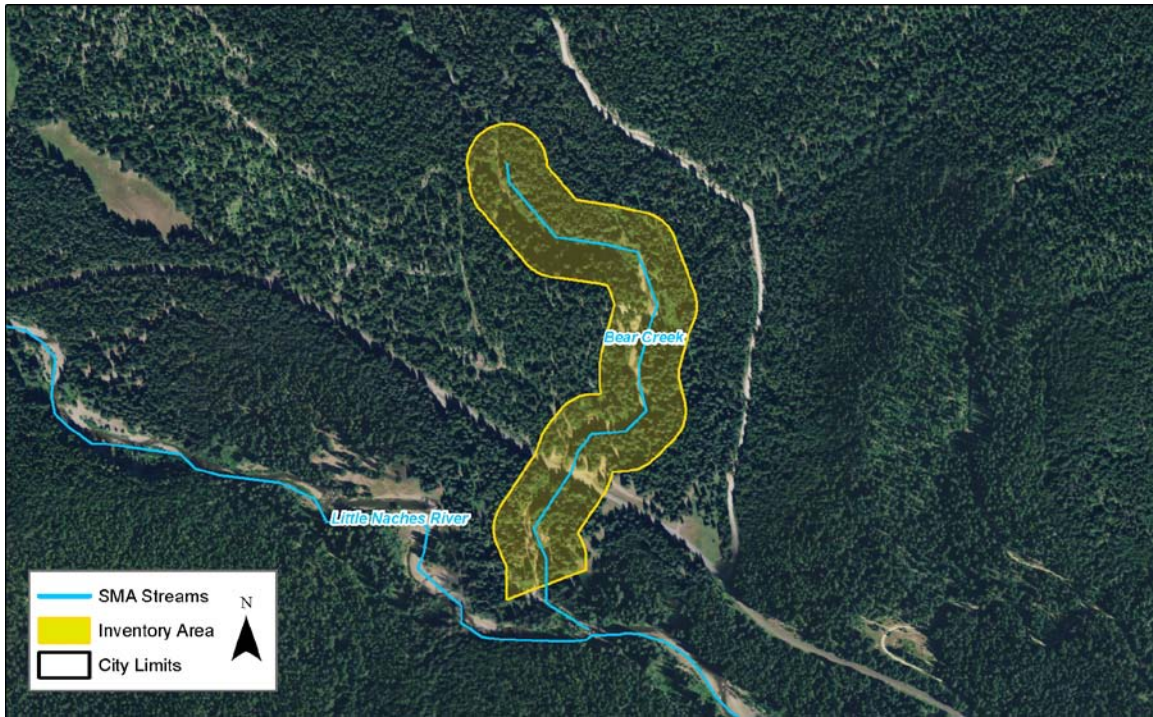
BEAR CREEK

SHORELINE LENGTH:

0.6 Miles

REACH INVENTORY AREA:

28.1 Acres



PHYSICAL AND ECOLOGICAL FEATURES

CHANNEL CONFIGURATION

The reach flows north to south within an undeveloped, forested corridor.

LAND COVER (MAP FOLIO #3)

Land cover within the reach is conifer-dominated forest (94%) and riparian vegetation (6%).

HAZARD AREAS (MAP FOLIO #2 & APPENDIX C)

The reach is not located within the FEMA 100-year floodplain and no landslide hazard areas are mapped. Almost the entire reach (87%) has potential for channel migration.

HABITATS AND SPECIES (MAP FOLIO #1)

WDFW mapping shows that the reach provides rearing habitat for spring Chinook and spawning habitat for summer steelhead. The presence of bull trout, eastern brook trout, rainbow trout, and westslope cutthroat is also identified.

WATER QUALITY

Temperature data are not sufficient for listing the reach, but raise concern about water quality, per the State's Water Quality Assessment.

A limited extent (3%) of the reach is mapped as wetland. Priority elk calving habitat is mapped within the reach.

| BUILT ENVIRONMENT AND LAND USE | |
|---|---|
| <p>SHORELINE MODIFICATIONS (MAP FOLIO #1) A Forest Service road crosses the stream approximately mid-reach.</p> | <p>PUBLIC ACCESS (MAP FOLIO #4) There is no known public access to the reach.</p> |
| <p>EXISTING LAND USES AND OWNERSHIP (MAP FOLIO #4) Land use within the reach is forestry (100%). Land ownership is 100% public (Forest Service).</p> | <p>CONTAMINATED SITES No identified contaminated sites are located within this reach.</p> |
| <p>ZONING (MAP #5) Lands within the reach are primarily zoned for commercial forest (98%); a limited area is not zoned (2%).</p> | <p>CULTURAL AND ARCHAEOLOGICAL RESOURCES A single recorded historic site is located within the reach. The site consists of ceramic insulators and probably was a fire communication line built in the 1930s.</p> |

| SHORELINE FUNCTION ANALYSIS | |
|---|--|
| <p>FISH HABITAT QUALITY High: The stream is largely unaltered and provides habitat for several priority fish species, including spawning and rearing habitat.</p> | <p>TERRESTRIAL HABITAT QUALITY High: The reach is generally well-forested and is connected to a large area of contiguous forest habitat.</p> |
| <p>VEGETATION FUNCTIONS High: The reach area generally consists of dense, mature forest cover.</p> | <p>HYDROLOGIC FUNCTIONS Medium: The stream is largely unaltered, but is located within a relatively narrow floodplain.</p> |

| KEY MANAGEMENT ISSUES AND OPPORTUNITIES |
|---|
| <ul style="list-style-type: none"> • Protect the high-quality forest habitat within the reach. • There is no identified public access within the reach. |

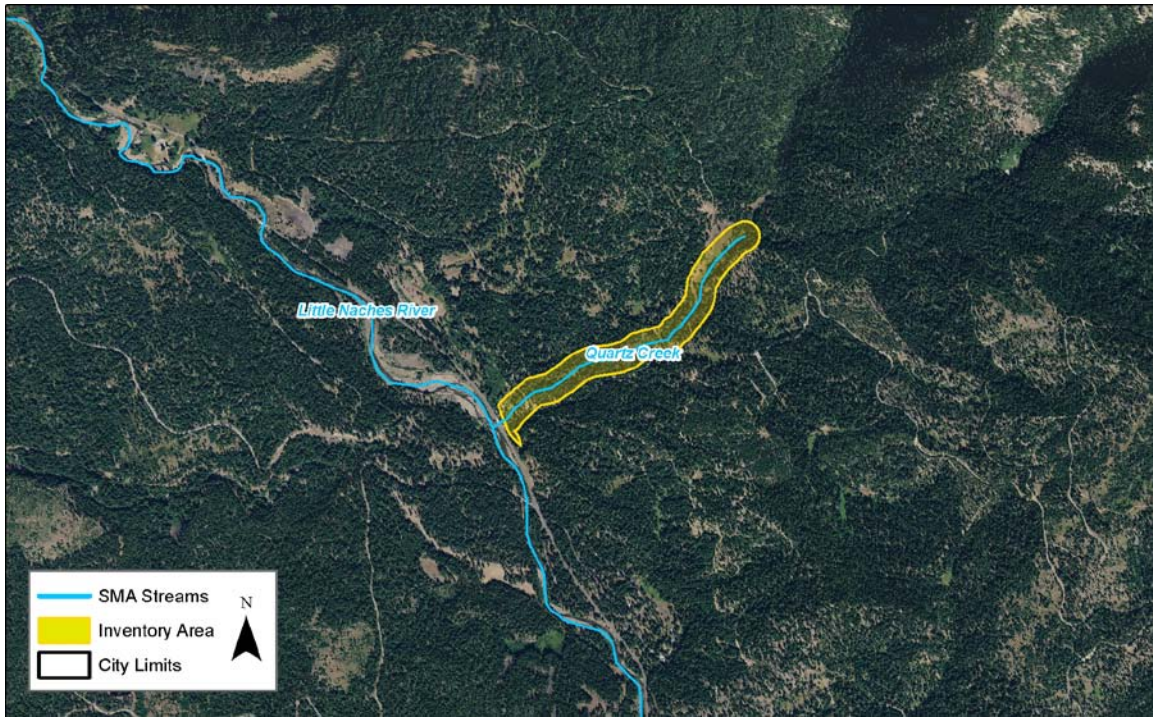
QUARTZ CREEK

SHORELINE LENGTH:

0.8 Miles

REACH INVENTORY AREA:

42.2 Acres



PHYSICAL AND ECOLOGICAL FEATURES

CHANNEL CONFIGURATION

The reach flows to the southwest within an undeveloped, forested corridor.

LAND COVER (MAP FOLIO #3)

Land cover within the reach is conifer-dominated forest (93%) and riparian vegetation (7%).

HAZARD AREAS (MAP FOLIO #2 & APPENDIX C)

The reach is not located within the FEMA 100-year floodplain and no landslide hazard areas are mapped. The lower portion of the reach (28%) is within the channel migration zone of the Little Naches River.

HABITATS AND SPECIES (MAP FOLIO #1)

WDFW mapping shows that the reach provides rearing habitat for spring Chinook. The presence of bull trout, eastern brook trout, rainbow trout, summer steelhead, and westslope cutthroat is also identified.

WATER QUALITY

The reach is not listed on the State's Water Quality Assessment list of 303 (d) waters.

A small area (18%) of wetland is mapped within the reach. Priority elk calving area and Harlequin duck, are mapped within the reach. Talus slopes, a priority habitat, is also mapped within the reach.

BUILT ENVIRONMENT AND LAND USE

SHORELINE MODIFICATIONS (MAP FOLIO #1)

There are no shoreline modifications identified within the reach.

PUBLIC ACCESS (MAP FOLIO #4)

A snowmobile trail/Forest Service road crosses the stream near the confluence with Little Naches River. A dog sled trail is located within the regulated stream area, near the stream mouth.

EXISTING LAND USES AND OWNERSHIP (MAP FOLIO #4)

Land use within the reach is forestry (100%). Land ownership is 100% public (Forest Service).

CONTAMINATED SITES

No identified contaminated sites are located within this reach.

ZONING (MAP #5)

Lands within the reach are zoned for commercial forest (100%).

CULTURAL AND ARCHAEOLOGICAL RESOURCES

There are 2 recorded precontact sites located within the reach that feature lithic material.

SHORELINE FUNCTION ANALYSIS

FISH HABITAT QUALITY

High: The stream is largely unaltered and provides habitat for several priority fish species, including spawning and rearing habitat.

TERRESTRIAL HABITAT QUALITY

High: The reach is generally well-forested and is connected to a large area of contiguous forest habitat.

VEGETATION FUNCTIONS

High: The reach area generally consists of dense, mature forest cover.

HYDROLOGIC FUNCTIONS

Medium: The stream is largely unaltered, but is located within a relatively narrow floodplain.

KEY MANAGEMENT ISSUES AND OPPORTUNITIES

- Protect the high-quality wetland and forest habitat within the reach.
- Manage recreational activity to reduce impacts on vegetation and subsequent erosion.