

RAGING RIVER (RM 0.0–11.0), SEPTEMBER 11–13, 2002

OVERVIEW

The Raging River (Map 10) flows out of forested timberlands, through rural residential properties and the towns of Preston and Fall City; and then joins the Snoqualmie River at Snoqualmie RM 34.9. Most of the Raging River has a steep gradient with cobble substrate that is coated with a slippery algae. The bedload appeared to be dynamic with scouring and depositing of sediments evident everywhere. This may be a natural condition, the result of over-sedimentation from logging practices in the headwaters, or altered hydrology from the development in the basin.

RM 0.0–1.3, URBAN DEVELOPMENT AND CONTAINMENT LEVEES

Reach Overview:

LWD: 4 pieces, 0 pools

The Raging River is confined in a narrow channel between containment levees for the lowest 1.3 river miles before its confluence with the mainstem Snoqualmie River. The levees are approximately 60 feet apart, and the wetted width ranged from 10 to 60 feet

Accumulation of sediment in this reach has resulted in aggradation of the riverbed so that the channel is several feet higher in elevation than the surrounding land. The substrate in the channel was cobble and gravel embedded with fines, and gravel bars were built up as much as five feet above the channel.

Although the habitat reconnaissance was conducted during summer low flow conditions, the river flow was too swift as the wetted stream navigated around the tall gravel bars to provide much rearing habitat for fish. Riparian vegetation throughout this reach was very poor and was dominated by invasive shrubs; however tall, mature cottonwoods aligned the RB and provided some shade. There was very little LWD or other types of cover in this reach.

Site-Specific Observations:

At RM 0.2, there was a terrace with cobbles as large as 10 inches in diameter. Juvenile coho and trout fry were observed in a long glide at RM 0.3.

The Preston-Fall City Road crosses the Raging River over a bridge at RM 0.4. Sediment under one span of the bridge had accumulated up to 10 feet below the bridge, indicating that there is inadequate space under the bridge for high flow events.

There was evidence of beaver activity between RM 0.4–0.8. A small woody debris jam at RM 0.6 was created by a beaver and included one small channel-spanning piece of wood (Photo RA1). A property owner on the LB expressed some concerns about the woody debris but the field technicians assured him that any high flow would knock out the jam.

At RM 1.1, the LB levee was 8–10 feet in height and very steep, spilling riprap into the channel. Logs with rootwads were chained into this portion of the levee.

RM 1.3–8.0, RURAL RESIDENTIAL

Reach Overview:

LWD: 321 pieces, 15 pools

Three roads run alongside or near the Raging River in this reach: Preston-Fall City Road (RM 1.3–4.7), Interstate 90 (RM 4.7–6.1), and Upper Preston Road (RM 4.0–7.9). Road crossings are frequent. The proximity of these roads suggests a potential ongoing source of stormwater runoff that could transport sediment, nutrients, and other pollutants to the river, thereby impairing water quality.

Between RM 1.3 and 2.0, the riparian vegetation was of better quality than in the most downstream reach (RM 0.0–1.3) (Photo RA2). There were mature conifers, deciduous trees, and dense shrubs on both banks, although invasive shrubs such as English ivy and Japanese knotweed were still frequent. Upstream of RM 2.0, the riparian vegetation was patchy, with predominantly immature or sparse trees due to the frequency of homes and road crossings. The riparian shrubs were dense where there were no homes and cleared for yards where houses were present. The shrubs were mixed invasives and some natives such as salmonberry and vine maple. The upstream extent of budlea (butterfly bush) invasion was at RM 5.0 and the farthest upstream sighting of Japanese knotweed was at RM 7.4.

Homes along the river were very close to the banks (Photo RA3); some homeowners have built revetments to protect their properties from flooding and erosion. Riparian vegetation was completely cleared from some yards (Photo RA4). Others had lawns that were contained to small areas; therefore, mature trees and native shrubs were still present.

The occasional exposure of hardpan along the banks throughout this reach is evidence of the occurrence of high scour events. LWD was not abundant; it might have been cleared by residents or moved downstream during high flows.

A resident near a bridge crossing at RM 7.5 informed the field technicians that the Washington Department of Fish and Wildlife releases steelhead smolts into the Raging River at that bridge. Juvenile coho and old redds were observed throughout this reach. The juvenile fish preferred glide habitat to the infrequent pools. Sculpin, suckerfish, dace, and trout were also observed in this reach, as were caddisflies, mayflies, and stoneflies. Deer and beaver were abundant.

Site-Specific Observations:

A water withdrawal pipe led to a house on the RB at RM 1.6. At RM 1.6, there was a large deposit of sorted gravel that looked like good spawning habitat.

Riprap was patchy from RM 1.4 – 1.6, but was then continuous to RM 2.0. At RM 1.8, very steep riprap was protecting a road on the RB and dumping rocks into the river.

A bridge crossing at RM 2.0 has a very narrow base of approximately 30 feet from toe to toe, which is inadequate space to provide suitable fish passage at higher flows. A long delta of 8–10 inch rocks had built up about 100 feet upstream of the bridge, indicating that the bridge backs up water at high flows.

Between RM 2.0 and 2.3, the Raging River flows through a narrow box canyon with rock walls that are 30 feet high on each side. The gradient was moderately steep through the canyon. There were no homes in this reach. The riparian vegetation was composed of dense, mature trees and native shrubs; the shrubs were sparse because the banks are predominantly bedrock. Two large pools were found in the box canyon; one of the pools was at least four feet deep. Summer rearing conditions for salmonids were

excellent, but flows through the narrow canyon might be too swift for over-wintering habitat. An abandoned footing from an old railroad bridge at RM 2.3 had scoured a deep and long pool at the base of the pilings. The channel was split around a gravel bar upstream of the pilings. The box canyon was naturally constraining the channel, and the bridge footings constrained it even more. The resulting gravel bar was six feet high with an accumulation of wood on the upstream side. There were many juvenile coho salmon in the smaller of the channels around the gravel bar. The bigger channel was very steep with a swift flow.

Immediately upstream of the gravel bar at RM 2.4, a long glide with a wetted width of 35 feet appeared to provide good fish habitat. Smaller side channels at RM 2.4 and RM 3.6 were being used by juvenile coho. Large caddisflies, some chironomids, and mayflies were observed along with raccoon prints at RM 3.4. Redds were observed at RM 3.5.

Several dead dace had been observed in the Raging River when it was walked on August 28, 2001 (Solomon and Boles, 2002). From RM 3.4–4.4, the river smelled increasingly of diesel fuel. The frequency of dead fish increased with the intensity of the diesel odor until RM 4.4 when both the diesel odor and the dead dace sightings stopped. Diesel fuel may be seeping into the river from the old Preston Mill.

In the summer of 2002, a large slide on the RB at RM 3.7 was estimated to be 8–10 years old by the approximate age of the alders growing on the slide deposit. This slide is located near the mouth of Icy Creek, which was contributing a lot of fine sediments to the Raging River. Upstream of the slide, the gravels were embedded with noticeably fewer fines. Overall, the substrate was gravel with fines downstream of this slide (Photo RA5), and gravel and boulder upstream of this slide. At RM 3.9, the river appeared to be cutting through a terrace, which may have been deposited by sediment from landslides.

Water was leaking from a pipe that bridged the river at RM 6.0; the pipe appeared to have a lot of flow through it. The source of the water may have been a small tributary on the RB.

At RM 6.2, the channel appeared to have been dredged and was cut down to bedrock.

At RM 7.5, riprap that was five feet tall was found on both banks and restricted the channel to a 45-foot-wide OHW. This channel geometry creates dangerously swift water for fish during high water events.

A logjam at RM 7.8 accounted for almost all of the observed LWD in this reach of the Raging River. The logjam was nearly 0.1 mile long, and was the result of a major failure on the LB. Several excellent pools were associated with the LWD in this reach; this was the best fish habitat observed in the Raging River.

RM 8.0–11.0, UNDEVELOPED TIMBER PROPERTY

Reach Overview:

LWD: 310 pieces, 67 pools

Native riparian vegetation was found throughout this reach, except for some reed canary grass at RM 10.2. Shrubs were mostly salmonberry and vine maple, with alder, maple, and conifer trees. The trees were dense and tall on the RB from RM 8.0–9.9 except for 0.1 mile between RM 9.2–9.3, and on the LB from RM 8.0–8.7 and 9.7–9.9. Between RM 8.7–9.7, trees had been cleared up to the river's edge.

Above RM 9.9, the riparian vegetation was patchy due to logging activity right up to the streambanks in some places. Either the trees had been totally cleared or immature trees had been planted in place of the mature trees that were harvested.

The wetted width of the channel was mostly 20–30 feet, with OHW at 40–60 feet except at RM 10.6 and 11.0 where the OHW was constrained to approximately 25 feet. The morphology changed from riffle-glide in the lower gradient portions, to high gradient riffle and step-pool. The gradient ranged from 4% up to 15%. The substrate was mostly boulder, with some reaches of gravel in the riffle-glide habitats.

The water temperature was 12°C (53.6°F) when this forested reach was surveyed on September 13, 2002. Juvenile coho and old redds were observed throughout the length of the reach. Some of the redds were found in substrate that was larger than optimal for coho spawning. Trout and benthic invertebrates were also abundant. Beaver activity was observed in several locations, but there were not any other signs of wildlife. Overall this upper reach had healthy aquatic habitat and was biologically productive.

Site-Specific Observations:

LWD jams with associated pools were noted at RM 8.5, 9.5, 9.9, 10.5, and 10.8. The logjam at RM 8.5 included a piece of old growth timber. The channel was split around gravel bars at RM 8.7, 8.8, 9.5, and 9.9. These gravel bars created smaller channels that offer good high flow refuge. At RM 11.0, the stream entered a canyon with steep rock walls on each side. The gradient was very high through the canyon.

Old railroad tracks and logging cable were abandoned in the river at RM 9.6. It was not clear where the railroad used to be.

Some hardpan exposed at RM 9.9 indicated that this upper reach was also prone to high scour events.

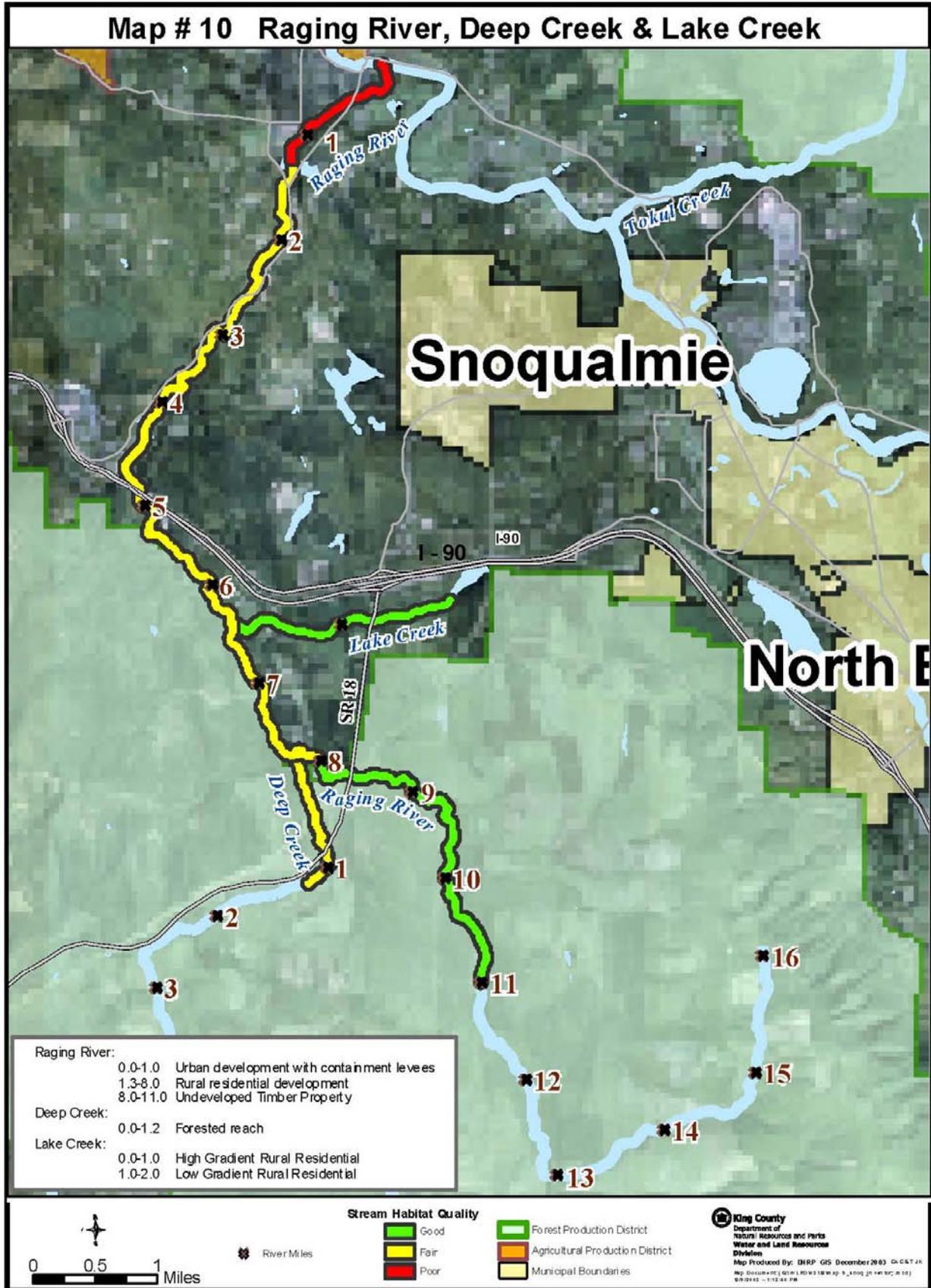




Photo RA1. Log felled by beaver at RM 0.6.

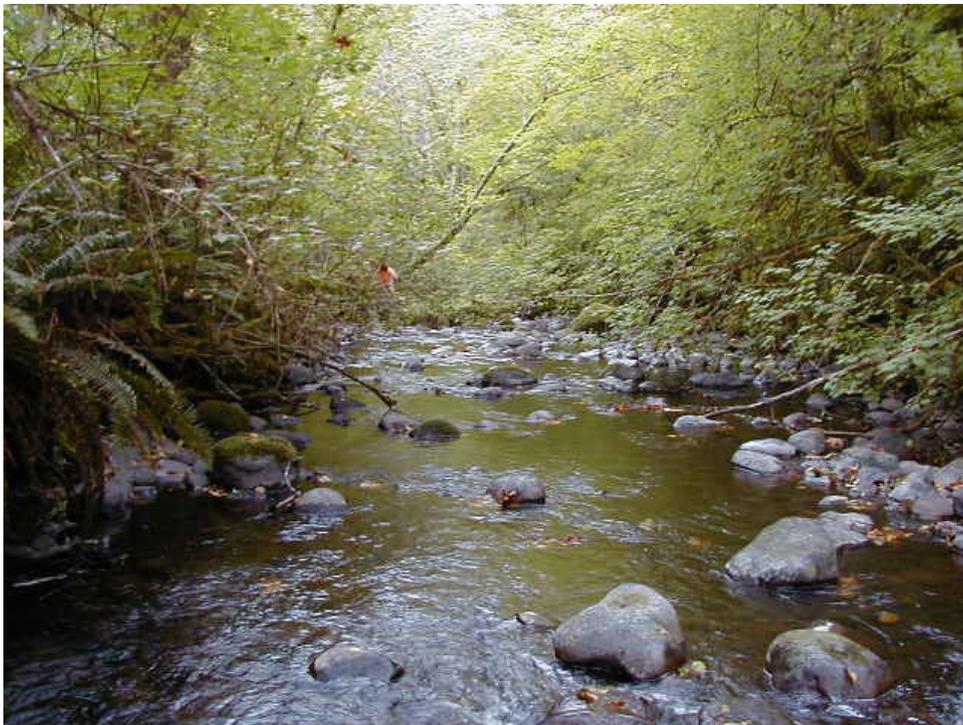


Photo RA2. Healthy riparian vegetation.



Photo RA3. Home perched on left bank.



Photo RA4. Home with cleared riparian vegetation.



Photo RA5. Unsorted gravels.

DEEP CREEK (RM 0.0–1.2), SEPTEMBER 11, 2002

RM 0.0–1.2, FORESTED REACH

Reach Overview:

LWD: 209+ pieces, 38 pools

Deep Creek (Map 10) flows north from Tiger Mountain through forested lands until its confluence with the Raging River at Raging RM 7.7. From the mouth of Deep Creek to RM 1.2, the gradient ranged between 3–5%. The channel morphology was high gradient riffle and pool, with a gravel and pebble substrate and some exposed hardpan and boulders at RM 0.1. The wetted width near the mouth of the creek was 20 feet with a 40 foot OHW. Upstream of RM 0.2, the wetted width was 8–10 feet with a 16-foot OHW.

The riparian canopy was complete through most of the reach and was composed of alder and conifers. The riparian shrubs were all native; salmonberry, vine maple, and devils club were the predominant species. The stream was well shaded by the canopy. The shading likely contributed to the water temperature of 11°C (51.8°F). Additionally, the water was clear.

LWD was abundant and several functioning logjams were observed with large pools associated with them. Two high quality logjams were observed at RM 0.4 and another one was observed at RM 0.8. At RM 1.0, there was more LWD than could be counted. Some of the LWD at this location was comprised of old growth timber.

Coho fry were observed throughout the reach, along with sculpin and trout. In particular, fish were associated with the LWD-scoured pools and a pool under the Highway 18 culvert. Caddisflies were abundant throughout the reach. Deer, cougar, and raccoon tracks were observed as well.

Site-Specific Observations:

There are three homes along Deep Creek between RM 0.0 and 0.1. The two homes on the RB were pumping water from the creek. A bridge just upstream of the mouth provides access to the house on the LB.

Power lines cross Deep Creek at RM 0.5. A horse trail crosses the creek at this location and the banks were mowed to the edges of the creek for fully 0.1 mile. Eagle feathers and a partial carcass were found under the power lines. At RM 0.9, the creek was logged to the banks and some trees that had been retained as a riparian buffer were blown down. Deep Creek flows through a perched culvert under Highway 18. Based on the height that this culvert was perched, the field technicians estimated that this culvert is a barrier to juvenile salmonids, but probably not a barrier to adult coho migration. The culvert had internal weirs to slow water flow and assist fish passage. A pool formed under the culvert was very deep and surrounded with cement bags to protect the banks from scour. More than 30 trout at least 8 inches long and many juvenile coho were observed in the pool.

LAKE CREEK (RM 0.0–2.0), AUGUST 27, 2002

OVERVIEW:

Lake Creek (Map 10) is two miles long and flows west from Echo Lake into the Raging River at Raging RM 6.2. Interstate 90 is located less than 0.5 mile north of the whole length of Lake Creek. There is rural residential development throughout most of Lake Creek's watershed. The riparian shrubs and trees that were observed in the summer of 2002 were mature, and predominantly composed of native species. Many juvenile coho and adult coho carcasses and many crawfish were observed throughout this creek. The water was very clear. Overall stream habitat conditions were very healthy.

RM 0.0–1.0, HIGH GRADIENT RURAL RESIDENTIAL

Reach Overview:

LWD: 379 pieces, 65 pools

This reach of Lake Creek was canyon-like in appearance. The channel morphology was riffle-glide-pool. The gradient ranged from 1–3%, and the substrate in the lower half of the reach was gravel and pebble with many boulders. The wetted width was 6–8 feet, with a 12–15 foot OHW. The upper half of this reach had a wetted width of 4–8 feet, with a 10–25-foot OHW. The substrate was mostly gravel and cobble, with some boulders.

Although there are homes throughout the lower mile of Lake Creek, the riparian vegetation was healthy with complete canopy composed of alder, maple, cottonwood, conifers, and native shrubs. Between RM 0.4 and 0.5, the shrubs included salmonberry, vine maple, devils club and some blueberries. Many coho smolts and crawfish were observed.

Site-Specific Observations:

There was a tributary on the LB at RM 0.2, and a house on the RB opposite the tributary. Upper Preston Road SE crosses Lake Creek at RM 0.3. There were two houses on the LB at RM 0.4.

A cougar track was found at RM 0.6. The gradient between RM 0.6–0.8 ranged from 2–3%. The substrate at RM 0.9–1.0 contained large boulders. Here the wetted width was 7 feet and the OHW was 20 feet.

RM 1.0–2.0, LOW GRADIENT RURAL RESIDENTIAL

Reach Overview:

LWD: 29 pieces, 6 pools

Lake Creek was not walked between RM 1.4–1.7 because a landowner complained that the field technicians were trespassing and asked them to leave his property. For the 0.7 mile that was walked, the

substrate was predominantly gravel and pebble, with a gradient of 0.5–1.0%. Alder was the most frequently occurring deciduous tree.

Site-Specific Observations:

An old bridge, possibly a logging bridge, crosses Lake Creek at RM 1.1. The riparian canopy began to open up at this location. There was a long, deep glide at RM 1.2 that had coho fry and a 6-inch trout.

Highway 18 crosses Lake Creek over two culverts at RM 1.3. Downstream of the culverts was a knee-deep pool with coho fry, crawfish, and an 8-inch trout.

At RM 1.7, a culvert under 348th Avenue SE was perched two inches on its lower end. There was a large pool at the base of the perched culvert. The riparian vegetation was very brushy with some skunk cabbage. Many coho fry were observed in the creek.

Between RM 1.8 and 2.0, the riparian canopy was composed of 95% conifers and 5% deciduous trees, most of which were alder. The riparian shrubs were vine maple and salmonberry. The stream flow was very low and the gradient was 2%. Coho fry were observed all the way up to Echo Lake. The substrate was predominantly silt, with some pebbles. The wetted width was 3 feet and the OHW was 10–12 feet.

There were houses on the RB at RM 1.8 and RM 2.0. There was a broken pipe of undetermined purpose at RM 1.9 on the RB; no visible discharge was observed. There are two bridge crossings in this area: an 8-foot wide bridge at 350th Avenue SE at RM 1.9 and a wooden bridge at RM 2.0.

TOKUL CREEK (RM 0.0–1.4), SEPTEMBER 24–25, 2002

RM 0.0–1.4, ANADROMOUS FISH-BEARING REACH

Reach Overview:

LWD N/A, pools N/A

Tokul Creek (Map 11) is a direct tributary to the Snoqualmie River that enters the Snoqualmie at Snoqualmie RM 38. Except for the lowest 0.5 RM, Tokul Creek flows through undeveloped Forest Production District. A natural barrier at river mile 1.4 excludes most of this watershed to anadromous fish migration. Within this 1.4-mile reach, there are several ongoing hillslope failures on the LB; the most significant failure occurs at RM 0.3. A revetment along the RB from RM 0.5 to the mouth has deflected the flow against the LB, undermining the stability of that bank. This revetment protects a Washington Department of Fish and Wildlife (WDFW) fish hatchery. The landslide at RM 0.3 adversely affects habitat quality and fish access to Tokul Creek. Another major slide in this reach occurred at RM 0.5 and was caused by a previous bridge crossing of SR 202 that is just downstream of the current SR 202 crossing.

Access to Tokul Creek from the mouth to just upstream of the slide at RM 0.3 was not possible because the area was too dangerous to walk. Some photos of the slide area that were shot from the fish hatchery illustrate a substantial construction effort to contain the slide area (Photos Tokul1-2).

Upstream of RM 0.3, the wetted width was 36 feet with a 50-foot OHW. The canopy was composed of immature conifers, alder, and maple (Photo Tokul3). The water was very turbid; visibility was only 1.5 meters on September 24 and 1.4 meters on September 25.

Site-Specific Observations:

A pair of chinook spawners was observed near the SR 202 crossing. An adult chinook carcass was observed washed against a fish weir for the hatchery intake near the live fish (Photo Tokul4).

A photo of the landslide at RM 0.5 shows some immature vegetation beginning to stabilize the slide area (Photo Tokul5). At this location, residents of the area advised the field technicians to leave Tokul Creek because of safety concerns around a gun range at RM 0.8.

The approximately 70 foot high waterfall at RM 1.4 is a certain barrier for all salmonids except possibly steelhead (Photo Tokul6). A resident downstream of the waterfall told the field technicians that salmonids are not able to migrate past the SR 203 bridge, and that any salmonids upstream of the bridge have been transported by the hatchery.





Photo Tokul1. Construction on landslide at RM 0.3



Photo Tokul2. Efforts to contain sediments at RM 0.3



Photo Tokul3. Looking upstream from SR 202 bridge.



Photo Tokul4. Chinook mortality at hatchery intake.



Photo Tokul5. Old landslide caused by previous SR 202 bridge.



Photo Tokul6. Fish passage barrier at RM 1.4.

SUMMARY AND CONCLUSIONS

The results of the habitat reconnaissance that was conducted on 14 Snoqualmie Watershed rivers and streams corroborate previous findings that the Snoqualmie Watershed has some healthy aquatic habitat, but there are impaired habitat conditions at many locations. Table 1 describes the reaches of the rivers and streams that were walked in 2002, rates the habitat quality of each as good, fair or poor (based on criteria cited in the Methods section of this report), and summarizes the major habitat issues that were observed.

“Good” habitat quality was found for 23.6 river miles (39.6% of the total 59.6 miles in the habitat reconnaissance) and “poor” habitat quality was found for 18.9 river miles (31.7% of the total). “Fair” habitat quality was found for the remaining 17.1 river miles (28.7% of the total). Overall, aquatic habitat conditions were better in tributaries to the mainstem Snoqualmie River than in the mainstem, where only 13% of the river miles that were inventoried in the summer of 2000 exhibited good habitat conditions for all habitat features (Solomon and Boles, 2002).

Margaret Creek, Stossel Creek, and Lake Creek were the waterbodies in the summer, 2002 stream reconnaissance survey that had “good” habitat quality in all walked reaches. Tokul Creek was observed to have “poor” habitat quality in the reach that was walked (RM 0.0–1.4). The Margaret Creek subwatershed is mostly forested. The Stossel Creek subwatershed is comprised of undeveloped forest and wetland. Although there is rural residential development in Lake Creek, the dense, mature, Pacific Northwest native riparian vegetation is largely intact. On the other hand, the lower reach of Tokul Creek is largely forested but residential development upstream and a RB revetment from RM 0.5 to the mouth of the creek have impacted habitat quality by contributing to hillslope failures and excessive delivery of fine sediments to the creek. The other 10 inventoried waterbodies displayed a mixture of “good,” “fair,” and/or “poor” habitat quality.

The results of this stream reconnaissance survey highlight five of the nine most important chinook salmon habitat problems that were identified by the WRIA 7 Technical Committee (Snohomish Basin Salmonid Recovery Technical Committee, 1999). These were loss of channel area and complexity resulting from bank protection, disconnecting the channel from its floodplain; dearth of LWD; increased sediment input to rivers and streams as a result of unnaturally high rates of erosion; poor quality riparian forests; and urbanization (road construction, residential construction; additional bank hardening) that further reduces chinook salmon viability in the basin.

The results of the 2002 reconnaissance surveys for the Tolt River, Griffin Creek, and the Raging River were compared with the results of the reconnaissance surveys that were begun in the summer of 2001 (Solomon and Boles, 2002). For both years, habitat quality was better in the less developed headwaters than further downstream where there were more human impacts such as confinement levees, other bank hardening, and residential land uses. The upstream reaches generally displayed dense native riparian vegetation that recruited a high frequency of LWD to the waterbody, cobble, and gravel substrate, which is ideal for salmon spawning, and pools for juvenile salmon rearing.

The reaches with “good” habitat conditions in these and the other waterbodies that were inventoried in the summer of 2002 should be targeted for habitat protection actions in the Snoqualmie Watershed portion of the WRIA 7 salmon conservation plan. The qualitative information obtained from this stream habitat reconnaissance survey also suggests potential opportunities for habitat restoration. The information needs to be overlain with other information from several forthcoming reports (Snoqualmie Valley Floor Habitat Reconnaissance Report, Snoqualmie Watershed Geology Report, and the WRIA 7 Ecological Analysis for Salmonid Conservation) to prioritize projects for greatest ecological gains.

The 2002 streamwalks provided qualitative information about baseline habitat conditions in 14 rivers and streams in the Snoqualmie Watershed. Because of its qualitative nature, this is not considered a final or comprehensive picture of habitat conditions in these waterbodies. Before definitive conclusions can be drawn, more in-depth and quantitative research and habitat inventories need to be conducted. Some remaining high priority information needs for the Snoqualmie Watershed include:

- Quantitative surveys of habitat conditions in specific reaches of rivers and streams.
- Temperature stratification assessments in large pools of the mainstem Snoqualmie River.
- Wetland assessments, including location, functions, and values.
- Juvenile salmonid distribution mapping.
- Hydrologic mapping and modeling of stormwater catchment and subcatchment basins.

Information that is obtained from the above investigations and from monitoring habitat quality trends over time will also be applied to making habitat and aquatic resource management decisions in King County.

Table 1. Summary of Habitat Conditions in Snoqualmie Watershed Rivers and Streams

Stream	River Miles	Reach	Quality of Habitat	Major Issues
Cherry Creek	0.0–2.2	Cherry Valley Floodplain	Poor	Lack of riparian vegetation and LWD. Channel is confined and entrenched.
	2.2–3.0	Low Gradient Channel in Rural Residential Development	Fair	Some bank armoring and riparian vegetation clearing near homes. Sediment backed up behind bridge.
	3.0–4.3	High Gradient Channel in Rural Residential Development.	Good	
	4.3–5.0	Undeveloped Timber Property	Good	
Margaret Creek	0.0–1.0	Forest Production District	Good	
Ames Lake Creek	0.0–2.0	Snoqualmie River floodplain, APD	Poor	Creek is ditched, no riparian vegetation.
	2.0–3.6	Rural Residential Development	Good	
	3.6–3.9	Ames Lake	Fair	Overdeveloped with little riparian vegetation.
Harris Creek	0.0–1.7	Snoqualmie River Floodplain	Good	
	1.7–2.8	Undeveloped Forested Area	Good	
	2.8–3.6	Rural Residential Development	Good	
	3.6–4.6	Wetland	Fair	Riparian vegetation dominated by invasive plants.
	4.6–6.6	Rural Residential with Small Wetlands	Fair	Frequent road crossings, riparian vegetation dominated by invasive shrubs, and some garbage in the creek.
Tolt River	0.0–2.0	Tolt River Delta	Poor	River confined between narrow levees, poor instream habitat, invasive riparian shrubs.
	2.0–5.9	Rural Residential Development	Good	
	7.5–7.9	Undeveloped Forested Area	Good	
Stossel Creek	0.0–0.8	High Gradient Forested Reach	Good	
	0.8–1.9	Wetland Complex	Good	
	1.9–2.0	Forested Reach	Good	
	2.0–2.5	Narrow Wetland Valley	Good	

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Stream	River Miles	Reach	Quality of Habitat	Major Issues
	2.5–3.0	Mussel Hot Bed	Good	
	3.0–4.1	Narrow Wetland Valley	Good	
	4.1–4.7	Forested Reach	Good	
	4.7–5.0	Wetland Complex with Bog	Good	
Langlois Creek	0.0–2.2	Snoqualmie River Floodplain	Poor	Lack of riparian vegetation and LWD.
Griffin Creek	0.0–0.7	Snoqualmie River Floodplain	Fair	Lack of riparian vegetation and LWD.
	0.7–3.0	Rural Residential Development	Good	
Patterson Creek	0.0–1.9	Snoqualmie River Floodplain	Poor	Lack of riparian vegetation and LWD. Channel is confined and entrenched.
	1.9–3.0	Patterson Creek Floodplain	Poor	Lack of riparian vegetation and LWD. Channel is confined and entrenched.
	3.0–8.3	Wetland Valley	Poor	Lack of riparian vegetation and LWD.
	8.3–10.1	Residential	Fair	Frequent road crossings and some perched culverts.
Canyon Creek	0.0–0.6	Patterson Creek Floodplain	Poor	Riparian vegetation composed of invasive weeds.
	0.6–2.0	Steep Canyon in Rural Residential Development	Good	
Raging River	0.0–1.3	Urban Development with Containment Levees	Poor	Lack of LWD, channel is confined, entrenched and prone to high scour events.
	1.3–8.0	Rural Residential Development	Fair	Frequent road crossings and invasive shrubs.
	8.0–11.0	Undeveloped Timber Property	Good	
Deep Creek	0.0–1.2	Forested Reach	Fair	Fish passage problems.
Lake Creek	0.0–1.0	High Gradient Rural Residential	Good	
	1.0–2.0	Low Gradient Rural Residential	Good	
Tokol Creek	0.0–1.4	Anadromous Fish-Bearing Reach	Poor	Oversedimentation and fish passage issues.

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