3.12 BAGLEY, SIEBERT, AND MCDONALD RECOMMENDATIONS (CENTRAL STRAIT INDEPENDENT DRAINAGES

Section 3.4 contains recommendations for instream flows and Section 3.3 contains other recommendations for rural and urban streams, habitat restoration, salmon recovery, and related environments (e.g., riparian corridors, wetlands, estuaries) that are intended to be considered for all WRIA 18 streams and rivers. Sections 3.1 and 3.2 contain water quantity and water quality recommendations that also apply to all WRIA 18 subbasins.

3.12.1 Bagley Creek (WRIA# 18-0183)

Issue: Bagley Creek is a medium-sized independent drainage to salt water, entering the Strait of Juan de Fuca approximately 2 miles west of Green Point. Coho and fall chum salmon and winter steelhead are the only identified anadromous fish known to exist in Bagley Creek. The Limiting Factors Analysis (LFA), (Haring, 1999), has identified water quality and/or habitat recommendations to address on this stream.

Existing Conditions and Current Actions

The Bagley Creek watershed has experienced widespread timber harvest and conversion to residential use. Upper portions of the watershed remain at particularly high risk if harvest and conversions continue as in the past. Watershed soils are predominantly shallow over glacial tills, and are being particularly sensitive and reactive to major precipitation episodes. Consequently, there is a high susceptibility to erosion and sedimentation, as well as unusually high flows for a watershed of its size. Bagley Creek is listed as a 303(d) stream for fecal coliform bacteria, reflective of the extensive direct animal access and degraded riparian areas of the middle and upper watershed.

Desired Conditions and Outcomes

- Limiting factors identified by Haring (1999) addressed to the extent feasible through action by appropriate agencies and local jurisdictions.
- A stream with properly functioning water quality and habitat conditions adequate to support healthy populations of all historically-occurring anadromous stocks.

Recommendations

A. Water Quality:

No new stream-specific recommendations were developed.

B. Habitat:

1. Limit conversion of upper watershed to non-forest cover.
2. Provide unrestricted fish passage through the Highway 101 culvert and correct the additional two fish passage barriers upstream.

3. Prevent livestock access to channel upstream of Highway 101 (WQ) and restore functional riparian zones through this area (WQ).
4. Replace the lowermost culvert on Bagley Creek Rd. to prevent backwatering during peak flow events and bank erosion and sediment deposition upstream of the culvert (WQ).
5. Restore LWD presence throughout the channel. Develop and implement a short-term LWD strategy to provide LWD presence and habitat diversity until full riparian function is restored.
6. Adopt and implement instream flow requirements[1]

3.12.2 Siebert Creek (WRIA# 18-0173)

Issue: Siebert Creek is a significant independent drainage that remains largely undisturbed. In particular, the Siebert Creek estuary is likely similar to historic condition (Haring 1999). Siebert Creek enters the Strait of Juan de Fuca at Green Point. Coho and fall chum salmon and winter steelhead are the only identified anadromous fish known to exist in Siebert Creek. The Limiting Factors Analysis (LFA), (Haring, 1999), has identified water quality and/or habitat recommendations to address on this stream. Development has been minimal in this watershed, but throughout the Olympic Mountain foothills of eastern Clallam County, forestland is rapidly being converted to large-lot residential uses. These conversions and other human activities, including roads and stormwater flows, are having an impact on this stream.

Existing Conditions and Current Actions

The Siebert Creek watershed drains an area of 19.5 mi^2 (17,200 acres) and includes 31.2 miles of mainstem stream and tributaries. Siebert Creek begins in the mountains of Olympic National Park at 3,800 feet elevation and flows 12.4 miles through forested foothills to join the Strait of Juan de Fuca at Green Point, approximately midway between the towns of Port Angeles and Sequim. The stream splits at RM 8.1 into two primary branches known as the East Fork and West Fork. The forested foothills support second- and third-growth Douglas Fir, Western Hemlock, Western Red Cedar, and mixed hardwood species dominated by Red Alder.

The upper reaches of the watershed are typically steep and deeply incised through basalt flows of the Crescent formation and marine sedimentary rocks (Bernthal and Rot 2001). Geology in this area is dominated by glacial deposits (sands, silts, and clays) associated with Cordilleran ice advances that shaped the Strait of Juan de Fuca, Hood Canal, and Puget Sound. The majority of salmonid habitat is in the mid- to lower watershed where the stream channel is deeply incised into the coastal plain and channel gradients are more suitable for anadromous species. Siebert Creek emerges through steep coastal bluffs made up of unconsolidated sediments into a small estuary at Green Point.

Peak flows in Siebert Creek are dominated by winter rains and spring snowmelts, with dry summers creating low stream flow conditions typically from July through September

[1] Habitat Recs 1-6 are all LFA recs

(McHenry et al. 1996). The United States Geological Service (USGS) operated a continuous recording stream flow gage on Siebert Creek at Highway 101 from 1953-1969. Mean annual flow averaged 17 cfs with extreme low flows between 2 and 3 cfs, and a peak flow of 1,620 cfs recorded in November 1955 (Bernthal and Rot 2001). Ecology has installed a real-time gage near the Old Olympic Highway that has been in operation since 2002.

The mainstem and tributaries of Siebert Creek support coho salmon, winter steelhead, and cutthroat trout. Siebert Creek historically supported a small run of fall chum salmon, which were probably extirpated from the watershed by the early 1980s (McHenry et al. 1996).

The Siebert Creek estuary is one of the finest examples of an intact, functioning, bar-bound estuary in the state of Washington, and the nearshore contains healthy beds of both kelp and eelgrass. The Siebert Creek estuary and adjoining nearshore provide critical rearing and feeding areas for juvenile salmonids and a diverse assemblage of waterfowl. The proximity of the Siebert Creek estuary to the Dungeness National Wildlife Refuge magnifies its significance for waterfowl. Similarly, the Siebert Creek estuary may provide foraging, refuge, and rearing habitat for ESA-listed chum and chinook juveniles from the Dungeness River during their seaward migration.

Primary land uses in the Siebert Creek watershed are commercial timber (~50%), Olympic National Park (25%), private woodlots (13%), pasture or grassland (7%), and residential (4%) (PSCRBT 1991). Most of the watershed was historically used for timber production.

The following factors are believed to limit the function of the watershed:

- Pool percentage is rated fair to poor (41% to 29%), with critically low levels of LWD (0.96 pieces/100 feet) (Bernthal and Rot 2001).
- Fine sediments are believed to be a problem throughout the middle and lower reaches of Siebert Creek (Bernthal and Rot 2001).
- Low overall densities of juvenile salmonids (0.22 fish/m2) may indicate degraded habitat and channel conditions (Bernthal and Rot 2001).
- Macroinvertebrate sampling found relatively high levels of EPT taxa (>50%) at all sampling sites (RM 0.1, 0.8, 1.0, 1.5, 2.5, 2.6, 3.5, and 3.9), (Bernthal and Rot 2001).
- In 1998, Clallam County removed the double box culverts at Old Olympic Highway to correct a 15- to 17-foot drop onto riprap at the outlet. The culverts, originally constructed in 1916, were replaced with a bridge. The former highway location is still protected by riprap and bank armoring, which result in channel constriction, bank erosion, and channel instability downstream (Haring 1999). Stream energy appears to have increased at and below the bridge, as a result of the culvert removal.
- A fishway provides adult passage through the Highway 101 culvert, but it is believed to be a barrier to upstream juvenile migration at low flows. Vertical drops of several feet have been observed at the fishway outlet at low flows.

Desired Conditions and Outcomes

Pacific Woodrush and STAC (Siebert Technical Advisory Group) have developed the following vision statement for Siebert Creek: To protect intact ecological processes and habitats and to restore the Siebert Creek system to a naturally-functioning, self-regulating ecosystem that supports sustainable populations of plants and animals that historically inhabited the creek, while providing optimal opportunities for education, recreation, and stewardship compatible with the restored ecosystem. In order to achieve this vision, the following conditions and outcomes are desired:

- No man-made impediments to fish passage.
- All existing public lands within the watershed remain in public ownership.
- Protection *in perpetuity* of historically-functioning habitats through conservation easements and property acquisitions.
- Transfer of DNR Sections 14 & 15 through the Trust Land Transfer program should be pursued.
- Limiting factors identified by Haring (1999) addressed to the extent feasible through action by appropriate agencies and local jurisdictions.
- A stream with properly functioning water quality and habitat conditions adequate to support healthy populations of all naturally-occurring anadromous stocks and resident stocks of fish and migratory and resident populations of wildlife.
- Stormwater managed to protect groundwater and the nearshore from contamination and degradation and this management implemented in a way that does not inhibit economic development or significantly increase the cost of new construction.
- An active education and outreach program, with the goals of:
    - Community investment and stewardship in the watershed
    - Active, trained volunteers
    - Increased community awareness and knowledge of the Siebert Creek system
- Ongoing monitoring and assessment of the stream health and functions.

Recommendations

A. Water Quality:

1. Manage forest properties to ensure no water quality problems in the creek.
2. Treat stormwater runoff as needed prior to infiltration into surface or ground waters, including the nearshore.

B. Habitat:

1. Pacific Woodrush should continue its watershed stewardship activities along the stream by assuring that education, outreach, and land acquisition activities address habitat goals in the watershed.
2. Close Siebert Creek to the issuance of new surface water right permits.

3. Correct fish passage problems at Highway 101 by replacing the existing culvert crossing with a bridge, as recommended by WDFW.
4. Place instream structures to increase channel complexity in the vicinity of Old Olympic Highway.
5. Restore natural levels of instream large woody debris (LWD) by:
    a. Direct placement of LWD.
    b. Restoration of mature riparian forest to provide long-term recruitment of LWD.
6. Restore off-channel habitat.
7. Restore ocean-derived nutrients (ODN) by:
    a. placing salmon carcasses, and
    b. allowing sufficient escapement of wild salmonids to achieve appropriate natural recruitment of ODN, so that artificial placement of salmon carcasses is no longer necessary.
8. Protect high quality habitat through purchases and conservation easements.
9. Purchase properties or conservation easements where necessary to enable restoration projects to occur.
10. Using conservation easements and land purchases, work towards creating a continuous, protected stream buffer along Siebert Creek and both its forks. Buffers should extend at least 350 feet on each side of the stream or conform to the boundaries of the geologic hazard zone, whichever is greater.
11. Follow the guidance and priorities provided by the Siebert Creek Habitat Plan, developed by the Siebert Technical Advisory Committee in collaboration with Pacific Woodrush, for the protection of the Siebert Creek corridor, including the incorporation of appropriate stream buffers and the determination of property acquisition and conservation easement priorities throughout the watershed.
12. DNR properties in the watershed are exceptionally important to the protection of Siebert Creek fish habitat and should remain in public ownership.
13. Restore the stability of slide-prone areas; ensure road cross-drainage is maintained; consider abandonment of roads located in active slide areas; provide sediment retention BMPs on active slides, where practicable.
14. Abandon and relocate the forest road on the East Fork.
15. Assessment and Monitoring Needs: The Siebert Technical Advisory Committee (STAC) has identified the following as the major data gaps that need to be addressed.
    a. Riparian conditions – DNR level 1 riparian assessment.
    b. LWD quantity – TFW level 1 survey.
    c. Streamflow at the confluence of the forks.
    d. Aerial photography of the channel – Color photos should be taken at 3-year intervals and should be 1” to 500’ scale.

e. Smolt production – Continue annual smolt trap surveys.

f. Spawner escapements (redd counts) for steelhead and coho – Supplement ongoing WDFW/Tribal surveys of coho redd counts with volunteer counts of coho, steelhead, and cutthroat redds.

g. Temperature – Continue ongoing temperature monitoring.

h. Landslide survey – TFW survey methods.

i. Sediment sources – TFW survey methods.

j. Limit of anadromy –Survey the upper watershed in order to determine the limit of anadromy.

k. Stream Habitat Assessment (pool/riffle characterization, channel width/depth ratios, substrate characterization, etc.) – TFW survey methods.

l. Illegal water withdrawals and inputs – Identify and map locations.

m. Blue Mountain transfer station – Collect sediment and water samples to assess potential contamination to the creek.

n. Land use conversions – Continue tracking conversions of private and public forest lands.

o. Macroinvertebrate surveys – Resurvey macroinvertebrates with a focus on EPT taxa.

p. Bird surveys – Survey bird use of the creek and estuary.

q. Amphibian surveys – Survey amphibian use of the creek.

r. Fish surveys – Survey fish use of the estuary and nearshore.

s. Sediment sampling – quantitative sediment sampling using TFW methods.

t. Stormwater monitoring – Continue volunteer monitoring program.

u. Summary and analysis report of all existing data/maps/info.

Limiting Factors Analysis (LFA) Recommendations

- Reduce the flow energy increase that resulted from removal of the culverts at Old Olympic Highway
- Develop and implement a short-term LWD strategy in lower Siebert Creek to restore LWD presence and pools, particularly from the mouth to Highway 101
- Abandon/relocate the forest road on East Fork
- Restore stability of slide-prone areas; ensure road cross-drainage is maintained; consider abandonment of roads located on active slide areas; provide sediment retention BMPs on active slides where practicable

Note: The LFA recommendations are provided here for information. LFA recommendations are not adopted as such in the watershed plan, though it is recognized that updates are needed in some areas. Some conflicts may exist between the LFA and the watershed plan; where conflicts exist, these would need to be reconciled by the involved jurisdictions on a case-by-case basis.

3.12.3 McDonald Creek (WRIA# 18-0160)

Issue: McDonald Creek is a significant independent drainage to salt water, entering the Strait of Juan de Fuca between the western end of Dungeness Spit and Green Point. Coho and fall chum salmon and winter steelhead are identified as the anadromous stocks known to exist in McDonald Creek. The Limiting Factors Analysis (LFA), (Haring, 1999), has identified water quality and/or habitat recommendations to address on this stream.

Existing Conditions and Current Actions

Extensive timber harvest and land conversion (from timber to residential use) have resulted in large, long-term sediment impacts to McDonald Creek. These land use changes have also caused critical depletion of LWD and loss of good quality fish habitat. Riparian conditions are generally good, due to the creek being located, along much of its length, in a deep ravine that still contains significant vegetative cover. The Solmar area in the lower watershed is a notable exception.

McDonald Creek has had a history of both elevated fecal coliform readings and high temperatures. It is an integral part of the irrigation network, especially for the Agnew Irrigation District. The Creek receives Dungeness River water diverted from the River, consistent with its water rights, by the Agnew Irrigation District at Dungeness RM 11.2. McDonald Creek is then used for conveyance of this irrigation water from RM 5 to RM 2, where it is again withdrawn to the irrigation system. There is some concern that this may attract Dungeness fish to McDonald Creek and may compromise the homing ability of McDonald Creek stocks. A real-time flow gage was installed in Winter 2002/03.

The fish bypass system, located at the point of the irrigation ditch diversion, is a potential hazard to outmigration of juvenile salmonids. The associated dam structure is also a potential hazard to downstream migration and a barrier to upstream migration.

Desired Conditions and Outcomes

- Limiting factors identified by Haring (1999) addressed to the extent feasible through action by appropriate agencies and local jurisdictions.
- A stream with properly functioning water quality and habitat conditions adequate to support healthy populations of all historically-occurring anadromous stocks.
- Upgraded fish bypass system including overflow structure, bypass system, and fish ladder.

Recommendations

A. Water Quality:

1. Investigate and remediate causes of elevated water temperatures
2. Pursue exclusion of animals from surface waters

B. Habitat:

1. Investigate use of McDonald Creek for irrigation conveyance and explore alternatives:
    a. Review current irrigation practice, including timing and source of water actually conveyed to the creek.
    b. Conduct field studies of timing and presence of salmonids using the creek. Assess significance of attraction of Dungeness fish to McDonald Creek, if any.
    c. Study alternative of tight-lining irrigation water to the siphon.
2. If McDonald Creek continues to be used for irrigation conveyance, then upgrade the fish bypass system including overflow structure, bypass system, and fish ladder.

Limiting Factors Analysis (LFA) Recommendations

- Evaluate cause of channel instability and develop and implement a corrective plan
- Reforest timber harvested areas in the rain-on-snow zone; ensure that future timber harvest is done in a manner that maintains hydrologic maturity in the upper watershed
- Restore LWD presence and function from the mouth upstream to the mouth of Pederson Creek (RM 4.9); addition of LWD in upper watershed to provide channel and bank stability may also be beneficial
- Monitor/restore landslides on USFS lands

Note: The LFA recommendations are provided here for information. LFA recommendations are not adopted as such in the watershed plan, though it is recognized that updates are needed in some areas. Some conflicts may exist between the LFA and the watershed plan; where conflicts exist, these would need to be reconciled by the involved jurisdictions on a case-by-case basis.