Chapter 8. Coastal Recovery Unit —Mainstem Lower Columbia River Critical Habitat Unit

Chapter 8. Mainstem Lower Columbia River Critical Habitat Unit

The Columbia River, from the Pacific Ocean upstream to John Day Dam, is essential for maintaining bull trout distribution and provides essential FMO habitat for extant tributary populations of bull trout in the Lewis, Hood, Klickitat, and Deschutes Rivers and connectivity between these core areas, as well as facilitates the potential reestablishment of a population within the White Salmon River. Connectivity from the Pacific Ocean and upriver allows for the opportunity for amphidromous and fluvial life history expressions and genetic exchange and diversity, which are essential to the recovery unit.

The entire reach, from the Columbia River mouth to John Day Dam, is considered essential and included in designated critical habitat because (1) it is or could potentially be used as FMO habitat by bull trout from tributaries; (2) quality habitat containing several primary constituent elements exists during the FMO period for bull trout; and (3) inclusion of this area in critical habitat reflects two Recovery Objectives, maintaining stable or increasing trends in abundance (indirectly by providing for the needs of migratory forms) and restoring and maintaining suitable habitat conditions for bull trout life history stages (see Appendix 1 for more detailed information).

The Columbia River from the Pacific Ocean upstream to the John Day Dam provides essential FMO habitat for extant tributary populations of bull trout in the Lewis, Hood, Klickitat, and Deschutes rivers and connectivity between these core areas, as well as facilitating the potential reestablishment of a population within the White Salmon River. This CHU is located in the states of Oregon and Washington. It includes Clatsop, Columbia, Multnomah, Hood River, Wasco, and Sherman Counties in Oregon and Pacific, Wahkiakum, Cowlitz, Clark, Skamania, and Klickitat Counties in Washington.

Lands from the mouth of the Columbia River to the John Day Dam are under a mix of private, State, and Federal ownership. National wildlife refuges are present at several locations along the river. The Columbia River Gorge National Scenic Area is 133.5 km (83.0 mi) in length and extends from the mouth of the Sandy River to the confluence of the Deschutes River. Management of this area is under jurisdiction of the U.S. Forest Service and Columbia Gorge Commission, a regional commission of local, State, and Federal interests.

This unit includes two Federal dams, Bonneville and The Dalles, between the mouth and John Day Dam. They are operated by the Army Corps of Engineers and form reservoirs in the Columbia River. River flows in the Columbia River upstream and downstream from the dams is affected by operations for hydropower, navigation, flood control, and anadromous fish migration. The Columbia River is free flowing downstream from Bonneville Dam and is tidally influenced.

The connectivity from the Pacific Ocean and upriver allows for the opportunity for amphidromous and fluvial life history expressions and genetic exchange and diversity which is essential to the Coastal Recovery Unit, which includes the Coastal Puget Sound (Washington) and lower Columbia River bull trout populations below the John Day Dam. This critical habitat includes the free flowing reaches of the Columbia River and the reservoirs to the ordinary high water elevations and normal operating pool elevations, respectively. Major tributaries include

the Cowlitz, Kalama, Willamette, Lewis, Sandy, Wind, White Salmon, Hood and Klickitat, and Deschutes rivers.

The Coastal Recovery Unit which was delineated using primarily genetic data. The upstream boundary is the John Day Dam because the John Day River fish are grouped with the Middle Columbia River Recovery Unit populations. It is recognized that bull trout between the two recovery units may intermix in the river, but the dam serves as a recognizable landmark on the landscape, thus it is being used as a marker between the two units. There are nearly fixed allelic differences between inland and coastal bull trout (Spruell et al. 2003). The Hood River (Clear Branch) and Deschutes River (Shitike River) bull trout both have the inland and coastal alleles (Spruell et al. 2003). Migratory bull trout use the mainstem corridors which are essential for maintaining gene flow between core areas and allow for re-colonizing areas where local populations have been extirpated by stochastic events.

Sections of the Columbia River within this reach of the critical habitat are either presently used by bull trout, or are unknown and have historically been used by bull trout for foraging, overwintering, and migration. Habitat in the Lower Columbia River is presently considered to be suitable for foraging, overwintering, and migration. At present, bull trout populations in this CHU are somewhat disconnected from each other and at low levels. However, with improved population status and increased connectivity, this river section will provide important FMO habitat much like it currently serves in areas upriver and will also be essential for maintaining connectivity and for providing for the expression of historic migratory life history forms in the lower Columbia region of the Coastal Recovery Unit. While summer temperatures may preclude bull trout use, suitable temperatures and availability of forage do exist in fall, winter, and spring months. Bull trout are known to migrate large distances for foraging opportunities even for short periods of time.

Current bull trout presence in the lower mainstem Columbia River may reflect the strength of the local populations within tributaries and the presence of suitable migration corridors between the tributaries and the Columbia River. There are fewer occurrences of bull trout in the Columbia River where poorer habitat conditions in tributaries have passage barriers and / or reduced populations (Willamette, Lewis, Hood, Klickitat, and Deschutes rivers). Greater use of the mainstem Columbia River would be expected through implementation of bull trout recovery plans as habitat conditions improve and populations increase. The Columbia River in the lower section is very large. It is difficult to sample and detect bull trout when their presence is in low numbers, they occur perhaps only for brief periods to forage, and efficient sampling methods have not been developed.

Downstream passage for juvenile anadromous fish is provided by fish passage facilities, by spilling water over dam spillways, or traveling through the powerhouse. Bonneville and John Day dams have fish screen and bypass facilities for juvenile anadromous salmonids. During the summer, fish that are collected at juvenile fish facilities at McNary Dam are transported by barge or truck and released at a site downstream from Bonneville Dam. It is uncertain if the juvenile fish facilities are effectively passing bull trout because these structures were designed for juvenile anadromous salmon and steelhead. Bull trout have been observed in the fish ladders at Bonneville and The Dalles dams. Bull trout have never been officially recorded on Corps of Engineers fish ladder counts even though fish counters may have observed them. Past records at the Lower Columbia River dams may not accurately represent bull trout passage because adult

fish counts and juvenile fish monitoring cease after October 31 and fish counters have not been instructed to record bull trout sightings.

Several primary constituent elements (PCE) are present in the lower Columbia River. Water temperatures throughout the designated critical habitat reach of the Columbia River remains within the range of -2 C to 21 C during the fall, winter, and spring when bull trout are foraging, overwintering, and migrating in the mainstem river. Water temperatures typically exceed this criterion during August and September. The 10-year average maximum daily water temperatures at Bonneville and John Day dam forebays are lower than 21 C except from early August to early September.

The mainstem Columbia River including the reservoirs provides an abundant food source for migratory bull trout during the fall, winter, and spring. Forage fish such as juvenile salmon and steelhead, whitefish, sculpins (family Cottidae), suckers (family Catostomidae), and minnows (family Cyprinidae) that are present throughout the Columbia River have been collected. The Lower Columbia River Estuary partnership identifies 78 fish species in the lower Columbia River, though a recent study identified that 36 are non-native species. In addition, large numbers of hatchery raised salmon and steelhead are released into the Columbia River system annually and provides an abundant source of prey for bull trout.

Bull trout presence has been documented in the Columbia River and in tributaries (Figure 3). However, the mainstem Columbia River has not been designated as a core area because no known spawning occurs in the mainstem that supports its own local population. There also remains a level of uncertainty about the use of the mainstem Columbia River by fluvial bull trout and is a primary research need that was identified in the draft bull trout recovery plans (Service 2002a).

Recovery of tagged bull trout in the Bonneville Pool that originated from the Hood River (Gray 2007) has shown that bull trout are using the mainstem reach of the lower Columbia River. Recent radio-tagging information regarding bull trout migrations to the mainstem (BioAnalyst 2009) may apply to other areas or reaches within the Columbia River basin where such tagging studies have not been conducted, but where bull trout have been documented or where bull trout use is expected. Such reaches would include the Columbia River downstream from Bonneville Dam.

The following water bodies are included in this CHU (see Table 31)

Columbia River from the Pacific Ocean upstream 347.0 km (215.6 mi) to the John Day Dam provides FMO habitat for extant tributary populations of bull trout in the Lewis, Hood, Klickitat, and Deschutes Rivers and connectivity between these core areas, as well as facilitating the potential reestablishment of a population within the White Salmon River. Critical habitat includes the free-flowing reaches of the Columbia River and the reservoirs to the ordinary high water elevations and normal operating pool elevations, respectively. Historic records have documented bull trout or Dolly Varden passing the fish ladder at Bonneville Dam and in the lower Columbia River (Figure 3). Bull trout have been reported from the lower reaches of the Kalama and Lewis rivers (J. Byrne, pers. comm. 2009) and Sandy River. Bull trout are present in two major tributaries that enter the Bonneville Pool reach of the Columbia River, the Hood and Klickitat rivers. Movement of bull trout between the Hood River and Columbia River have been documented by recovery of fish on the Columbia River, which were previously tagged at Powerdale Dam in the lower Hood River. Tagged fish were captured at Drano Lake (the

Columbia River backwater at the mouth of the Little White Salmon River) and Coberg Beach (Gray 2007*)*. The Deschutes River is the only major tributary entering Columbia River between The Dalles and John Day dams. Fluvial bull trout are known to migrate down the Deschutes River to the Columbia River. See Figure 3.

Figure 3: Bull Trout Observations Lower Columbia River (Service 2010)

Year	Date	Number of Bull Trout	Who Documented	Where	Notes
1890	Unknown	Unknown	Fishwheels	Lower Columbia River	Donaldson, I.J., and F.K. Cramer. 1971. Fishwheels of the Columbia. Portland, Oregon: Binfords and Mort.
1941	3/3/1941	1	ACOE	WA ladder	Downstream passage of 1 “Dolly Varden”
1947	3/8/1947	1	ACOE	Bradford Island	Dolly Varden trapped and positively ID’d at Bradford Island
1960	Unknown	Unknown	NMFS	Jones Beach and estuary	Pers. Comm. Rob Nielson URS consulting: ACOE 2001 BA for channel dredging has the following reference: "Published literature does not document the presence of bull trout in the lower Columbia River; however, information from a NMFS biologist indicates that sampling crews occasionally caught bull trout at Jones Beach and in the estuary in the 1960s and 1970s”.
1970	Unknown	Unknown	NMFS	Jones Beach and estuary	see 1960 above
1982	8/28/1982	1+	ACOE	Bradford Island	Possible BT at Bradford Island - remarks of unusual long thin fish with some Chinook characteristics, thinner than a coho, bright, tail more forked than a chinook.
1986	9/11/1986	1	ACOE	Bradford Island	Dolly Varden passed Bradford Island in the morning
1993	Unknown	1	WDFW	Chehalis/Grays Harbor	WDFW Stock / Status Report. http://wdfw.wa.gov/webmaps/salmonscape/sasi/full_stock_rpts/8348.pdf
1994	5/8/1994	1	ACOE	WA ladder	Remarks said possibly Dolly Varden
1994	7/24/1994	1	ACOE	Bradford Island	Dolly Varden - remarks said spots were black

Year	Date	Number of Bull Trout	Who Documented	Where	Notes
1995	1995-1996 winter	1	ACOE	The Dalles Dam ladder	Bob Cordie collected a 8-10 inch BT in the east ladder at The Dalles Dam when it was dewatered in December or January of the 1995-96 winter
1998	5/10/1998	1	WDFW - Northern Pikeminnow fisher	Bonneville Reservoir	Northern pikeminnow Sport-Reward. Harvested.
1998	5/24/1998	1	WDFW - Northern Pikeminnow fisher	Bonneville Reservoir	Northern pikeminnow Sport-Reward. Harvested.
1998	6/15/1998	1	WDFW - Northern Pikeminnow fisher	Bonneville Reservoir	Northern pikeminnow Sport-Reward. Catch-and-release.
1998	6/16/1998	1	WDFW - Northern Pikeminnow fisher	Bonneville Reservoir	Northern pikeminnow Sport-Reward. Catch-and-release.
1998	Unknown	2	WDFW	Mouth of Klickitat River	Tribal gillnet
1999	November	1	Kevin May	Sandy River - Oxbow Park	Captured and released, photo documentation
1999	December	1	ODFW	Sandy River	Marmot Dam
2000	April	1	WDFW	Drano River	Recreational fisher. One floy tagged bull trout (from Hood River) harvested.

Year	Date	Number of Bull Trout	Who Documented	Where	Notes
2000	May	1	WDFW - Northern Pikeminnow fisher	Mouth of Klickitat River	Pike Minnow Sport Fishery. 1 bull trout, size undocumented
2000	May	1	Pikeminnow fisher	Mouth of Klickitat River	Pikeminnow sport-reward fishermen reported the catch-and-release of one bull trout/Dolly Varden at the mouth of the Klickitat River
2001	Unknown	1	Public comment	Nemah River - Willapa Bay	A public comment in 2003 (via email from Jeri Wood) from someone who reported catching a large bull trout in the Nemah River which drains into Willapa Bay in 2001
2002	1/23/2002	1	Randy Hageman	Sandy River	Photo documentation
2002	5/27/2002	1	ACOE?	John Day Dam by-pass facility	John Day Dam smolt by-pass facility. 1 bull trout, approx. 9", captured, photographed and released.
2002	3/28/2002	7	Consultants to ACOE	Upper Gray's Harbor - Chehlis River	Native char were captured between sites 5 and 9 (Jeanes et al. 2003). Two char were captured during the day sampling, and five at night. Char catch was equally distributed between ebb and flood tidal stages. Fish captured during beach seine surveys conducted in Upper Gray's Harbor, Washington, 2002. 3/7/02 – 2 at night and 2 during day. 3/14/02 – 3 at night. 284-330mm fork length.
2005	5/23/2005	1	PSFMC	Mouth of Hamilton Creek	Tom Freisen and Jim Koloszar. Captured at night, approx. 5' of water, ¼ to ½ mile East mouth of Drano Lake. N 45° 42.590"; W 121° 37.831".

Year	Date	Number of Bull Trout	Who Documented	Where	Notes
2005	August	1	Recreational fisher	Lower end of Hamilton Island (below Bonneville Dam)	Caught and released. Recreational Fisher, Don Howard. 1 bull trout approx. 381mm.
2005	6/20/2005	1	WDFW	Near Cascade Locks	Possible bull trout sighting by Northern Pikeminnow fisher near cascade Locks. Slender salmonid looking fish swimming in shallows with distinct white lateral spotting. Reporting party has verifiable bull trout knowledge.
2005	4/14/2010	1	ODFW	east of the mouth of Drano Lake	Gray 2007. ODFW Northern Pikeminnow Electro shocking Crew, Tom Freisen and Jim Koloszar. Captured at night, approx. 5‘ of water, ¼ to ½ mile East mouth of Drano Lake. N 45° 42.590”; W 121° 37.831”.
2005	Unknown	5	BPA report	Bonneville Dam - Powerhouse 2	Monitoring of Downstream Salmon and Steelhead at Federal Hydroelectric Facilities – 2005 Annual Report- Prepared By Rick D. Martinson, Gregory M. Kovalchuk, Dean Ballinger for BPA
2005	3/21/2005	1	PSFMC	Bonneville Dam Smolt By-pass Facility	Dean Ballinger, PSMFC. Captured during night shift. Caudal tail damage. No exterior markings. Released into downstream bypass. 1 adult, 390 mm.
2006	5/3/2006	1	WDFW	Drano Lake	Gray 2007. WDFW bull trout project. Captured with 2” small mesh gill net between 2200 and 2330 hour. 1 immature adfluvial, 303 mm.
Unknown	Unknown	Unknown	WDFW	Lower Kalama River	Jim Byrne WDFW pers. Comm. Byrne, Jim, Washington Department of Fish and Wildlife. March 5, 2002, telephone conversation with Marv Yoshinaka, Service, regarding Bull trout occurrences in lower Columbia River tributaries.
Unknown	Unknown	Unknown	WDFW	Mouth of Lewis River	Jim Byrne WDFW / Frank Shrier, PacificCorp pers. Comm.

Year	Date	Number of Bull Trout	Who Documented	Where	Notes
2010	Jan/Feb 2010	2	WDFW	Dog Creek Falls	Steven Gray WDFW pers. comm. "There was a sighting in January/February 2010 by one of our creel samplers in the Bonneville Pool, Tom Mallery; he said he saw a couple of 18 – 24" cuts or dollies working old redds below the splash pool below Dog Creek Falls; he saw them over the course of 2 weeks and he is a person I have complete confidence in knowing a char from any other species. He never handled them or was able to get pictures to truly confirm the sighting though. His e-mail is attached for reference."

Table 31. Water body segments designated as critical habitat for bull trout, including documentation of occupancy and site-specific rationale in the Mainstem Lower Columbia River CHU/CHSU

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Mainstem Lower Columbia River—None	Columbia River	WA	Columbia River from the Pacific Ocean upstream 347.0 km (215.6 mi) to the John Day Dam provides FMO habitat for extant tributary populations of bull trout in the Lewis, Hood, Klickitat, and Deschutes Rivers and connectivity between these core areas, as well as facilitating the potential reestablishment of a population within the White Salmon River. Critical habitat includes the free-flowing reaches of the Columbia River and the reservoirs to the ordinary high water elevations and normal operating pool elevations, respectively. Historic records have documented bull trout or Dolly Varden passing the fish ladder at Bonneville Dam and in the lower Columbia River (Figure 1). Bull trout have been reported from the lower reaches of the Kalama and Lewis rivers (J. Byrne, pers. comm. 2009) and Sandy River. Bull trout are present in two major tributaries that enter the Bonneville Pool reach of the Columbia River, the Hood and Klickitat rivers. Movement of bull trout between the Hood River and Columbia River have been documented by recovery of fish on the Columbia River, which were previously tagged at Powerdale Dam in the lower Hood River. Tagged fish were captured at Drano Lake (the Columbia River backwater at the mouth of the Little White Salmon River) and Coberg Beach (Gray 2007). The Deschutes River is the only major tributary entering Columbia River between The Dalles and John Day dams. Fluvial bull trout are known to migrate down the Deschutes River to the Columbia River. See Figure 1 in CHU text of documented observations (Service 2010).	See text for this CHU	1240483 462464