

Bull Trout Final Critical Habitat Justification: Rationale for Why Habitat is Essential, and Documentation of Occupancy

**Chapter 1. Coastal Recovery Unit—Olympic Peninsula
Critical Habitat Unit**

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Chapter 1. Olympic Peninsula Critical Habitat Unit

The Olympic Peninsula CHU is essential for maintaining bull trout distribution within this unique geographic region of the RU. Watersheds on the Olympic Peninsula drain to marine waters in the Hood Canal, Strait of Juan de Fuca, and the Pacific Ocean. Sixty major glaciers still cover the Olympic Mountains, providing sources of cold water to the glacially fed rivers on the Olympic Peninsula. The Olympic Peninsula supports one of the few temperate rain forests in the world, much of which is contained within the Olympic National Park, which is also designated as a World Biosphere Reserve and World Heritage Site.

This CHU is essential for maintaining distribution of the amphidromous life history form within the Coastal RU, which is rare across the geographic range of this species. It is not only essential for maintaining this life history form within this RU, but within its coterminous range. It is one of only two CHUs that contain the amphidromous life history form. See Appendix 1 for more information.

The Olympic Peninsula CHU is located in northwestern Washington. Bull trout populations inhabiting the Olympic Peninsula comprise the coastal component of the Coastal–Puget Sound population. The unit includes approximately 1,292.9 km (803.4 mi) of stream, 3,366.2 ha (8,318.1 ac) of lake surface area, and 673.8 km (418.7 mi) of marine shoreline designated as critical habitat. This CHU is bordered by Hood Canal to the east, Strait of Juan de Fuca to the north, the Pacific Ocean to the west, and the Lower Columbia River Basins and Puget Sound CHUs to the south. It extends across portions of Grays Harbor, Clallam, Mason, Pacific, and Jefferson Counties. All of the major river basins initiate from the Olympic Mountains. The Olympic Peninsula CHU is divided into 10 CHSUs. Although delta areas and small islands are difficult to map and may not be specifically identified by name, included within the critical habitat proposal are delta areas where streams form sloughs and braids and the nearshore of small islands found within the designated marine areas. The State of Washington has assigned most streams a stream catalog number. Typically, if an unnamed stream or stream with no official U.S. Geological Survey name is designated for critical habitat within the Puget Sound CHU, the stream catalog number is provided for reference. In those cases where tributary streams do not have a catalog number, they are referred to as “unnamed” or a locally accepted name is used.

1.1. Dungeness River Critical Habitat Subunit

The Dungeness River CHSU is essential to bull trout conservation because it represents the core amphidromous population of bull trout within the Strait of Juan de Fuca. Its sympatric distribution with Dolly Varden suggests this CHSU may represent a key climate change refugium for the species due to Dolly Varden’s presumed colder water requirements. Extensive portions of the headwater habitat are within protected areas (Olympic National Park and Buckhorn Wilderness) (see Appendix 1 for more detailed information).

The Dungeness CHSU includes the Dungeness River, its primary tributary the Gray Wolf, and associated tributaries. The Dungeness River is located in the northeastern portion of the Olympic Peninsula and flows from its headwaters in the Olympic Mountains to Dungeness Bay in the Strait of Juan de Fuca. Approximately 64.0 km (39.8 mi) of stream is being designated as critical habitat in the Dungeness River basin.

The following water bodies are included in this CHSU (see Table 1):

(A) The Dungeness River from its confluence with the Strait of Juan de Fuca upstream 31.2 km (19.4 mi) to an impassable barrier provides foraging and overwintering habitat downstream of the Canyon Creek confluence and spawning and rearing habitat for the Dungeness River local population upstream of Canyon Creek. The Dungeness River also serves as a corridor to the Strait of Juan de Fuca for fluvial and amphidromous bull trout from the Dungeness River and Gray Wolf River. The following tributaries from their mouths upstream to presumed extent of suitable habitat or an impassable barrier provide tributary foraging and overwintering habitat: Matriotti Creek upstream 1.8 km (1.1 mi); Hurd Creek upstream 0.8 km (0.5 mi); and Canyon Creek upstream 13.2 km (8.2 mi). Canyon Creek also provides potential spawning and rearing habitat for the Dungeness River local population. Gold Creek from its mouth upstream 0.8 km (0.5 mi) to an impassable slide contains spawning and rearing habitat for the Dungeness River local population.

(B) The Gray Wolf River from its mouth upstream 15.1 km (9.4 mi) to its confluence with Cameron Creek and its tributary, Cameron Creek, from its mouth upstream 1.1 km (0.7 mi) to a natural barrier provide spawning and rearing habitat for the Gray Wolf River local population.

Table 1. Water body segments designated as critical habitat for bull trout, including documentation of occupancy and site-specific rationale in the Olympic Peninsula—Dungeness River CHU/CHSU

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Dungeness River	Gray Wolf River	WA	Bull trout redds documented in 2002 (Cooper, in litt. 2002).	Grey Wolf River provides essential habitat used for spawning and rearing in the Grey Wolf River local population. It is essential for maintaining distribution, abundance, and productivity.	1231105 479767
Olympic Peninsula—Dungeness River	Dungeness River	WA	Documented use by adult and subadult in surveys 1995-2000 (Chan in litt. 2001; WDFW 1998; Peters, in litt. 1995).	This segment of the Dungeness River provides essential foraging and overwintering habitat for subadult and adult bull trout as well as provides essential connectivity between Dungeness River and Gray Wolf local populations and the Straits of Juan de Fuca. It is important to the seasonal habitat needs, survival, and growth of individual migratory fish.	1231331 481508.1
Olympic Peninsula—Dungeness River	Dungeness River	WA	Multiple age classes documented in surveys (Chan in litt. 2001; Peters, in litt. 1995).	This segment of the Dungeness River provides essential habitat used for spawning and rearing in the Dungeness River local population. It is essential for maintaining distribution, abundance, and productivity. It also provides essential connectivity between Dungeness River and Gray Wolf local populations and the Straits of Juan de Fuca.	1231331 481508.2
Olympic Peninsula—Dungeness River	Canyon Creek	WA	Although the WDFW hatchery currently has a seasonal barrier to Canyon Creek in place, the barrier is being addressed and passage should be restored. Canyon Creek was a productive salmon stream, has habitat historically occupied by coho, pink, chum, and Chinook salmon, and has habitat suitable for bull trout (OPRT, in litt. 2003a).	Although definitive data on bull trout presence are lacking for this stream, available information suggests that Canyon Creek will provide foraging habitat once it is accessible to salmon and bull trout. Restoring passage at Canyon Creek is a high priority recovery task. Once passage is restored and salmon and steelhead re-colonize the creek, Canyon Creek will contribute to restoring the overall abundance of bull trout in the core area. It is the one remaining high quality stream located in the lower Dungeness and thus provides important FMO habitat, as well as potentially SR habitat for the Dungeness River local population.	1231375 480241
Olympic Peninsula—Dungeness River	Hurd Creek	WA	Bull trout have been documented at Dungeness River Hatchery outlet in recent years (B. Freymond, <i>in litt.</i> 2003). Hurd Creek provides significant high quality tributary rearing and refuge habitat for salmonids (WSCC 1999). Hurd Creek is a productive salmon and trout stream, and presumed an important forage and overwintering stream for bull trout.	The draft recovery chapter explicitly identifies as essential and biologically important, accessible habitat occupied by anadromous salmonids which provide an important forage base for bull trout. Hurd Creek also provides refuge from seasonal turbid, high flows in the mainstem Dungeness River. Hurd Creek contributes to maintaining the current distribution and abundance of bull trout in the Dungeness River core area.	123142 4481241

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Dungeness River	Cameron Creek	WA	U.S. Forest Service radio tracked bull trout into this system (Ogg, pers. comm. 2004).	Cameron Creek provides essential habitat used for spawning and rearing in the Grey Wolf River local population. It is essential for maintaining distribution, abundance, and productivity.	1232418 479164
Olympic Peninsula—Dungeness River	Gold Creek	WA	Bull trout documented in Gold Creek during WDFW salmon surveys (Ogg, in litt. 2004). Historically accessible to RM 1.5. Following mass wasting and slides it is currently only accessible to anadromous and fluvial bull trout in the lower 0.5 mi. Gold Creek is above the elevation used to delineate presumed SR based on known spawning sites west of the Cascades (WDOE 2002).	The draft recovery chapter identifies the mainstem Dungeness R. and associated tributaries (Canyon and Gold Creeks) as one local population. Gold Creek provides essential habitat used for spawning and rearing in the Grey Wolf River local population. It is essential for maintaining distribution, abundance, and productivity. It is also a productive coho and pink salmon stream and is essential for providing forage habitat used by migratory bull trout.	1230913 479415
Olympic Peninsula—Dungeness River	Matriotti Creek	WA	Currently accessible to anadromous and fluvial bull trout. A productive salmon stream, and presumed important refugia, forage and overwintering stream for bull trout. Sampling of this stream has been insufficient to document the presence of bull trout.	Although definitive data on bull trout presence are lacking for this stream, available information suggests that Matriotti Creek is essential for providing forage habitat in reaches used by anadromous salmonids and accessible to bull trout. It is essential for its contribution to maintaining and restoring the overall abundance of bull trout in the core area. It is one of few significant FMO tributaries in the lower Dungeness River.	1231400 481357

1.2. Elwha River Critical Habitat Subunit

The Elwha River CHSU is essential to bull trout conservation because it represents one of only two populations of bull trout within the Strait of Juan de Fuca. It is essential for population redundancy in this region and expansion of the amphidromous life history form once the Elwha Dams are removed. This CHSU may represent a key climate change refugium for the species due to the extensive glacially influenced habitat and protected nature of the upper watershed (Olympic National Park) (see Appendix 1 for more detailed information).

The Elwha River originates on the south and east sides of Mount Olympus, flows south, and then turns northward before entering the Strait of Juan de Fuca. The Elwha River flows through two reservoirs: Lake Mills and Lake Aldwell. The river basin is largely contained within Olympic National Park. Approximately 109 km (67.7 mi) of stream are being designated as critical habitat in the Elwha River basin.

The following water bodies are included in this CHSU (see Table 2):

(A) The Elwha River from its confluence with the Strait of Juan de Fuca upstream 62.4 km (38.8 mi) to an impassable barrier, including its future channel under the current area of inundation for Lake Aldwell and Lake Mills, provides foraging and overwintering habitat below its confluence with Stukey Creek and spawning and rearing habitat for the Elwha River local population upstream of Stukey Creek. Dam removal planned to begin in 2011 will eliminate Lake Aldwell and Lake Mills and restore the Elwha River to its former channel. It is this historical river channel, currently inundated by these lakes, that is designated critical habitat. Little River from its mouth upstream 4.7 km (2.9 mi) to a natural barrier provides FMO habitat and potential spawning and rearing habitat. The following tributaries from their mouths upstream to natural barriers provide tributary foraging habitat: Madison Creek upstream 1.0 km (0.6 mi); Hughes Creek upstream 0.3 km (0.2 mi); and Griff Creek upstream 0.8 km (0.5 mi). The following tributaries from their mouths upstream to a natural barrier provide spawning and rearing habitat for the Elwha River local population: Sege Creek upstream 0.3 km (0.2 mi); Boulder Creek upstream 0.8 km (0.5 mi); Hurricane Creek upstream 0.3 km (0.2 mi); Wolf Creek upstream 0.3 km (0.2 mi); Cat Creek upstream 5.0 km (3.1 mi); Fitzhenry Creek upstream 0.3 km (0.2 mi); Haggerty Creek upstream 0.5 km (0.3 mi); Long Creek upstream 3.2 km (2.0 mi); Idaho Creek upstream 0.5 km (0.3 mi); Lillian River upstream 2.9 km (1.8 mi); Windfall Creek upstream 0.3 km (0.2 mi); Prescott Creek upstream 0.3 km (0.2 mi); McCartney Creek upstream 0.3 km (0.2 mi); Stoney Creek upstream 0.3 km (0.2 mi); Lost River upstream 0.8 km (0.5 mi); Goldie River upstream 14.3 km (8.9 mi); Hayes River upstream 2.4 km (1.5 mi); Leitha Creek upstream 1.1 km (0.7 mi); Godkin Creek upstream 1.6 km (1.0 mi); Buckinghorse Creek upstream 1.0 km (0.6 mi); and Delabarre Creek upstream 1.3 km (0.8 mi).

The Elwha and Glines Canyon Dams are scheduled to be removed, beginning in 2011 (NPS in litt. 2009, p. 1), resulting in restoration of connectivity and anadromous salmonids and increased abundance of bull trout. Because suitable spawning habitat is present, following dam removal, as abundance increases in the Elwha core area, it is expected that Little River will be used for spawning and rearing. Little River has been identified by the Olympic Peninsula Recovery Unit Team as a potential local population necessary for recovery in the Elwha core area. Following dam removal, it is expected that the bull trout amphidromous life history form will be restored in

the Elwha River, prey base will be increased as salmon recolonize the River, and bull trout abundance will increase, resulting in greater use of accessible tributaries.

Table 2. Water body segments designated as critical habitat for bull trout, including documentation of occupancy and site-specific rationale in the Olympic Peninsula—Elwha River CHU/CHSU

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Elwha River	Hayes River	WA	Adult bull trout have been detected (Brenkman et al. 2008).	Hayes River provides essential habitat within the Elwha River local population. This stream is entirely within the ONP and access for surveys to document spawning is extremely difficult. It is unknown whether spawning currently occurs in this creek, however, it does provide suitable habitat for both bull trout spawning and rearing use. Following dam removal this population is anticipated to expand to meet recovered abundance, therefore it is essential to maintaining and increasing distribution and abundance of bull trout within the Elwha River local population.	1234526 478080
Olympic Peninsula—Elwha River	Leitha Creek	WA	Sampling of this stream has been insufficient to document the presence of bull trout. Habitat is pristine, connected to other bull trout rearing streams, and presumed used by bull trout, or will be once the Elwha dams are removed, which is scheduled to begin in 2011 (OPRT, in litt. 2003a).	The mainstem Elwha River and associated tributaries upstream from Stukey Creek have been identified as a single local population. Although definitive data on bull trout presence are lacking for this stream, available information indicates the habitat is pristine and will provide accessible rearing habitat. Productivity within this stream should increase following dam removal and restoration of anadromous salmonids.	1234588 477690
Olympic Peninsula—Elwha River	Godkin Creek	WA	Adult and juvenile bull trout have been detected (Brenkman et al. 2008)	Godkin Creek provides essential habitat within the Elwha River local population. This stream is entirely within the ONP and access for surveys to document spawning is extremely difficult. It is unknown whether spawning currently occurs in this creek, however, it does provide suitable habitat for both bull trout spawning and rearing use. Following dam removal this population is anticipated to expand to meet recovered abundance, therefore it is essential to maintaining and increasing distribution and abundance of bull trout within the Elwha River local population.	1234638 477600

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Elwha River	Lost River	WA	Sampling of this stream has been insufficient to document the presence of bull trout. Habitat is pristine and connected to other bull trout rearing streams. May currently be used for SR, or will be once the Elwha dams are removed, which is scheduled to begin in 2011 (OPRT, in litt. 2003a).	The mainstem Elwha River and associated tributaries upstream from Stukey Creek have been identified as a single local population. Although definitive data on bull trout presence are lacking for this stream, available information indicates the habitat is pristine and will provide accessible rearing habitat. Productivity within this stream should increase following dam removal and restoration of anadromous salmonids.	1234671 478618
Olympic Peninsula—Elwha River	Stony Creek	WA	Sampling of this stream has been insufficient to document the presence of bull trout. Habitat is pristine and connected to other bull trout rearing streams. May currently be used for SR, or will be once the Elwha dams are removed, which is scheduled to begin in 2011 (OPRT, in litt. 2003a).	The mainstem Elwha River and associated tributaries upstream from Stukey Creek have been identified as a single local population. Although definitive data on bull trout presence are lacking for this stream, available information indicates the habitat is pristine and will provide accessible rearing habitat. Productivity within this stream should increase following dam removal and restoration of anadromous salmonids.	1234675 478707
Olympic Peninsula—Elwha River	Goldie River	WA	Sampling of this stream has been insufficient to document the presence of bull trout. Habitat is pristine and connected to other bull trout rearing streams. May currently be used for SR, or will be once the Elwha dams are removed, which is scheduled to begin in 2011 (OPRT, in litt. 2003a).	The mainstem Elwha River and associated tributaries upstream from Stukey Creek have been identified as a single local population. Although definitive data on bull trout presence are lacking for this stream, available information indicates the habitat is pristine and will provide accessible rearing habitat. Productivity within this stream should increase following dam removal and restoration of anadromous salmonids.	1234683 478397
Olympic Peninsula—Elwha River	McCartney Creek	WA	Sampling of this stream has been insufficient to document the presence of bull trout. Habitat is pristine and connected to other bull trout rearing streams. May currently be used for SR, or will be once the Elwha dams are removed, which is scheduled to begin in 2011 (OPRT, in litt. 2003a).	The mainstem Elwha River and associated tributaries upstream from Stukey Creek have been identified as a single local population. Although definitive data on bull trout presence are lacking for this stream, available information indicates the habitat is pristine and will provide accessible rearing habitat. Productivity within this stream should increase following dam removal and restoration of anadromous salmonids.	1234696 478783

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CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Elwha River	Buckinghorse Creek	WA	Juvenile bull trout have been detected (Brenkman et al. 2008).	Buckinghorse Creek provides essential habitat within the Elwha River local population. This stream is entirely within the ONP and access for surveys to document spawning is extremely difficult. It is unknown whether spawning currently occurs in this creek, however, it does provide suitable habitat for both bull trout spawning and rearing use. Following dam removal this population is anticipated to expand to meet recovered abundance, therefore it is essential to maintaining and increasing distribution and abundance of bull trout within the Elwha River local population.	1234815 477466
Olympic Peninsula—Elwha River	Prescott Creek	WA	Documented multiple age classes of bull trout by ONP in 1960. No other sampling has occurred since that date (Brenkman and Meyer, in litt. 2001).	Prescott Creek provides essential habitat within the Elwha River local population. This stream is entirely within the ONP and access for surveys to document spawning is extremely difficult. It is unknown whether spawning currently occurs in this creek, however, it does provide suitable habitat for both bull trout spawning and rearing use. Following dam removal this population is anticipated to expand to meet recovered abundance, therefore it is essential to maintaining and increasing distribution and abundance of bull trout within the Elwha River local population.	1234896 479031
Olympic Peninsula—Elwha River	Slate Creek	WA	Sampling of this stream has been insufficient to document the presence of bull trout. Habitat is pristine and connected to other bull trout rearing streams. May currently be used for SR, or will be once the Elwha dams are removed, which is scheduled to begin in 2011 (OPRT, in litt. 2003a).	The mainstem Elwha River and associated tributaries upstream from Stukey Creek have been identified as a single local population. Although definitive data on bull trout presence are lacking for this stream, available information indicates the habitat is pristine and will provide accessible rearing habitat. Productivity within this stream should increase following dam removal and restoration of anadromous salmonids.	1234901 477437
Olympic Peninsula—Elwha River	Windfall Creek	WA	Sampling of this stream has been insufficient to document the presence of bull trout. Habitat is pristine and connected to other bull trout rearing streams. May currently be used for SR, or will be once the Elwha dams are removed, which is scheduled to begin in 2011 (OPRT, in litt. 2003a).	The mainstem Elwha River and associated tributaries upstream from Stukey Creek have been identified as a single local population. Although definitive data on bull trout presence are lacking for this stream, available information indicates the habitat is pristine and will provide accessible rearing habitat. Productivity within this stream should increase following dam removal and restoration of anadromous salmonids.	1234939 479120

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Elwha River	Delabarre Creek	WA	Documented multiple age classes of bull trout by ONP in 1995 (Brenkman and Meyer in litt. 2001).	Delabarre Creek provides essential habitat within the Elwha River local population. This stream is entirely within the ONP and access for surveys to document spawning is extremely difficult. It is unknown whether spawning currently occurs in this creek, however, it does provide suitable habitat for both bull trout spawning and rearing use. Following dam removal this population is anticipated to expand to meet recovered abundance, therefore it is essential to maintaining and increasing distribution and abundance of bull trout within the Elwha River local population.	1235260 477347
Olympic Peninsula—Elwha River	Lillian River	WA	Sampling of this stream has been insufficient to document the presence of bull trout. Habitat is pristine and connected to other bull trout rearing streams. May currently be used for SR, or will be once the Elwha dams are removed, which is scheduled to begin in 2011 (OPRT, in litt. 2003a).	The mainstem Elwha River and associated tributaries upstream from Stukey Creek have been identified as a single local population. Although definitive data on bull trout presence are lacking for this stream, available information indicates the habitat is pristine and will provide accessible rearing habitat. Productivity within this stream should increase following dam removal and restoration of anadromous salmonids.	1235264 479310
Olympic Peninsula—Elwha River	Idaho Creek	WA	Sampling of this stream has been insufficient to document the presence of bull trout. Habitat is pristine and connected to other bull trout rearing streams. May currently be used for SR, or will be once the Elwha dams are removed, which is scheduled to begin in 2011 (OPRT, in litt. 2003a).	The mainstem Elwha River and associated tributaries upstream from Stukey Creek have been identified as a single local population. Although definitive data on bull trout presence are lacking for this stream, available information indicates the habitat is pristine and will provide accessible rearing habitat. Productivity within this stream should increase following dam removal and restoration of anadromous salmonids.	1235425 479451
Olympic Peninsula—Elwha River	Elwha River	WA	Bull trout documented throughout the Elwha R, both between and below the dams (J. Chan, in litt. 2001; Morrill and McHenry 1995; McHenry, in litt. 2002; Hiss and Wunderlich 1994).	This segment of the Elwha River provides essential foraging and overwintering habitat for subadult and adult bull trout as well as provides essential connectivity for recovery of the fluvial and anadromous life history form. It is important to the seasonal habitat needs, survival, and growth of individual migratory fish. It is essential for maintaining the distribution of migratory bull trout as well as for its contribution to maintaining and restoring the overall abundance of bull trout in the core area. Prior to construction of Elwha and Glines Canyon Dams the Elwha River was one of the major salmon-producing rivers in Washington.	1235577 481507.1

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CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Elwha River	Elwha River	WA	Bull trout documented throughout the upper Elwha River mainstem to headwaters (Brenkman and Meyer 2001, ONP, in litt. 2001; Brenkman et al. 2008). Habitat is pristine, connected to other bull trout rearing streams. Currently it is used by fluvial bull trout, and will be accessible to anadromous bull trout once the Elwha dams are removed, which is scheduled to begin in 2011.	The mainstem Elwha River and associated tributaries upstream from Stukey Creek have been identified as a single local population. Elwha River provides essential habitat used for spawning and rearing in the Elwha River local population. It is essential for maintaining distribution, abundance, and productivity. This segment also provides essential connectivity among local population tributaries and for recovery of the fluvial and anadromous life history forms. Prior to construction of Elwha and Glines Canyon Dams the Elwha R was one of the major salmon-producing rivers in Washington.	1235577 481507.2
Olympic Peninsula—Elwha River	Long Creek	WA	Sampling of this stream has been insufficient to document the presence of bull trout. Habitat is pristine and connected to other bull trout rearing streams. May currently be used for SR, or will be once the Elwha dams are removed, which is scheduled to begin in 2011 (OPRT, in litt. 2003a).	The mainstem Elwha River and associated tributaries upstream from Stukey Creek have been identified as a single local population. Although definitive data on bull trout presence are lacking for this stream, available information indicates the habitat is pristine and will provide accessible rearing habitat. Productivity within this stream should increase following dam removal and restoration of anadromous salmonids.	1235592 479507
Olympic Peninsula—Elwha River	Haggerty Creek	WA	Sampling of this stream has been insufficient to document the presence of bull trout. Habitat is pristine and connected to other bull trout rearing streams. May currently be used for SR, or will be once the Elwha dams are removed, which is scheduled to begin in 2011 (OPRT, in litt. 2003a).	The mainstem Elwha River and associated tributaries upstream from Stukey Creek have been identified as a single local population. Although definitive data on bull trout presence are lacking for this stream, available information indicates the habitat is pristine and will provide accessible rearing habitat. Productivity within this stream should increase following dam removal and restoration of anadromous salmonids.	1235742 479565
Olympic Peninsula—Elwha River	Little River	WA	Bull trout documented in 1998 (ONP, in litt. 2001). Temperatures are suitable for bull trout SR (McHenry, in litt. 2003).	Little River is essential for its contribution to maintaining or restoring the overall abundance of bull trout in the Elwha core area. It has been identified as a potential local population necessary for recovering distribution and abundance of bull trout in this core area. Both dams on the Elwha River are scheduled for removal and it is anticipated that both anadromous salmon and bull trout will be restored to the Elwha River. Prior to construction of Elwha and Glines Canyon Dams the Elwha River was one of the major salmon-producing rivers in Washington.	1235762 480631

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Elwha River	Fitzhenry Creek	WA	Sampling of this stream has been insufficient to document the presence of bull trout. Habitat is pristine and connected to other bull trout rearing streams. May currently be used for SR, or will be once the Elwha dams are removed, which is scheduled to begin in 2011 (OPRT, in litt. 2003a).	The mainstem Elwha River and associated tributaries upstream from Stukey Creek have been identified as a single local population. Although definitive data on bull trout presence are lacking for this stream, available information indicates the habitat is pristine and will provide accessible rearing habitat. Productivity within this stream should increase following dam removal and restoration of anadromous salmonids.	1235879 479673
Olympic Peninsula—Elwha River	Madison Creek	WA	Sampling of this stream has been insufficient to document the presence of bull trout.	Although definitive data on bull trout presence are lacking for this stream, available information suggests that it will be recolonized by anadromous salmonids, including bull trout, following dam removal. In addition, it will provide bull trout an important opportunity for refuge between Lake Aldwell and Lake Mills during dam removal. The Elwha dam is scheduled for removal, which will restore connectivity for anadromous salmonids to Madison Creek and increase the forage base for bull trout, thus it is essential for its contribution to maintaining and restoring the overall abundance of bull trout in the core area. Prior to construction of Elwha and Glines Canyon Dams the Elwha River was one of the major salmon-producing rivers in Washington.	1235902 480420
Olympic Peninsula—Elwha River	Wolf Creek	WA	Sampling of this stream has been insufficient to document the presence of bull trout. Habitat is pristine and connected to other bull trout rearing streams. May currently be used for SR, or will be once the Elwha dams are removed, which is scheduled to begin in 2011 (OPRT, in litt. 2003a).	The mainstem Elwha River and associated tributaries upstream from Stukey Creek have been identified as a single local population. Although definitive data on bull trout presence are lacking for this stream, available information indicates the habitat is pristine and will provide accessible rearing habitat. Productivity within this stream should increase following dam removal and restoration of anadromous salmonids.	1235917 479744

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Olympic Peninsula—Elwha River	Cat Creek	WA	Adult and juvenile bull trout have been detected (Brenkman et al. 2008).	Cat Creek provides essential habitat within the Elwha River local population. This stream is entirely within the ONP and access for surveys to document spawning is extremely difficult. It is unknown whether spawning currently occurs in this creek, however, it does provide suitable habitat for both bull trout spawning and rearing use. Following dam removal this population is anticipated to expand to meet recovered abundance, therefore it is essential to maintaining and increasing distribution and abundance of bull trout within the Elwha River local population.	1235918 479731
Olympic Peninsula—Elwha River	Hurricane Creek	WA	Sampling of this stream has been insufficient to document the presence of bull trout. Habitat is pristine and connected to other bull trout rearing streams. May currently be used for SR, or will be once the Elwha dams are removed, which is scheduled to begin in 2011 (OPRT, in litt. 2003a).	The mainstem Elwha River and associated tributaries upstream from Stukey Creek have been identified as a single local population. Although definitive data on bull trout presence are lacking for this stream, available information indicates the habitat is pristine and will provide accessible rearing habitat. Productivity within this stream should increase following dam removal and restoration of anadromous salmonids.	1235925 479755
Olympic Peninsula—Elwha River	Griff Creek	WA	Bull trout documented in 1994 (Morrill and McHenry 1995).	Griff Creek provides essential foraging and overwintering habitat used by fluvial and adfluvial bull trout in the core area, and thus it is essential for maintaining the existing distribution and abundance of this population. In addition, it will provide bull trout an important opportunity for refuge between Lake Aldwell and Lake Mills during dam removal. The Elwha dam is scheduled for removal, which will restore connectivity for anadromous salmonids to Griff Creek and increase the forage base for bull trout, thus it is essential for its contribution to maintaining and restoring the overall abundance of bull trout in the core area. Prior to construction of Elwha and Glines Canyon Dams the Elwha R was one of the major salmon-producing rivers in Washington.	1235934 480234

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Elwha River	Hughes Creek	WA	Bull trout documented in 1994 (Morrill and McHenry 1995).	Hughes Creek provides essential foraging and overwintering habitat used by fluvial and adfluvial bull trout in the core area, and thus it is essential for maintaining the existing distribution and abundance of this population. In addition, it will provide bull trout an important opportunity for refuge between Lake Aldwell and Lake Mills during dam removal. The Elwha dam is scheduled for removal, which will restore connectivity for anadromous salmonids to Hughes Creek and increase the forage base for bull trout, thus it is essential for its contribution to maintaining and restoring the overall abundance of bull trout in the core area. Prior to construction of Elwha and Glines Canyon Dams the Elwha R was one of the major salmon-producing rivers in Washington.	1235935 480251
Olympic Peninsula—Elwha River	Boulder Creek	WA	Multiple age classes of bull trout detected (Brenkman et al. 2008).	Boulder Creek provides essential habitat within the Elwha River local population. This stream is entirely within the ONP and access for surveys to document spawning is extremely difficult. It is unknown whether spawning currently occurs in this creek, however, it does provide suitable habitat for both bull trout spawning and rearing use. Following dam removal this population is anticipated to expand to meet recovered abundance, therefore it is essential to maintaining and increasing distribution and abundance of bull trout within the Elwha River local population.	1235993 479834
Olympic Peninsula—Elwha River	Sege Creek	WA	Sampling of this stream has been insufficient to document the presence of bull trout. Habitat is pristine and connected to other bull trout rearing streams. May currently be used for SR, or will be once the Elwha dams are removed, which is scheduled to begin in 2011 (OPRT, in litt. 2003a).	The mainstem Elwha River and associated tributaries upstream from Stukey Creek have been identified as a single local population. Although definitive data on bull trout presence are lacking for this stream, available information indicates the habitat is pristine and will provide accessible rearing habitat. Productivity within this stream should increase following dam removal and restoration of anadromous salmonids.	1236025 479866

1.3. Hoh River Critical Habitat Subunit

The Hoh River CHSU is essential to bull trout conservation because it maintains the northernmost population of amphidromous bull trout along the Pacific Coast of the Olympic Peninsula and may represent the stronghold for the three Washington coast populations of bull trout. This CHSU may represent a key climate change refugium for the species due to the extensive glacially influenced habitat. Extensive portions of the headwater habitat are within a protected area (Olympic National Park) (see Appendix 1 for more detailed information).

The Hoh River flows westward from its headwaters in the Baily Range and the north slope of Mount Olympus in Olympic National Park to its confluence with the Pacific Ocean. Approximately 158.0 km (98.1 mi) of stream is being designated as critical habitat in the Hoh River basin. The following water bodies are included in this CHSU (see Table 3):

(A) The Hoh River from its confluence with the Pacific Ocean upstream 80.6 km (50.1 mi) to an impassable barrier provides foraging and overwintering habitat below its confluence with the South Fork Hoh River and spawning and rearing habitat for the Hoh River local population upstream of the South Fork Hoh River. The Hoh River also serves as a key migration corridor for amphidromous bull trout moving to and from the Pacific Ocean. The following tributaries from their mouths upstream to impassable barriers or headwaters provide tributary FMO habitat: Nolan Creek upstream 12.6 km (7.8 mi); Winfield Creek upstream 9.3 km (5.8 mi); and Owl Creek upstream 6.3 km (3.9 mi). The following tributaries from their mouths upstream to impassable barriers or headwaters provide tributary spawning and rearing habitat for the Hoh River local population: Twin Creek upstream 0.6 km (0.4 mi); Twin Creek's tributary, East Twin Creek, upstream 1.0 km (0.6 mi); unnamed tributary (stream catalog number 0509) upstream 4.5 km (2.8 mi); Snider Creek upstream 0.6 km (0.4 mi); Taft Creek upstream 2.2 km (1.4 mi); Mount Tom Creek upstream 8.0 km (5.0 mi); Cougar Creek upstream 0.8 km (0.5 mi); unnamed tributary (stream catalog number 0527) upstream 0.8 km (0.5 mi); Clide Creek upstream 2.1 km (1.3 mi); OGS Creek upstream 0.2 km (0.1 mi); Hoh Creek upstream 0.8 km (0.5 mi); Slide Creek upstream 1.3 km (0.8 mi); and unnamed tributary (stream catalog number 0542) upstream 0.3 km (0.2 mi). Recent radio telemetry studies have documented bull trout throughout the Hoh River, which provides spawning, rearing, and FMO habitat.

(B) South Fork Hoh River from its confluence with the mainstem Hoh River upstream 24.9 km (15.5 mi) provides spawning and rearing habitat for the South Fork Hoh River local population. The South Fork Hoh River also serves as a key migration corridor for fluvial and amphidromous bull trout moving to and from FMO habitat in the mainstem Hoh River and Pacific Ocean.

Table 3. Water body segments designated as critical habitat for bull trout, including documentation of occupancy and site-specific rationale in the Olympic Peninsula—Hoh River CHU/CHSU

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Hoh River	Unnamed trib. (#0542)	WA	Sampling of this stream has been insufficient to document the presence of bull trout. Currently accessible to anadromous and fluvial bull trout. It is a productive salmon/steelhead stream. Habitat is suitable and connected to other bull trout spawning, rearing, and foraging streams.	This unnamed tributary provides rearing, and possibly spawning habitat for anadromous and fluvial fish from the Hoh River local population. Although definitive data on current bull trout use of this stream are lacking, best available information suggests that the stream is essential for maintaining the current distribution and abundance of bull trout within the Hoh River local population. This stream is entirely within the ONP, habitat is pristine, and access for surveys to document use is extremely difficult.	1237173 478831
Olympic Peninsula—Hoh River	Slide Creek	WA	Sampling of this stream has been insufficient to document the presence of bull trout. Currently accessible to anadromous and fluvial bull trout. It is a productive salmon/steelhead stream. Habitat is suitable and connected to other bull trout spawning, rearing, and foraging streams.	Slide Creek provides rearing, and possibly spawning habitat for anadromous and fluvial fish from the Hoh River local population. Although definitive data on current bull trout use of this stream are lacking, best available information suggests that the stream is essential for maintaining the current distribution and abundance of bull trout within the Hoh River local population. This stream is entirely within the ONP, habitat is pristine, and access for surveys to document use is extremely difficult.	1237470 478754
Olympic Peninsula—Hoh River	Hoh Creek	WA	Bull trout detected in 1995 ONP surveys (ONP, in litt 2001). Currently accessible to anadromous and fluvial bull trout. Productive salmon and steelhead stream. Habitat is suitable and connected to other bull trout spawning, rearing, and foraging streams.	Hoh Creek provides spawning and rearing habitat for anadromous and fluvial fish from the Hoh River local population. This stream is essential for maintaining the current distribution and abundance of bull trout within the Hoh River local population. This stream is entirely within the ONP and habitat is pristine.	1237526 478769
Olympic Peninsula—Hoh River	OGS Creek	WA	SR documented in 1999 by ONP (Brenkman and Meyer 1999).	OGS Creek provides spawning and rearing habitat for anadromous and fluvial fish from the Hoh River local population. This stream is essential for maintaining the current distribution and abundance of bull trout within the Hoh River local population. This stream is entirely within the ONP and habitat is pristine.	1237678 478781

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Hoh River	Clide Creek	WA	Sampling of this stream has been insufficient to document the presence of bull trout. Currently accessible to anadromous and fluvial bull trout. It is a productive salmon/steelhead stream. Habitat is suitable and connected to other bull trout spawning, rearing, and foraging streams.	This unnamed tributary provides rearing, and possibly spawning habitat for anadromous and fluvial fish from the Hoh River local population. Although definitive data on current bull trout use of this stream are lacking, best available information suggests that the stream is essential for maintaining the current distribution and abundance of bull trout within the Hoh River local population. This stream is entirely within the ONP, habitat is pristine, and access for surveys to document use is extremely difficult.	1237969 478715
Olympic Peninsula—Hoh River	Unnamed trib. (#0527)	WA	Sampling of this stream has been insufficient to document the presence of bull trout. Currently accessible to anadromous and fluvial bull trout. It is a productive salmon/steelhead stream. Habitat is suitable and connected to other bull trout spawning, rearing, and foraging streams.	This unnamed tributary provides rearing and possibly spawning habitat for anadromous and fluvial fish from the Hoh River local population. Although definitive data on current bull trout use of this stream are lacking, best available information suggests that the stream is essential for maintaining the current distribution and abundance of bull trout within the Hoh River local population. This stream is entirely within the ONP, habitat is pristine, and access for surveys to document use is extremely difficult.	1238153 478681
Olympic Peninsula—Hoh River	Cougar Creek	WA	SR documented in 1999 by ONP (Brenkman and Meyer 1999).	Cougar Creek provides spawning and rearing habitat for anadromous and fluvial fish from the Hoh River local population. This stream is essential for maintaining the current distribution and abundance of bull trout within the Hoh River local population. This stream is entirely within the ONP and habitat is pristine.	1238531 478675
Olympic Peninsula—Hoh River	Mount Tom Creek	WA	Bull trout detected in this creek during 1995 ONP surveys (ONP, in litt. 2001). Currently accessible to anadromous and fluvial bull trout. It is a productive salmon/steelhead stream. Habitat is suitable and connected to other bull trout spawning, rearing, and foraging streams.	Mount Tom Creek provides rearing and possibly spawning habitat for anadromous and fluvial fish from Hoh River local population. This stream is essential for maintaining the current distribution and abundance of bull trout within the Hoh River local population. This stream is entirely within the ONP, habitat is pristine.	1238872 478684
Olympic Peninsula—Hoh River	Taft Creek	WA	Sampling of this stream has been insufficient to document the presence of bull trout. Currently accessible to anadromous and fluvial bull trout. Productive salmon/steelhead stream. Habitat is suitable and connected to other bull trout spawning, rearing, and foraging streams.	Taft Creek provides rearing habitat for anadromous and fluvial fish from the Hoh River local population. Although definitive data on current bull trout use of this stream are lacking, best available information suggests that the stream is essential for maintaining the current distribution and abundance of bull trout within the Hoh River local population. This stream is entirely within the ONP, habitat is pristine, and access for surveys to document use is extremely difficult.	1239411 478578

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CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Hoh River	Snider Creek	WA	Sampling of this stream has been insufficient to document the presence of bull trout. Currently accessible to anadromous and fluvial bull trout. Productive salmon/steelhead stream. Habitat is suitable and connected to other bull trout spawning, rearing, and foraging streams.	Snider Creek provides rearing habitat for anadromous and fluvial fish from Hoh River local population. Although definitive data on current bull trout use of this stream are lacking, best available information suggests that the stream is essential for maintaining the current distribution and abundance of bull trout within the Hoh River local population. This stream is entirely within the ONP, habitat is pristine, and access for surveys to document use is extremely difficult.	1239664 478418
Olympic Peninsula—Hoh River	Unnamed trib. (#0509)	WA	Sampling of this stream has been insufficient to document the presence of bull trout. Currently accessible to anadromous and fluvial bull trout. Productive salmon/steelhead stream. Habitat is suitable and connected to other bull trout spawning, rearing, and foraging streams.	This unnamed tributary provides rearing habitat for anadromous and fluvial fish from the Hoh River local population. Although definitive data on current bull trout use of this stream are lacking, best available information suggests that the stream is essential to maintaining the current distribution and abundance of bull trout within the Hoh River local population. This stream is entirely within the ONP, habitat is pristine, and access for surveys to document use is extremely difficult.	1239804 478306
Olympic Peninsula—Hoh River	Twin Creek	WA	Sampling of this stream has been insufficient to document the presence of bull trout. Currently accessible to anadromous and fluvial bull trout. Productive salmon/steelhead stream. Habitat is suitable and connected to other bull trout foraging streams.	Twin Creek provides rearing habitat for anadromous and fluvial fish from the Hoh River local population. Although definitive data on current bull trout use of this stream are lacking, best available information suggests that the stream is essential for maintaining the current distribution and abundance of bull trout within the Hoh River local population. This stream is entirely within the ONP, habitat is pristine, and access for surveys to document use is extremely difficult.	1239872 478311
Olympic Peninsula—Hoh River	East Twin Creek	WA	Sampling of this stream has been insufficient to document the presence of bull trout. Currently accessible to anadromous and fluvial bull trout. Productive salmon/steelhead stream. Habitat is suitable and connected to other bull trout foraging streams.	East Twin Creek provides rearing habitat for anadromous and fluvial fish from the Hoh River local population. Although definitive data on current bull trout use of this stream are lacking, best available information suggests that the stream is essential for maintaining the current distribution and abundance of bull trout within the Hoh River local population. This stream is entirely within the ONP, habitat is pristine, and access for surveys to document use is extremely difficult.	1239895 478333

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Hoh River	South Fork Hoh River	WA	SR documented in 1999 by ONP (Brenkman and Meyer 1999)	South Fork Hoh River provides spawning and rearing habitat for anadromous and fluvial fish from the Hoh River local population. This stream is essential for maintaining the current distribution and abundance of bull trout within the Hoh River local population. It also provides essential connectivity between South Fork Hoh River and Hoh River local populations and the Pacific Ocean. This stream is entirely within the ONP and habitat is pristine.	1240218 478197
Olympic Peninsula—Hoh River	Owl Creek	WA	Sampling of this section of the stream has been insufficient to document the presence of bull trout. Although habitat is currently rated poor due to impacts from land management activities, bull trout were historically documented in Owl Creek (McLeod 1944), it has significant volume (> 20 cfs), and it is used by coho, steelhead, and fall chinook (WSCC 2000).	Although definitive data on current bull trout presence are lacking for this stream, Owl Creek is a productive salmon stream used by steelhead, coho and Chinook salmon. The draft recovery chapter explicitly identifies, as essential and biologically important, accessible habitat occupied by anadromous salmonids that can provide a forage base for bull trout. This habitat is identified in the recovery plan as providing a necessary contribution to the forage base and connectivity of anadromous bull trout. This stream is also included as a shoreline under the Washington State's Shoreline Management Act, since its mean annual flow is greater than 20 cfs. Owl Creek is essential to maintaining distribution and overall abundance of bull trout in the core area.	1240777 478054
Olympic Peninsula—Hoh River	Winfield Creek	WA	Bull trout historically documented in this stream (McLeod 1944). Recent sampling of this section of the stream has been insufficient to document the presence of bull trout. It has significant volume (>20 cfs) and is occupied by coho, steelhead, and fall chinook for SR. (WSCC 2000)	Although definitive data on current bull trout presence are lacking for this stream, Winfield Creek is a productive salmon stream used by steelhead, coho and Chinook salmon. The draft recovery chapter explicitly identifies, as essential and biologically important, accessible habitat occupied by anadromous salmonids that can provide a forage base for bull trout. This habitat is identified in the recovery plan as providing a necessary contribution to the forage base and connectivity of anadromous bull trout. This stream is also included as a shoreline under the Washington State's Shoreline Management Act, since its mean annual flow is greater than 20 cfs. Winfield Creek is essential to maintaining distribution and overall abundance of bull trout in the core area.	1242313 478102

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CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Hoh River	Nolan Creek	WA	Documented bull trout presence in 2002 (McMillan, in litt. 2002).	Nolan Creek is a productive salmon stream used by steelhead, coho, chum and Chinook salmon. The draft recovery chapter explicitly identifies, as essential and biologically important, accessible habitat occupied by anadromous salmonids that can provide a forage base for bull trout. This habitat is identified in the recovery plan as providing a necessary contribution to the forage base and connectivity of anadromous bull trout. This stream is also included as a shoreline under the Washington State's Shoreline Management Act, since its mean annual flow is greater than 20 cfs. Nolan Creek contributes to maintaining distribution and overall abundance of bull trout in the core area.	1243427 477516
Olympic Peninsula—Hoh River	Hoh River	WA	Documented juvenile, subadult and adult bull trout captured during angling by ONP 1998-99 (Brenkman and Meyer 1999). The Hoh is considered to have historically contained the largest bull trout population on the Washington coast (WDFW 1998).	This segment of the Hoh River provides essential habitat for foraging and overwintering by subadult and adult migratory bull trout as well as providing essential connectivity between Hoh R, its tributaries, local populations, and the Pacific Ocean. It is important to the seasonal habitat needs, survival, and growth of individual migratory fish. It is essential for maintaining the distribution and overall abundance of bull trout in the core area.	1244372 477506.1
Olympic Peninsula—Hoh River	Hoh River	WA	SR documented in 1999 by ONP (Brenkman and Meyer 1999).	This segment of the Hoh River provides essential habitat used for spawning and rearing in the Hoh River local population. It is essential for maintaining distribution, abundance, and productivity. It also provides essential connectivity between Hoh River and South Fork Hoh River local populations and the Pacific Ocean.	1244372 477506.2

1.4. Queets River Critical Habitat Subunit

The Queets River CHSU is essential to bull trout conservation because it represents part of the core distribution of amphidromous bull trout along the Washington coast and is vital for population redundancy. Extensive portions of the habitat are within protected areas (Olympic National Park) (see Appendix 1 for more detailed information).

The Queets River flows west from its headwaters in Mount Queets, Bear Pass, and Mount Barnes in the Olympic Mountains to its confluence with the Pacific Ocean. The majority of the upper watershed is within Olympic National Park, including the lower mainstem Queets River corridor. Major tributaries include the Sams, Salmon, and Clearwater Rivers. Approximately 236.0 km (146.6 mi) of stream is being designated as critical habitat in the Queets River basin. The following water bodies are included in this CHSU (see Table 4):

(A) The Queets River from its confluence with the Pacific Ocean upstream 78.5 km (48.8 mi) to an impassable barrier provides foraging and overwintering habitat below its confluence with Tshletshy Creek and spawning and rearing habitat for the Queets River local population upstream of Tshletshy Creek. The Queets River also serves as a key migration corridor for amphidromous bull trout moving to and from the Pacific Ocean. The following tributaries from their mouths upstream to impassable barriers or headwaters provide tributary FMO habitat: Clearwater River upstream 59.2 km (36.8 mi); Salmon River upstream 21.2 km (13.2 mi); Matheny Creek upstream 28.5 km (17.7 mi); Sams River upstream 15.3 km (9.5 mi); and Tshletshy Creek upstream 21.2 km (13.2 mi). The following tributaries from their mouths upstream to impassable barriers or headwaters provide tributary spawning and rearing habitat for the Queets River local population: Harlow Creek upstream 1.9 km (1.2 mi); Bob Creek upstream 1.1 km (0.7 mi); Paradise Creek upstream 1.1 km (0.7 mi); Alta Creek upstream 2.2 km (1.4 mi); Hee Hee Creek upstream 0.5 km (0.3 mi); and Hee Haw Creek upstream 5.3 km (3.3 mi). Although bull trout surveys have not been specifically conducted in these spawning and rearing tributaries due to the extremely difficult human access, these streams are used by anadromous salmonids, indicating the presence of forage for bull trout and seasonal accessibility. Bull trout spawning has been observed in the upper Queets River above its confluence with Tshletshy Creek (Gross 2002, pp. 9, 13).

Table 4. Water body segments designated as critical habitat for bull trout, including documentation of occupancy and site-specific rationale in the Olympic Peninsula—Queets River CHU/CHSU

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Queets River	Hee Haw Creek	WA	Habitat is pristine and connected to other bull trout foraging, migration, and rearing streams, and is within the home watershed of the Queets River bull trout local population. It is a productive salmon/steelhead stream.	Hee Haw Creek provides rearing, and possibly spawning habitat for anadromous and fluvial fish from the Queets River local population. Although definitive data on current bull trout use of this stream are lacking, best available information suggests that the stream is essential for maintaining the current distribution and abundance of bull trout within the Queets River local population. This stream is entirely within the ONP, habitat is pristine, and access for surveys to document use is extremely difficult.	1236898 477371
Olympic Peninsula—Queets River	Hee Hee Creek	WA	Habitat is pristine and connected to other bull trout foraging, migration, and rearing streams and is within the home watershed of the Queets River bull trout local population. It is a productive salmon/steelhead stream.	Hee Hee Creek provides rearing, and possibly spawning habitat for anadromous and fluvial fish from the Queets River local population. Although definitive data on current bull trout use of this stream are lacking, best available information suggests that the stream is essential for maintaining the current distribution and abundance of bull trout within the Queets River local population. This stream is entirely within the ONP, habitat is pristine, and access for surveys to document use is extremely difficult.	1237378 477119
Olympic Peninsula—Queets River	Alta Creek	WA	Habitat is pristine and connected to other bull trout foraging, migration, and rearing streams, and is within the home watershed of the Queets River bull trout local population. It is a productive salmon/steelhead stream.	Alta Creek provides rearing, and possibly spawning habitat for anadromous and fluvial fish from the Queets River local population. Although definitive data on current bull trout use of this stream are lacking, best available information suggests that the stream is essential for maintaining the current distribution and abundance of bull trout within the Queets River local population. This stream is entirely within the ONP, habitat is pristine, and access for surveys to document use is extremely difficult.	1237546 476986
Olympic Peninsula—Queets River	Paradise Creek	WA	Habitat is pristine and connected to other bull trout foraging, migration, and rearing streams, and is within the home watershed of the Queets River bull trout local population. It is a productive salmon/steelhead stream.	Paradise Creek provides rearing, and possibly spawning habitat for anadromous and fluvial fish from the Queets River local population. Although definitive data on current bull trout use of this stream are lacking, best available information suggests that the stream is essential for maintaining the current distribution and abundance of bull trout within the Queets River local population. This stream is entirely within the ONP, habitat is pristine, and access for surveys to document use is extremely difficult.	1238140 476938

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Queets River	Bob Creek	WA	Habitat is pristine and connected to other bull trout foraging, migration, and rearing streams, and is within the home watershed of the Queets River bull trout local population. Productive salmon/steelhead stream.	Bob Creek provides rearing, and possibly spawning habitat for anadromous and fluvial fish from the Queets River local population. Although definitive data on current bull trout use of this stream are lacking, best available information suggests that the stream is essential for maintaining the current distribution and abundance of bull trout within the Queets River local population. This stream is entirely within the ONP, habitat is pristine, and access for surveys to document use is extremely difficult.	1238544 476896
Olympic Peninsula—Queets River	Harlow Creek	WA	Habitat is pristine and connected to other bull trout foraging, migration, and rearing streams, and is within the home watershed of the Queets River bull trout local population. It is a productive salmon/steelhead stream.	Harlow Creek provides rearing, and possibly spawning habitat for anadromous and fluvial fish from the Queets River local population. Although definitive data on current bull trout use of this stream are lacking, best available information suggests that the stream is essential for maintaining the current distribution and abundance of bull trout within the Queets River local population. This stream is entirely within the ONP, habitat is pristine, and access for surveys to document use is extremely difficult.	1238876 476852
Olympic Peninsula—Queets River	Tshletshy Creek	WA	Historical record of bull trout occupying Tshletshy Creek (McLeod 1944). Recent sampling of this stream has been insufficient to document the presence of bull trout. Habitat is pristine and connected to other bull trout foraging, migration, and rearing streams, and is within the home watershed of the Queets River bull trout local population. It is a productive salmon/steelhead stream. The river is above the 500 ft elevation criteria used to delineate presumed SR based on known spawning sites west of the Cascades (WDOE 2002).	Although definitive data on current bull trout presence are lacking for this stream, Tshletshy Creek is a productive salmon stream used by steelhead, coho and Chinook salmon. The draft recovery chapter explicitly identifies, as essential and biologically important, accessible habitat occupied by anadromous salmonids that can provide a forage base for bull trout. This habitat is identified in the recovery plan as providing a necessary contribution to the forage base and connectivity of anadromous bull trout. Tshletshy Creek is essential to maintaining distribution and overall abundance of bull trout in the core area.	1239233 476661

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CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Queets River	Sams River	WA	Subadult bull trout documented in 2000 (Chan, in litt. 2001). Chinook, steelhead, and coho spawn and rear in Sams River. The river is above the 500 ft. elevation used to delineate presumed SR based on known spawning sites west of the Cascades (WDOE 2002).	Sams River is a productive salmon stream used by steelhead, coho and Chinook salmon. The draft recovery chapter explicitly identifies, as essential and biologically important, accessible habitat occupied by anadromous salmonids that can provide a forage base for bull trout. This habitat is identified in the recovery plan as providing a necessary contribution to the forage base and connectivity of anadromous bull trout. This stream is also included as a shoreline under the Washington State's Shoreline Management Act, since its mean annual flow is greater than 20 cfs. Sams River is essential to maintaining distribution and overall abundance of bull trout in the core area.	1240120 476245
Olympic Peninsula—Queets River	Matheny Creek	WA	Adult bull trout documented in 2002 (Banish, in litt. 2002).	Matheny Creek is a productive salmon stream used by steelhead, coho and Chinook salmon. The draft recovery chapter explicitly identifies, as essential and biologically important, accessible habitat occupied by anadromous salmonids that can provide a forage base for bull trout. This habitat is identified in the recovery plan as providing a necessary contribution to the forage base and connectivity of anadromous bull trout. This stream is also included as a shoreline under the Washington State's Shoreline Management Act, since its mean annual flow is greater than 20 cfs. Matheny Creek is essential to maintaining distribution and overall abundance of bull trout in the core area.	1241133 475763
Olympic Peninsula—Queets River	Salmon River	WA	Recent reports of individual bull trout throughout the Salmon River (Ging, in litt. 2003; Harke, in litt. 2003).	Salmon River is a productive salmon stream used by steelhead, coho, chum and Chinook salmon. The draft recovery chapter explicitly identifies, as essential and biologically important, accessible habitat occupied by anadromous salmonids that can provide a forage base for bull trout. This habitat is identified in the recovery plan as providing a necessary contribution to the forage base and connectivity of anadromous bull trout. This stream is also included as a shoreline under the Washington State's Shoreline Management Act, since its mean annual flow is greater than 20 cfs. Salmon River is essential to maintaining distribution and overall abundance of bull trout in the core area.	1242189 475565

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Queets River	Clearwater River	WA	A 300 mm bull trout documented in 1993 (Peters, in litt. 2001).	Clearwater River is a productive salmon stream used by steelhead, coho, chum and Chinook salmon. The draft recovery chapter explicitly identifies, as essential and biologically important, accessible habitat occupied by anadromous salmonids that can provide a forage base for bull trout. This habitat is identified in the recovery plan as providing a necessary contribution to the forage base and connectivity of anadromous bull trout. This stream is also included as a shoreline under the Washington State's Shoreline Management Act, since its mean annual flow is greater than 20 cfs. Clearwater River is essential to maintaining distribution and overall abundance of bull trout in the core area.	1242909 475461
Olympic Peninsula—Queets River	Queets River	WA	Multiple age classes of bull trout have been documented throughout the Queets River from 1977-2005 (Quinault Indian Nation, in litt. 2005; Brenkman and Meyer 1999; Quinault Indian Nation, in litt. 2002).	This segment of the Queets River provides habitat used for foraging and overwintering by subadult and adult bull trout, as well as providing connectivity between Queets River, its tributaries, the upper Queets River local population, and the Pacific Ocean. It is important to the seasonal habitat needs, survival, and growth of individual migratory fish. It is essential for maintaining distribution and overall abundance of bull trout in the core area.	1243536 475442.1
Olympic Peninsula—Queets River	Queets River	WA	Spawning documented by WDFW in 2001 (Gross, in litt. 2002). Habitat is pristine and connected to other bull trout foraging, migration, and rearing streams, and is within the home watershed of the Queets River bull trout local population. It is a productive salmon/steelhead stream.	This segment of the Queets River provides spawning and rearing habitat for anadromous and fluvial fish from the Queets River local population. This stream is essential for maintaining the current distribution and abundance of bull trout within the Queets River local population. It also provides essential connectivity between the Queets River, its tributaries, and the Pacific Ocean. This stream is entirely within the ONP and habitat is largely pristine.	1243536 475442.2

1.5. Quinault River Critical Habitat Subunit

The Quinault River CHSU is essential to bull trout conservation because it maintains the southernmost population of amphidromous bull trout along the Pacific Coast. Its sympatric distribution with Dolly Varden suggests this CHSU may represent a key climate change refugium for the species due to Dolly Varden's presumed colder water requirements. Extensive portions of the headwater habitat are within protected areas (Olympic National Park and Colonel Bob Wilderness) (see Appendix 1 for more detailed information).

The Quinault River originates in the Olympic Mountains and flows west, passing through Lake Quinault before flowing to the Pacific Ocean. The watershed above Lake Quinault is within Olympic National Park with the remaining watershed largely encompassed by the Quinault Indian Reservation. The Quinault River CHSU includes the mainstem Quinault River, North Fork Quinault River, tributaries, and Lake Quinault. Approximately 148.0 km (92.0 mi) of stream and 1,445.0 ha (3,570.6 ac) of lake surface area are being designated as critical habitat in the Quinault River basin. The following water bodies are included in this CHSU (see Table 5):

(A) The Quinault River from its confluence with the Pacific Ocean upstream 108.4 km (67.4 mi) to an impassable barrier provides foraging and overwintering habitat below its confluence with North Fork Quinault River and spawning and rearing habitat for the Quinault River local population upstream of North Fork Quinault River. The Quinault River also serves as a key migration corridor for bull trout moving to and from Lake Quinault and/or the Pacific Ocean. The area of inundation for Lake Quinault (1,434.0 ha (3,543.5 ac)) provides key FMO habitat for the migratory life history forms within the CHSU. The following tributaries from their mouths upstream to impassable barriers provide tributary spawning and rearing habitat for the Quinault River local population: Graves Creek upstream 1.0 km (0.6 mi); Fire Creek upstream 0.5 km (0.3 mi); O'Neil Creek upstream 1.1 km (0.7 mi); Noname Creek upstream 0.5 km (0.3 mi); Ignar Creek upstream 0.3 km (0.2 mi); and Pyrites Creek upstream 0.6 km (0.4 mi).

(B) Cook Creek from its mouth upstream 7.6 km (4.7 mi) to its headwaters, Irely Lake (11.0 ha (27.2 ac)); Irely Creek from its mouth upstream 0.2 km (0.1 mi) to outlet of Irely Lake; and Big Creek from its mouth upstream 11.3 km (7.0 mi) to its confluence with Irely Creek provide tributary FMO habitat for the migratory life history forms. Irely Creek and Big Creek provide bull trout connectivity between Irely Lake and the Quinault River.

(C) North Fork Quinault River from its confluence with the Quinault River upstream 17.2 km (10.7 mi) to an impassable barrier and its tributary, Rustler Creek, upstream 4.5 km (2.8 mi) to an impassable barrier provide spawning and rearing habitat for the North Fork Quinault River local population. The North Fork Quinault River also serves as a key migration corridor for bull trout moving to and from Lake Quinault and the Pacific Ocean.

Table 5. Water body segments designated as critical habitat for bull trout, including documentation of occupancy and site-specific rationale in the Olympic Peninsula—Quinault River CHU/CHSU

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Quinault River	Pyrites Creek	WA	Juvenile bull trout were documented in 1995 (ONP, in litt. 2001). Little or no sampling has been done since that time. Habitat is pristine and connected to the upper Quinault River. Bull trout are believed to spawn in the upper Quinault River. The recovery team identified this tributary as presumed SR habitat, and as part of the Quinault River local population (OPRT, in litt. 2003c).	Pyrites Creek provides rearing, and possibly spawning habitat for anadromous and fluvial fish from the North Fork Quinault River local population. Although definitive data on current bull trout use of this stream are lacking, best available information suggests that the stream is essential for maintaining the current distribution and abundance of bull trout within the North Fork Quinault River local population. This stream is entirely within the ONP, habitat is pristine, and access for surveys to document use is extremely difficult.	1234316 476393
Olympic Peninsula—Quinault River	Ignar Creek	WA	Juvenile bull trout were documented in 1995 (ONP, in litt. 2001). Little or no sampling has been done since that time. Habitat is pristine and connected to the upper Quinault River. Bull trout are believed to spawn in the upper Quinault River. The recovery team identified this tributary as presumed SR habitat, and as part of the Quinault River local population (OPRT, in litt. 2003c).	Ignar Creek provides rearing, and possibly spawning habitat for anadromous and fluvial fish from the North Fork Quinault River local population. Although definitive data on current bull trout use of this stream are lacking, best available information suggests that the stream is essential for maintaining the current distribution and abundance of bull trout within the North Fork Quinault River local population. This stream is entirely within the ONP, habitat is pristine, and access for surveys to document use is extremely difficult.	1234322 476389
Olympic Peninsula—Quinault River	Noname Creek	WA	Little or no sampling has been done in this tributary. Habitat is pristine and connected to the upper Quinault River. Bull trout are believed to spawn in the upper Quinault River. The recovery team identified this tributary as presumed SR habitat, and as part of the Quinault River local population (OPRT, in litt. 2003c).	Noname Creek provides rearing, and possibly spawning habitat for anadromous and fluvial fish from the North Fork Quinault River local population. Although definitive data on current bull trout use of this stream are lacking, best available information suggests that the stream is essential for maintaining the current distribution and abundance of bull trout within the North Fork Quinault River local population. This stream is entirely within the ONP, habitat is pristine, and access for surveys to document use is extremely difficult.	1234503 476258

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Quinault River	O'Neil Creek	WA	Juvenile bull trout were documented in 1995 (ONP, in litt. 2001). Little or no sampling has been done since that time. Habitat is pristine and connected to the upper Quinault River. Bull trout are believed to spawn in the upper Quinault River. The recovery team identified this tributary as presumed SR habitat, and as part of the Quinault River local population (OPRT, in litt. 2003c).	O'Neil Creek provides rearing, and possibly spawning habitat for anadromous and fluvial fish from the North Fork Quinault River local population. Although definitive data on current bull trout use of this stream are lacking, best available information suggests that the stream is essential for maintaining the current distribution and abundance of bull trout within the North Fork Quinault River local population. This stream is entirely within the ONP, habitat is pristine, and access for surveys to document use is extremely difficult.	1234704 476157
Olympic Peninsula—Quinault River	Fire Creek	WA	Little or no sampling has been done in this tributary. Habitat is pristine and connected to the upper Quinault River. Bull trout are believed to spawn in the upper Quinault River. The recovery team identified this tributary as presumed SR habitat, and as part of the Quinault River local population (OPRT, in litt. 2003c).	Fire Creek provides rearing, and possibly spawning habitat for anadromous and fluvial fish from the North Fork Quinault River local population. Although definitive data on current bull trout use of this stream are lacking, best available information suggests that the stream is essential for maintaining the current distribution and abundance of bull trout within the North Fork Quinault River local population. This stream is entirely within the ONP, habitat is pristine, and access for surveys to document use is extremely difficult.	1235242 475981
Olympic Peninsula—Quinault River	Graves Creek	WA	Little or no sampling has been done in this tributary. Habitat is pristine and connected to the upper Quinault River. Bull trout are believed to spawn in the upper Quinault River. The recovery team identified this tributary as presumed SR habitat, and as part of the Quinault River local population (OPRT, in litt. 2003c).	Graves Creek provides rearing, and possibly spawning habitat for anadromous and fluvial fish from the North Fork Quinault River local population. Although definitive data on current bull trout use of this stream are lacking, best available information suggests that the stream is essential for maintaining the current distribution and abundance of bull trout within the North Fork Quinault River local population. This stream is entirely within the ONP, habitat is pristine, and access for surveys to document use is extremely difficult.	1235710 475744
Olympic Peninsula—Quinault River	Rustler Creek	WA	Bull trout were documented in 1995 (ONP, in litt. 2001). Little or no sampling has been done since that time. Habitat is pristine and connected to the upper Quinault River. Bull trout are believed to spawn in the upper Quinault River. The recovery team identified this tributary as presumed SR habitat, and as part of the Quinault River local population (OPRT, in litt. 2003c).	Rustler Creek provides spawning and rearing habitat for anadromous and fluvial fish from the North Fork Quinault River local population. This stream is essential for maintaining the current distribution and abundance of bull trout within the North Fork Quinault River local population. This creek is entirely within the ONP and habitat is pristine.	1236152 476171

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CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Quinault River	North Fork Quinault River	WA	The NF Quinault was snorkel surveyed in 1994 from its mouth to the confluence with Kimta Creek by Olympic National Park (Meyer and Averill, in litt. 1994). Bull trout were documented throughout this area.	The NF Quinault River provides spawning and rearing habitat for anadromous and fluvial fish from the North Fork Quinault River local population. This stream is essential for maintaining the current distribution and abundance of bull trout within the North Fork Quinault River local population. It also provides essential connectivity between the Quinault River, its tributaries, its local populations, and the Pacific Ocean. This river segment is entirely within the ONP and habitat is pristine.	1236659 475403
Olympic Peninsula—Quinault River	Irely Creek	WA	Bull trout documented by ONP in Irely Lake in 1993 (Brenkman, in litt. 2003a). Irely Creek provides bull trout from the Quinault River access to Irely Lake. Sampling of this stream has been insufficient to further document the presence of bull trout.	Irely Creek is a tributary to Big Creek, and provides access to Irely Lake. The draft recovery chapter explicitly identifies, as essential and biologically important, accessible habitat occupied by anadromous salmonids that can provide a forage base for bull trout. This habitat is identified in the recovery plan as providing a necessary contribution to the forage base and connectivity of anadromous bull trout. Irely Creek is essential to maintaining distribution and overall abundance of bull trout in the core area.	1236784 475647
Olympic Peninsula—Quinault River	Big Creek	WA	Bull trout historically documented in Big Creek (McLeod 1944). Little or no recent sampling has been done in this tributary. However, bull trout documented in Irely Lake (Brenkman, in litt. 2003a) indicates ongoing use of this creek to access the lake system.	Big Creek is a productive salmon stream used by steelhead, sockeye, chum, coho and Chinook salmon. The draft recovery chapter explicitly identifies, as essential and biologically important, accessible habitat occupied by anadromous salmonids that can provide a forage base for bull trout. This habitat is identified in the recovery plan as providing a necessary contribution to the forage base and connectivity of anadromous bull trout. Big Creek is essential to maintaining distribution and overall abundance of bull trout in the core area.	1237732 475177
Olympic Peninsula—Quinault River	Cook Creek	WA	Bull trout documented in 2000 and 2002 at hatchery electronic weir (Craig, in litt. 2003; Zajac, in litt. 2002).	Cook Creek is a productive salmon stream used by steelhead, chum, coho and Chinook salmon. The draft recovery chapter explicitly identifies, as essential and biologically important, accessible habitat occupied by anadromous salmonids that can provide a forage base for bull trout. This habitat is identified in the recovery plan as providing a necessary contribution to the forage base and connectivity of anadromous bull trout. Cook Creek is essential to maintaining distribution and overall abundance of bull trout in the core area.	1240607 473709

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Quinault River	Quinault River	WA	Multiple age classes have been documented throughout the river since 1995 (ONP, in litt. 2001).	This segment of the Quinault River provides habitat used for foraging and overwintering by subadult and adult bull trout, as well as providing connectivity between Quinault River, its tributaries, its local populations, and the Pacific Ocean. It is important to the seasonal habitat needs, survival, and growth of individual migratory fish. It is essential for maintaining distribution and overall abundance of bull trout in the core area.	1242991 473493.1
Olympic Peninsula—Quinault River	Quinault River	WA	Juvenile, subadult and adult bull trout have been documented since 1995 (ONP, in litt. 2001). Habitat is sufficient to support a local population in the upper Quinault and associated tributaries (OPRT, in litt. 2003c).	This segment of the Quinault River provides spawning and rearing habitat for anadromous and fluvial fish from the Quinault River local population. This stream is essential for maintaining the current distribution and abundance of bull trout within the Quinault River local population. It also provides essential connectivity between the Quinault River, its tributaries, its local populations, and the Pacific Ocean. This river segment is entirely within the ONP and habitat is largely pristine.	1242991 473493.2
Olympic Peninsula—Quinault River	Irely Lake	WA	Bull trout documented by ONP in Irely Lake in 1993 (Brenkman, in litt. 2003a). Sampling of this lake since that time has been insufficient to further document the presence of bull trout.	Irely Lake is a productive lake system supporting coho salmon and cutthroat trout. The recovery chapter explicitly identifies, as essential and biologically important, accessible habitat occupied by anadromous salmonids that can provide a forage base for bull trout. This habitat is identified in the recovery plan as providing a necessary contribution to the forage base and connectivity of anadromous bull trout. Irely Lake is essential to maintaining distribution and overall abundance of bull trout in the Quinault River core area.	1236742 475652
Olympic Peninsula—Quinault River	Quinault Lake	WA	Bull trout have been documented both above and below Quinault Lake (WDFW 1998; Ostwald, in litt. 2003).	Lake Quinault is a productive lake used by sockeye, steelhead, coho and Chinook salmon. The recovery chapter explicitly identifies, as essential and biologically important, accessible habitat occupied by anadromous salmonids that can provide a forage base for bull trout. This habitat is identified in the recovery plan as providing a necessary contribution to the forage base and connectivity of anadromous bull trout. Lake Quinault is essential to maintaining distribution and overall abundance of bull trout, as well as allowing for the expression of diverse life history forms in the Quinault River core area.	1238690 474752

1.6. Skokomish River Critical Habitat Subunit

The Skokomish River CHSU is essential to bull trout conservation because it represents the only natal distribution of bull trout within the Hood Canal region of the Olympic Peninsula. Portions of the headwater habitat are within a protected area (Olympic National Park) (see Appendix 1 for more detailed information).

For the next five CHSUs, nearshore marine waters are essential for access to foraging habitat in watersheds that are not believed to have spawning populations. While in marine waters, bull trout appear to primarily occupy estuarine and nearshore habitats and feed on a variety of prey items, especially small marine fish such as herring, surf smelt, and sandlance (Goetz et al. 2004, p. 105–114). It is likely these waters are also used as refuge from high flows in the natal rivers. Although the extent of bull trout use in these waters and their independent tributaries are not well known, information for Puget Sound and Pacific Ocean nearshore marine use indicates that bull trout with access to marine waters use them to access prey base in both marine and independent freshwater tributaries. Independent tributaries that flow directly to marine waters are not expected to provide spawning habitat but do provide essential foraging and overwintering habitat for bull trout outside their natal watersheds. Nearshore marine habitat is also essential for connectivity to and between these independent tributaries. Although use of FMO habitat may be seasonal or brief, it is nonetheless a critical element for migratory bull trout to persist (Lohr et al. 2001, p. 204). The current distribution data most likely under-represent the amount of occupied marine shoreline due to the depressed status of these populations, the seasonal and temporal variability in migratory behavior, and the difficulty of sampling in large estuarine and marine environments. As bull trout in these CHSUs recover and increase in abundance, it is expected that FMO habitat use of marine waters will also increase.

The North Fork Skokomish River and the South Fork Skokomish River headwaters originate in the Olympic Mountains and flow eastward to join at the Skokomish River, which then flows into the southernmost portion of Hood Canal. The North Fork Skokomish River flows through Lake Cushman and Lake Kokanee before meeting with the South Fork Skokomish River. Approximately 119.0 km (73.9 mi) of stream and 1,623.0 ha (4,010.5 ac) of lake surface area are being designated as critical habitat in the Skokomish basin. The following water bodies are included in this CHSU (see Table 6):

(A) The Skokomish River from its confluence with Hood Canal upstream 13.8 km (8.6 mi) to its confluence with the North Fork Skokomish River and South Fork Skokomish River provides FMO habitat, including a migratory corridor from Hood Canal to the North and South Fork Skokomish Rivers. The following tributaries from their confluence with the Skokomish River upstream to natural barriers or headwaters provide foraging, overwintering, and seasonal subadult rearing habitat in the lower Skokomish River: Nalley Slough upstream 0.8 km (0.5 mi); Skobob Creek upstream 3.5 km (2.2 mi); Purdy Creek upstream 2.1 km (1.3 mi); and Rickert Springs upstream 0.5 km (0.3 mi).

(B) The South Fork Skokomish River from its confluence with the Skokomish River upstream 40.2 km (25.0 mi) provides FMO habitat in reaches downstream of its confluence with Brown Creek and spawning and rearing habitat for the South Fork Skokomish River local population upstream of Brown Creek. Vance Creek from its mouth upstream 13.2 km (8.2 mi) and the Vance Creek remnant side channel 1.4 km (0.9 mi) provides foraging and overwintering habitat. Brown Creek from its mouth upstream 8.5 km (5.3 mi) provides spawning and rearing

habitat for the Brown Creek potential local population. The following tributaries from their mouths upstream to natural barriers provide spawning and rearing habitat for the South Fork Skokomish River local population: Lebar Creek upstream 1.9 km (1.2 mi); Cedar Creek upstream 0.5 km (0.3 mi); Pine Creek upstream 1.1 km (0.7 mi); and Church Creek upstream 0.6 km (0.4 mi).

(C) North Fork Skokomish River from its confluence with the Skokomish River upstream 13.5 km (8.4 mi) ending at Lower Cushman Dam, and Lake Cushman (1,623.0 ha (4,010.5 ac)) formed by Upper Cushman Dam, provide foraging and overwintering habitat and connectivity with the mainstem Skokomish River for the North Fork Skokomish River local population. An unnamed tributary (stream catalog number 0100) from its mouth upstream 0.6 km (0.4 mi) to natural barrier and McTaggart Creek from its mouth upstream 5.8 km (3.6 mi) to USFS Road 2340-200 provide tributary foraging habitat in the lower North Fork Skokomish River. The segment of the North Fork Skokomish River from Lake Cushman upstream 7.6 km (4.7 mi) to a natural barrier provides spawning and rearing habitat for the local population. The following tributaries from their mouths upstream to natural barriers or gradient breaks also provide spawning and rearing habitat: Elk Creek upstream 1.3 km (0.8 mi) and Slate Creek upstream 1.6 km (1.0 mi). Lake Kokanee, formed by Lower Cushman Dam, is not being designated as critical habitat because implementation of the Federal Energy Regulatory Commission license for the Cushman Project is expected to result in construction of trap-and-haul fish passage facilities (City of Tacoma et al. 2009, p. 38). These facilities will restore connectivity between lower and upper North Fork Skokomish Rivers but will bypass the inundated 3.7 km (2.3 mi) long Lake Kokanee section.

Table 6. Water body segments designated as critical habitat for bull trout, including documentation of occupancy and site-specific rationale in the Olympic Peninsula—Skokomish River CHU/CHSU

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Skokomish River	Purdy Creek	WA	E. Jouper, WDFW George Adams Hatchery manager, observed bull trout in hatchery ponds on Purdy Creek as recently as 1997 (Ogg, in litt. 2003a).	Purdy Creek provides foraging and overwintering habitat presumed to be used by fluvial fish from local bull trout populations elsewhere in the core area, and thus it is essential for maintaining the existing distribution of migratory bull trout. Because it provides forage habitat in reaches used by anadromous salmonids and is accessible to bull trout, it is essential for its contribution to maintaining or restoring the overall abundance of bull trout in the core area.	1231602 473072
Olympic Peninsula—Skokomish River	Nalley Slough	WA	Currently accessible to fluvial and anadromous bull trout. Nalley Slough is a side channel of the Skokomish River, and is entirely within tidal influence. A productive salmon and steelhead stream, and likely important forage and overwintering stream for bull trout. Sampling of this stream has been insufficient to document the presence of bull trout.	The draft recovery chapter explicitly identifies as essential and biologically important accessible habitat occupied by anadromous salmonids that can provide a forage base for bull trout. Nalley Slough provides important rearing, migration and staging conditions for juvenile and adult salmonids. As much as 40-50% of the summer flow of the Skokomish River is routed down this channel (Ereth, in litt. 2003b).	1231300 473284
Olympic Peninsula—Skokomish River	Skokomish River	WA	Currently occupied by migratory bull trout (WDFW 2002). Forest Service personnel have captured or observed use by adult and subadult bull trout (Ogg and Stutsman 2002).	Mainstem Skokomish River provides essential habitat used for foraging and overwintering by subadult and adult fluvial and anadromous bull trout as well as providing critical connectivity between NF & SF Skokomish Rivers and Hood Canal. It is essential to the seasonal habitat needs, survival, and growth of individual migratory fish within the core area.	1231163 473387
Olympic Peninsula—Skokomish River	Skobob Creek	WA	In 2002 bull trout were documented (Ereth, in litt. 2003a).	Skobob Creek provides foraging and overwintering habitat and thus it is essential for maintaining the existing distribution of migratory bull trout within the core area. Because it provides forage habitat in reaches used by anadromous salmonids and is accessible to bull trout, it is essential for its contribution to maintaining or restoring the overall abundance of bull trout in the core area.	1231307 473279

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Skokomish River	Richert Spring	WA	Olympic National Forest radio-tracked fluvial bull trout into this spring (OPRT, in litt. 2003a).	Richert Springs provides foraging and overwintering habitat used by fluvial fish, and is therefore essential for maintaining the existing distribution of these migratory bull trout. Because it provides forage habitat in reaches used by anadromous salmonids and accessible to bull trout, it is essential for its contribution to maintaining and restoring the overall abundance of bull trout in the Skokomish core area.	1232184 473204
Olympic Peninsula—Skokomish River	Vance Creek Remenant Channel	WA	Currently accessible to anadromous and fluvial bull trout. A productive summer and winter salmon stream, and likely important forage stream for bull trout. Sampling of this stream has been insufficient to document the presence of bull trout. Remenant Channel is connected to Vance Creek during freshets, but is connected to Swift Creek perennially. The area maintains flow and relatively deep cool water in the summer (Ereth, in litt. 2003b).	The draft recovery chapter explicitly identifies as essential and biologically important accessible habitat occupied by anadromous salmonids that can provide a forage base for bull trout. Thus Vance Creek remnant channel contributes to maintaining or restoring the overall abundance of bull trout in the Skokomish core area.	1232319 473157
Olympic Peninsula—Skokomish River	McTaggart Creek	WA	Currently accessible to anadromous and fluvial bull trout. A productive coho, chum and steelhead stream, and likely important forage and overwintering stream for bull trout. Sampling of this stream, and the lower NF Skokomish River, has been insufficient to document the presence of bull trout.	The draft recovery chapter explicitly identifies as essential and biologically important accessible and productive habitat occupied by anadromous salmonids that can provide a forage base for bull trout. McTaggart Creek is the only major tributary to the lower NF Skokomish River. It is anticipated that bull trout seasonal use of McTaggart Creek will increase once anadromous salmon are restored to the upper NF Skokomish River basin under the recent FERC relicensing agreement. It will provide essential FMO habitat that contributes to maintaining or restoring the overall distribution and abundance of bull trout in the Skokomish core area.	1232339 473629

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CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Skokomish River	North Fork Skokomish River (Lower)	WA	Bull trout have been observed in lower NF Skokomish River (Ereth, in litt. 2003c).	This segment of the NF Skokomish River provides habitat used for foraging and overwintering by subadult and adult bull trout as well as providing connectivity between NF, SF and mainstem Skokomish Rivers, and Hood Canal. It is essential to the seasonal habitat needs, survival, and growth of migratory fish. Stream temperatures and substrate are suitable for juvenile bull trout rearing, and subadult and adult foraging. It is essential for restoring full connectivity between the SF Skokomish River and NF Skokomish River local populations, maintaining the existing distribution of bull trout, as well as for its contribution to maintaining or restoring the overall abundance of bull trout in the core area.	1232376 473154.1
Olympic Peninsula—Skokomish River	North Fork Skokomish River (Upper)	WA	Known to be used by substantial numbers of adfluvial fish migrating to and from Lake Cushman (WDFW 1998; Brenkman 1998).	This segment of the NF Skokomish River is essential for providing for the seasonal habitat needs, survival and growth of individual fish from NF Skokomish River local population. It is essential for maintaining existing distribution of migratory bull trout and provides part of the critical migratory corridor between spawning and rearing areas used by the local population and FMO habitat in Lake Cushman, and in the future, lower Skokomish River and possibly Hood Canal.	1232376 473154.3
Olympic Peninsula—Skokomish River	Vance Creek	WA	A juvenile (5 in.) bull trout was captured in lower Vance Creek during fish surveys conducted in January 2009 (Peters, in litt. 2009).	It is essential for providing forage habitat for bull trout in reaches used by anadromous salmonids. The recent "juvenile" bull trout observation indicates Vance Creek may also be essential as spawning and rearing habitat for the SF Skokomish local population.	1232376 473164
Olympic Peninsula—Skokomish River	Unnamed trib. (#0100)	WA	Currently accessible to anadromous and fluvial bull trout. A productive coho stream, and likely important forage and overwintering stream for bull trout. Sampling of this stream, and the lower NF Skokomish River, has been insufficient to document the presence of bull trout.	The draft recovery chapter explicitly identifies as essential and biologically important accessible habitat occupied by anadromous salmonids that can provide a forage base for bull trout. This unnamed tributary (stream catalog #0100) contributes to maintaining or restoring the overall abundance of bull trout in the Skokomish core area.	1232412 473350
Olympic Peninsula—Skokomish River	South Fork Skokomish River	WA	U.S. Forest Service documented use by juvenile and subadult bull trout (Ogg and Stutsman 2002).	This segment of the SF Skokomish River is essential for providing forage habitat in reaches used by migratory bull trout. Brown Creek is also essential for maintaining the distribution, as well as for its contribution to maintaining and restoring the overall abundance, of bull trout in the Skokomish core area.	1232525 473170.1

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Skokomish River	South Fork Skokomish River	WA	Bull trout spawning has been documented throughout this area from 2000-2002 (Ogg, in litt. 2003b).	This segment of the SF Skokomish River is within the home watershed of the SF Skokomish local population. It is thus essential for maintaining connectivity and existing distribution of this population, as well as for its contribution to maintaining or restoring the overall abundance of bull trout in the core area.	1232525 473170.2
Olympic Peninsula—Skokomish River	Brown Creek	WA	Possible redd observed in 2000; suitable SR habitat (Ogg and Stutsman 2002).	Brown Creek is essential for maintaining the existing distribution of this population as well as for its contribution to increasing overall abundance of bull trout in the core area. Habitat, including stream temperature, is suitable for bull trout spawning (Ogg, in litt. 2003c). As the Skokomish core area recovers and abundance is increased, it is presumed that bull trout will spawn in Brown Creek and establish a local population. There are only two identified local populations in the Skokomish core area, putting the core area at high risk of extirpation. Brown Creek has been identified as a potential local population necessary for recovery in Skokomish core area.	1233177 474115
Olympic Peninsula—Skokomish River	Lebar Creek	WA	Juvenile and subadult bull trout have been documented in the lower reaches (Ogg, in litt. 2003b).	Lebar Creek provides known FMO habitat within the home watershed of the SF Skokomish local population and may contain habitat suitable for bull trout spawning. It is essential for maintaining distribution of bull trout within this watershed, and possibly expanding spawning distribution if a local population can be established.	1233287 474174
Olympic Peninsula—Skokomish River	Elk Creek	WA	Bull trout fry and redds observed in 1996 by Olympic National Park biologists (Brenkman and Meyer, in litt. 2001).	Elk Creek provides essential habitat used for spawning and rearing in the NF Skokomish River local population. It is essential for maintaining distribution, abundance, and productivity.	1233296 475147
Olympic Peninsula—Skokomish River	Slate Creek	WA	Bull trout fry observed in 1996 by ONP biologists (Brenkman and Meyer, in litt. 2001).	Slate Creek provides essential habitat used for spawning and rearing in the NF Skokomish River local population. It is essential for maintaining distribution, abundance, and productivity.	1233351 475211

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CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Skokomish River	Cedar Creek	WA	Currently accessible to anadromous and fluvial bull trout. Sampling of this stream has been insufficient to document the presence of bull trout. Habitat is suitable and connected to other bull trout foraging, overwintering, and rearing streams (Ogg, in litt. 2003b). Occupied by steelhead trout and other forage fish.	Cedar Creek is a productive salmonid stream and the draft recovery chapter explicitly identifies as essential and biologically important accessible habitat occupied by anadromous salmonids that can provide a forage base for bull trout. Although definitive data on bull trout presence are lacking for this stream, available information suggests that the habitat is essential for maintaining and increasing the abundance of bull trout within the home watershed of the SF Skokomish River local population.	1234016 474429
Olympic Peninsula—Skokomish River	Pine Creek	WA	Juvenile and subadult bull trout have been documented in the anadromous reaches (Ogg, in litt. 2003b). Occupied by steelhead trout and other forage fish.	Pine Creek is within the home watershed of the SF Skokomish River local population. It contains essential habitat for juvenile rearing and potentially spawning. It is essential to maintaining the existing distribution of bull trout within this local population.	1234157 474461
Olympic Peninsula—Skokomish River	Church Creek	WA	Bull trout spawning has been documented throughout this area from 2000-2002 (Ogg, in litt. 2003b).	Church Creek is within the home watershed of the SF Skokomish River local population. It contains essential habitat for spawning and juvenile rearing. It is essential to maintaining the existing distribution of bull trout within this local population as well as for its contribution to maintaining or restoring the overall abundance of bull trout in the Skokomish core area.	1234496 474612
Olympic Peninsula—Skokomish River	North Fork Skokomish River (Upper)	WA	Known to be used by substantial numbers of adfluvial fish migrating to and from Lake Cushman (WDFW 1998; Brenkman 1998).	This segment of the NF Skokomish River is essential for providing for the seasonal habitat needs, survival and growth of individual fish from NF Skokomish River local population. It is essential for maintaining existing distribution of migratory bull trout and provides part of the critical migratory corridor between spawning and rearing areas used by the local population and FMO habitat in Lake Cushman, and in the future, lower Skokomish River and possibly Hood Canal.	1232376 473154.2

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Skokomish River	Lake Cushman	WA	Numerous records by Olympic National Park biologists and law enforcement documenting recent use by adult and subadult bull trout (Brenkman and Meyer in litt. 2001).	Lake Cushman provides foraging and overwintering habitat used by subadult and adult bull trout as well as provides connectivity between the NF Skokomish River local population and the rest of the core area. It is important to the seasonal habitat needs, survival, and growth of the migratory life history form. There is an abundant prey base within the lake identified as important freshwater forage for bull trout. It is essential for maintaining the existing distribution of bull trout, as well as for its contribution to maintaining or restoring the overall abundance of bull trout in the Skokomish River core area. In the future, it will provide part of the critical migratory corridor between spawning and rearing areas used by the local population and FMO habitat in the lower Skokomish River and possibly Hood Canal.	1232549 474703

1.7. Hood Canal Critical Habitat Subunit

Hood Canal Marine CHSU is essential to bull trout conservation and for recovering the amphidromous life history form in the Hood Canal region of the Olympic Peninsula. It contains essential FMO habitat for the expression of the amphidromous life history form (see Appendix 1 for more detailed information).

Hood Canal is a large fjord located on the western side of Puget Sound between Kitsap and Olympic Peninsulas. The estuarine and nearshore marine waters of the southern and western boundaries of Hood Canal provide foraging and migration habitat for amphidromous bull trout outside of freshwater core areas. Approximately 171 km (106 mi) of nearshore marine habitat in Hood Canal is being designated as critical habitat. The following water bodies are included in this CHSU (see Table 7):

(A) Approximately 171.0 km (106.3 mi) of nearshore marine habitat on the southern and western borders of Hood Canal from an unnamed tributary south of Union River to the entrance to Fisherman's Harbor on the southern border of Toandos Peninsula is designated as critical habitat. Amphidromous bull trout have been documented in estuaries and lower rivers of Hood Canal, including the Quilcene, Dosewallips, Duckabush, and Hamma Hamma Rivers on the western side of Hood Canal (U.S. Commission on Fish and Fisheries, in litt. 1913, p. 1; McLeod 1944, p. 148; Hilgert, in litt. 2000; Meyer and Hamstreet, in litt. 2001, p. 4). It is unlikely these rivers provide spawning and rearing habitat but they have abundant prey base and may provide important foraging and overwintering habitats for amphidromous bull trout originating from the Skokomish River CHSU.

Table 7. Water body segments designated as critical habitat for bull trout, including documentation of occupancy and site-specific rationale in the Olympic Peninsula—Hood Canal Marine CHU/CHSU

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Hood Canal Marine	Hood Canal Marine	WA	In the 1980s bull trout were observed in reaches accessible to salmon in west Hood Canal tributary rivers, including the Quilcene, Hamma Hamma, Dosewallips, and Duckabush (Hilgert, in litt. 2000). Spawning is not believed to occur in these rivers, and bull trout presumably migrate through Hood Canal to reach these tributary rivers. Recent radio telemetry studies indicate that anadromous bull trout may spend significant time outside their core area (Brenkman and Corbett 2005).	See "Olympic Peninsula CHU" justification text, above	M-OP-MR-01

1.8. Strait of Juan de Fuca Critical Habitat Subunit

The Strait of Juan de Fuca CHSU is essential to bull trout conservation and for supporting the expression of the amphidromous life history form along the northern extent of the Olympic Peninsula. This CHSU encompasses both marine (Strait of Juan de Fuca) and freshwater (Siebert Creek, Morse Creek, Ennis Creek, and Valley Creek) FMO habitats required for the expression of the amphidromous life history form within the Olympic Peninsula CHU (see Appendix 1 for more detailed information).

The Strait of Juan de Fuca is a large body of water bordering the north end of the Olympic Peninsula and forms the principal outlet for the Georgia Strait and Puget Sound, connecting both to the Pacific Ocean. Approximately 209.2 km (130.0 mi) of nearshore marine habitat in the Strait of Juan de Fuca, and 28.2 km (17.6 mi) of independent streams draining into it are designated as critical habitat. The following water bodies are included in this CHSU: (see Table 8)

(A) Nearshore marine habitat on the southern boundary of the Strait of Juan de Fuca for 209.2 km (130.0 mi) from its eastern boundary at Cape George to its western boundary at Pillar Point provides key marine foraging and migration habitat for the amphidromous life history form from the Dungeness and Elwha CHSUs. Siebert Creek from its confluence with the Strait of Juan de Fuca upstream 10.1 km (6.3 mi) to its confluence with an unnamed tributary (stream catalog number 0175); Morse Creek from its confluence with the Strait of Juan de Fuca upstream 7.9 km (4.9 mi) to a natural barrier; Ennis Creek from its confluence with the Strait of Juan de Fuca upstream 8.0 km (5.0 mi) to a natural barrier; and Valley Creek from its confluence with the Strait of Juan de Fuca upstream 2.2 km (1.4 mi) to upper extent of anadromous salmon use, provide FMO habitat for amphidromous bull trout outside of freshwater core areas. Subadult bull trout have been documented in these tributaries, indicating they are used for seasonal foraging and overwintering by the amphidromous life history form. Use of these independent tributaries to the Strait of Juan de Fuca requires migration by bull trout from their natal rivers through the marine waters of the Strait of Juan de Fuca.

Table 8. Water body segments designated as critical habitat for bull trout, including documentation of occupancy and site-specific rationale in the Olympic Peninsula—Strait of Juan de Fuca CHU/CHSU

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Strait of Juan de Fuca	Siebert Creek	WA	Currently accessible to anadromous bull trout. Documented observation in 1999 (Freudenthal, in litt. 2000).	Siebert Creek has been identified as part of the Straits of Juan de Fuca FMO habitat, and is identified in the recovery plan as providing an important contribution to foraging habitat for anadromous bull trout. This habitat is identified in the recovery plan as providing an important contribution to the forage base and connectivity of anadromous bull trout in the Strait of Juan de Fuca. Siebert is one of very few freshwater streams outside of the Elwha River and Dungeness River core areas known to be used by bull trout. Recent radio telemetry studies have demonstrated that anadromous bull trout spend significant time outside their core area (OPRT, in litt. 2003b; Brenkman and Corbett 2005). Siebert Creek is considered essential for maintaining overall distribution and abundance of anadromous bull trout in the Dungeness and Elwha core areas.	1232885 481207
Olympic Peninsula—Strait of Juan de Fuca	Morse Creek	WA	Currently accessible to anadromous bull trout. Morse Creek has potentially suitable SR habitat in its upper reaches. A large bull trout was documented in Morse Creek in the late 1980s (WDFW 1998). Sampling of this stream has been insufficient to document the current presence or abundance of bull trout. Habitat is suitable and connected to occupied bull trout foraging areas.	Morse Creek has been identified as part of the Straits of Juan de Fuca FMO habitat, and is identified in the recovery plan as providing an important contribution to foraging habitat for anadromous bull trout. This habitat is identified in the recovery plan as providing an important contribution to the forage base and connectivity of anadromous bull trout in the Strait of Juan de Fuca. Siebert Creek is one of very few freshwater streams outside of the Elwha River and Dungeness River core areas known to be used by bull trout. Recent radio telemetry studies have demonstrated that anadromous bull trout spend significant time outside their core area (OPRT, in litt. 2003b; Brenkman and Corbett 2005). Morse Creek is considered essential for maintaining overall distribution and abundance of anadromous bull trout in the Dungeness and Elwha core areas.	1233496 481176

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Strait of Juan de Fuca	Ennis Creek	WA	Currently accessible to anadromous bull trout. Bull trout captured in WDFW smolt trap on Ennis Creek in 1999 (Cooper, in litt. 2003).	Ennis Creek has been identified as part of the Straits of Juan de Fuca FMO habitat, and is identified in the recovery plan as providing an important contribution to foraging habitat for anadromous bull trout. This habitat is identified in the recovery plan as providing an important contribution to the forage base and connectivity of anadromous bull trout in the Strait of Juan de Fuca. Ennis Creek is one of very few freshwater streams outside of the Elwha River and Dungeness River core areas known to be used by bull trout. Recent radio telemetry studies have demonstrated that anadromous bull trout spend significant time outside their core area (OPRT, in litt. 2003b; Brenkman and Corbett 2005). Ennis Creek is considered essential for maintaining overall distribution and abundance of anadromous bull trout in the Dungeness and Elwha core areas.	1234042 481167
Olympic Peninsula—Strait of Juan de Fuca	Valley Creek	WA	Bull trout use recently detected using radio telemetry. Subadult bull trout observed in May 2006 (Ogg, in litt. 2006).	Valley Creek's use by bull trout has only recently been identified. It is part of the Straits of Juan de Fuca FMO habitat, and is identified in the recovery plan as providing an important contribution to foraging habitat for anadromous bull trout. Valley Creek is in close proximity to the Dungeness core area, and recent radio telemetry studies demonstrate anadromous bull trout spend significant time outside their core area (OPRT, in litt. 2003b; Brenkman and Corbett 2005). The lower reach of this stream and its associated riparian area has been severely degraded as a result of residential and urban development so there is some uncertainty regarding the level of use by anadromous bull trout and degree of importance for recovery. However, it is considered essential for recovery at this time because of the connectivity it provides among Straits of Jaun de Fuca FMO habitat between the Dungeness and Elwha core areas.	1234372 481222

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CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Strait of Juan de Fuca	Strait of Juan de Fuca Marine	WA	Bull trout have been observed in a number of independent drainages to the Strait of Juan de Fuca, including Bell, Siebert, Morse and Ennis Creeks (Mongillo 1993; Freudenthal, in litt. 2001; WDFW 1998; Cooper, in litt. 2003). It is presumed that spawning does not occur in these independent drainages based on low elevation and the professional judgment of the Olympic Peninsula Bull Trout Recovery Team. The Strait of Juan de Fuca provides connectivity between known core areas and these independent drainages. Recent radio telemetry studies indicate that anadromous bull trout may spend significant time outside their core area (OPRT, in litt 2003b; Brenkman and Corbett 2005). Although bull trout have not been documented west of the Elwha River, telemetry studies on the Olympic Peninsula have documented bull trout migrating from natal streams 32 miles (from Hoh River to Raft River) through marine waters to freshwater streams (Corbett, in litt. 2004).	See "Olympic Peninsula CHU" justification text, above	M-OP-MR-02

1.9. Pacific Coast Critical Habitat Subunit

The Pacific Coast CHSU is essential to bull trout conservation and for supporting the expression of the amphidromous life history form along the coastal region of the Olympic Peninsula. This CHSU encompasses both marine (Pacific Ocean) and freshwater (Goodman Creek, Mosquito Creek, Cedar Creek, Steamboat Creek, Kalaloch Creek, Raft River, Moclips River, Joe Creek, and Copalis River) FMO habitats required for the expression of the amphidromous life history form within the Olympic Peninsula CHU (see Appendix 1 for more detailed information).

Bull trout can be found throughout the eastern nearshore waters of the Pacific Ocean from Goodman Creek south to Grays Harbor. Approximately 151 km (93.8 mi) of nearshore marine habitat on the Pacific Coast, and 103.0 km (64.0 mi) of independent streams draining into the Pacific Ocean are designated as critical habitat. The following water bodies are included in this CHSU (see Table 9):

(A) Nearshore marine habitat on the western coast of the Pacific Ocean for 150.0 km (93.8 mi) from its northern boundary at the mouth of an unnamed tributary (stream catalog number 0089) to its southern boundary at the mouth of Grays Harbor at the jetty on Point Brown provides key marine foraging and migration habitat for the amphidromous life history form from the Hoh, Queets, and Quinault CHSUs. The following independent tributaries to the Pacific Ocean provide essential foraging and overwintering habitat outside of core areas for the amphidromous life history form: Goodman Creek from its confluence with the Pacific Ocean upstream 17.3 km (10.8 mi) to its confluence with an unnamed tributary (stream catalog number 0413); Mosquito Creek upstream from its confluence with the Pacific Ocean upstream 11.1 km (6.9 mi) to a natural barrier; Cedar Creek from its confluence with the Pacific Ocean upstream 6.8 km (4.2 mi) to its headwaters; Steamboat Creek from its confluence with the Pacific Ocean upstream 5.3 km (3.3 mi) to a natural barrier; Kalaloch Creek from its confluence with the Pacific Ocean upstream 6.3 km (3.9 mi) to its confluence with West Fork Kalaloch Creek; Raft River from its confluence with the Pacific Ocean upstream 12.9 km (8.0 mi) to its confluence with South Fork Raft River; Moclips River upstream from its confluence with the Pacific Ocean upstream 11.3 km (7.0 mi) to a natural barrier; Joe Creek upstream from its confluence with the Pacific Ocean upstream 5.8 km (3.6 mi) to a natural barrier; and Copalis River upstream from its confluence with the Pacific Ocean upstream 25.6 km (15.9 mi) to a natural barrier. Subadult and adult bull trout have been documented in these tributaries, indicating these streams are used for essential foraging and overwintering by the amphidromous life history form. Use of these independent tributaries to the Pacific Ocean requires migration by bull trout from their natal rivers through the marine waters of the Pacific Ocean.

Table 9. Water body segments designated as critical habitat for bull trout, including documentation of occupancy and site-specific rationale in the Olympic Peninsula—Pacific Coast CHU/CHSU

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Pacific Coast	Pacific Coast Marine	WA	Bull trout have been observed in a number of independent drainages to the Pacific Ocean, including Goodman, Cedar, Steamboat, Klallock, and Joe creeks, and Moclips and Copalis rivers, as well as in Grays Harbor (Mongillo 1993; Potter, in litt. 2003; Freymond, in litt. 2001; Brenkman and Corbett, in litt. 2003b; and WDFW 1998). It is presumed that spawning does not occur in these independent drainages or in Grays Harbor tributaries based on low elevation and the professional judgment of the Olympic Peninsula Bull Trout Recovery Team. The Pacific Ocean provides the only connectivity between known core areas and these independent drainages. Recent radio telemetry studies indicate that anadromous bull trout may spend significant time outside their core area (OPRT, in litt. 2003b), and have been documented to migrate 32 miles through marine waters from natal stream to FMO freshwater river.	See "Olympic Peninsula CHU" justification text, above	M-OP-MR-03
Olympic Peninsula—Pacific Coast	Copalis River	WA	Bull trout documented in lower river in 2001 (Brenkman, in litt. 2003c)	Waterbodies used by anadromous bull trout, but currently lying outside of designated core areas, are essential to maintaining the current distribution, abundance, and productivity of bull trout within the management unit. The draft recovery chapter explicitly identifies as essential and biologically important accessible habitat occupied by anadromous salmonids which provide an important forage base for bull trout. Copalis River is in close proximity to the Queets and Quinalt core areas and recent radio telemetry studies indicate that anadromous bull trout may spend significant time outside their core area (OPRT, in litt. 2003b; Brenkman and Corbett 2005). It is identified as providing necessary connectivity among FMO habitats for anadromous bull trout.	1241801 471333

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Pacific Coast	Joe Creek	WA	Bull trout are common in the lower river in December when the coho are spawning (Potter, in litt. 2003).	Waterbodies used by anadromous bull trout, but currently lying outside of designated core areas, are essential to maintaining the current distribution, abundance, and productivity of bull trout within the management unit. The draft recovery chapter explicitly identifies as essential and biologically important accessible habitat occupied by anadromous salmonids which provide an important forage base for bull trout. Joe Creek is in close proximity to the Queets and Quinault core areas and recent radio telemetry studies indicate that anadromous bull trout may spend significant time outside their core area (OPRT, in litt. 2003b; Brenkman and Corbett 2005). It is identified as providing necessary connectivity among FMO habitats for anadromous bull trout.	1242023 472064
Olympic Peninsula—Pacific Coast	Moclips River	WA	Bull trout reported in anadromous reach (WDFW 1998).	Waterbodies used by anadromous bull trout, but currently lying outside of designated core areas, are essential to maintaining the current distribution, abundance, and productivity of bull trout within the management unit. The draft recovery chapter explicitly identifies as essential and biologically important accessible habitat occupied by anadromous salmonids which provide an important forage base for bull trout. Moclips River is in close proximity to the Queets and Quinault core areas and recent radio telemetry studies indicate that anadromous bull trout may spend significant time outside their core area (OPRT, in litt. 2003b; Brenkman and Corbett 2005). It is identified as providing necessary connectivity among FMO habitats for anadromous bull trout.	1242189 472478

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CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Pacific Coast	Raft River	WA	Bull trout documented in Raft River during 2003 radio telemetry study (Corbett, in litt. 2004).	Waterbodies used by anadromous bull trout, but currently lying outside of designated core areas, are essential to maintaining the current distribution, abundance, and productivity of bull trout within the management unit. The draft recovery chapter explicitly identifies as essential and biologically important accessible habitat occupied by anadromous salmonids which provide an important forage base for bull trout. Raft River is in close proximity to the Hoh, Queets, and Quinault core areas and recent radio telemetry studies indicate that anadromous bull trout may spend significant time outside their core area (OPRT, in litt. 2003b; Brenkman and Corbett 2005). It is identified as providing necessary connectivity among FMO habitats for anadromous bull trout.	1243414 474624
Olympic Peninsula—Pacific Coast	Kalaloch Creek	WA	Bull trout documented in Kalaloch Creek (Freymond, in litt. 2003), and radio tagged bull trout from Hoh River tracked to Kalaloch Creek (Brenkman in litt. 2003b). Habitat is suitable and connected to occupied bull foraging areas downstream, and supports runs of coho, chum and chinook salmon.	Waterbodies used by anadromous bull trout, but currently lying outside of designated core areas, are essential to maintaining the current distribution, abundance, and productivity of bull trout within the management unit. The draft recovery chapter explicitly identifies as essential and biologically important accessible habitat occupied by anadromous salmonids which provide an important forage base for bull trout. Kalaloch Creek also provides key overwintering refugia habitat. It is in close proximity to the Hoh and Queets core areas and recent radio telemetry studies indicate that anadromous bull trout may spend significant time outside their core area (OPRT, in litt. 2003b; Brenkman and Corbett, in litt. 2003b). It is identified as providing necessary connectivity among FMO habitats for anadromous bull trout.	1243741 476072

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Pacific Coast	Steamboat Creek	WA	Hoh River radio tagged fish detected in 2003 in Steamboat Creek (Brenkman, in litt. 2003b).	Waterbodies used by anadromous bull trout, but currently lying outside of designated core areas, are essential to maintaining the current distribution, abundance, and productivity of bull trout within the management unit. The draft recovery chapter explicitly identifies as essential and biologically important accessible habitat occupied by anadromous salmonids which provide an important forage base for bull trout. Steamboat Creek also provides key overwintering refugia habitat. It is in close proximity to the Hoh core area and recent radio telemetry studies indicate that anadromous bull trout may spend significant time outside their core area (OPRT, in litt. 2003b; Brenkman and Corbett 2005). It is identified as providing necessary connectivity among FMO habitats for anadromous bull trout.	1244031 476785
Olympic Peninsula—Pacific Coast	Cedar Creek	WA	Three adult size bull trout caught in December 2002 (Freymond, in litt. 2003). Hoh River radio tagged fish detected in 2003 in Cedar Creek (Brenkman, in litt. 2003b).	Waterbodies used by anadromous bull trout, but currently lying outside of designated core areas, are essential to maintaining the current distribution, abundance, and productivity of bull trout within the management unit. The draft recovery chapter explicitly identifies as essential and biologically important accessible habitat occupied by anadromous salmonids which provide an important forage base for bull trout. This stream is also included as a shoreline under the Washington State's Shoreline Management Act, since its mean annual flow is greater than 20 cfs. Cedar Creek also provides key overwintering refugia habitat. It is in close proximity to the Hoh core area and recent radio telemetry studies indicate that anadromous bull trout may spend significant time outside their core area (OPRT, in litt. 2003b; Brenkman and Corbett 2005).	1244148 477119

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CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula— Pacific Coast	Mosquito Creek	WA	Historic records of bull trout being seasonally abundant in Mosquito Creek (McLeod 1944). No recent surveys for bull trout have been conducted.	Although definitive recent data on bull trout presence are lacking for this stream, Mosquito Creek is a productive salmon stream used by coho, chum and steelhead. Waterbodies used by anadromous bull trout, but currently lying outside of designated core areas, are essential to maintaining the current distribution, abundance, and productivity of bull trout within the management unit. The draft recovery chapter explicitly identifies as essential and biologically important accessible habitat occupied by anadromous salmonids that can provide a forage base for bull trout. Mosquito Creek is in close proximity to the Hoh core area and recent radio telemetry studies indicate that anadromous bull trout often spend significant time outside their core area (OPRT, in litt. 2003b; Brenkman and Corbett 2005). It is identified as providing necessary connectivity among FMO habitats for anadromous bull trout.	1244807 477985
Olympic Peninsula— Pacific Coast	Goodman Creek	WA	Adult bull trout caught by hook and line in the mid-1990s. (Freymond, in litt. 2001).	Waterbodies used by anadromous bull trout, but currently lying outside of designated core areas, are essential to maintaining the current distribution, abundance, and productivity of bull trout within the management unit. The draft recovery chapter explicitly identifies as essential and biologically important accessible habitat occupied by anadromous salmonids which provide an important forage base for bull trout. This stream is also included as a shoreline under the Washington State's Shoreline Management Act, since its mean annual flow is greater than 20 cfs. Goodman Creek is in close proximity to the Hoh core area and recent radio telemetry studies indicate that anadromous bull trout may spend significant time outside their core area (OPRT, in litt. 2003b; Brenkman and Corbett 2005). It is identified as providing necessary connectivity among FMO habitats for anadromous bull trout.	1245117 478247

1.10. Chehalis River/Grays Harbor Critical Habitat Subunit

The Chehalis River/Grays Harbor CHSU is essential to bull trout conservation and for supporting the expression of the amphidromous life history form along the Pacific Coast. This CHSU includes Grays Harbor, Humptulips River, and the Chehalis River and several of its major tributaries (Wishkah River, Wynoochee River, Satsop River) The Chehalis River system is the second largest river basin in Washington, providing the primary freshwater FMO habitat (outside of core areas) for the amphidromous life history form from Washington coast core areas. Grays Harbor is the key connection between the Pacific Ocean and freshwater FMO habitats within the Chehalis River basin and Humptulips River drainage for Washington coast core areas (see Appendix 1 for more detailed information).

The Chehalis River forms the second largest River basin in Washington. It flows west to its confluence with Grays Harbor. Bull trout have been documented throughout the Chehalis River downstream from Garrard Creek and in Grays Harbor. Bull trout do not appear to spawn in the Grays Harbor/Chehalis River basin and these fish probably originate from core areas north of the basin (Jeanes and Morello 2006, p. 57). Approximately 143.0 km (88.8 mi) of nearshore marine habitat in Grays Harbor and 327 km (203.1 mi) of rivers draining into Grays Harbor are designated as critical habitat. The following water bodies are included in this CHSU (see Table 10):

(A) Nearshore marine habitat of Grays Harbor upstream 142.5 km (88.6 mi) from its mouth at the Pacific Ocean, north to jetty at Point Brown, south to jetty at Point Chehalis, including the extent of tidal influence, and east to the Chehalis River, provides key marine foraging and migration habitat for the amphidromous life history form from the Hoh, Queets, and Quinault CHSUs. Humptulips River from its confluence with Grays Harbor upstream 44.9 km (27.9 mi) to its confluence with East and West Forks Humptulips River and Wishkah River from its confluence with Grays Harbor upstream 54.4 km (33.8 mi) to a natural barrier provide freshwater foraging and overwintering habitat for amphidromous bull trout. Bull trout are not known to spawn in either the Wishkah or Humptulips River basins, and so bull trout observed in these systems likely originate from the core areas north of Grays Harbor.

(B) Chehalis River from its mouth at Grays Harbor upstream 75.6 km (47.0 mi) to its confluence with Garrard Creek and Wynoochee River upstream 81.9 km (50.9 mi) to the Wynoochee Dam provide freshwater foraging and overwintering habitat for amphidromous bull trout. Bull trout have been observed entering these rivers following salmon and steelhead spawning runs and during smolt out-migrations. The Chehalis and Wynoochee Rivers provide FMO habitat and are accessible from the marine waters of Grays Harbor. Use of these streams requires migration by bull trout from their natal rivers through the marine waters of the Pacific Ocean and Grays Harbor.

(C) Satsop River upstream 10.1 km (6.3 mi) to its confluence with West Fork Satsop River and West Fork Satsop River upstream 60.2 km (37.4 mi) to a natural barrier provide freshwater foraging and overwintering habitat for amphidromous bull trout. Although there are no recent observations of bull trout in the Satsop River, historically bull trout were regularly observed in the Satsop, West Fork Satsop, and Canyon Rivers. These rivers are accessible from marine waters and provide, at least seasonally, important foraging and overwintering habitat. The Satsop River may have historically supported a natal population since water temperatures within the basin are suitable for all bull trout life-history stages.

Table 10. Water body segments designated as critical habitat for bull trout, including documentation of occupancy and site-specific rationale in the Olympic Peninsula—Chehalis River/Grays Harbor CHU/CHSU

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Chehalis River/Grays Harbor	Satsop River	WA	Fall and winter bull trout use documented (Keizer 1990). Bull trout abundant in the 1960s (Webster, in litt. 2001). Bull trout have not been documented in the Satsop River since the mid-1970s. The Satsop River is an accessible and productive salmon stream.	Waterbodies used by anadromous bull trout, but currently lying outside of designated core areas, are essential to maintaining the current distribution, abundance, and productivity of bull trout within the management unit. The recovery chapter explicitly identifies as essential and biologically important accessible habitat occupied by anadromous salmonids which provide an important forage base for bull trout. Satsop River is identified as part of the Lower Chehalis/Grays Harbor FMO habitat. Recent acoustic telemetry studies indicate that anadromous bull trout, from as far away as the Hoh core area, spend significant time within the Grays Harbor and Chehalis system (Jeanes and Morello 2006). This is believed to be the only tributary system within the Chehalis River Basin that likely supported a population of bull trout historically. The recovery team identified the Satsop drainage as a potential core area that bull trout may reoccupy when habitat is adequately restored.	1234803 469786
Olympic Peninsula—Chehalis River/Grays Harbor	West Fork Satsop River	WA	Large bull trout were relatively abundant in the WF Satsop River during the 1960s (Webster, in litt. 2001). Bull trout have not been documented in the Satsop River since the mid-1970s. USFS report identifies the WF Satsop River as having bull trout (USFS, in litt. 1990a). The WF Satsop River is an accessible and productive salmon stream. Water temperatures in the WF Satsop River are suitable for SR bull trout (Ogg, in litt. 2003d).	Waterbodies used by anadromous bull trout, but currently lying outside of designated core areas, are essential to maintaining the current distribution, abundance, and productivity of bull trout within the management unit. The draft recovery chapter explicitly identifies as essential and biologically important accessible habitat occupied by anadromous salmonids which provide an important forage base for bull trout. Satsop River is identified as part of the Lower Chehalis/Grays Harbor FMO habitat. Recent acoustic telemetry studies indicate that anadromous bull trout, from as far away as the Hoh core area, spend significant time within the Grays Harbor and Chehalis system (Jeanes and Morello 2006). This is believed to be the only tributary system within the Chehalis River Basin that likely supported a population of bull trout historically. The recovery team identified the Satsop drainage as a potential core area that bull trout may reoccupy when habitat is adequately restored.	1235243 470354

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Chehalis River/Grays Harbor	Wynoochee River	WA	Adult and subadult bull trout have been documented in this reach of the Wynoochee River (Keizer 1990; Hooper, in litt. 2004; Metzger, in litt. 2009).	Waterbodies used by anadromous bull trout, but currently lying outside of designated core areas, are essential to maintaining the current distribution, abundance, and productivity of bull trout within the management unit. The draft recovery chapter explicitly identifies as essential and biologically important accessible habitat occupied by anadromous salmonids which provide an important forage base for bull trout. Wynoochee River is identified as part of the Lower Chehalis/Grays Harbor FMO habitat. Recent acoustic telemetry studies indicate that anadromous bull trout, from as far away as the Hoh core area, spend significant time within the Grays Harbor and Chehalis system (Jeanes and Morello 2006). It is identified as providing necessary connectivity among FMO habitats for anadromous bull trout.	1236063 469616
Olympic Peninsula—Chehalis River/Grays Harbor	Wishkah River	WA	Hennings Washington Fishing Guide (Keizer 1990) states that "Dolly Varden come into the river in September and October, following a small run of coho". Recent report of a bull trout captured at RM 22.8 while angling (Ereth, in litt. 2002).	Waterbodies used by anadromous bull trout, but currently lying outside of designated core areas, are essential to maintaining the current distribution, abundance, and productivity of bull trout within the management unit. The draft recovery chapter explicitly identifies as essential and biologically important accessible habitat occupied by anadromous salmonids which provide an important forage base for bull trout. Wishkah River is identified as part of the Lower Chehalis/Grays Harbor FMO habitat. Recent radio telemetry studies indicate that anadromous bull trout may spend significant time outside their core area (OPRT, in litt. 2003b; Brenkman and Corbett 2005). It is identified as providing necessary connectivity among FMO habitats for anadromous bull trout.	1238065 469728

Bull Trout Final Critical Habitat Justification

U. S. Fish and Wildlife Service

September 2010

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Chehalis River/Grays Harbor	Chehalis River	WA	Numerous historic observations and collections (1974-2000) of native char in the Chehalis River to the confluence of Garrard Creek (Keizer 1990; Brix 1974; Simenstad et al. 2001). Most recent data is from seining efforts conducted by the Army Corps of Engineers in the lower river between 2002 to 2004 (Jeanes and Morello 2006). Chehalis River is a productive salmon stream with large numbers of smolts seasonally.	Waterbodies used by anadromous bull trout, but currently lying outside of designated core areas, are essential to maintaining the current distribution, abundance, and productivity of bull trout within the management unit. The draft recovery chapter explicitly identifies as essential and biologically important accessible habitat occupied by anadromous salmonids which provide an important forage base for bull trout. Chehalis River is identified as part of the Lower Chehalis/Grays Harbor FMO habitat. Recent acoustic telemetry studies indicate that anadromous bull trout, from as far away as the Hoh core area, spend significant time within the Grays Harbor and Chehalis system (Jeanes and Morello 2006). It is identified as providing necessary connectivity among FMO habitats for anadromous bull trout.	1238225 469619
Olympic Peninsula—Chehalis River/Grays Harbor	Humptulips River	WA	Bull trout observed upstream from the confluence of Stevens Creek in June 1995 (N. Dachtler, in litt. 2001), and in the lower mainstem (Fransen, pers. comm. 2005; Fransen, in litt. 2006)	Although spawning has not been documented in any tributary to Grays Harbor or the lower Chehalis R, there has been little effort to document such use. However, the bull trout habitat in this region likely represents the current southern-most distribution of its coastal range. As such, bull trout utilizing Grays Harbor and its tributaries are important in maintaining the full genetic diversity and evolutionary potential of the species (B. Rieman, USFS, in litt. 2003). The draft recovery chapter explicitly identifies, as essential and biologically important, accessible habitat occupied by anadromous salmonids that can provide a forage base for bull trout. The Humptulips River is identified as part of the Lower Chehalis River/Grays Harbor FMO habitat. This habitat is identified in the recovery plan as providing a necessary contribution to the forage base and connectivity of anadromous bull trout.	1240375 470618

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Olympic Peninsula—Chehalis River/Grays Harbor	Grays Harbor Marine	WA	<p>Numerous historic observations and collections (1966-2000) of native char in Grays Harbor. Most recent data is from beach seining efforts conducted by the Army Corps of Engineers in 2002 (Jeanes et al. 2003; Jeanes and Morello 2006). Recent radio telemetry studies indicate that anadromous bull trout may spend significant time outside their core area (Brenkman and Corbett, in litt. 2003a, 2003b).</p>	<p>Grays Harbor nearshore habitat and independent river estuaries provide essential fresh-salt water conversion zones and feeding grounds for juvenile salmonids produced in these tributary rivers. Grays Harbor and its tributaries are inhabited by chinook and coho salmon and cutthroat and steelhead trout. Abundant forage fish also are present in Grays Harbor (Penttila, in litt. 2004). The draft recovery chapter explicitly identifies, as essential and biologically important, accessible habitat that provides a forage base for anadromous bull trout. Grays Harbor is identified as part of the Lower Chehalis/Grays Harbor FMO habitat and provides essential connectivity between the known coastal core areas and drainages that provide FMO habitat for anadromous bull trout outside of core areas. Grays Harbor is essential for maintaining distribution and abundance of anadromous bull trout in the coastal region of the Olympic Peninsula Management Unit.</p>	M-OP-MR-04