Chapter 17. Mid-Columbia Recovery Unit—Imnaha River Critical Habitat Unit

Chapter 17. Imnaha River Critical Habitat Unit

The Imnaha River CHU is essential to the conservation of bull trout because it supports strong bull trout populations that are considered to be essential for bull trout recovery in the Mid-Columbia RU. It contains four generally healthy populations spread over a large geographical area with multiple age classes, containing both resident and fluvial fish. This bull trout stronghold also has a prey base; connectivity with the Snake River; wide distribution throughout the habitat; and overall, excellent habitat conditions. Primary spawning activity on the Imnaha River have been documented to occur in the headwaters, which lie within wilderness, and contain higher elevation, coldwater habitat that should help ameliorate future climate change effects on bull trout in the Columbia River basin (see Appendix 1 for more detailed information).

The Imnaha River CHU is located in northeastern Oregon in Wallowa County and a very small portion of Baker and Union Counties. Although much of the mainstem Imnaha River watershed is federally owned, the river corridor is mostly privately owned below approximately river km 83 (mi 51.5).

The entire occupied area of the Imnaha River Basin CHU and the Imnaha River Core Area are essential to the recovery unit because the Imnaha River CHU/Core Area is a bull trout stronghold within the Columbia basin and within the state of Oregon. The Imnaha River Core area contains four populations that are generally healthy; especially the Imnaha River population which was rated at low risk of extinction by Buchanan et al. (1997, p. 126.) These four populations are spread over a large geographical area with multiple age classes, containing both resident and fluvial fish. This bull trout stronghold also has an anadromous prey base; connectivity with the Snake River; wide distribution throughout the habitat; and overall, excellent habitat conditions. Primary spawning activity on the Imnaha River has been documented to occur in the headwaters, which lie within wilderness, and contain higher elevation, coldwater habitat that should help ameliorate future climate change effects on bull trout in the Columbia River Basin.

The four local populations in the Imnaha River core area are located in the; 1) mainstem Imnaha; 2) Big Sheep Creek and tributary streams (Big Sheep Creek is considered to be one local population above and below the Wallowa Valley Irrigation Canal); 3) Little Sheep Creek and tributary streams; and 4) McCully Creek (Service 2002a, p. 15). Cook and Hudson (2008, p.1) describe five populations which includes the above populations and in addition they divide Big Sheep above the diversion and below into two populations.

Both resident and fluvial bull trout exist above and below Imnaha Falls. Cliff Creek is a significant tributary to South Fork Imnaha (located above the falls) that contains primarily resident bull trout (due to a waterfall near the mouth). The mainstem Imnaha, S.F. Imnaha, and N.F. Imnaha contain both resident and fluvial bull trout. Soldier Creek, Bear Creek, and Blue Creek (also tributary streams to the SF Imnaha) contain primarily resident bull trout. The Imnaha falls likely affects the distribution of fluvial fish above the falls, dependent on annual flows (Sausen 2009, pp. 14 and 18). Resident and/or fluvial bull trout occupy the mainstem Imnaha River from the mouth to the headwaters for at least part of the year (Buchanan et al. 1997, p. 120). Maintenance of these populations is identified as essential to conservation and recovery in the draft bull trout Recovery Plan. Starting approximately 0.5 miles upstream of Indian Crossing, the mainstem Imnaha River and its tributaries are within the Eagle Cap Wilderness.

Rationale for determining Critical Habitat based on the Seven Guiding Principles

1. *Conserve opportunity for diverse life-history expression* – the Imnaha River CHU contains four local populations with fluvial and resident life history forms and multiple age classes spread over a large geographical area (the Imnaha River Basin and Big Sheep Subbasin). Connectivity with the Snake River, an anadromous prey base, and future fish passage improvements in the Big Sheep Subbasin will maintain and improve the fluvial life history forms and multiple age classes in this CHU.

2. *Conserve opportunity for genetic diversity* – Large geographical area containing four local populations with both fluvial and resident life histories, therefore, genetic diversity likely. Genetic samples have recently been taken by the Service in this CHU but the results are not known.

3. *Ensure bull trout are distributed across representative habitats* – Four healthy populations; Imnaha, Big Sheep, Little Sheep, and McCully Creek with excellent habitat conditions (overall) and a variety of habitat conditions are spread over a large geographical area with connectivity to the Snake River.

4. *Ensure sufficient connectivity among populations* – Bull trout move freely within the Snake River and Imnaha River migratory corridor. Upper Big Sheep, Little Sheep, and McCully populations have limitations on connectivity between populations due to water diversions.

5. *Ensure sufficient habitat to support population viability (e.g., abundance, trend indices)* – Primary spawning activity on the Imnaha occurs in the headwaters; which lie within wilderness containing high elevation cold water habitat. Both spawning and rearing and FMO habitat and excellent and varied habitat conditions (overall) occur in this CHU.

6. *Consider threats (e.g., climate change)* – Spawning habitat occurs within high elevation cold water habitat that should help ameliorate future climate change effects on bull trout in the Columbia River Basin.

7. *Ensure sufficient redundancy in conserving population units* – The entire occupied area of the Imnaha River Basin CHU and the Imnaha River Core Area are essential to the recovery unit because the CHU/Core Area is a bull trout stronghold within the Columbia Basin and within the state of Oregon. The CHU contains four healthy populations; excellent habitat conditions (overall); fluvial and resident populations with multiple age classes; and a variety of habitat conditions spread over a large geographic area.

The following water bodies are included in this CHU (see Table 50)

Imnaha River from its confluence with the Snake River upstream approximately 66.6 km (41.4 mi) is utilized by fluvial bull trout in fall, winter, and spring as essential FMO habitat (G. Sausen, pers. comm., 2009). Bull trout occur year-round upstream of the confluence with Grouse Creek and utilize the upper 49.4 km (30.7 mi) as spawning and rearing habitat. The Imnaha River from the fish weir below Gumboot confluence to Indian Crossing was not surveyed for redds in 2005 through 2008, (this area was surveyed in 1999 to 2004 and is considered bull trout spawning habitat) (Sausen 2009, p.7). In 2003, a low density of redds (5 total redds) were reported in the Fish weir to Indian Crossing section (Sausen 2009, p.42). In addition to the index surveys, bull trout spawning has been observed in the Crazyman to weir reach of the Imnaha during chinook surveys (G. Sausen, pers. comm., 2009). The Buchanan et al. (1997 p. 119) Imnaha fish distribution map displays spawning/rearing distribution upstream of

Summit Creek and isolated bull trout sightings within Grouse and Summit Creek. Eighty-one bull trout redds were reported in 2008 for 5.3 miles of survey, within the Indian Crossing upstream to the confluence of the N.F. and S.F.s of the Imnaha River (Sausen 2009, p.42).

North Fork Imnaha River from the confluence with South Fork Imnaha River upstream approximately 9.7 km (6.0 mi) is used for spawning and rearing by both resident and fluvial bull trout. The size of the fish and redds documented (whether resident or fluvial) has varied through the survey years. This is likely related to the access above the Imnaha falls. Mean redd area (m^2) for the N.F. Imnaha River (including M.F. Imnaha) in 2005 was fluvial size (>1 m^2) and mean redd area in 2008 was resident size (0.3 m^2). Redd surveys in the fall of 2008, in this section, found 22 redds in the N.F. Imnaha River and a high of 68 redds in 2004 (Sausen 2009, p.42). The North Fork Imnaha River is within the Eagle Cap Wilderness.

Middle Fork Imnaha River from the confluence of the North Fork Imnaha River upstream approximately 1.4 km (0.8 mi) to a barrier falls provides spawning and rearing habitat for resident and fluvial bull trout.

Redd surveys in the fall of 2008, in this section, found eight redds in the Middle Fork Imnaha River and a high of 24 redds in 2005 (Sausen 2009, p.42). The Middle Fork Imnaha River is within the Eagle Cap Wilderness.

South Fork Imnaha River from the confluence of the North Fork Imnaha River upstream approximately 9.3 km (5.8 mi) is used for spawning and rearing habitat by fluvial and resident bull trout. Based on current information, this is as far upstream as spawning, rearing, and foraging are known to occur (Buchanan et al. 1997, pp. 118-119). Redd surveys in the fall of 2008, found 21 redds in this river, and in 2005 a high of 99 redds was documented (Sausen 2009, p.42). Both fluvial and resident bull trout have been documented during spawning surveys in this stream as well as large fluvial redds (mean redd size in 2008 was 2.0 m^2). The South Fork Imnaha River is within the Eagle Cap Wilderness.

> *Soldier Creek* from the confluence with the South Fork Imnaha River upstream approximately 0.3 km (0.2 mi) provides spawning and rearing habitat. Based on current information, this is as far upstream as spawning, rearing, and foraging are known to occur (Buchanan et al. 1997, pp. 118-119). Redd surveys in the fall of 2001 found 13 redds in this stretch of the Soldier Creek (Sausen et al. 2001, p.9). Soldier Creek is within the Eagle Cap Wilderness.

Bear Creek from the confluence with the South Fork Imnaha River upstream approximately 0.4 km (0.3 mi) is spawning and rearing habitat. Based on current information, this is as far upstream as spawning, rearing, and foraging are known to occur (Buchanan et al. 1997, pp. 118-119). Bear Creek is within the Eagle Cap Wilderness.

> *Blue Creek* from the confluence with the South Fork Imnaha River upstream approximately 0.5 km (0.3 mi) is spawning and rearing habitat. Based on current information, this is as far upstream as spawning, rearing, and foraging are known to occur (Buchanan et al. 1997, pp. 118-119). Blue Creek is within the Eagle Cap Wilderness.
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> *Cliff Creek* from the confluence with the South Fork Imnaha River upstream approximately 6.7 km (4.2 mi) to the headwaters is spawning and rearing habitat. Redd surveys in the fall of 2008, found 52 redds from the mouth upstream 4.1 km (2.5 mi) in

Cliff Creek (Sausen 2009, p.42). Cliff Creek contains resident bull trout due to a waterfall near the mouth. Cliff Creek is within the Eagle Cap Wilderness.

Big Sheep Creek Subbasin

The Wallowa Valley Irrigation Canal (WVIC) intercepts flow and inhibits connectivity in Big Sheep, Salt, and several other small streams or springs. Flows below the WVIC are reduced or eliminated, making the streams unusable by bull trout for a variable distance downstream during certain times of the year. Bull trout in Big Sheep Creek located above and below the WVIC, are considered to be one local population in the draft Recovery Plan (Service 2002a, p. 15). Cook and Hudson (2008, p.1) describe five populations which includes the above populations and in addition they divide Big Sheep above the diversion and below into two populations. Bull trout in Big Sheep Creek are considered to be of special concern (Ratliff and Howell 1992, p.14).

Big Sheep Creek from the confluence of the Imnaha River upstream 49.8 km (30.8 mi) to the confluence of the North and Middle Forks of Big Sheep Creek is FMO habitat and upstream 12.1 km (7.5 mi) to the headwaters near Bonny Lakes is spawning and rearing habitat. Both resident and fluvial bull trout occur in Big Sheep Creek. Bull trout above the Wallowa Valley Irrigation Canal (WVIC) are considered resident because of the barriers to upstream movement caused by the WVIC diversion. Maintenance of this population is identified as essential to recovery in the draft bull trout Recovery Plan (Service 2002a, p. 15). Bull trout occur year round from Owl Creek at approximately km 46.1 (mile 28.7) and upstream. In fall, winter, and spring, fluvial bull trout are present below this approximate location as FMO habitat down to confluence with the Imnaha River (Buchanan et al. 1997, p.119). Redd surveys in the fall of 2008 found 3 redds from km 56.4-59.6 (mi 35-37) of Big Sheep Creek and a high of 17 redds were reported in 2002 (Sausen 2009, p.42). Both resident and fluvial bull trout occur in Big Sheep Creek. Bull trout above the WVIC at km 61 (mi 37.8) are considered to be resident because of the barriers to upstream movement caused by the WVIC diversion. Nearly the entire stream corridor, from the confluence with the Imnaha River upstream to Owl Creek, is privately owned. From Owl Creek upstream the corridor is federally owned, with the upper 5 km (3.1 mi) within the Eagle Cap Wilderness.

Middle Fork Big Sheep Creek from the confluence with Big Sheep Creek upstream 3.5 km (2.2 mi) to the headwaters near Bonny Lakes is utilized as spawning and rearing habitat by fluvial bull trout.

Lick Creek from the confluence of Big Creek upstream approximately 15.1 km (9.4 mi) to the headwaters is spawning and rearing habitat. Both resident and fluvial bull trout occur in Lick Creek. All of Lick Creek is on National Forest System land with approximately the upper 3.7 km (2.3 mi) within the Eagle Cap Wilderness. Redd surveys in the fall of 2008 found 19 redds from km 2.9-12.1 (mi 1.8-7.5) of Lick Creek (Sausen 2009, p.42). Both resident and fluvial bull trout occur in Lick Creek. Maintenance of this population is identified as essential to the conservation and recovery in the draft bull trout Recovery Plan. All of Lick Creek is on Forest Service land, with approximately the upper 3.7 km (2.3 mi) within the Eagle Cap Wilderness.

Unnamed tributary (possibly called Quartz Creek) from the confluence with Lick Creek upstream 1.5 km (0.9 mi) is spawning and rearing habitat. U.S. Fish and Wildlife Service researchers reported bull trout presence in this tributary based on a survey of six reaches (250 m each) from the confluence with Lick Creek upstream. Forty-six bull trout > 120 mm and over 60 fry high were collected with indications that bull trout are likely using

this tributary for spawning in addition to mainstem Lick Creek. In 2008, an exploratory bull trout spawning survey conducted in this location (one mile survey reach) documented 6 redds (Sausen 2009, p.46).

Salt Creek from the confluence with Big Sheep Creek upstream approximately 1.9 km (1.2 mi) to the point where the stream goes sub-surface (below the WVIC) and then continues approximately 0.5 km (0.3 mi) above the intersection with the WVIC to provide 3.82 km (2.4 mi) of spawning and rearing habitat for resident and fluvial bull trout. The stream reach above the WVIC is not connected to the lower reach of Salt Creek and currently bull trout are considered resident fish associated with the Little Sheep local population above the WVIC. Based on current information, this is as far upstream as spawning, rearing, and foraging are known to occur (Buchanan et al. 1997, p.119). Redd surveys in the fall of 2001 found 7 redds from km 0-1.3 (mi 0-0.8) of Salt Creek (Sausen et al. 2001). Both resident and fluvial bull trout occur in Salt Creek.

Little Sheep Creek Subbasin

Maintenance of this population is identified as essential to the conservation and recovery in the draft bull trout Recovery Plan. The WVIC intercepts flow and inhibits connectivity between Little Sheep and Cabin, Redmont, Canal, Ferguson, and McCully creeks (which is considered to be a separate local population in the draft Recovery Plan). Flows below the WVIC are reduced or eliminated making the streams unsuitable for bull trout for a variable distance downstream during certain times of the year. Nearly the entire Little Sheep stream corridor from the confluence with the Big Sheep Creek upstream to just below Ferguson Creek is privately owned. Above this point Little Sheep Creek is within Forest Service boundaries.

Little Sheep Creek from the confluence with Big Sheep Creek upstream 41.9 km (26.1 mi) provides FMO habitat to where Little Sheep Creek is intercepted by the WVIC (Buchanan et al. 1997, p.119). The area upstream approximately 0.9 km (0.6 mi) from the WVIC provides spawning and rearing habitat. Based on current information, this is as far upstream as spawning, rearing, and foraging are known to occur (Buchanan et al. 1997, p. 119). Bull trout in Little Sheep Creek are considered to be at high risk (Buchanan et al. 1997, p.126). Little Sheep Creek is considered as one local population (above and below the canal) in the draft Recovery Plan.

Redmont Creek upstream from the confluence with Little Sheep Creek to above the WVIC is used as FMO habitat for 1.3 km (0.8 mi) and spawning and rearing habitat for 0.42 km (0.26 mi). Based on current information, this is as far upstream as spawning, rearing, and foraging are known to occur (Buchanan et al. 1997, p.119). Redmont Creek is within Forest Service boundaries. Bull trout above the WVIC may occasionally move downstream, but fish below the WVIC are not able to move upstream.

Cabin Creek from the confluence of Little Sheep Creek upstream 0.3 km (0.2 mi) is used for spawning and rearing habitat. Based on current information, this is as far upstream as spawning, rearing, and foraging are known to occur (Buchanan et al. 1997, p.119). Cabin Creek is within Forest Service boundaries and is a tributary to Little Sheep Creek above the WVIC.

McCully Creek upstream from the WVIC approximately 10.8 km (6.7 mi) to the headwaters is used as spawning and rearing habitat by resident bull trout. Bull trout in McCully Creek are considered to be at moderate risk (Buchanan et al. 1997, p.126). Maintenance of this population is identified as essential to recovery in the draft bull trout Recovery Plan. The WVIC does not

divert McCully Creek. Instead, the WVIC is carried over McCully Creek and some water from the canal is diverted into the creek. It is not likely that much, if any, immigration into McCully Creek is occurring through this diversion given the physical structure being used. In addition, McCully Creek no longer drains into the Imnaha River basin. The stream bed was shifted in the past so that the creek now drains directly into the Wallowa Valley (Grande Ronde River basin) and provides a water source for irrigation. Therefore, the only potential source of bull trout immigration into McCully Creek would be from the Grande Ronde River basin, through a series of irrigation canals that most likely act as temperature barriers for bull trout. Thus, it is reasonable to speculate that the bull trout population in McCully Creek is isolated (Cook and Hudson 2008, pp.2-3). Bull trout in McCully Creek above the WVIC are considered to be resident fish because there has been no connectivity to Little Sheep Creek below the WVIC for many years, but probably had a fluvial component originally. From the Canal upstream approximately 1.6 km (1 mi) the stream corridor is privately owned. Above this point McCully Creek is federally owned, with approximately the upper 4.8 km (3 mi) within the Eagle Cap Wilderness.

Table 50. Water body segments designated as critical habitat for bull trout, including documentation of occupancy and site-specific rationale in the Imnaha River CHU/CHSU

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Imnaha River–None	Bear Creek	OR	Bear Creek from the confluence with the South Fork Imnaha River upstream approximately 0.4 km (0.3 mi) is spawning and rearing habitat. Based on current information, this is as far upstream as spawning, rearing, and foraging are known to occur (Buchanan et al. 1997, pp. 118-119). Bear Creek is within the Eagle Cap Wilderness.	See CHU text	1171718 451037

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Imnaha River–None	Big Sheep Creek	OR	Big Sheep Creek from the confluence of the Imnaha River upstream 49.8 km (30.8 mi) to the confluence of the North and Middle Forks of Big Sheep Creek is FMO habitat and upstream 12.1 km (7.5 mi) to the headwaters near Bonny Lakes is spawning and rearing habitat. Both resident and fluvial bull trout occur in Big Sheep Creek. Bull trout above the Wallowa Valley Irrigation Canal (WVIC) are considered resident because of the barriers to upstream movement caused by the WVIC diversion. Maintenance of this population is identified as essential to recovery in the draft bull trout Recovery Plan (Service 2002a, p. 15). Bull trout occur year round from Owl Creek at approximately km 46.1 (mile 28.7) and upstream. In fall, winter, and spring, fluvial bull trout are present below this approximate location as FMO habitat down to confluence with the Imnaha River (Buchanan et al. 1997, p.119). Redd surveys in the fall of 2008 found 3 redds from km 56.4-59.6 (mi 35-37) of Big Sheep Creek and a high of 17 redds were reported in 2002 (Sausen 2009, p.42). Both resident and fluvial bull trout occur in Big Sheep Creek. Bull trout above the WVIC at km 61 (mi 37.8) are considered to be resident because of the barriers to upstream movement caused by the WVIC diversion. Nearly the entire stream corridor, from the confluence with the Imnaha River upstream to Owl Creek, is privately owned. From Owl Creek upstream the corridor is federally owned, with the upper 5 km (3.1 mi) within the Eagle Cap Wilderness.	See CHU text	1168347 455572

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Imnaha River–None	Blue Creek	OR	Blue Creek from the confluence with the South Fork Imnaha River upstream approximately 0.5 km (0.3 mi) is spawning and rearing habitat. Based on current information, this is as far upstream as spawning, rearing, and foraging are known to occur (Buchanan et al. 1997, pp. 118-119). Blue Creek is within the Eagle Cap Wilderness.	See CHU text	1171948 451007
Imnaha River–None	Cabin Creek	OR	Cabin Creek from the confluence of Little Sheep Creek upstream 0.3 km (0.2 mi) is used for spawning and rearing habitat. Based on current information, this is as far upstream as spawning, rearing, and foraging are known to occur (Buchanan et al. 1997, p.119). Cabin Creek is within Forest Service boundaries and is a tributary to Little Sheep Creek above the WVIC.	See CHU text	1170889 452316
Imnaha River–None	Cliff Creek	OR	Cliff Creek from the confluence with the South Fork Imnaha River upstream approximately 6.7 km (4.2 mi) to the headwaters is spawning and rearing habitat. Redd surveys in the fall of 2008, found 52 redds from the mouth upstream 4.1 km (2.5 mi) in Cliff Creek (Sausen 2009, p.42). Cliff Creek contains resident bull trout due to a waterfall near the mouth. Cliff Creek is within the Eagle Cap Wilderness.	See CHU text	1172151 451020

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Imnaha River–None	Imnaha River	OR	Imnaha River from its confluence with the Snake River upstream approximately 66.6 km (41.4 mi) is utilized by fluvial bull trout in fall, winter, and spring as essential FMO habitat (G. Sausen, pers. comm., 2009). Bull trout occur year-round upstream of the confluence with Grouse Creek and utilize the upper 49.4 km (30.7 mi) as spawning and rearing habitat. The Imnaha River from the fish weir below Gumboot confluence to Indian Crossing was not surveyed for redds in 2005 through 2008, (this area was surveyed in 1999 to 2004 and is considered bull trout spawning habitat) (Sausen 2009, p.7). In 2003, a low density of redds (5 total redds) were reported in the Fish weir to Indian Crossing section (Sausen 2009, p.42). In addition to the index surveys, bull trout spawning has been observed in the Crazyman to weir reach of the Imnaha during chinook surveys (G. Sausen, pers. comm., 2009). The Buchanan et al. (1997 p. 119) Imnaha fish distribution map displays spawning/rearing distribution upstream of Summit Creek and isolated bull trout sightings within Grouse and Summit Creek. Eighty-one bull trout redds were reported in 2008 for 5.3 miles of survey, within the Indian Crossing upstream to the confluence of the N.F. and S.F.s of the Imnaha River (Sausen 2009, p.42).	See CHU text	1167649 458167

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Imnaha River–None	Lick Creek	OR	Lick Creek from the confluence of Big Creek upstream approximately 15.1 km (9.4 mi) to the headwaters is spawning and rearing habitat. Both resident and fluvial bull trout occur in Lick Creek. All of Lick Creek is on National Forest System land with approximately the upper 3.7 km (2.3 mi) within the Eagle Cap Wilderness. Redd surveys in the fall of 2008 found 19 redds from km 2.9-12.1 (mi 1.8-7.5) of Lick Creek (Sausen 2009, p.42). Both resident and fluvial bull trout occur in Lick Creek. Maintenance of this population is identified as essential to the conservation and recovery in the draft bull trout Recovery Plan. All of Lick Creek is on Forest Service land, with approximately the upper 3.7 km (2.3 mi) within the Eagle Cap Wilderness.	See CHU text	1170252 451983
Imnaha River–None	Little Sheep Creek	OR	Little Sheep Creek from the confluence with Big Sheep Creek upstream 41.9 km (26.1 mi) provides FMO habitat to where Little Sheep Creek is intercepted by the WVIC (Buchanan et al. 1997, p.119). The area upstream approximately 0.9 km (0.6 mi) from the WVIC provides spawning and rearing habitat. Based on current information, this is as far upstream as spawning, rearing, and foraging are known to occur (Buchanan et al. 1997, p. 119). Bull trout in Little Sheep Creek are considered to be at high risk (Buchanan et al. 1997, p.126). Little Sheep Creek is considered as one local population (above and below the canal) in the draft Recovery Plan.	See CHU text	1168602 455202

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Imnaha River–None	McCully Creek	OR	McCully Creek upstream from the WVIC approximately 10.8 km (6.7 mi) to the headwaters is used as spawning and rearing habitat by resident bull trout. Bull trout in McCully Creek are considered to be at moderate risk (Buchanan et al. 1997, p.126). Maintenance of this population is identified as essential to recovery in the draft bull trout Recovery Plan. The WVIC does not divert McCully Creek. Instead, the WVIC is carried over McCully Creek and some water from the canal is diverted into the creek. It is not likely that much, if any, immigration into McCully Creek is occurring through this diversion given the physical structure being used. In addition, McCully Creek no longer drains into the Imnaha River basin. The stream bed was shifted in the past so that the creek now drains directly into the Wallowa Valley (Grande Ronde River basin) and provides a water source for irrigation. Therefore, the only potential source of bull trout immigration into McCully Creek would be from the Grande Ronde River basin, through a series of irrigation canals that most likely act as temperature barriers for bull trout. Thus, it is reasonable to speculate that the bull trout population in McCully Creek is isolated (Cook and Hudson 2008, pp.2-3). Bull trout in McCully Creek above the WVIC are considered to be resident fish because there has been no connectivity to Little Sheep Creek below the WVIC for many years, but probably had a fluvial component originally. From the Canal upstream approximately 1.6 km (1 mi) the stream corridor is privately owned. Above this point McCully Creek is federally owned, with approximately the upper 4.8 km (3 mi) within the Eagle Cap Wilderness.	See CHU text	1170832 453113

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Imnaha River–None	Middle Fork Big Sheep Creek	OR	Middle Fork Big Sheep Creek from the confluence with Big Sheep Creek upstream 3.5 km (2.2 mi) to the headwaters near Bonny Lakes is utilized as spawning and rearing habitat by fluvial bull trout.	See CHU text	1171198 451781
Imnaha River–None	Middle Fork Imnaha River	OR	Middle Fork Imnaha River from the confluence of the North Fork Imnaha River upstream approximately 1.4 km (0.8 mi) to a barrier falls provides spawning and rearing habitat for resident and fluvial bull trout. Redd surveys in the fall of 2008, in this section, found eight redds in the Middle Fork Imnaha River and a high of 24 redds in 2005 (Sausen 2009, p.42). The Middle Fork Imnaha River is within the Eagle Cap Wilderness.	See CHU text	1171800 451421
Imnaha River–None	North Fork Imnaha River	OR	North Fork Imnaha River from the confluence with South Fork Imnaha River upstream approximately 9.7 km (6.0 mi) is used for spawning and rearing by both resident and fluvial bull trout. The size of the fish and redds documented (whether resident or fluvial) has varied through the survey years. This is likely related to the access above the Imnaha falls. Mean redd area (m2) for the N.F. Imnaha River (including M.F. Imnaha) in 2005 was fluvial size (>1 m2) and mean redd area in 2008 was resident size (0.3 m2). Redd surveys in the fall of 2008, in this section, found 22 redds in the N.F. Imnaha River and a high of 68 redds in 2004 (Sausen 2009, p.42). The North Fork Imnaha River is within the Eagle Cap Wilderness.	See CHU text	1171263 451132

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Imnaha River–None	Redmont Creek	OR	Redmont Creek upstream from the confluence with Little Sheep Creek to above the WVIC is used as FMO habitat for 1.3 km (0.8 mi) and spawning and rearing habitat for 0.42 km (0.26 mi). Based on current information, this is as far upstream as spawning, rearing, and foraging are known to occur (Buchanan et al. 1997, p.119). Redmont Creek is within Forest Service boundaries. Bull trout above the WVIC may occasionally move downstream, but fish below the WVIC are not able to move upstream.	See CHU text	1170891 452557
Imnaha River–None	Salt Creek	OR	Salt Creek from the confluence with Big Sheep Creek upstream approximately 1.9 km (1.2 mi) to the point where the stream goes sub-surface (below the WVIC) and then continues approximately 0.5 km (0.3 mi) above the intersection with the WVIC to provide 3.82 km (2.4 mi) of spawning and rearing habitat for resident and fluvial bull trout. The stream reach above the WVIC is not connected to the lower reach of Salt Creek and currently bull trout are considered resident fish associated with the Little Sheep local population above the WVIC. Based on current information, this is as far upstream as spawning, rearing, and foraging are known to occur (Buchanan et al. 1997, p.119). Redd surveys in the fall of 2001 found 7 redds from km 0-1.3 (mi 0-0.8) of Salt Creek (Sausen et al. 2001). Both resident and fluvial bull trout occur in Salt Creek.	See CHU text	1170442 451883
Imnaha River–None	Soldier Creek	OR	Soldier Creek from the confluence with the South Fork Imnaha River upstream approximately 0.3 km (0.2 mi) provides spawning and rearing habitat. Based on current information, this is as far upstream as spawning, rearing, and foraging are known to occur (Buchanan et al. 1997, pp. 118-119). Redd surveys in the fall of 2001 found 13 redds in this stretch of the Soldier Creek (Sausen et al. 2001, p.9). Soldier Creek is within the Eagle Cap Wilderness.	See CHU text	1171523 451087

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Imnaha River–None	South Fork Imnaha River	OR	South Fork Imnaha River from the confluence of the North Fork Imnaha River upstream approximately 9.3 km (5.8 mi) is used for spawning and rearing habitat by fluvial and resident bull trout. Based on current information, this is as far upstream as spawning, rearing, and foraging are known to occur (Buchanan et al. 1997, pp. 118-119). Redd surveys in the fall of 2008, found 21 redds in this river, and in 2005 a high of 99 redds was documented (Sausen 2009, p.42). Both fluvial and resident bull trout have been documented during spawning surveys in this stream as well as large fluvial redds (mean redd size in 2008 was 2.0 m2). The South Fork Imnaha River is within the Eagle Cap Wilderness.	See CHU text	1171263 451131
Imnaha River–None	UNNAMED - off Lick Creek	OR	Unnamed tributary (possibly called Quartz Creek) from the confluence with Lick Creek upstream 1.5 km (0.9 mi) is spawning and rearing habitat. U.S. Fish and Wildlife Service researchers reported bull trout presence in this tributary based on a survey of six reaches (250 m each) from the confluence with Lick Creek upstream. Forty-six bull trout > 120 mm and over 60 fry high were collected with indications that bull trout are likely using this tributary for spawning in addition to mainstem Lick Creek (M. Hudson, Service, pers. comm. 2008). In 2008, an exploratory bull trout spawning survey conducted in this location (one mile survey reach) documented 6 redds (Sausen 2009, p.46).	See CHU text	1170568 451326