

**Table 1
Description of Potential Enhancement Projects in Upper Chehalis Watershed**

Location	Enhancement	Limiting Factor Addressed	Description of Project	Potential Available Habitat Upstream of Project	Comments
Black Management Unit (includes Black River, Porter Creek subbasins)					
Porter Creek	Correct barrier culverts	Fish Passage	Use guidelines in Section 4 of Strategy (Grays Harbor County Lead Entity 2011)	Porter Creek	General Actions in Strategy
Dunnagan Creek	Correct barrier culverts, enhance habitat	Fish Passage, Floodplain, Water Quantity, Riparian	This project will restore fish passage, improve habitat and reconnect the stream with its natural floodplain by replacing the existing culvert with a larger one and by creating approximately 300 feet of new meandering stream channel that will be enhanced with spawning gravels and riparian plantings.		Conceptual project hws database
Albert-Dempsey Creek Tributary R7	Correct barrier culvert	Fish Passage	The Albert fish barrier is on a tributary to Dempsey Creek; Black River; Chehalis River. There are no known barriers up or downstream.	Correction of this barrier would open about 0.15 miles of habitat for coho, cutthroat and possibly steelhead.	PRISM - proposed projects
Baker-Goliath Creek R9	Correct barrier culvert	Fish Passage	This 33% passable culvert is on a tributary to Mima Creek which flows into the Black River in Thurston County. There is one private total barrier on an upstream tributary and two partial barriers and one total barrier upstream on DNR land.	Correction of this fish barrier would improve access to 3.91 miles of fish habitat. No downstream barriers.	PRISM - proposed projects
Bailey Fish Barrier	Correct barrier culvert	Fish Passage	This barrier culvert is on a tributary to Porter Creek which flows into the Chehalis River near Porter. There are no downstream barriers and two partial barriers upstream on DNR land.	Correction of the Bailey fish barrier would improve access to 2.20 miles of habitat for coho, steelhead and searun cutthroat trout.	PRISM - proposed projects
Cedar Creek Road	Correct barrier culvert	Fish Passage	To correct a fish barrier culvert on an unnamed tributary to Cedar Creek on Cedar Creek Road. This correction replaces a 4 ft. wide, 68 ft. long steel culvert that has a 3 ft. outfall drop, in a 10 ft. wide stream. The replacement is a 16 ft. wide, 8 ft. high, 68 ft. long, steel bottomless arch culvert.	Project will open 2 miles of excellent spawning and rearing habitat for coho and cutthroat trout, as well as juvenile rearing habitat for Chinook and steelhead	PRISM - proposed projects
Tilley Road	Culvert replacement	Fish Passage	No other information provided		Chehalis River Basin Draft Comprehensive Flood Hazard Management Plan. June 2010.
Boistfort Management Unit (Upper Chehalis, South Fork Chehalis, Stillman Creek, Lake Creek)					
South Fork Chehalis	Bank regrade, low bench, riparian revegetation	Floodplain	No other information provided		Draft Twin Cities Flood Reduction Project, Mitigation Site Evaluations. Dated March 2011.
Upper Chehalis River	Correct barrier culverts; improve fish passage	Fish Passage	Use guidelines in Section 4 of Strategy (Grays Harbor County Lead Entity 2011); improve passage at fishways, add fishways where needed		General Actions in Strategy
South Fork Chehalis	Correct barrier culverts	Fish Passage	Use guidelines in Section 4 of Strategy (Grays Harbor County Lead Entity 2011)		General Actions in Strategy
Stillman Creek	Correct barrier culverts	Fish Passage	Use guidelines in Section 4 of Strategy (Grays Harbor County Lead Entity 2011)		General Actions in Strategy
Chehalis Mainstem Management Unit					
River Miles 66 to 80	Bank regrade, low bench, riparian revegetation	Floodplain	No other information provided		Draft Twin Cities Flood Reduction Project, Mitigation Site Evaluations. Dated March 2011.
Galvin Road area; downstream Grand Mound	Oxbow reconnection	Floodplain	Many oxbows downstream of Grand Mound		Draft Twin Cities Flood Reduction Project, Mitigation Site Evaluations. Dated March 2011.
Oakville backwater	Oxbow reconnection	Floodplain	Chehalis Tribe project there and may be opportunity to add to it		Draft Twin Cities Flood Reduction Project, Mitigation Site Evaluations. Dated March 2011.
Porter area	Oxbow reconnection	Floodplain	Just upstream are the black hills tributaries and old oxbows; also oxbows at Porter Creek		Draft Twin Cities Flood Reduction Project, Mitigation Site Evaluations. Dated March 2011.
River Miles 20 to 79	Reconnect and restore off-channel habitat	Floodplain	Reconnect and restore off-channel habitat identified in USACE (2002) and Ralph and Peterson (1994)		General Actions in Strategy

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State Route 6 oxbow	Oxbow reconnection	Floodplain	City of Chehalis owns two-thirds of property (130 acres). Could also include Scheuber Ditch floodway area, which would require a connection (e.g., culvert, bridge) under SR-6. City of Chehalis owns Poplar farm on the north side of SR-6 that may be available for restoration. Landowner in the SR-6 Oxbow site may be interested in conservation; but landowners to the north along Scheuber Ditch are less amenable to restoration. This oxbow is currently connected at about a 1.2-year flow.		Draft Twin Cities Flood Reduction Project, Mitigation Site Evaluations. Dated March 2011.
Horseshoe Lake oxbow	Oxbow reconnection	Floodplain	Approximately 75 acres; 2 land owners. Improve connection to main channel—not currently a connection that we could see, when floodwaters exceed the bank elevation (something above a 2-year flow, maybe 5-year flow), then it could briefly connect. Looks like it would require about 12 feet of excavation to create a channel connection for winter rearing (i.e., November to May).		Draft Twin Cities Flood Reduction Project, Mitigation Site Evaluations. Dated March 2011.
Pheasant Farm Fords Prairie	High flow side channels	Floodplain	200 acres (combined Washington Department of Fish and Wildlife [WDFW] and private landowner just downstream). WDFW owns a pheasant farm and may be open to conservation (they are interested). Good floodplain area with potential excavation and enhancement. The area closest to the river already has a number of higher flow side channels and good riparian cover; existing good quality. There are a few fields that are hayed that could be excavated for wetlands and side channels and also revegetated.		Draft Twin Cities Flood Reduction Project, Mitigation Site Evaluations. Dated March 2011.
Lincoln Management Unit (Lincoln Creek, Independence Creek, Garrard Creek, Gaddis Creek, Rock/Williams Creek, Bunker Creek, Scammon Creek, Mill Creek, Stearns Creek)					
Lincoln Creek	Correct barrier culverts	Fish Passage	Use guidelines in Section 4 of Strategy (Grays Harbor County Lead Entity 2011)		General Actions in Strategy
Independence Creek	Correct barrier culverts	Fish Passage	Use guidelines in Section 4 of Strategy (Grays Harbor County Lead Entity 2011)		General Actions in Strategy
Independence Road bank protection	Bank protection	Riparian	No other information provided		Chehalis River Basin Draft Comprehensive Flood Hazard Management Plan. June 2010.
Garrard Creek (county and private properties)	Correct barrier culverts	Fish Passage	Use guidelines in Section 4 of Strategy (Grays Harbor County Lead Entity 2011)		General Actions in Strategy
Gaddis Creek	Correct barrier culverts	Fish Passage	Use guidelines in Section 4 of Strategy (Grays Harbor County Lead Entity 2011)		General Actions in Strategy
Rock/Williams Creek	Correct barrier culverts	Fish Passage	Use guidelines in Section 4 of Strategy (Grays Harbor County Lead Entity 2011)		General Actions in Strategy
Bunker Creek	Correct barrier culverts	Fish Passage	Use guidelines in Section 4 of Strategy (Grays Harbor County Lead Entity 2011)		General Actions in Strategy
Scammon, Mill, and Stearns Creeks	Correct barrier culverts	Fish Passage	Use guidelines in Section 4 of Strategy (Grays Harbor County Lead Entity 2011)		General Actions in Strategy
Wolf-Davis Creek R6	Correct barrier culverts	Fish Passage	This culvert is on Davis Creek, a tributary to the Chehalis River. The downstream third of the culvert slopes upward severely which likely caused the invert to rust out. The road partially washed out 5 or 6 yrs ago. At higher flows some flow goes through culvert, and some flow goes over road. At low flow, all flow goes through severely undersized culvert.	over 11 miles of fish habitat upstream for chum, coho, steelhead and cutthroat trout	PRISM
Harris Creek Fish Enhancement			No other information provided		Chehalis River Basin Draft Comprehensive Flood Hazard Management Plan. June 2010.
Harris Creek	Correct Barrier culverts	Fish Passage	Sickman-Ford Bridge culvert		Chehalis River Basin Draft Comprehensive Flood Hazard Management Plan. June 2010.
Newaukum Management Unit (Newaukum Mainstem, North Fork, Middle Fork, Salzer Creek, Coal Creek, Dillenbaugh Creek, Berwick Creek, China Creek)					
Newaukum River	Bank regrade, low bench, riparian revegetation	Floodplain	Lower 10 miles of Newaukum River		Draft Twin Cities Flood Reduction Project, Mitigation Site Evaluations. Dated March 2011.

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Newaukum River/Newaukum Valley Golf Course	In-channel enhancements	Riparian and Floodplain	Golf Course landowner is interested in enhancements. Potential for riparian and in-channel enhancements – area of channel migration.		Draft Twin Cities Flood Reduction Project, Mitigation Site Evaluations. Dated March 2011.
Dillenbaugh Creek	Oxbow reconnection	Fish Passage, Floodplain	Near Dillenbaugh Creek, demolish old sewage treatment plant. Look at route of Dillenbaugh Creek (lower 2 miles or so) that traverses the Chehalis River floodplain. Could either reroute Dillenbaugh Creek into the Newaukum at Stee Hedwell Park, or could improve its existing		Draft Twin Cities Flood Reduction Project, Mitigation Site Evaluations. Dated March 2011.
Salzer Creek	Oxbow reconnection	Floodplain	Salzer Fairgrounds; near Salzer Creek, old oxbow with no riparian vegetation		Draft Twin Cities Flood Reduction Project, Mitigation Site Evaluations. Dated March 2011.
Salzer Creek	Oxbow reconnection; wetland connection	Floodplain	Salzer Creek upstream at Airport Road and to bridge at I-5; also Coal Creek connection; almost 1 mile of creek and 200 acres of habitat. This is a large-scale site with good floodplain and wetland benefits, but the creek is of limited value to salmonids; however, could be an Olympic mud minnow site.		Draft Twin Cities Flood Reduction Project, Mitigation Site Evaluations. Dated March 2011.
North Fork Newaukum		Riparian and Floodplain	From Tauscher Road downstream to confluence is potential for riparian and floodplain restoration. A couple of interested landowners (e.g., owner of a trout pond). Would then connect to Washington State Department of Transportation's mitigation bank at lower end of Middle Fork Newaukum.		Draft Twin Cities Flood Reduction Project, Mitigation Site Evaluations. Dated March 2011.
North Fork Newaukum	Correct barrier culverts; improve fish passage	Fish Passage	Use guidelines in Section 4 of Strategy (Grays Harbor County Lead Entity 2011); improve passage at fishways, add fishways where needed		General Actions in Strategy
Middle Fork Newaukum	Correct barrier culverts	Fish Passage	Use guidelines in Section 4 of Strategy (Grays Harbor County Lead Entity 2011)		General Actions in Strategy
Salzer Creek	Correct barrier culverts	Fish Passage	Use guidelines in Section 4 of Strategy (Grays Harbor County Lead Entity 2011)		General Actions in Strategy
Dillenbaugh Creek	Correct barrier culverts	Fish Passage	Use guidelines in Section 4 of Strategy (Grays Harbor County Lead Entity 2011)		General Actions in Strategy
Berwick Creek	Correct barrier culverts	Fish Passage	Use guidelines in Section 4 of Strategy (Grays Harbor County Lead Entity 2011)		General Actions in Strategy
Lucas Creek	Replace culvert	Fish Passage	Conceptual project on Habitat Work Schedule	access will be restored to 1.73 miles of healthy spawning and rearing habitat	Conceptual project hws database - Lucas Creek MP 4.3 Barrier Removal Project
Lucas Creek	Replace culvert	Fish Passage	Conceptual project on Habitat Work Schedule	annual access to 2588 sq meters spawning habitat; 1299 sq meters rearing habitat	Conceptual project hws database - Lucas Creek MP 4.2 Barrier Removal Project
Salzer Creek	Backwater control	Floodplain	No additional description provided		Chehalis River Basin Draft Comprehensive Flood Hazard Management Plan. June 2010.
Skookumchuck Management Unit (Skookumchuck River, Scatter Creek)					
Upstream of River Mile 10	Potential floodplain enhancement	Floodplain	River is against one wall of the valley with the rest of the valley open for potential enhancement. River has been rerouted to edge of floodplain (hillslopes) and there are remnant wetlands and side channels and large floodplain area.		Draft Twin Cities Flood Reduction Project, Mitigation Site Evaluations. Dated March 2011.
Lower watershed	Reconnect, enhance, restore off-channel, floodplain, wetlands	Floodplain	36 miles in lower watershed (Skookumchuck, Coffee Creek, Salmon Creek, Johnson Creek)		General Actions in Strategy
Skookumchuck River	Correct barrier culverts; improve fish passage	Fish Passage	Use guidelines in Section 4 of Strategy (Grays Harbor County Lead Entity 2011); improve passage at fishways, add fishways where needed		General Actions in Strategy
Scatter Creek	Sampson Wetland Enhancement Ph. 1	Floodplain, Riparian, LWD, Water Quality	30% design project; part of larger conceptual plan to develop wetland complex/refugia; larger project approx. 10+ acres submerged wetland		Conceptual Project HWS database
Skookumchuck River	Twin culverts under Main St. at 11th	Fish Passage	No additional description provided		Chehalis River Basin Draft Comprehensive Flood Hazard Management Plan. June 2010.
Skookumchuck River	Streambank stabilization	Riparian	Streambank stabilization in Bucoda		Chehalis River Basin Draft Comprehensive Flood Hazard Management Plan. June 2010.

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References:

Grays Harbor County Lead Entity, 2011. The Chehalis Basin Salmon Habitat Restoration and Preservation Strategy for WRIA 22 and 23. Prepared by Grays Harbor County Lead Entity Habitat Work Group. Updated June 30, 2011.

Ralph, S.C., N.P. Peterson, and C.C. Mendoza, 1994. An inventory of off-channel habitat of the lower Chehalis River with applications of remote sensing. Natural Resources Consultants, Inc. for U.S. Fish and Wildlife Service, Lacey, Washington.