

Okanogan Watershed Implementation Schedule
Upper Columbia Salmon Recovery Plan

Assessment Unit	ID #	Limiting Factor	Action Type	Specific Actions	Location	Years 2008-2010	Years 2011-2013	Years 2014-2017	After Year 2017	Units	Cost/Unit	Estimated Costs	Actual Costs	Biological Tier	Status
Lower Okanogan (Mouth to Salmon Creek)	OR 1000	Water Quantity	Instream Flow	Water Leased or Purchased Change Point of Diversion Irrigation Practice Improvement	Lower 15 miles	Increase Stream Flows to decrease temperature (See Flows); conduct predation evaluation	Predation Evaluation	Utilize existing TIR, Ortho and LIDAR information to enhance existing hyporehic and connectivity information.	Reconnect in select areas, predator control	Predation Index, Thermal Effects	combined @ ~ 150/mi or acre	\$ 500,000			
Lower Okanogan (Mouth to Salmon Creek)	OR 1010	Water Quality	Water Quality Improvement	Return Flow Cooling Riparing Planting Reduce Use of or Control Runoff of Pesticides, Road Chemicals, Fertilizers	Throughout Assessment Unit	Increase Stream Flows to decrease temperature (See Flows); Implement TMDL	Identify areas for treatment	Implement as appropriate	Monitor and Evaluate						OCD and USDA NRCS have been working with agriculturists since 2002 to develop nutrient management plans.
Lower Okanogan (Mouth to Salmon Creek)	OR 1020	Habitat Diversity and Quantity	Instream	Channel Connectivity Channel Reconfiguration	Lower 15 miles	Collection of predators, stomach content analysis, Estimate predation; Groundwater/Flow /Hyporehic	Implement as appropriate	Implement as appropriate	Reconnect in select areas, predator control	Predation Index, Thermal Effects	combined @ ~ 150/mi or acre	\$ 195,000			
Lower Okanogan (Mouth to Salmon Creek)	OR 1030	Habitat Diversity and Quantity	Riparian Habitat	Fencing Planting Recreation Management Livestock Exclusion Conservation Grazing Management	Throughout Assessment Unit, especially at mouth and lower reaches		Predation Evaluation	Utilize existing TIR, Ortho and LIDAR information to enhance existing hyporehic and connectivity information.	Reconnect in select areas, predator control	Predation Index, Thermal Effects	combined @ ~ 150/mi or acre	\$ 500,000			
Lower Okanogan (Mouth to Salmon Creek)	OR 1040	Obstructions	Fish Screening	Fish Screen Installation Fish Screen Replacement	Throughout Assessment Unit	Screen Irrigation Diversions	Predation Evaluation	Utilize existing TIR, Ortho and LIDAR information to enhance existing hyporehic and connectivity information.	All pump intakes screened		combined @ ~ 150/mi or acre	\$ 300,000			
Lower Okanogan (Mouth to Salmon Creek)	OR 1050	Species Interactions	Reduce or Eliminate Negative Species Interactions	Reduce or Eliminate Brook Trout Reduce or Eliminate Non-Native Predators Reduce or Redistribute Native Predators	Throughout Assessment Unit	Assess predator interactions and identify areas for treatment	Implement treatments	Monitor and maintain							
Middle Okanogan Salmon Creek to Bonaparte	OR 1060	Water Quantity	Instream	Channel Connectivity Channel Reconfiguration	Tributaries	Reduce Summer Temperatures in Tributaries to provide cool water refugia; Utilize existing TIR, Ortho and LIDAR information to enhance existing hyporehic and connectivity information.	Implement setbacks, reconnection	Implement setbacks, reconnection	Implement setbacks, reconnection	acres	2000/acre	\$ 400,000			OCD and CCT collected water temperature data between May 2002 and April 2003; CCT conducted FLIR flight. CCT working with Okanogan ID to develop low flow channel in lower 4 miles.
Middle Okanogan Salmon Creek to Bonaparte	OR 1070	Habitat Diversity and Quantity	Instream	Streambank Stabilization Channel Reconfiguration Off-Channel Habitat Log Structure or Log Jam	Riverside	Evaluate approach, identify appropriate methods and obtain permits and approval-& Implement	Instream Structures	Instream Structures	Instream Structures	miles	2500/mile	\$ 100,000			
Middle Okanogan Salmon Creek to Bonaparte	OR 1080	Water Quality	Water Quality Improvement	Return Flow Cooling Riparing Planting Reduce Use of or Control Runoff of Pesticides, Road Chemicals, Fertilizers	Throughout Assessment Unit	Increase Stream Flows to decrease temperature (See Flows); Implement TMDL	Identify areas for treatment	Implement as appropriate	Monitor and Evaluate						OCD and USDA NRCS have been working with agriculturists since 2002 to develop nutrient management plans.
Middle Okanogan Salmon Creek to Bonaparte	OR 1090	Habitat Diversity and Quantity	Land Protection, Acquisition, or Lease	Streambank Protection Upland Protection Wetland Protection	Throughout Assessment Unit	Evaluate and sequence high quality habitat protection	Protect / no net loss of existing connectivity	Protect/no net loss of existing connectivity	Protect/no net loss of existing connectivity	miles	2500/mile	\$ 500,000			

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Middle Okanogan Salmon Creek to Bonaparte	OR 1100	Obstructions	Fish Screening	Fish Screen Installation Fish Screen Replacement	Throughout Assessment Unit	Inventory	Sequencing	Implementation Phase I	Implementation Phase II	screens		\$ 100,000			
Middle Okanogan Salmon Creek to Bonaparte	OR 1110	Species Interactions	Reduce or Eliminate Negative Species Interactions	Reduce or Eliminate Brook Trout Reduce or Eliminate Non-Native Predators Reduce or Redistribute Native Predators	Throughout Assessment Unit	Assess predator interactions and identify areas for treatment	Implement treatments	Monitor and maintain							
Upper Okanogan	OR 1120	Water Quantity	Instream	Channel Connectivity Channel Reconfiguration	Throughout Assessment Unit	Investigate areas to promote cool water refugia in tributaries and confluence; Utilize existing TIR, Ortho and LIDAR information to enhance existing hyporehic and connectivity information.	Sequence priority projects / Implement	Implement Phase II	Re-Evaluate approach, continue work as appropriate	acres	2000/acre	\$ 50,000			
Upper Okanogan	OR 1130	Water Quality	Water Quality Improvement	Return Flow Cooling Riparian Planting Reduce Use of or Control Runoff of Pesticides, Road Chemicals, Fertilizers	Throughout Assessment Unit	Increase Stream Flows to decrease temperature (See Flows); Implement TMDL	Identify areas for treatment	Implement as appropriate	Monitor and Evaluate						OCD and USDA NRCS have been working with agriculturists since 2002 to develop nutrient management plans.
Upper Okanogan	OR 1140	Habitat Diversity and Quantity	Off-Channel Wetlands	Wetland Improvement or Enhancement Wetland Restoration Wetland Vegetation Planting	Near Ellsford, Near the Confluence of the Similkameen with the Okanogan	Utilize existing TIR, Ortho and LIDAR information to enhance existing hyporehic and connectivity information.	evaluation, design and permitting	Implement Phase II	Re-Evaluate approach, continue work as appropriate	acres	2000/acre	\$ 1,000,000			
Upper Okanogan	OR 1150	Habitat Diversity and Quantity	Riparian Habitat	Planting Recreation Management Livestock Exclusion	Throughout Assessment Unit	Selectively plant native vegetation and protect existing	Sequence priority projects/Implement	Implement Phase II	Re-Evaluate approach, continue work as appropriate	acres	2000/acre	\$ 50,000			
Upper Okanogan	OR 1160	Obstructions	Fish Screening	Fish Screen Installation Fish Screen Replacement	Throughout Assessment Unit	Inventory and sequencing for implementation of phase I	Implementation Phase II			screens		\$ 100,000			
Upper Okanogan	OR 1170	Habitat Diversity and Quantity	Instream	Channel Connectivity Channel Reconfiguration Off-Channel Habitat	Near Ellsford, Near the Confluence of the Similkameen with the Okanogan	Utilize existing TIR, Ortho and LIDAR information to enhance existing hyporehic and connectivity information.	Sequence priority projects/Implement	Implement Phase II	Re-Evaluate approach, continue work as appropriate	acres	2000/acre	\$ 500,000			
Upper Okanogan	OR 1180	Species Interactions	Reduce or Eliminate Negative Species Interactions	Reduce or Eliminate Brook Trout Reduce or Eliminate Non-Native Predators Reduce or Redistribute Native Predators	Lower 15 miles	Predator Indexing, lavage	Investigate ecological interactions	Design predator control	Implement			\$ 200,000			
Loup-Loup Creek	OR 1190	Water Quantity	Instream Flow	Water Leased or Purchased Change Point of Diversion Irrigation Practice Improvement	Throughout Assessment Unit	Evaluate and sequence high quality habiat protection/restoration	Education and outreach	implement	maintain	acre/feet		\$ 500,000			
Loup-Loup Creek	OR 1200	Habitat Diversity and Quantity	Instream	Large Woody Debris Barriers (dams or log jams)	Lower 2.2 miles	Evaluate and sequence high quality habiat protection/restoration	Protect	Implement once instream flows are established	maintain	acre/feet		\$ 80,000			
Loup-Loup Creek	OR 1210	Obstructions	Fish Passage	Diversion Dam / Push-up Dam Removal Culvert Improvements or Upgrades Channel Reconfiguration	B and O South, Riverside Avenue, Highway 7, and others identified	Evaluate and sequence high quality habiat protection/restoration	assess	implement	implement			\$ 300,000			

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Lower Salmon Creek	OR 1220	Water Quantity	Instream	Channel Connectivity Channel Reconfiguration Off-Channel Habitat	Lower 4.3 miles	Reconnect the lower 4.3 miles to the lower Okanogan	Implement	Implement	Monitor and Evaluate	acre/feet		\$ 2,075,000			
Lower Salmon Creek	OR 1230	Obstructions	Fish Screening	Fish Screen Installation Fish Screen Replacement	Throughout Assessment Unit	Inventory and sequencing for implementation of phase I	Implementation Phase II			screens		\$ 100,000			
Lower Salmon Creek	OR 1240	Habitat Diversity and Quantity	Riparian Habitat	Planting Recreation Management Livestock Exclusion	Throughout Assessment Unit	design and permit	Implement	Implement	Monitor and Evaluate	acres		\$ 25,000			
Omak and Tributaries	OR 1250	Habitat Diversity and Quantity	Riparian Habitat	Fencing Planting Recreation Management Livestock Exclusion	Throughout Assessment Unit	Evaluate and sequence high quality habitat protection/restoration	Evaluate and Implement	Phase II	Maintain	acres	2000/acre	\$ 150,000			
Omak and Tributaries	OR 1260	Water Quantity	Instream Flow	Water Leased or Purchased Change Point of Diversion Irrigation Practice Improvement	Throughout Assessment Unit	Convert from surface diversions to wells that are not contiguous with Omak Creek	Evaluate and sequence high quality habitat protection/restoration	Implement	Maintain	acres	2000/acre	\$ 385,000			
Omak and Tributaries	OR 1270	Sediment	Sediment Reduction	Road Reconstruction Road Obliteration Sediment Control	Disaultel upstream	12.4 miles	12.4 miles	Phase II	Maintain	acres	2000/acre	\$ 200,000			
Omak and Tributaries	OR 1280	Obstructions	Fish Screening	Fish Screen Installation Fish Screen Replacement	Throughout Assessment Unit	Inventory and sequencing for implementation of phase I	Implementation Phase II			screens		\$ 100,000			
Omak and Tributaries	OR 1290	Obstructions	Fish Passage	Culvert Improvements or Upgrades	Throughout Assessment Unit	Replace identified culverts	Replace identified culverts	Replace identified culverts	Replace identified culverts						
Small Tributary systems	OR 1300	Water Quantity	Instream Flow	Water Leased or Purchased Change Point of Diversion Irrigation Practice Improvement	Antoine Creek, Tonasket Creek, Nine Mile, Siwash	Evaluate and sequence high quality habitat protection/restoration	Education and Outreach	Implement	Maintain	acre/feet		\$ 575,000			
Small Tributary systems	OR 1310	Sediment	Sediment Reduction	Road Reconstruction Road Obliteration Sediment Control	Bonaparte	Evaluate and sequence high quality habitat protection/restoration	Evaluate and Implement	Implement	Maintain	miles	1200	\$ 150,000			
Small Tributary systems	OR 1320	Habitat Diversity and Quantity	Riparian Habitat	Fencing Planting Recreation Management Livestock Exclusion Conservation Grazing Management	Antoine Creek, Tonasket Creek, Nine Mile, Siwash, Bonaparte	Evaluate and sequence high quality habitat protection/restoration	Evaluate and Implement	Implement	Maintain	acres		\$ 100,000			
Small Tributary systems	OR 1330	Habitat Diversity and Quantity	Instream	Large Woody Debris	Nine Mile Creek and Tonasket Creek	Evaluate and sequence high quality habitat protection/restoration	Evaluate and Implement	Implement	Maintain	acres	3000	\$ 240,000			
Small Tributary systems	OR 1340	Obstructions	Fish Passage	Barriers (dams or log jams)	Tunk Creek	Evaluate removal of manmade barriers	Implement	Implement	Maintain			\$ 250,000			
Small Tributary systems	OR 1350	Obstructions	Fish Passage	Diversion Dam / Push-up Dam Removal Culvert Improvements or Upgrades	Antoine Creek, Tonasket Creek, Nine Mile, Siwash	Evaluate and implement	Implement	Implement	Maintain			\$ 500,000			
Small Tributary systems	OR 1360	Obstructions	Fish Passage	Culvert Removal	Antoine Creek	Evaluate and implement	Implement	Implement	Maintain			\$ 300,000			
Similkameen	OR 1370	Water Quality	Water Quality Improvement	Toxic Clean-up	Throughout Assessment Unit	Evaluate and implement mine tailing stabilization	Implement	Implement	maintain						OkPUD has tested sediment behind Enloe Dam
Similkameen	OR 1380	Sediment	Sediment Reduction	Riparian Habitat Planting Erosion Control Structures Sediment Control	Throughout Assessment Unit	Evaluate and implement as appropriate	Evaluate and implement as appropriate	Evaluate and implement as appropriate	Maintain			\$ 100,000			
Similkameen	OR 1390	Habitat Diversity and Quantity	Riparian Habitat	Fencing Planting Recreation Management Livestock Exclusion	Throughout Assessment Unit	Reestablishing low and high flow channels and floodplain reconnection	Evaluate and implement	Implement	Maintain			\$ 180,000			
Similkameen	OR 1400	Habitat Diversity and Quantity	Instream	Streambank Stabilization Channel Reconfiguration Off-Channel Habitat	On OTID around the Driscoll Island area	Evaluate riparian restoration and bio-engineering	Implement as appropriate	Implement	maintain			\$ 600,000			

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Canada Mainstem, Lakes and Tributaries	OR 1410	Water Quality	Water Quality Improvement	Reduce Use of or Control Runoff from Pesticides, Road Chemicals, Fertilizers Refuse Removal Sewage Cleanup	Lake Okanagan to Osoyoos	Locate, sequence, engineer and obtain permissions	evaluate	implement	maintain	acre	2000/acre	\$ 400,000			
Canada Mainstem, Lakes and Tributaries	OR 1420	Sediment	Sediment Reduction	Sediment Control	Lake Okanagan to Osoyoos	Locate, sequence, engineer and obtain permissions	evaluate	implement	maintain	acre	2000/acre	\$ 100,000			
Canada Mainstem, Lakes and Tributaries	OR 1430	Habitat Diversity and Quantity	Riparian Habitat	Livestock Exclusion	Lake Okanagan to Osoyoos	Locate, sequence, engineer and obtain permissions	evaluate	implement	maintain	acre	2000/acre	\$ 100,000			
Canada Mainstem, Lakes and Tributaries	OR 1440	Habitat Diversity and Quantity	Instream	Channel Connectivity Channel Reconfiguration Off-Channel Habitat	Lake Okanagan to Osoyoos	Locate, sequence, engineer and obtain permissions	evaluate	implement	maintain	acre	2000/acre	\$ 380,000			
Canada Mainstem, Lakes and Tributaries	OR 1450	Habitat Diversity and Quantity	Instream	Channel Connectivity Channel Reconfiguration Off-Channel Habitat	Inkaneep, Parkrill, Vaseux Creek, Ellis and	Locate, sequence, engineer and obtain permissions	evaluate	implement	maintain	acre	2000/acre	\$ 300,000			
Canada Mainstem, Lakes and Tributaries	OR 1460	Obstructions	Fish Passage	Fishways (ladders, chutes or pools) Barriers (dams or log jams)	McIntyre Dam	Evaluate approach, identify appropriate methods and obtain permits and approval-& Implement	Implement/Monitor	Maintain	Provide continued passage			\$ 600,000			