WRIA 8 Salmon Habitat Project List

Ship Canal & Lake Union

Monday, October 02, 2017

APPLICABLE STRATEGIES LEGEND:


Protect and restore floodplain connectivity


Protect and restore cold water sources and reduce thermal barriers to migration


Protect and restore forest cover and headwater areas


Protect and restore marine water and sediment quality, especially near commercial and industrial areas


Protect and restore functional riparian vegetation


Improve juvenile and adult survival at the Ballard Locks


Provide adequate stream flow


Improve water quality


Protect and restore channel complexity


Reduce predation on juvenile migrants and lake-rearing fry


Restore sediment processes necessary for key life stages


Integrate salmon recovery priorities into local and regional planning, regulations, and permitting (SMP, CAO, NPDES, etc.)


Restore shallow water rearing and refuge habitat


Remove (or reduce impacts of) overwater structures


Restore natural marine shoreline


Continue existing and conduct new research, monitoring, and adaptive management on key issues


Reconnect and enhance creek mouths


Remove fish passage barriers


Reconnect backshore areas and pocket estuaries


Increase awareness and support for salmon recovery

Implement Operational Improvements to the Locks			Description	Opportunities, Constraints, and other Considerations	Applicable Strategies
Project Number	SC-2		Operational improvements include replacing filling culvert valves and machinery (Stoney Gate valves), installing a PIT tag reader in large lock filling culvert, rehabilitating the large lock gate, finding a permanent solution to the saltwater drain intake and diffuser well, and redesigning the smolt flume.	Updated project description in 2015 to align this project with current improvements being implemented or targeted by Corps. A PIT tag reader was installed in the large lock filling culverts in 2017, as was a prototype for a new smolt slide.	 Locks Survival
Four-Year Work Plan?	Project Location				
Yes	Ballard Locks				
Estimated Project Costs					
Acquisition	Restoration	Total			

Locks Natural Fishway and Estuary			Description	Opportunities, Constraints, and other Considerations	Applicable Strategies
Project Number	SC-3		Construct a more natural, fairly wide and long channel at the Locks facility that would allow both adult and juvenile fish to move back and forth between warmer lake outflow and cooler tidal water, and allow tidal change to inundate areas designed into the channel where both adults and juveniles could find refuge to hold and choose their preferred salinity.		 Locks Survival
Four-Year Work Plan?	Project Location				
No	Ballard Locks				
Estimated Project Costs					
Acquisition	Restoration	Total			

Improve Estuary Conditions Upstream of the Locks			Description	Opportunities, Constraints, and other Considerations	Applicable Strategies
Project Number	SC-4		Modify the salt water barrier or change operation of the barrier while increasing the number of large lockages to introduce cool marine waters above the locks and create a longer estuary environment.	A false lockage study was conducted in 2015 and found minimal upstream benefits while posing some other water quality issues. Other options may be available.	 Locks Survival
Four-Year Work Plan?	**Project Location**				
Yes	Ballard Locks				
Estimated Project Costs					
Acquisition	**Restoration**	**Total**			

Explore Low Elevation Smolt Passage at Locks			Description	Opportunities, Constraints, and other Considerations	Applicable Strategies
Project Number	SC-5		Consider structural options for smolt passage when use of smolt flumes drops off. Large locks may be serving this purpose.		 Locks Survival
Four-Year Work Plan?	**Project Location**				
No	Ballard Locks				
Estimated Project Costs					
Acquisition	**Restoration**	**Total**			

Reduce Large Lock Speed			Description	Opportunities, Constraints, and other Considerations	Applicable Strategies
Project Number	SC-11		Further reduce lockage speed for large locks to reduce smolt entrainment in filling culverts.	Corps of Engineers should inform whether this remains a viable alternative to address juvenile survival.	 Locks Survival
Four-Year Work Plan?	Project Location				
No	Ballard Locks				
Estimated Project Costs					
Acquisition	Restoration	Total			

Fish Ladder Improvements			Description	Opportunities, Constraints, and other Considerations	Applicable Strategies
Project Number	SC-12		Improve downstream entrance to the fish ladder with a telescoping weir and a horizontal gate. Close the slot on the downstream end to concentrate the flow.	Corps of Engineers should inform whether this remains a viable alternative to address fish passage.	 Locks Survival
Four-Year Work Plan?	Project Location				
No	Ballard Locks				
Estimated Project Costs					
Acquisition	Restoration	Total			

Add Fishway Lighting to the Fish Ladder			Description	Opportunities, Constraints, and other Considerations	Applicable Strategies
Project Number	SC-13			Corps of Engineers should inform whether this remains a viable alternative to address fish passage.	 Locks Survival
Four-Year Work Plan?	Project Location				
No	Ballard Locks				
Estimated Project Costs					
Acquisition	Restoration	Total			

Ballard Bridge Shoreline Restoration			Description	Opportunities, Constraints, and other Considerations	Applicable Strategies
Project Number	SC-1		Potential habitat restoration/public access area under the Ballard Bridge along the north side of the canal. The potential exists to connect the project with private green space just to the west of site, and the Seattle Central Community College Marine Technology Center's landscaped shoreline to the east. Incorporate treatment of rainwater run-off from the Ballard Bridge and riparian vegetation.		 Rearing & Refuge Habitat
Four-Year Work Plan?	Project Location				
No	Seattle				
Estimated Project Costs					
Acquisition	Restoration	Total			

Ballard Bridge Water Quality Improvements			Description	Opportunities, Constraints, and other Considerations	Applicable Strategies
Project Number	SC-6		Improve water quality by treating runoff with vegetated bioswales.		 Water Quality
Four-Year Work Plan?	Project Location				
No	Seattle				
Estimated Project Costs					
Acquisition	Restoration	Total			

Fremont Bridge Demonstration Project			Description	Opportunities, Constraints, and other Considerations	Applicable Strategies
Project Number	SC-7		Work with U.S. Army Corps of Engineers to construct a demonstration project on federal lands West of the Fremont Bridge, where there is an area available for bank re-sloping, addition of native vegetation, and rock removal. Hypothetically, this would provide a refuge site for migrating juveniles.		 Rearing & Refuge Habitat
Four-Year Work Plan?	Project Location				
No	Seattle				
Estimated Project Costs					
Acquisition	Restoration	Total			

Aurora Avenue Bridge Shoreline Restoration			Description	Opportunities, Constraints, and other Considerations	Applicable Strategies
			Remove riprap and restore vegetation under the Aurora Avenue bridge on the north side near Adobe property.		 Rearing & Refuge Habitat
Project Number	SC-8				
Four-Year Work Plan?	**Project Location**				
No	Seattle				
Estimated Project Costs					
Acquisition	**Restoration**	**Total**			

Bank Softening and Revegetation at Gasworks Park			Description	Opportunities, Constraints, and other Considerations	Applicable Strategies
			Large area for potential shoreline restoration including removal of shoreline armoring, invasive vegetation removal, and revegetation. Project should also evaluate DNR Waterway 20 for potential enhancement (just west of Gasworks).	Seattle needs additional approvals from Ecology on sediment cleanup before they can proceed. East shoreline will be enhanced with invasive vegetation removal and revegetation. Need investigation to determine what can be done along the west portion. Best case is some implementation begins in 2021-22.	 Rearing & Refuge Habitat
Project Number	SC-9				
Four-Year Work Plan?	**Project Location**				
No	Seattle				
Estimated Project Costs					
Acquisition	**Restoration**	**Total**			

Evaluate Deepening the Montlake Cut			Description	Opportunities, Constraints, and other Considerations	Applicable Strategies
Project Number	SC-10		Evaluate options for deepening the Montlake Cut to determine if this is a feasible way to allow colder water from Lake Washington to flow in Lake Union.	Need to coordinate this investigation with the Army Corps of Engineers.	 Thermal Stress
Four-Year Work Plan?	Project Location				
No	Seattle				
Estimated Project Costs					
Acquisition	Restoration	Total			