Summary of Fish Passage and Habitat Enhancement Elements and Benefits of Integrated Water Resource Management Alternative

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Fish Passage at Existing Storage Reservoirs Element

- Providing passage at Cle Elum and Bumping Lake Dams would provide the most benefits
- Potential future passage projects at other reservoirs (Rimrock/Clear, Keechelus, Kachess)
- Reintroduction needed to restore sustainable salmon and steelhead populations above the dams

Fish Habitat Enhancement Element

- Based on the Yakima Steelhead Recovery Plan, Yakima River Side Channels Project, Basin Flood Plans

- Projects are identified for specific reaches, but specific sites will be determined later

- Projects have not been prioritized

General Fish Habitat Enhancement Project Types

- Reconnect side channels and off-channel habitat
- Improve floodplain function
- Relocate or improve floodplain infrastructure and roads
- Place wood in streams
- Restore natural channel form
- Restore natural riparian vegetative communities
- Develop grazing strategies to promote riparian recovery
- Improve flow conditions
- Provide passage in tributaries

Mainstem Fish Habitat Enhancement Projects

Reaches	Project Types					
	Floodplain/Side Channel Reconnection	Improve Floodplain Function	Relocate/Improve Floodplain Infrastructure	Improve Flow Conditions	Habitat Protection	Restore Riparian Vegetation
Yakima River						
Keechelus Dam to Roza Diversion	✓	✓	✓	✓	✓	✓
Roza Diversion to Prosser Dam		✓	✓	✓	✓	✓
Prosser Dam to Columbia River	✓	✓		✓		
Naches River						
Bumping Dam to Tieton River	✓	✓			✓	
Tieton River to Yakima River	✓	✓	✓			

Tributary Fish Habitat Enhancement Projects

Tributaries	Project Types					
	Fish Passage	Instream Flow Improvement	Floodplain/Side Channel Reconnection	Riparian Habitat Enhancement/ Restoration	Channel Complexity (Large woody debris, channel reconstruction, boulders, etc.)	Diversion Screening
Big Creek		✓				
Cle Elum River			✓	✓	✓	
Teanaway River		✓	✓	✓	✓	
Swauk Creek	✓	✓	✓	✓	✓	✓
Taneum Creek	✓	✓		✓		
Jack Creek	✓		✓	✓	✓	
Indian Creek	✓					
Manastash Creek	✓	✓		✓		✓
Reecer Creek	✓		✓	✓	✓	✓
Wilson/Naneum Creeks System[1]	✓	✓		✓	✓	
Bumping River				✓	✓	
Nile Creek		✓	✓	✓	✓	✓
Rattlesnake Creek		✓	✓	✓	✓	✓
Tieton River			✓	✓	✓	
Cowiche Creek	✓	✓	✓	✓	✓	✓
Little Naches River			✓	✓	✓	
Ahtanum Creek[2]	✓	✓	✓	✓	✓	✓
Toppenish Creek		✓	✓	✓	✓	✓
Satus Creek		✓	✓	✓	✓	

Benefits of Fish Passage Element

- Restores fish use in historically used habitat upstream of reservoirs

- Improves abundance, productivity, spatial structure and diversity for salmonid populations and significantly contributes to salmon recovery

Benefits of Fish Habitat Enhancement Element

- Reduced fine sediments in stream beds
- Decreased water temperatures
- Increased prey availability
- Increased organic matter input
- Increased habitat in reconnected side channels
- Refuge cover from large woody debris
- Increased quantity and quality of pool habitat

Benefits of Integrated Approach Including Passage and Habitat Enhancement

- Greater benefits to fish with integrated approach than through one element or individual projects
- Integrated approach would address many factors that currently limit restoration of fish populations:
  - Improved passage
  - Improved flows
  - Improved floodplain and riparian area conditions
  - Improved water temperature and quality

Benefits of Integrated Approach Including Passage and Habitat Enhancement

- Provides water and fish managers a variety of tools needed to meet water supply needs and significantly improve conditions for fish

- Responds to stake holder concerns

- More opportunities for efficiency, synergy, and cooperation between stakeholders

- For example:

  - Fish passage with habitat improvements

  - Storage with improved flows for fish

Benefits by Reach

Fish Species	River Reach				
	Yakima River			Naches River	
	Keechelus Dam to Roza Diversion	Roza Diversion to Prosser Dam	Prosser Dam to Columbia River	Bumping Dam to Tieton River	Tieton River to Yakima River
Spring Chinook	✓	✓	✓	✓	✓
Fall Chinook		✓	✓		
Coho	✓	✓	✓	✓	✓
Sockeye	✓	✓	✓	✓	✓
Steelhead	✓	✓	✓	✓	✓
Bull Trout	✓	✓	✓	✓	✓
Resident Fish	✓	✓	✓	✓	✓