Similkameen River (Shanker's Bend) Project

Presentation to the Columbia River Policy Advisory Group

July 9, 2009

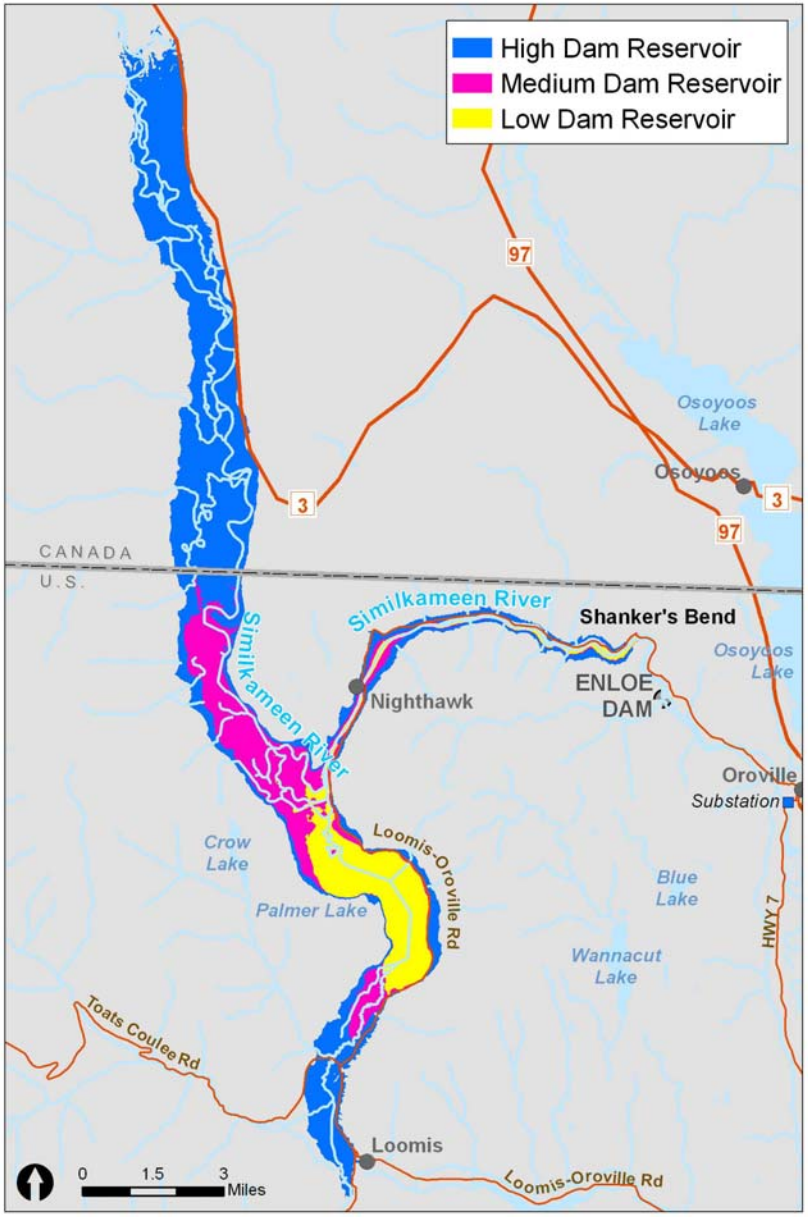
Introduction

A multipurpose water storage, hydroelectric generation and flood control project is being investigated at Shanker's Bend on the Similkameen River, about two miles upstream of the Enloe Hydroelectric Project.

Three options are under consideration: a High, Medium, and Low Dam, with differing storage volumes, generating capacities, and heights.

About half the reservoir storage of the High Dam option would occur in Canada. Canadian issues are being collaboratively addressed through a joint process.

Introduction



Introduction

High Dam
- 1,300,000 Acre-Feet/Year of Useable Water
- 232,000 MWh Annual Average Power Generation
- 100% Success in Flood Attenuation

Medium Dam
- 138,000 Acre-Feet/Year of Useable Water
- 84,000 MWh Annual Average Power Generation
- 99.95% Success in Flood Attenuation

Low Dam
- 20,000 Acre-Feet/Year of Useable Water
- 70,000 MWh Annual Average Power Generation
- 99.92% Success in Flood Attenuation

Process

- Decide on project parameters and participants going forward
- Continue to show due diligence on the FERC preliminary permit
- Consider alternative FERC processes
- Convene a stakeholder process
- Conduct appropriate feasibility-level and baseline studies

Benefits of the Similkameen Water Storage and Power Generation Project

Potential Project Benefit	Option 1: High Dam	Option 2: Medium Dam	Option 3: Low Dam
Water Storage			
Total water storage volume (acre-feet)	1,700,000	168,000	50,000
Annual usable water (ac-ft/yr)	1,300,000	138,000	20,000
Equivalent irrigation potential (acres of alfalfa)	487,000	51,700	7,500
Equivalent domestic water service (number of residences)	3,100,000	329,000	48,000

Benefits of the Similkameen Water Storage and Power Generation Project

Potential Project Benefit	Option 1: High Dam	Option 2: Medium Dam	Option 3: Low Dam
Power Generation			
Capacity (MW)	74	23	19.6
Annual Average Generation (MWh)	232,000	84,000	70,000
Equivalent domestic energy service (number residences)	15,200	5,500	4,600

Benefits of the Similkameen Water Storage and Power Generation Project

Potential Project Benefit	Option 1: High Dam	Option 2: Medium Dam	Option 3: Low Dam
Flood Control			
Potential flood storage	1,300,000	138,000	20,000
Flood attenuation (% weeks success between 1931-2007)	100%	99.95%	99.92%

Benefits of the Similkameen Water Storage and Power Generation Project

Potential Project Benefit	Option 1: High Dam	Option 2: Medium Dam	Option 3: Low Dam
Economic Benefits			
Water revenue	$65,000,000	$6,900,000	$1,000,000
Power revenue	$13,900,000	$5,000,000	$4,200,000
Cost Ratio ($/ac-ft)	$855	$2,820	$16,200
Job creation	300 for 48 months	170 for 36 months	150 for 36 months

Benefits of the Similkameen Water Storage and Power Generation Project

Potential Project Benefit	Option 1: High Dam	Option 2: Medium Dam	Option 3: Low Dam
Environmental Benefits			
Downstream river habitat improved (River and miles)	Similkameen and Okanogan: 73.8 miles	Similkameen : 10.7 miles	Similkameen : 10.7 miles
Ability to meet minimum instream flow (MIF) requirements (% weeks met MIF between 1931-2007)	100%	96%	92%
Provision of cool water, with higher DO concentrations	2ºC would meet 18 ºC target	Possible 2ºC probably meet 18 ºC target	1-2ºC may meet 18 ºC target
Improve survival of salmonids	Probable	Probable	Possible
Increase amount of Kokanee spawning habitat	63%	24%	13%

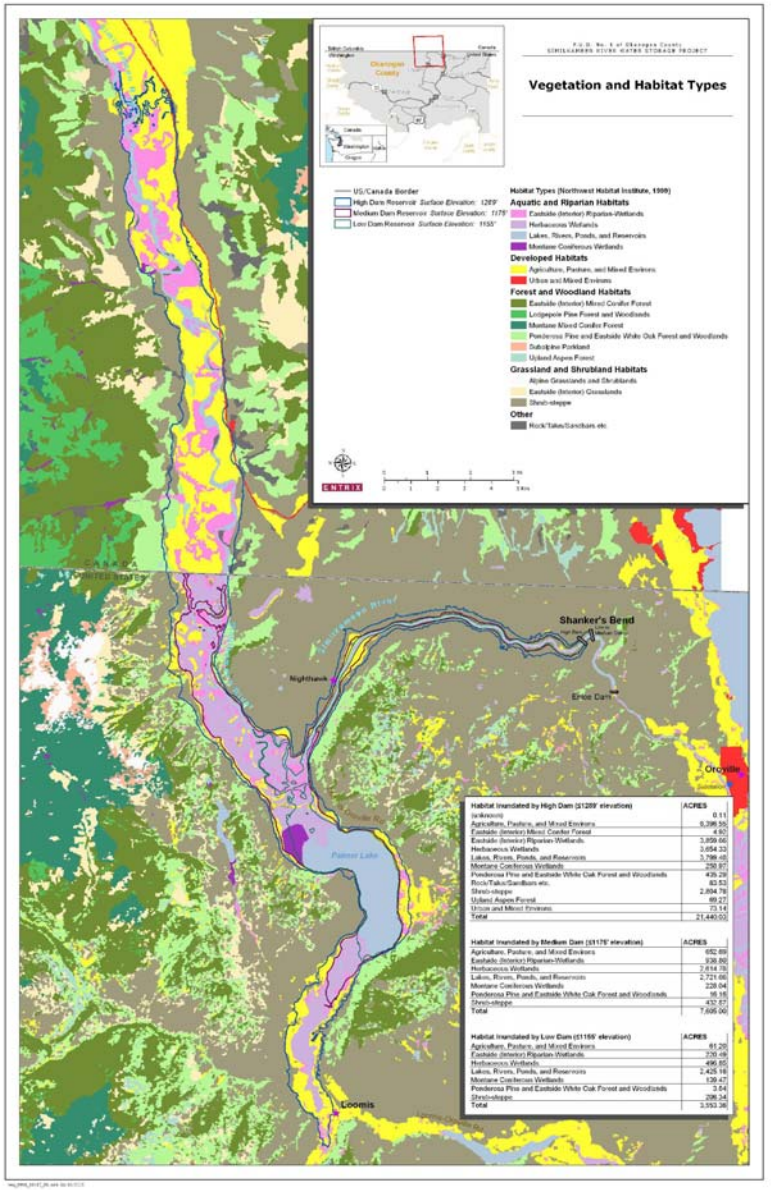
Costs of the Similkameen Water Storage and Power Generation Project

Probable Construction Costs		
Option 1: High Dam	**Option 2: Medium Dam**	**Option 3: Low Dam**
$1,020,160,000	**$329,000,000**	**$289,000,000**

Cost Ratio ($/ac-ft)		
Option 1: High Dam	**Option 2: Medium Dam**	**Option 3: Low Dam**
$855	**$2,820**	**$16,200**

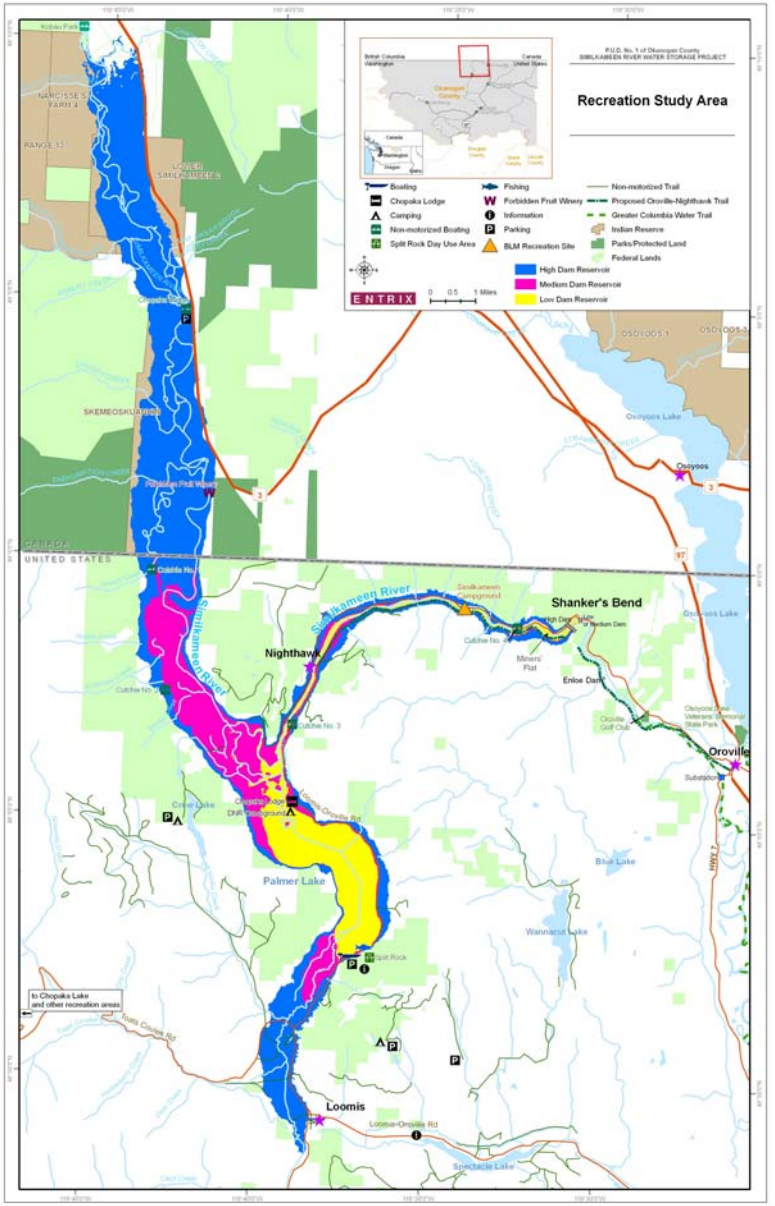
High Dam Challenges

- Cost of inundating property and infrastructure
- Cost of mitigating effects to wetlands, wildlife habitat, and cultural resources
- Effects on First Nations lands in Canada
- Loss of river-based recreation experience and inundation of some recreation facilities
- High level of Canadian concern; subject to Canadian regulations
- Engineering alternatives (e.g. Roller Compacted Concrete) could improve cost



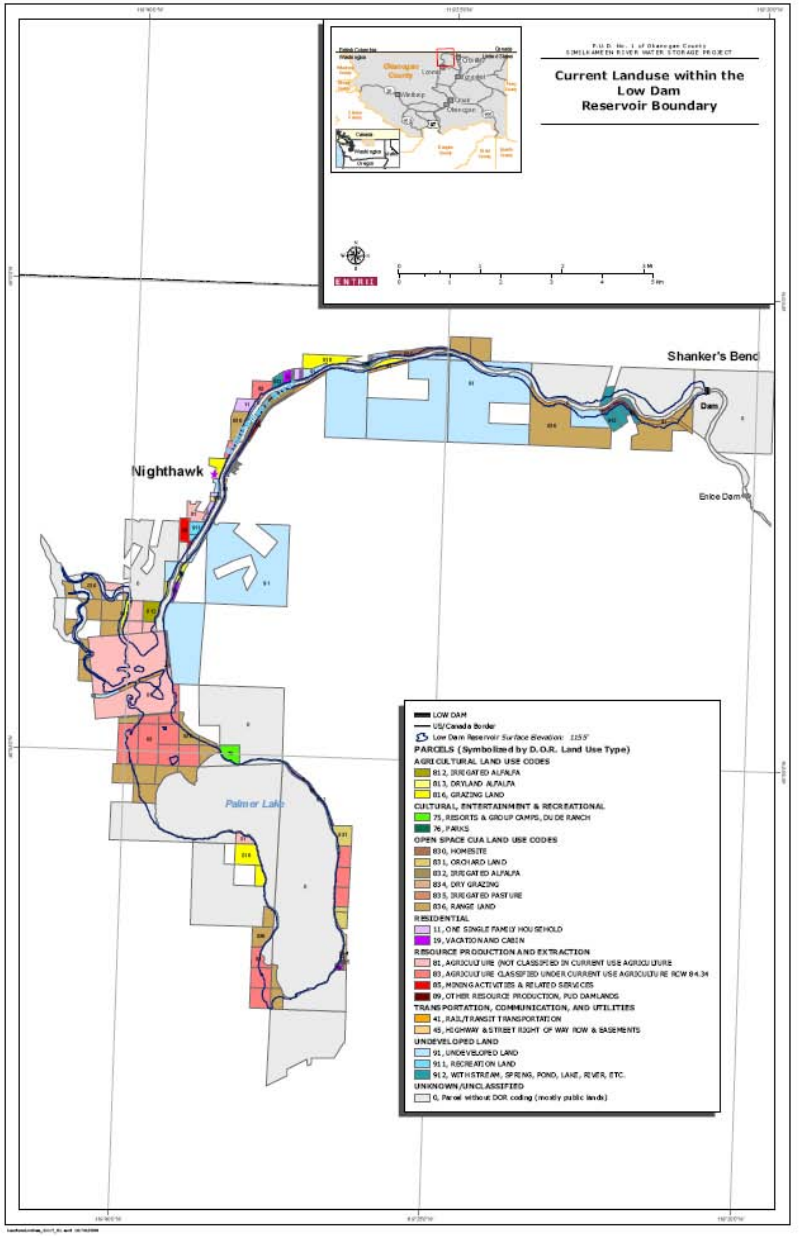
Medium Dam Challenges

- Reduced cost of inundating property and infrastructure; Palmer Lake shore properties would be inundated.
- Reduced cost of mitigating effects to wetlands, wildlife habitat, and cultural resources
- Some loss of river-based recreation experience and inundation of some recreation facilities
- Extent of cool flow releases needs to be confirmed through modeling



Low Dam Challenges

- Greatly reduced cost of inundating property and infrastructure
- Greatly reduced cost of mitigating effects to wetlands, wildlife habitat, and cultural resources
- More minor effects on river-based recreation experience and recreation facilities
- Ability to provide cool flow releases is uncertain



QUESTION &ANSWER

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Thank you