

Dredging & Sediment Cost Review - Appendix 10

Source:

Moffatt & Nichol 2009. Capitol Lake Alternatives Analysis Dredging and Disposal Addendum. Section 3.2, page 15

water work window, the costs of mob / demob are essentially proportional to the length of time the equipment is in use – and so to the volume of dredging.

**Table 5. Unit Costs for Lake Dredging**

Cost Component	Amount	Comment
<b>Mechanical Dredging to Landfill</b>		
Fixed Cost per Operation	\$831,000	Temporary docks at Deschutes Parkway
Variable Costs	\$136.00 / cy	Includes mob/demob and tipping fees
<b>Mechanical Dredging to Reclamation Site</b>		
One-Off Fixed Cost	\$3,047,000	Rail spur at TransAlta mine
Fixed Cost per Operation	\$831,000	Temporary docks at Deschutes Parkway
Variable Costs	\$61.75 / cy	Includes mob/demob and tipping fees
<b>Hydraulic Dredging to Commencement Bay Open-Water Disposal Site</b>		
One-Off Fixed Cost	\$1,939,000	Mooring piles in lower Budd Inlet
Fixed Cost per Operation	\$4,709,000	Purple loosestrife mitigation (\$3M), pipeline past 5 <sup>th</sup> Avenue Dam, mooring pile rehabilitation
Variable Costs	\$85.50 / cy	Includes mob/demob and DNR disposal fees
<b>Hydraulic Dredging to Anderson / Ketron Island Open-Water Disposal Site</b>		
One-Off Fixed Cost	\$1,939,000	Mooring piles in lower Budd Inlet
Fixed Cost per Operation	\$554,000	Pipeline past 5 <sup>th</sup> Avenue Dam, mooring pile rehabilitation
Variable Costs	\$63.50 / cy	Includes mob/demob and DNR disposal fees
<b>Hydraulic Dredging to Nearshore Restoration Site</b>		
Fixed Cost per Operation	\$970,000	Purple loosestrife mitigation (\$500k), pipeline
Variable Costs	\$40.00 / cy	Includes mob/demob

One potential alternative not included in this table is a possible new disposal site in Budd Inlet. The costs associated with disposal at a new open-water or confined aquatic disposal site are heavily dependent on the location of the new site. However, they are likely to lie between the costs associated with hydraulic dredging to the Anderson-Ketron Island open-water disposal site, and those associated with hydraulic dredging to a nearshore restoration site.

**3.3 Low, Medium, High, and Worst-Case Costs**

Table 6 describes a 50-year dredging cycle for four cost cases: low-cost, medium-cost, high-cost, and worst-case. The table assumes the lake will be dredged once every ten years. Dredging costs associated with placement in Anderson-Ketron Island are very similar those associated with placement in a reclamation site, so this table only considers the latter. Open-water disposal of material dredged from the lake is not particularly cost-effective because of the need to move the material around the 5<sup>th</sup> Avenue Dam.

Nearshore restoration is shown as an option only for the low-cost case. It is assumed that three relatively large restoration projects, each capable of receiving 100,000 cubic yards of sediment, are constructed during the 50-year project lifetime.

The medium-cost scenario assumes only placement at the reclamation site.