

Dredging & Sediment Cost Review - Appendix 9

Source:

Moffatt & Nichol 2009. Capitol Lake Alternatives Analysis Dredging and Disposal Addendum. Section 2.4, page 10

**Table 1. Daily Operations Cost – Dredging to Lower Budd Inlet Restoration Site: Lake Alternative**

	Daily Cost per Unit	Units	Total Daily Cost
<b>Dredging Costs</b>			
Hydraulic dredge, 16-inch	\$5,200	1	\$10,400
Tender tug, 710 hp	\$3,500	1	\$7,000
Booster pump	\$1,600	2	\$3,200
<b>Total daily dredging cost</b>			<b>\$20,600</b>
<b>Costs at Intertidal Placement Site</b>			
Font-end loader to control discharge	\$2,000	1	\$2,000
Tug to manage silt curtain	\$1,500	1	\$1,900
Bulldozers to manage settling areas	\$2,200	3	\$6,600
<b>Total daily intertidal placement cost</b>			<b>\$10,500</b>
<b>Costs at Subtidal Placement Site</b>			
Tender tug, 710 hp	\$3,500	2	\$7,000
Equipment barge	\$2,000	1	\$2,000
<b>Total daily subtidal placement cost</b>			<b>\$9,000</b>

**Table 2. Cost of Hydraulic Dredging to Lower Budd Inlet Restoration Site: Lake Alternative**

Item	Unit	Qty	Unit Cost	Extended Cost (millions)
Mobilization/Demobilization	LS	1	\$250,000	\$0.3
Pipeline, Booster Pumps, and Tunneling	LS	1	\$200,000	\$0.2
Daily operation costs (Table 1)	DAY	85	\$31,100	\$2.6
Purple loosestrife mitigation	ALL	1	\$500,000	\$0.5
<b>Construction Cost</b>				<b>\$3.6</b>
Contingency (30%)				\$1.1
WSST (8.5%)				\$0.3
<b>Total Cost</b>				<b>\$5.0</b>

Based on a placement volume of 100,000 cubic yards, this corresponds to an overall cost of \$50 per cubic yard. This compares very favorably with other costs identified for dredging from Capitol Lake: the 2008 *Dredging and Disposal Analysis* presented costs for initial lake dredging that varied between \$74 and \$138 per cubic yard.

If the material were dredged from the marinas in lower Budd Inlet, a similar process would be used. Given the need to navigate between the slips, a smaller dredge would likely be used – a single 12-inch dredge is assumed in the costs provided in Section 6.

For material dredged from the Port of Olympia’s navigation facilities, mechanical dredging would likely be the most cost-effective. The material could be moved to a subtidal restoration site by bottom-dump scow, and placed directly at the site. For an intertidal restoration site, the material could be placed on a shallow draft barge and moved into the water close to the shoreline or into containment areas using earthmoving equipment.