

Drivers of Cost & Price for Dredging

An Introduction to Some of the Factors Affecting Price For the
Non-Contractor

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Dredging Prices -Three Basic Factors:

- 1. Anticipated Contractor Costs**
- 2. Perceived Risk**
- 3. Market Conditions**

Dredging Prices -Three Basic Factors:

1. Anticipated Contractor Costs

- Mobilization Cost
 - Fixed Cost, higher quantities drive mob cost per yard down
- Daily Cost
 - Equipment Capital Cost Recovery (Capex, Recovery Period, Days/yr)
 - Labor, Fuel, Maint & Wear, Overheads
- Daily Estimated Production: Pay cubic yards per day
 - Unit Cost = Daily Cost (\$/day) / Estimated Daily Production (pay cys/day) = \$/cy
 - Ex: \$75,000 per day divided by 7,500 cys/day = \$10/cy
 - Ex: \$75,000 per day divided by 3,250 cys/day = \$20/cy

2. Perceived Risk

3. Market Conditions

Dredging Prices -Three Basic Factors:

1. Anticipated Contractor Costs

2. Perceived Risk

- Production Variation (Estimated vs. Actual)
 - Soils Data, other information to reduce uncertainty
- Re-Work
- Unanticipated Non-Recoverable Costs
 - Delays
 - Equipment Damage
 - Third Party Claims
 - Permit Compliance Risk, environmental incidents

3. Market Conditions

Dredging Prices -Three Basic Factors:

1. Anticipated Contractor Costs

2. Perceived Risk

3. Market Conditions

- Bid History
- The Level of Competition
 - Location and Availability of Competitor Equipment
 - Competitors Estimated Cost
- Last Step - Mark-up (Profit)

Impact of Anticipated Utilization

	Scenario 1- Positive Outlook		Scenario 2- Uncertain Outlook	
Capital Equipment Newbuild Cost	\$35,000,000		\$35,000,000	
Capital Recovery Period	20 yr		5 yr	
Cost of Money	7%		7%	
Annual Capital Cost	\$2,600,000		\$6,600,000	
Anticipated Average Annual Op Days	200		120	
Daily Capital Cost Allocation	\$13,000	12%	\$55,000	35%
Labor	\$25,000	24%	\$25,000	16%
Fuel, Maint & Wear	\$35,000	33%	\$35,000	22%
Field Overhead	\$10,000	9%	\$10,000	6%
Home Office Overhead	\$12,450	12%	\$18,750	12%
Profit	\$10,000	9%	\$14,000	9%
Total Daily Cost	\$105,450	100%	\$157,750	100%
Expected Production	7,500 cys/day		7,500 cys/day	
Unit Price	\$14		\$21	
				150%

How Owners, Planners & Designers Can Reduce Their Dredging Costs

1. Reduce Contractor Cost
 - Pursue Lowest Cost Disposal Options In Permitting Phase
 - Maximize Contractors Production Rate
 - Cut Geometry (Productive Available Dig Face-AM)
 - Avoid Workhour and Work Window Restrictions
 - Consistent and Dependable Equipment Types Required

2. Reduce Contractors Perceived Risk
 - Applying Dependable & Consistent Measurement, Payment and Acceptance Terms
 - Insist on Permit Expectations that are Achievable

3. Maximize Competition
 - Avoid Restrictions on Equipment Type
 - Avoid Set-Asides

Potentially Avoidable Drivers of Dredging Cost Increases

1. Poor Cut Geometry (chasing very low dig face)
2. Inconsistent and Uncertain Disposal Schemes Driving Varying Equipment Requirements year to year
3. Uncertainty in regard to future equipment requirements and available workload
4. Work Windows
5. Upland Disposal (as compared to upland beneficial reuse)
6. Uncertainty in regard to achievability of permit requirements
7. Uncertainty in measurement / payment / acceptance criteria
8. Limiting Equipment Types
9. Limiting competition via SB set aside.

Recent Examples of Expensive Dredging

I. 70,000 cubic yards of upland disposal

- \$120 per cubic yard (total cost +/- \$9 million)
- UXO screening to one inch (on limited landside footprint)
- Disposal at for profit landfill, competing with municipal garbage disposal (>\$60/cy in tipping fees)

II. 200,000 cubic yards of Maintenance Material

- >\$31 per cubic yard overall...with mob (total cost > 6 million)
- In-Water Disposal Site 60 nautical miles away
- 87,000 cys above grade over 3.5 million ft² (Less than 0.7 ft avg req'd face)
- Requires ABS Load-Lined Barges but competition limited by SB set aside.

Take Aways

1. Owners and Stakeholders Can Influence Dredging Prices
2. Confidence in the Out-year Requirements Facilitates the Investment that Leads to Greater Efficiency and Competition
3. Windows are Expensive (reducing annual operating days)
4. Promote clarity in achievable, measurable, enforceable and necessary Requirements
5. Use tools like advance maintenance templates to forestall dredging until a productive cut is available.
6. Maximize Competition by avoiding windows, set-asides and equipment type restrictions.