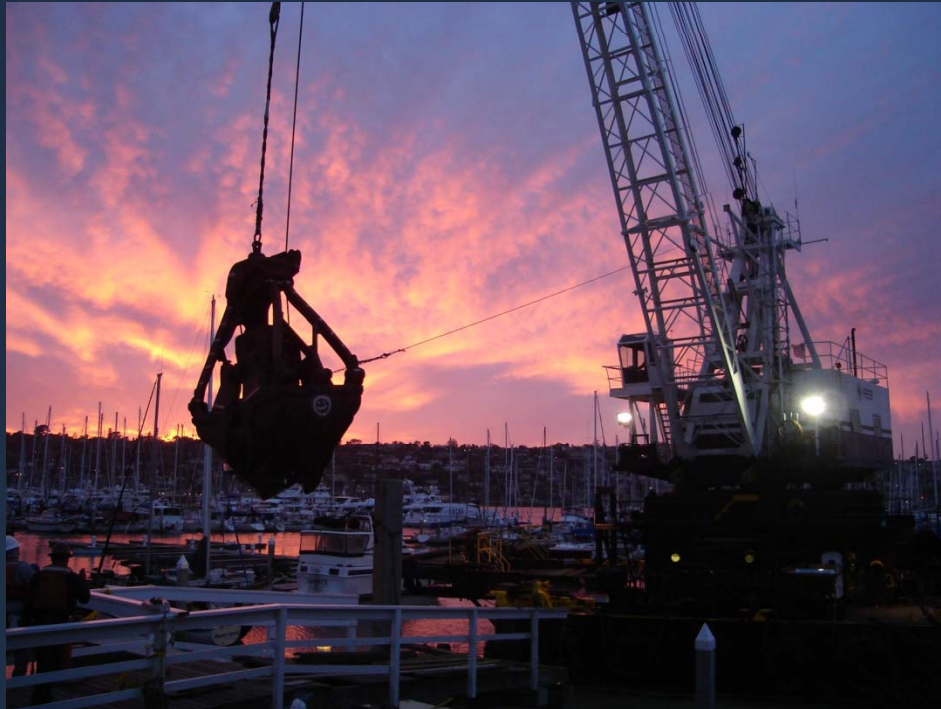


Planning a Dredging Project

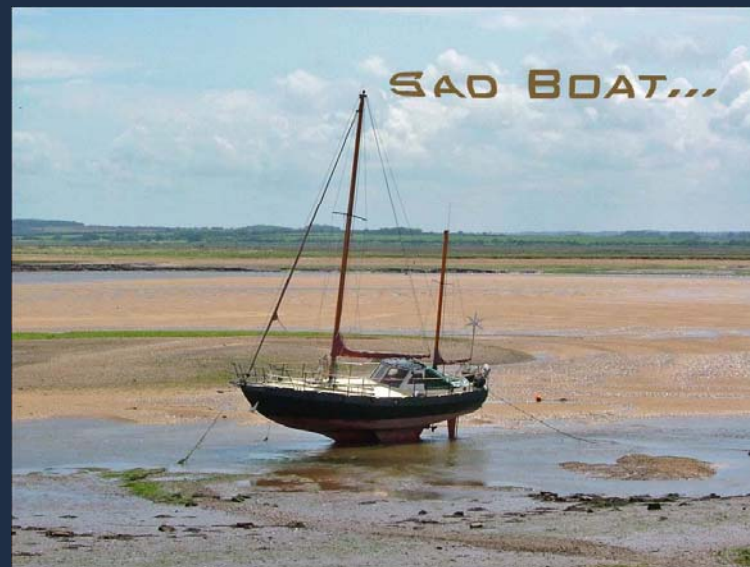


Len Cardoza, CEP
WESTON Solutions, Inc.

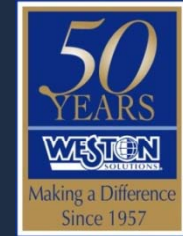
October 28, 2010



The Planning and Execution of a Dredging Episode



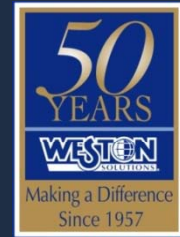
Dredging -18 months.



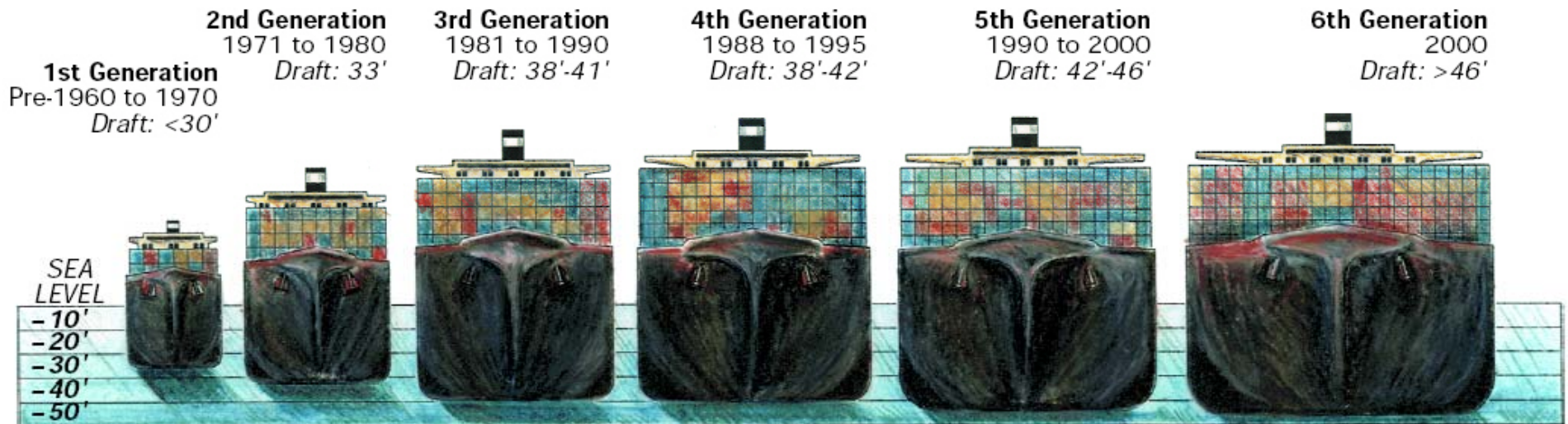
Evaluate need for dredging

- Sediment accretion rates?
- Maximum drafts?
- Tidal Range?
- Overdredge / Advance maintenance?
- Needs (maximum vessel drafts - loaded cargo, visiting yachts, tall ships, hosting sailing regattas (some racing boats have very deep drafts.))





Evolving vessel sizes



Other considerations (1)

- Previous dredging episodes
- Anticipated / estimated intervals and volumes
- Alternatives for dredged material disposal and re-use (small dredger programmatic alternative analysis)
- Dredging performed on adjacent property



Other considerations (2)

- Five year history of pollution and contamination issues on property, adjacent sites, and/or “upstream” along drainage for storm sewer system.
- History of previous testing or approvals that no testing was required (Tier I, Inland Testing Manual)



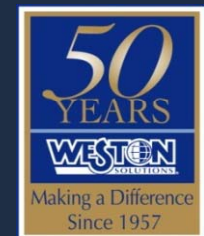
Even More Considerations



- Evidence of rocky substrate. Legacy contaminants (entrained in sediments)
- Debris (lost containers, container handling equipment, fishing equipment, shopping carts, wrecks, etc)
- Issues reflecting shoreline stability
- Existing marine structures (deteriorating wooden piling, floats, docks, ramps)

*Just when you thought you were finished
with considerations....*

- Surveys: Eelgrass, oysters, invasive species, etc
- Separation of contaminated / uncontaminated sediment
- Rehandling contaminated sediment
- Ongoing operations
- Staging areas
- Stakeholders



Species of Special Concern



Dredging -16 months.

- Status of existing permit?
- Acquisition plan to obtain needed permits.



Dredging -14 months.



- Long Term Management Strategy (LTMS) for dredging and the disposal / reuse of dredged material in the San Francisco Bay Area.
- Attend LTMS / DMMO Meeting
 - ✓ Dredging windows
 - ✓ Delta LTMS

What is the DMMO?

DMMO ;

Dredged Material Management Office

- ✓ **Consolidated Permits Application**
- ✓ **DMMO Approval Process**



DMMO Agencies



Federal Agencies



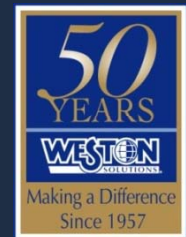
State / Regional



Dredging - 12 months.

Acquisition plan for professional services & contractor

- Bathymetric surveys
- Assistance with regulatory permits / consultations
- Material characterization
- Dredging
- Construction management



Dredging - 10~5 months.

➤ *D - 10 months.*

Condition survey

➤ *D - 8 months.*

Development of and approval for Sampling & Analysis Plan

➤ *D - 5 months.*

Sediment characterization



Dredging - 3~1 months.

➤ ***D - 3 months.***

Planning for temporary relocation of tenants, boats, floats, etc.

➤ ***D - 2 months.***

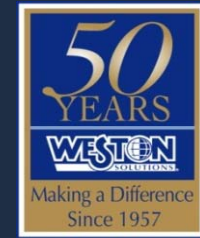
Dredging Operations Plan / Approval.

➤ ***D - 1 month.***

Pre-Dredge survey / volume calculations. Notice to proceed.

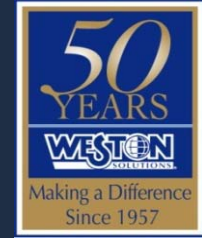
Pre-construction meeting.

D day.
Execute Dredging Episode



- Mobilization
- Agency notification
- Staging / access issues.
- Construction management.
- Compliance with permit conditions.
- Tracking disposal / reuse trips, volumes.
- Post-dredge surveys.

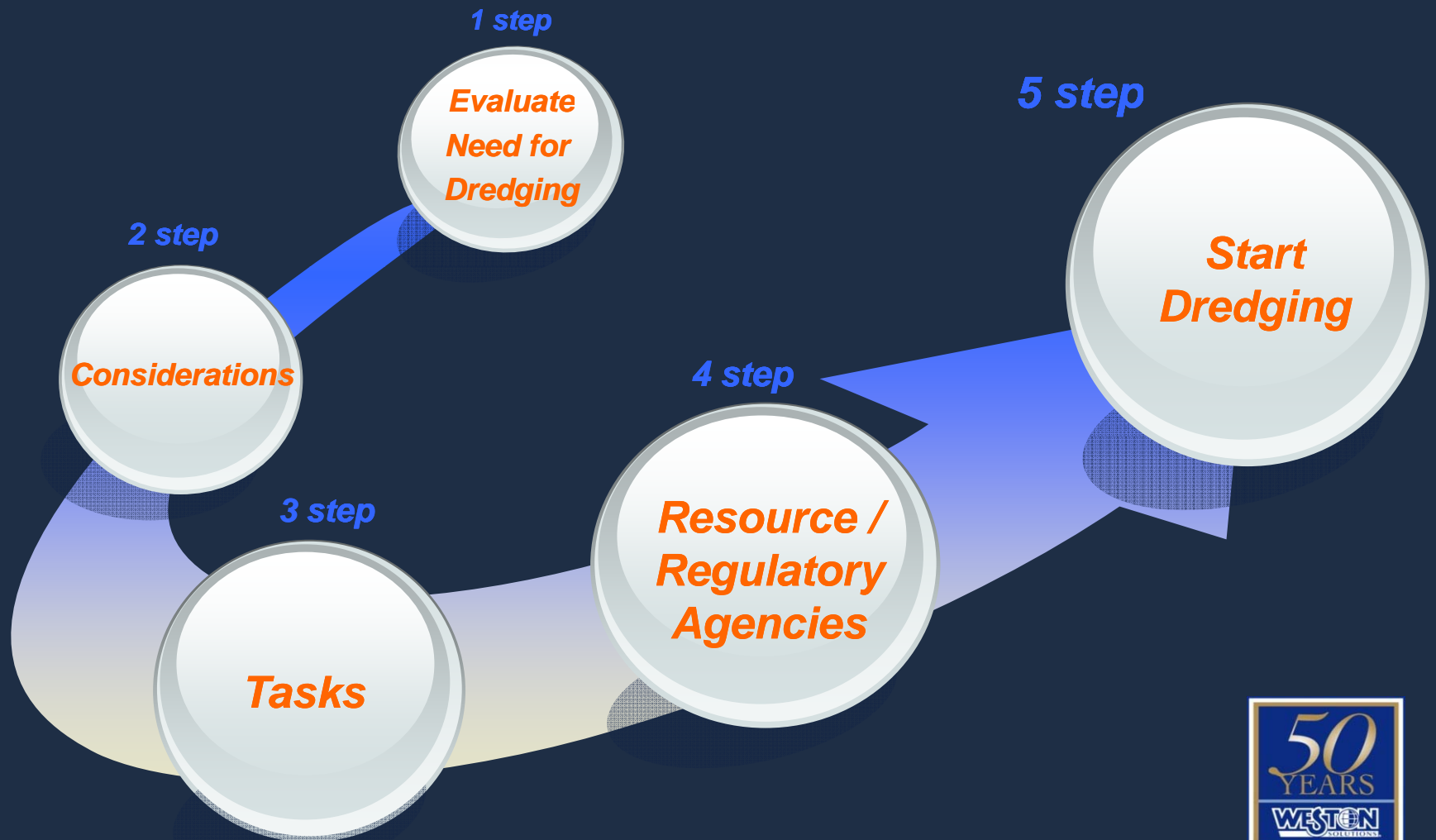
D+1 Months.



Close out reports

- Surveys
- Volumes
- Lessons learned

Summary



Questions?

