



**MILLS to
MARITIME**
RESTORING JOBS. STRENGTHENING ECONOMY.

Marinas & Boat Launch Dredging Strategy

Laura Gurley
Port of Everett Planner

April 13, 2021



@portofeverett | #portofeverett

Purpose

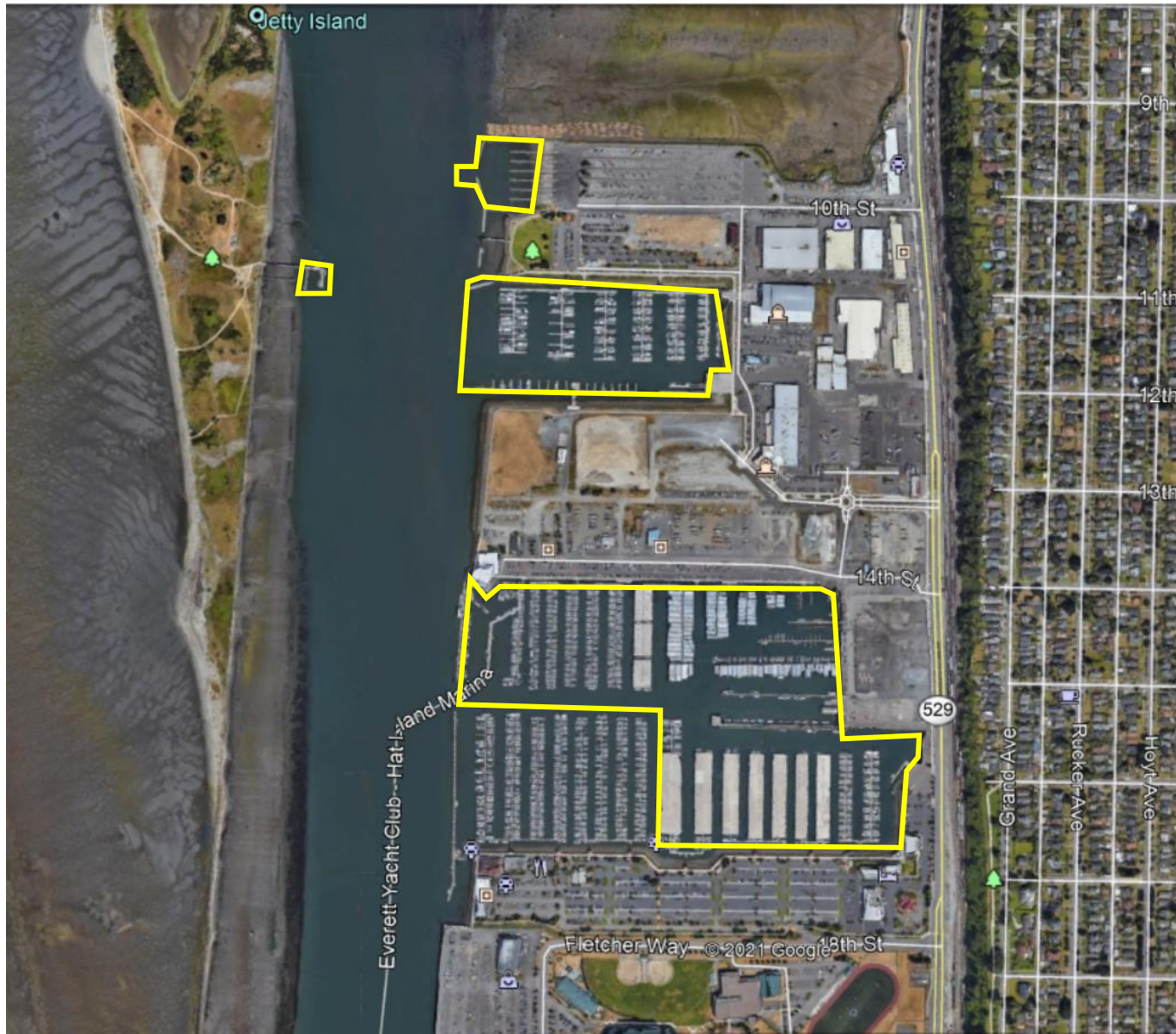
Develop a Programmatic approach to maintaining suitable depths at our facilities and in the Snohomish River in a predictable and cost-effective manner.



River Sediment Challenges

- Sediment is accumulating more quickly than in the past, both in the channel and our facilities.
- Potential explanations could be upstream farmland erosion and more frequent storm and flood events due to climate change carrying more sediment downstream or other factors unknown.
- A sandbar is growing on the east side of the river channel from the mudflats south toward the North Marina, impeding access to the boat launch and quickly encroaching into the entrance to the North Marina.
- Sandbar is also encroaching into the Federal Navigation Channel.
- The Port has made unsuccessful attempts to get the Corps to relocate the downstream settling basin in the past.

Where does the Port dredge?



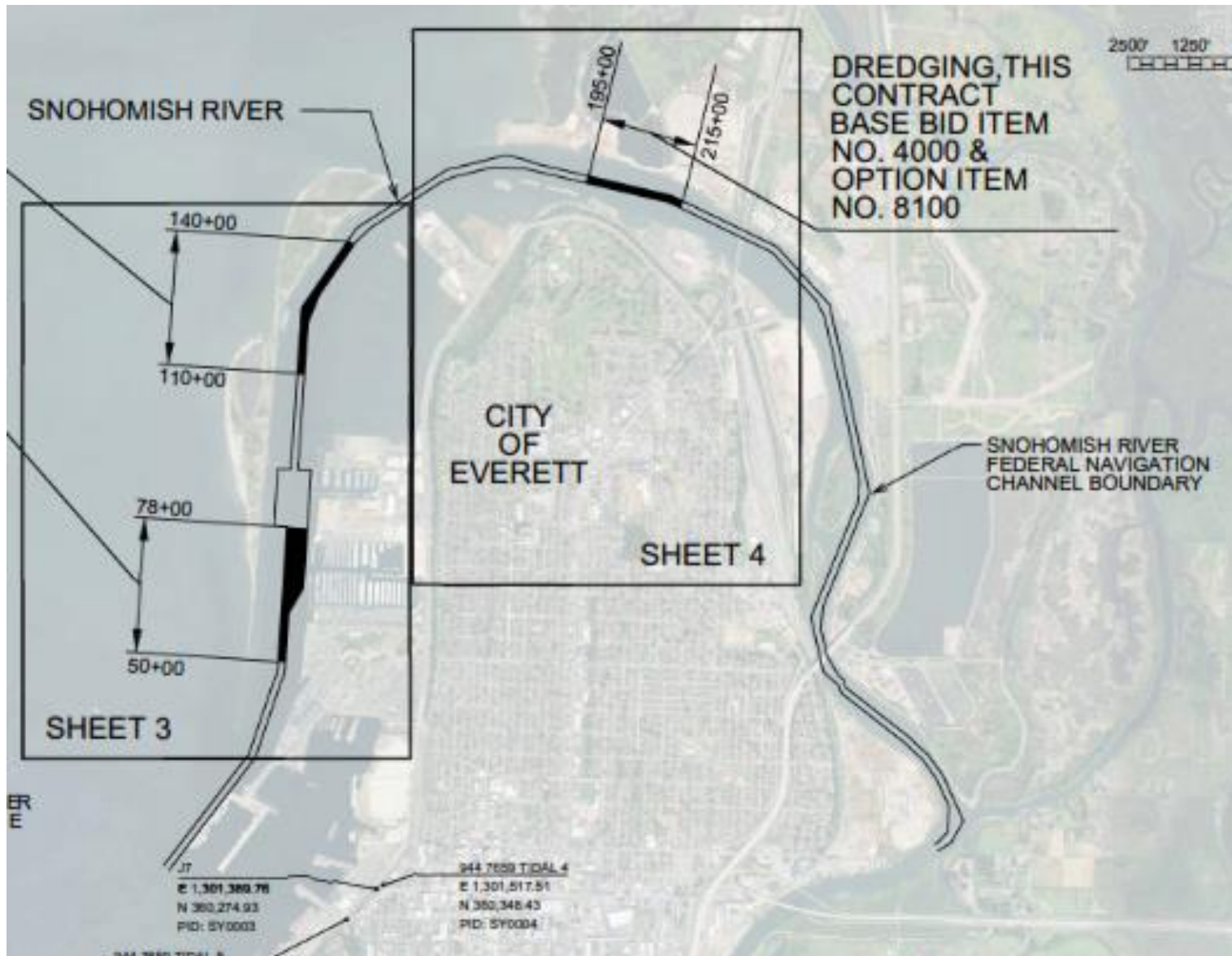
Where does the Port dredge?



Where does the Port dredge?

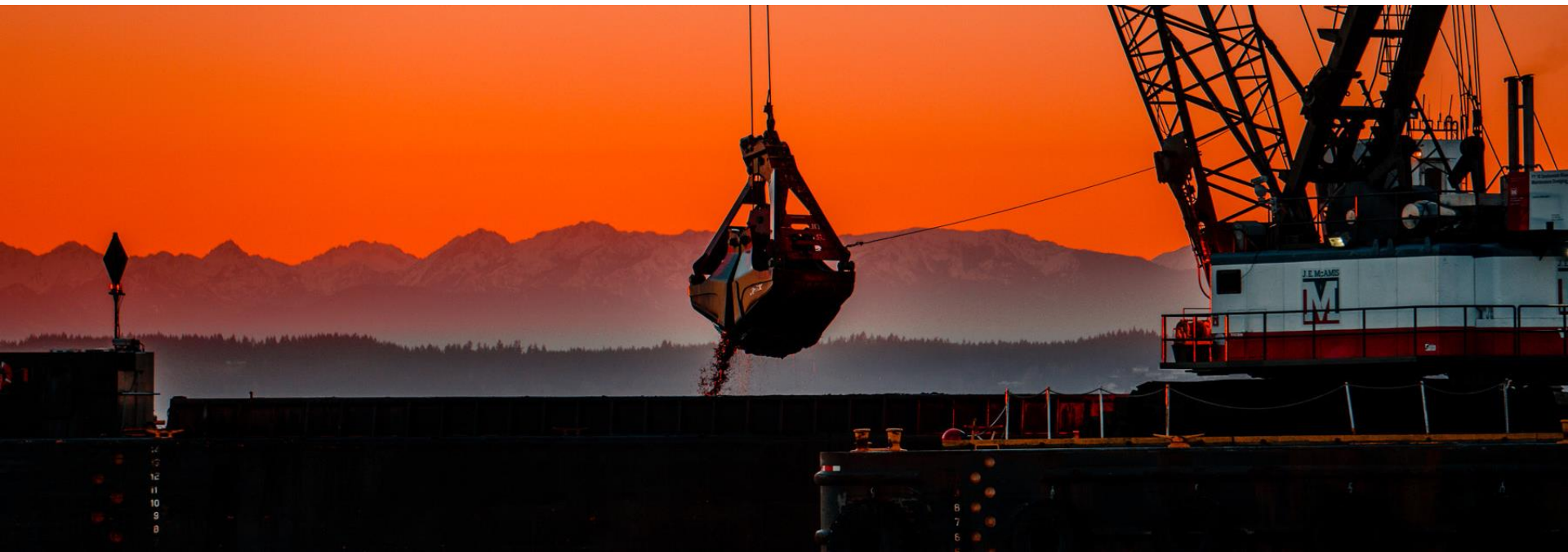


Where does the Corps dredge?



Corps Dredge History

- Corps has historically dredged every year either upstream or downstream
- Recently, Corps has needed to dredge both upstream and downstream in the same year
- Sandbar starting to encroach into Federal Navigation Channel and downstream settling basin
- Increasing volumes dredged each year = increased costs



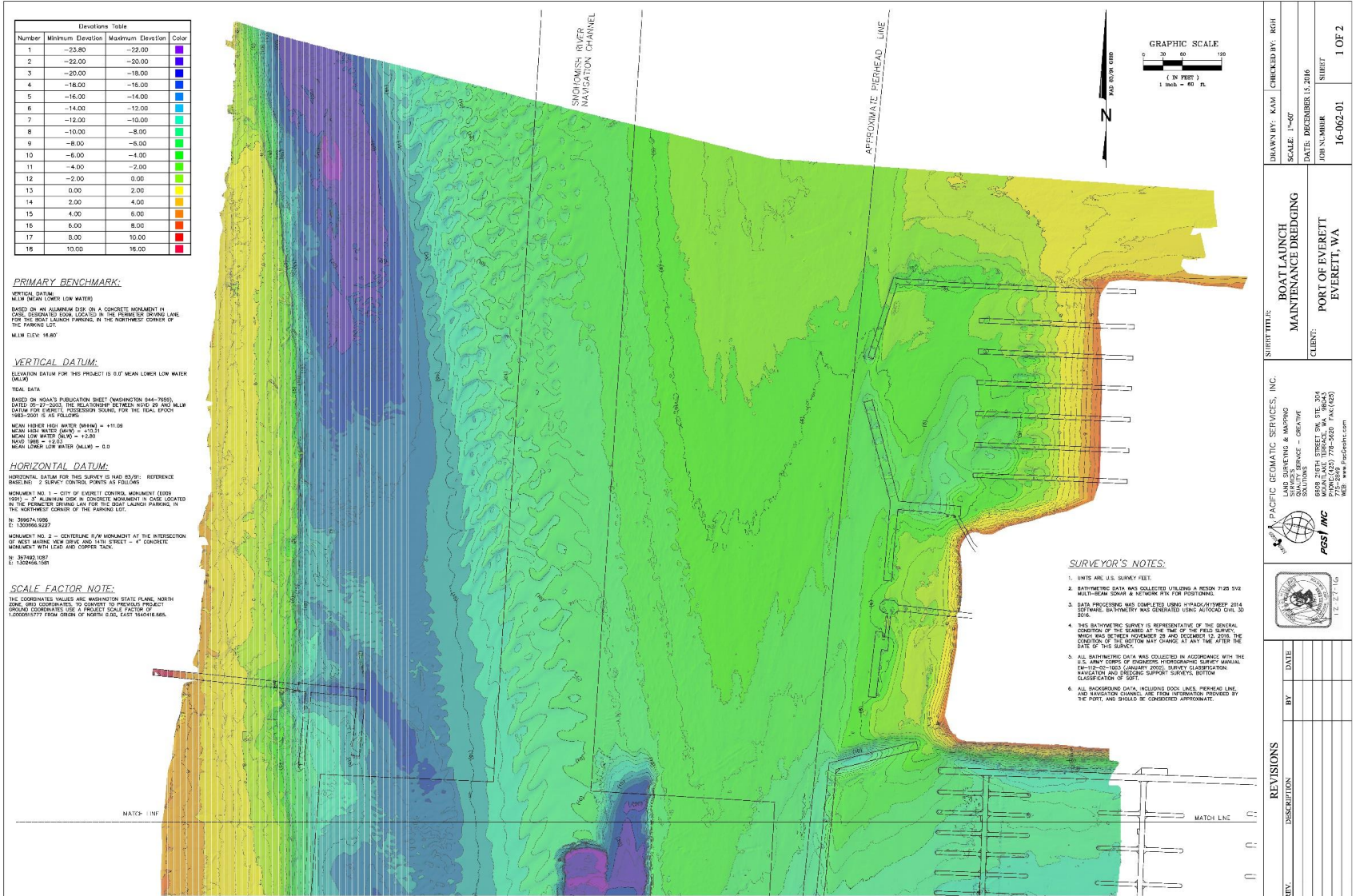
Sediment Pattern Changes

In recent years:

- Sediment is accumulating faster
- Need for more frequent dredging
- Sediment accumulating in new places (sandbar)
- River is scouring east side of Jetty Island



The Sandbar



The Sandbar



Why do we dredge?

Port of Everett is the steward of local navigation

- Maintain berthing depths in marinas and at guest docks (Port)
- Maintain depths for transiting and access to and from marinas and facilities including fuel dock (Port)
- Maintain launch facilities for Port customers, emergency services, Tribes and others at boat launch (Port)
- Maintain adequate depths to prevent damage to floating infrastructure (Port)
- Maintain depths for commercial traffic in Snohomish River (partner with Army Corps)
- Manage sediment loads and distribution in Snohomish River (partner with Corps)
- MTCA cleanups (not covered in this presentation)

Dredging Options

Mechanical (clamshell, barge mounted excavator):

- Multiple barges (equipment and bottom dump barge)
- Open water disposal (upland, if contaminated)
 - Must pay fees to DNR for disposal
- Clamshell is capable of deeper dredging (at any tide); excavator reach is limited
- Clamshell is less maneuverable in tight spaces, but excavator is more maneuverable in tight spaces
- Can handle debris in sediment



Dredging Options

Hydraulic (cutterhead suction):

- Dredge vessel and multiple smaller support vessels
- Pipeline disposal to uplands (port does not have access to flow lane disposal)
 - Land based equipment required for upland placement
 - Pipeline setup, maneuvering and relocation
 - May impede vessel movements
- Limited dredge depths (and tidally dependent)
- Maneuverable in tight spaces
- Debris in sediment a challenge to cutterhead



Port's Historic Dredge Costs*

Year	Facility	Cost
2002	South and Central Marinas	1,005,900
2007	Jetty Island Dock (includes dock repairs)	128,700
2008	North Marina Creation	1,052,000
2009	South P&Q (marginal float area only)	115,000
2010	Boat Launch Basin	540,500
2013	South and Central Marina Entrance and Fuel Dock	1,514,000
2019	Central Marina Improvements Ph. 3	1,448,000
2020	Central Marina Improvements Ph. 4	465,000
	Total:	\$6,269,100

* Does not include MTCA related dredging

Port's Current Dredge Needs

- Boat Launch: 41,000 CY
- Connector Channel and North Guest Dock 8: 23,700 CY
- North Marina West: 78,000 CY (+)
- North Marina Entrance: 7,700 CY
- Central Marina West: 34,000 CY

Total: 184,400 CY



Port's Existing Dredge Permits

- Boat Launch (expires June 2021): 36,500 CY
- South & Central Marinas (expires August 2021): ~40,000 CY
 - *AAPA Comprehensive Environmental Program Award (2020)*
 - *WPPA Environmental Project of the Year (2019)*

Port applying for permit extensions; limited to two years.



Permitting Nuances

- New dredging areas include Boat Launch Connector Channel, Entrance to North Marina, and North Guest Dock 8
 - Require separate permit process
 - Require aquatic vegetation surveys
 - Require compensatory mitigation (NMFS and likely WDFW)
 - Unknown permit review timeline
- Maintenance dredging permits for previously dredged areas
 - Regulatory changes may require conservation credits (NMFS)
 - Regulatory review durations are getting longer
- Need to consider permit expiries when identifying which areas to dredge and when
- Boat Launch: Weigh impacts of letting permits expire without dredging because of cost sharing issues with County and City

Cost of Current Dredge Needs (Port)

Facility	CY	Estimated Cost (Based on \$21.50/cy)
Boat Launch	41,000	\$882,000
South and Central Marina (current permit)	50,000	\$1,075,000
Boat Launch Connector and North GD 8	23,700	\$510,000
North Marina West	78,000	\$1,677,000
North Marina Entrance	7,700	\$166,000
Central Marina West	39,900	\$858,000
Total:	190,300 CY	\$ 5,200,000

Volumes represent total max dredge volume for each area, including volumes present within slips and beneath docks. Actual maintenance dredge quantities would be lower, if not combined with dock replacement.

Current Permitting Strategy

For current projects:

- Obtain minimum 5-year permits with possible 2-year extension options
- Dredge in smaller chunks over multiple years to spread costs out
- Request to dredge same location twice under one permit (North Marina/Fuel Dock Area)

This strategy would have us dredging every year for the next 5-7 years

- First Year: \$1.5M (most expensive due to upcoming permit expiry)
- Following years expending approximately \$400K-\$750K/year (*larger volume related to possible dock replacement dredging*)

If implemented, this would meet marina maintenance dredging needs through approximately 2032 – 2037

Future Permitting Strategy

Goal:

- To obtain one maintenance dredging permit that covers all Port Marina and Boat launch related facilities, valid for minimum 10 years with extension options and flexibility to dredge any location in any given year (during in-water work window) and flexible material disposal options (in water or upland)

Challenges:

- Regulatory approval of this novel approach
- Possible mitigation requirements from NMFS could be large
- Need better understanding of changing sedimentation patterns and rates to plan for appropriate volumes (e.g, effects of sandbar)
- Requires more sediment sampling upfront (increases costs)
- May require more frequent bathymetric surveys

Explore for Future

Material Disposal Options:

- **Open water:** Currently most cost-effective option for marina maintenance dredging. Possible increase fees, and regulations.
- **Jetty Island:** Both upland and as beach nourishment
- **Maulsby mudflats:** Potential to establish a new public access beach site, paired with conversion of mudflat to salt marsh habitat (both heavy permitting efforts)

River Structures Analysis:

- Consider results of Army Corps' sediment model and potential future training structures and/or relocation of settling basin(s) to better control and direct sediment deposition. Could address sandbar.
- Port directly contract with coastal engineer and modelers to identify other Port structures that may help reduce sediment accumulation at Port facilities

Explore for Future

Analysis of Port-owned Dredge Equipment:

- Full pros and cons analysis considering labor costs, training costs, equipment purchase costs, equipment maintenance costs, liability, efficiency, etc.

Consider New Contracting Approach:

- Consider multi-year contract with dredge contractor
- Maximum 3-year commitment due to unpredictability of fuel and labor costs
- Mobilization and demobilization costs may factor



Conclusion?

- It's complicated
- A lot more work to do
- Complexity of issues requires significant efforts to identify final solution approach
- Need to weigh multiple options, outside factors, regulatory environment, river behavior, budget projections...

The background of the slide is a photograph of a construction site, featuring a large excavator bucket in the foreground and various structural elements of a building under construction in the background. The entire image is overlaid with a semi-transparent blue filter.

WE CAN DO IT!



Thank you!
Questions/Comments?

