Blair Waterway Beneficial Use of Dredged Material

ANCHOR QEA

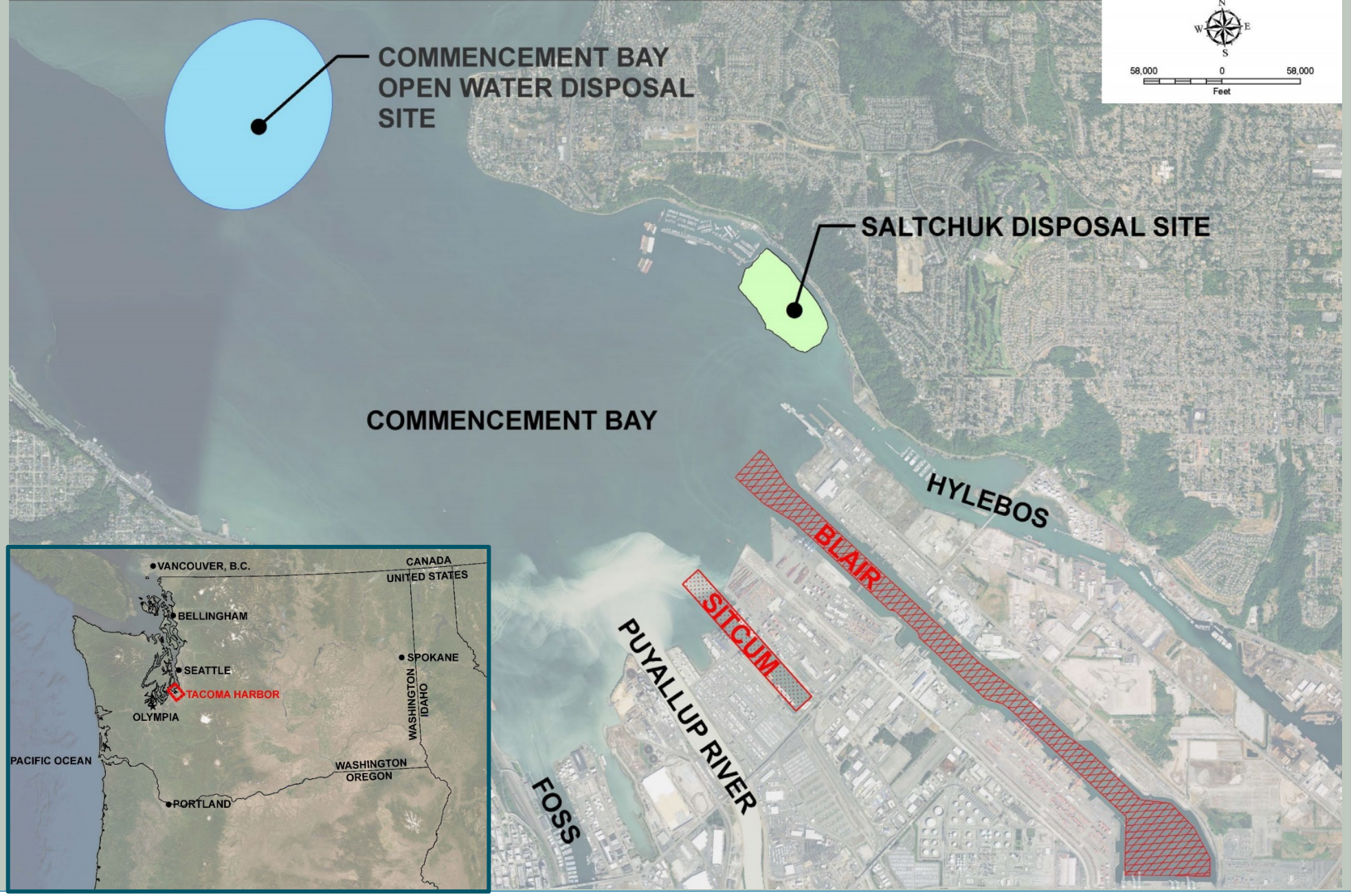
Presented by Dan Berlin

2020 AAPA Harbors and Navigation Webinar
April 1, 2020

Outline

- Project Background
- Deepening Alternatives
- Beneficial Use Evaluation

All images taken directly or modified from the following report and associated documentation from USACE, unless otherwise noted:
USACE (U.S. Army Corps of Engineers), 2019. *Tacoma Harbor, WA, Feasibility Study, Pierce County, Washington, Draft Integrated Feasibility Report And Environmental Assessment*. Prepared for Port of Tacoma. December 2019.


COMMENCEMENT BAY
OPEN WATER DISPOSAL
SITE
SALTCHUK DISPOSAL SITE
COMMENCEMENT BAY
HYLEBOS
BLAIR
SITCUM
PUYALLUP RIVER
FOSS
N
W
E
S
58,000
0
58,000
Feet
VANCOUVER, B.C.
CANADA
UNITED STATES
BELLINGHAM
SPOKANE
SEATTLE
TACOMA HARBOR
OLYMPIA
WASHINGTON
IDAHO
PACIFIC OCEAN
WASHINGTON
OREGON
PORTLAND

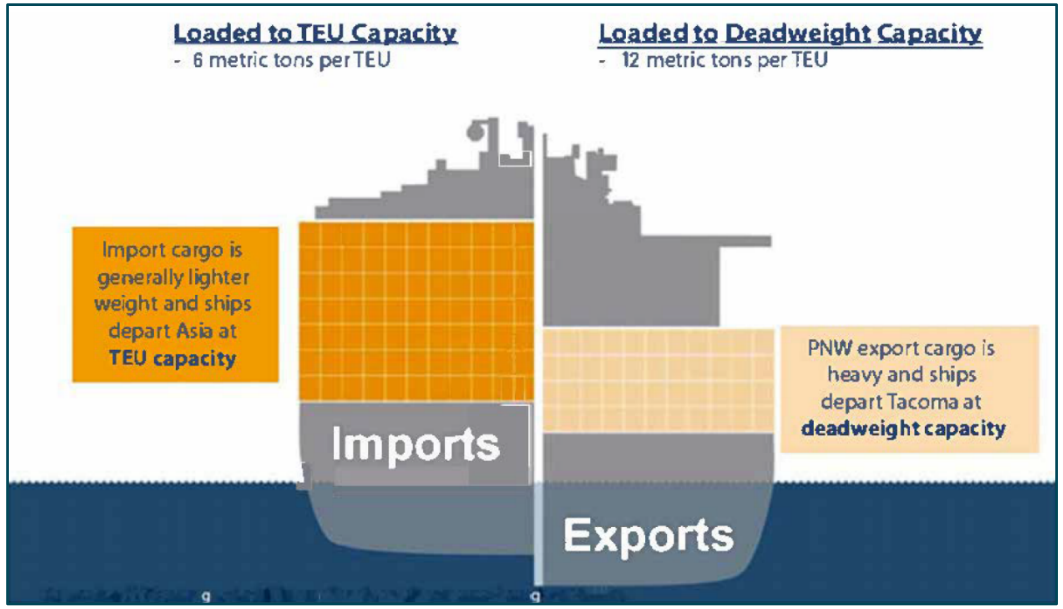

Port of Tacoma
Totem Ocean Trailer Express Terminal
Alexander Avenue
509
Blair Waterway
Commencement Bay
Husky Terminal
North Intermodal Yard
East Sitcum Terminal
Sitcum Waterway
West Sitcum Terminal
Washington United Terminals
Hyundai Intermodal Yard
Pierce County Terminal
PCT Intermodal Yard
Port of Tacoma Road
East 11th Street
Lincoln Avenue
Marshall Avenue
South Intermodal Yard
Milwaukee Way
Pacific Highway East (U.S. Highway 99)
5
N
Terminal
Rail Yard
Puyallup River

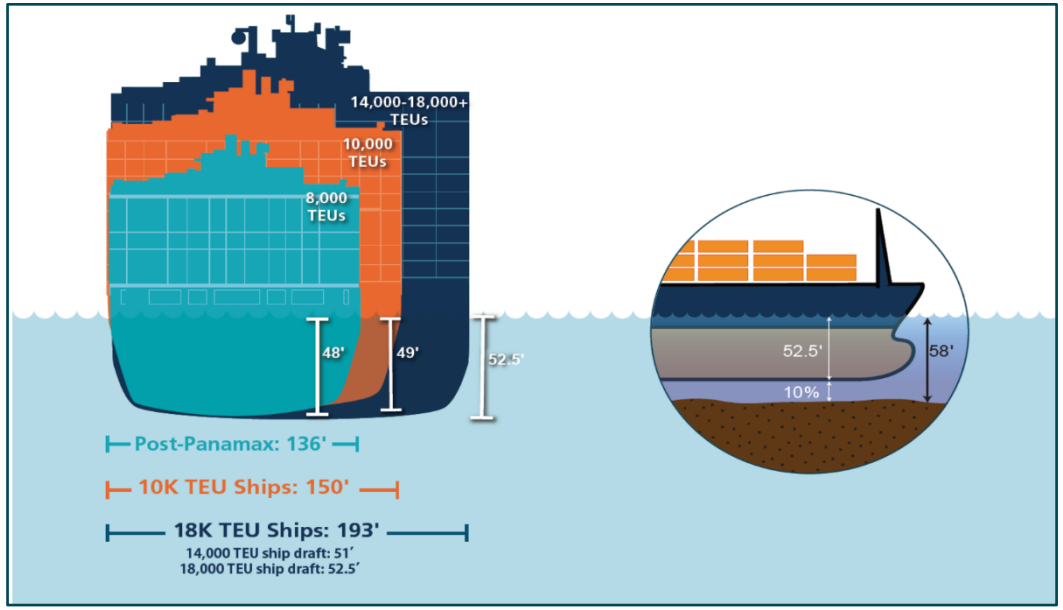
Background

- Scoping 2018
- Alternative Evaluation and Analysis: 2019 to 2020
- Chief's Report: 2021

Problems and Objectives

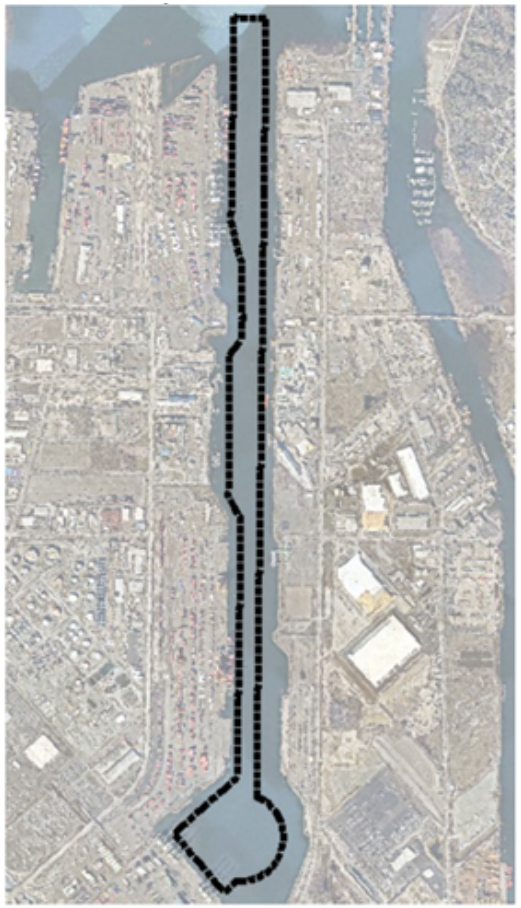
- Tidal delays and transportation inefficiencies
  - Light loading
  - Operational challenges
- Transportation cost savings
  - Increased economic efficiencies
- Consider ancillary environmental benefits





Final Array of Alternatives

Alternative 1 – No Action (current depth -51 feet MLLW)

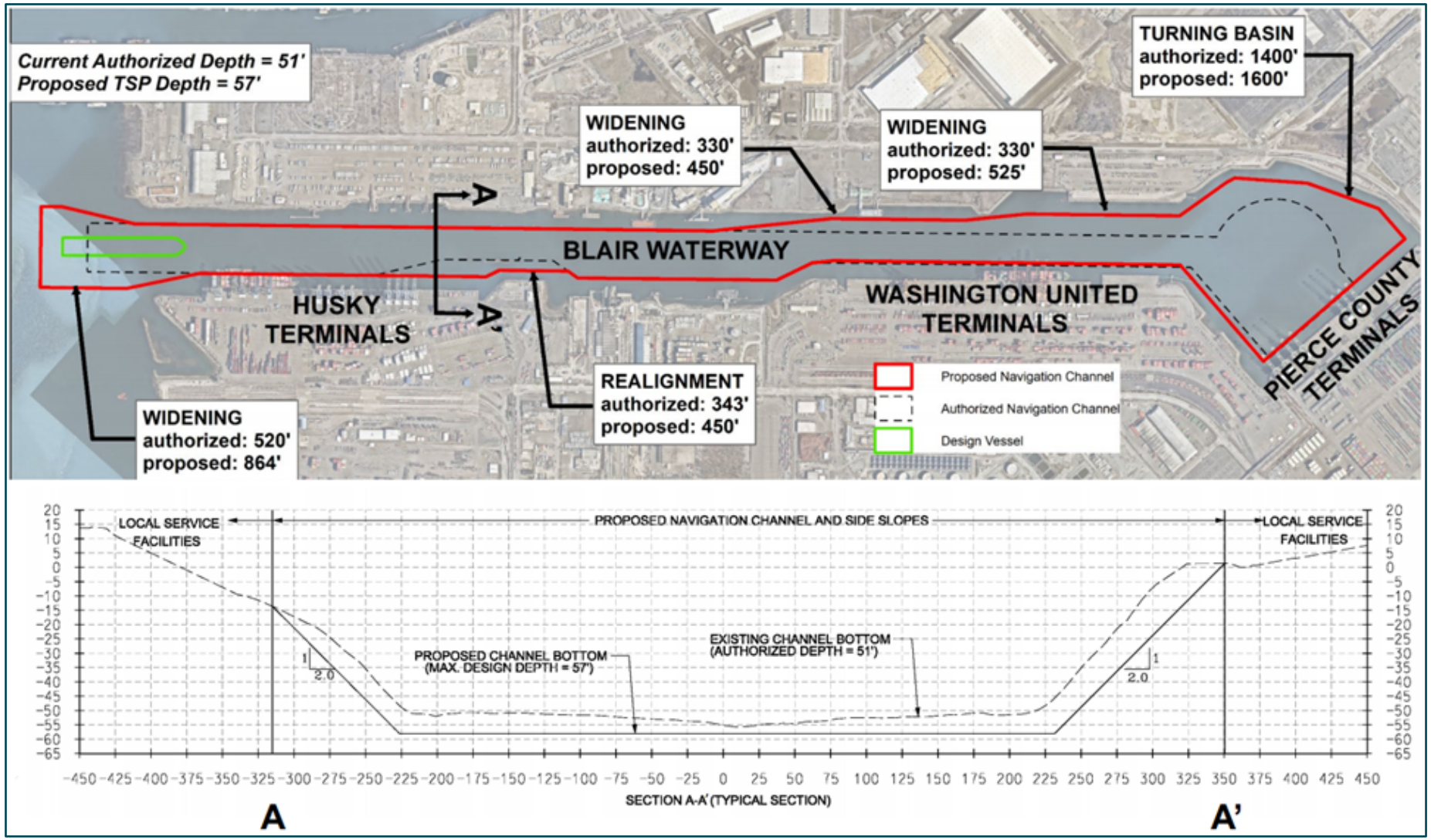


Alternative 2 – Blair Waterway Deepening (up to -58 feet MLLW)

Alternative 2a – Blair Waterway Deepening through Husky Terminal (-58 feet MLLW)

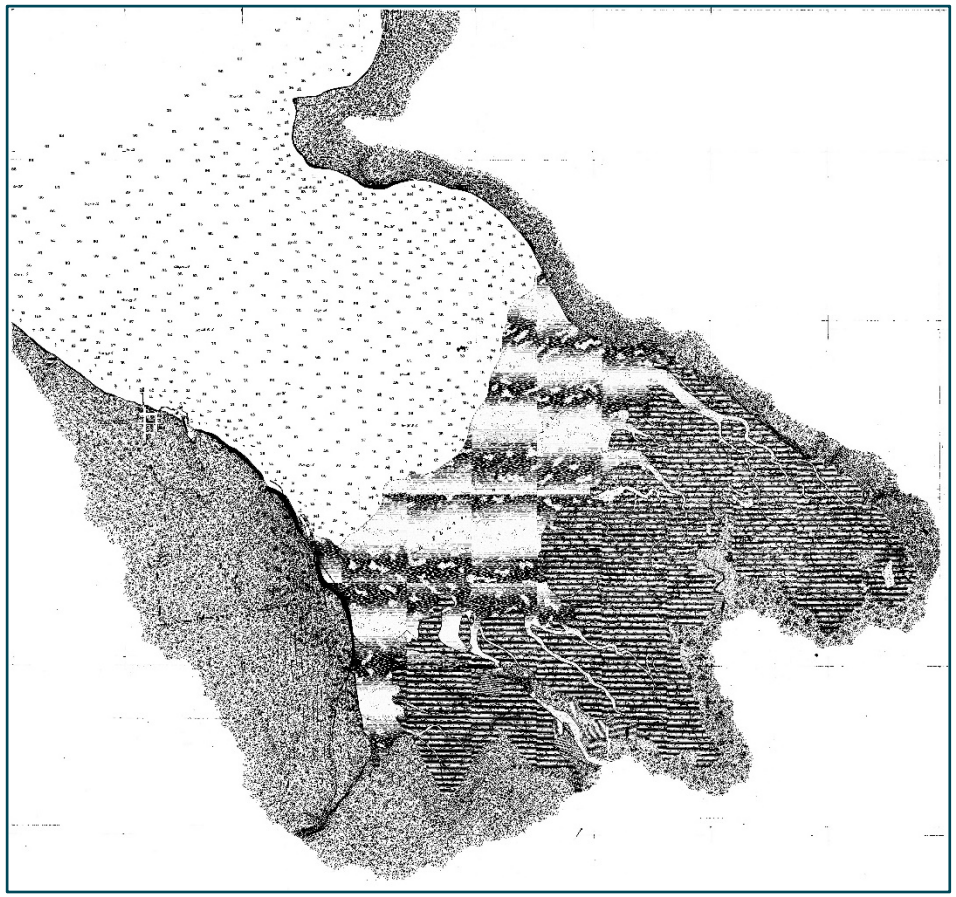
Alternative 2b – Blair Waterway Deepening (-57 feet MLLW)

Tentatively Selected Plan (TSP)

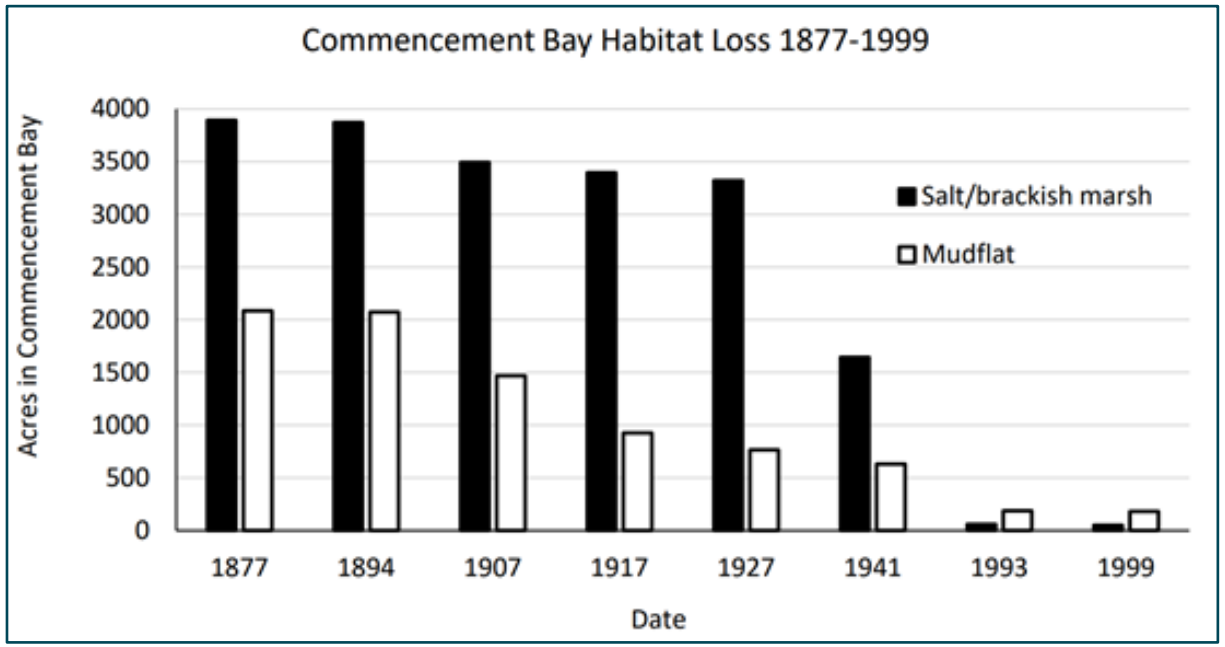


Habitat Loss

Nautical Chart of Tacoma Bay, Late 1800s



U.S. Office of Coast Survey, 2020. Nautical Chart of Tacoma Bay. From the Image Archives of the Historical Map & Chart Collection, accessed March 25, 2020. Available at: https://historicalcharts.noaa.gov/image=CP1865C.



USACE, 1993. Commencement Bay Cumulative Impact Study. Vol. I Assessment of Impacts. May/June 1993.
Kerwin, J. 1999. Salmon habitat limiting factors report for the Puyallup River Basin (Water Resource Inventory Area 10). Washington Conservation Commission. July 1999. Olympia, Washington.

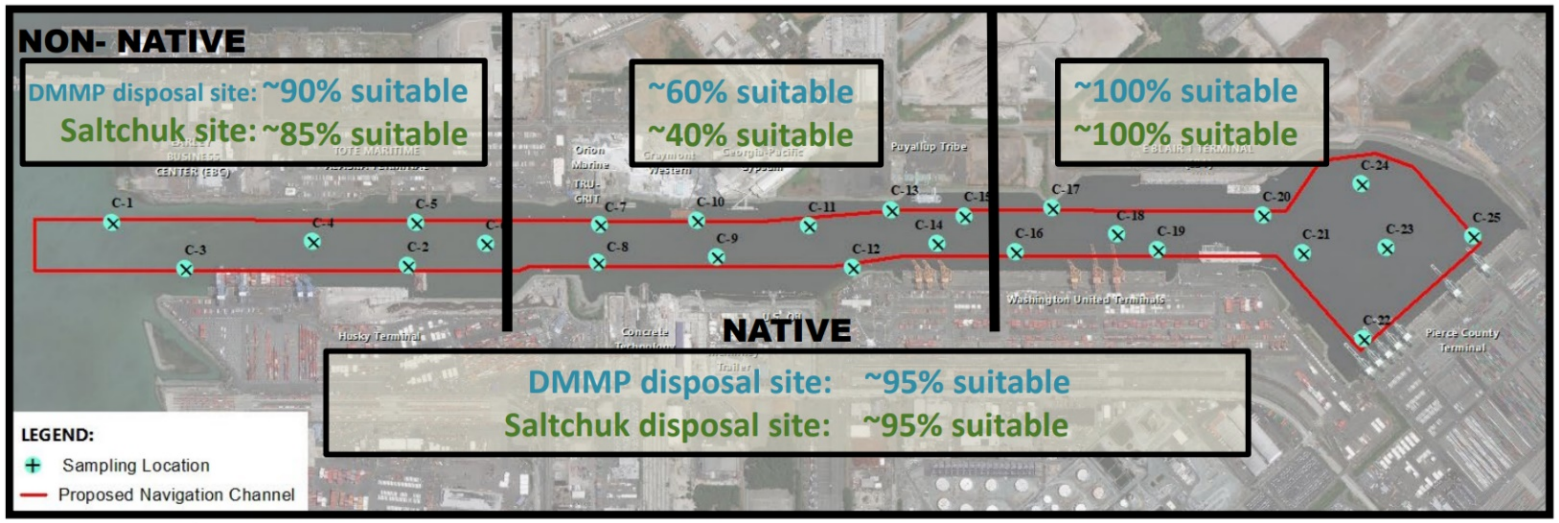
Disposal Options

- In-water
- Upland
- Beneficial use
- Suitability based on
  - 20% characterization of full DMMP standard
    - 25 cores
    - 63 analysis
- Native sediments below -54 feet MLLW

ESTIMATED DISPOSAL VOLUMES

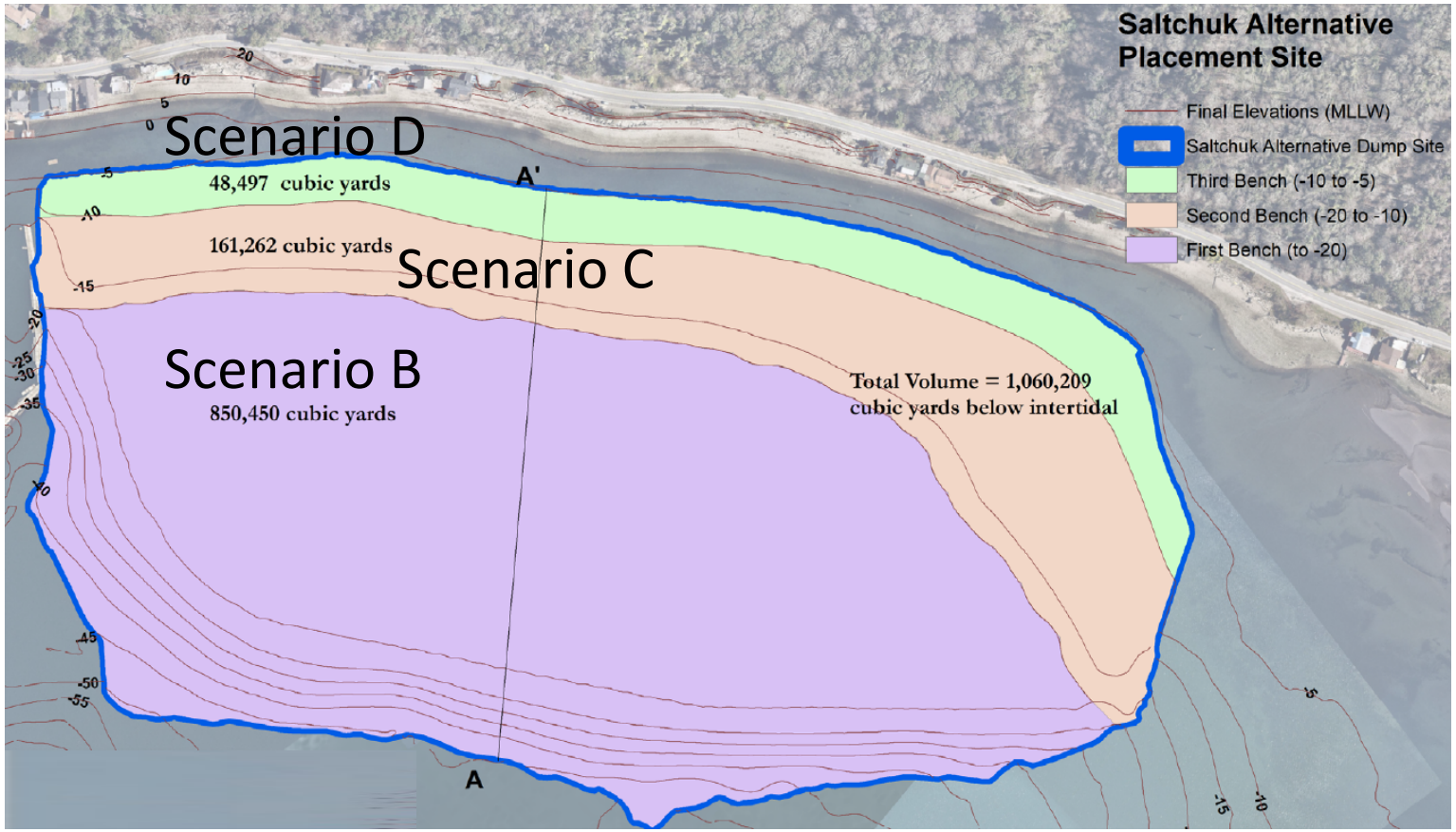
National Economic Development (NED) Plan
(-57 ft MLLW)

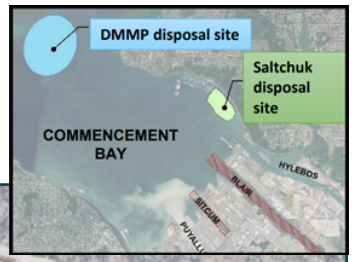
Total volume	2,803,000 CY
DMMP disposal site	Up to 2,412,000 CY
Upland facility	392,000 CY
Saltchuk disposal site	Up to 1,850,000 CY

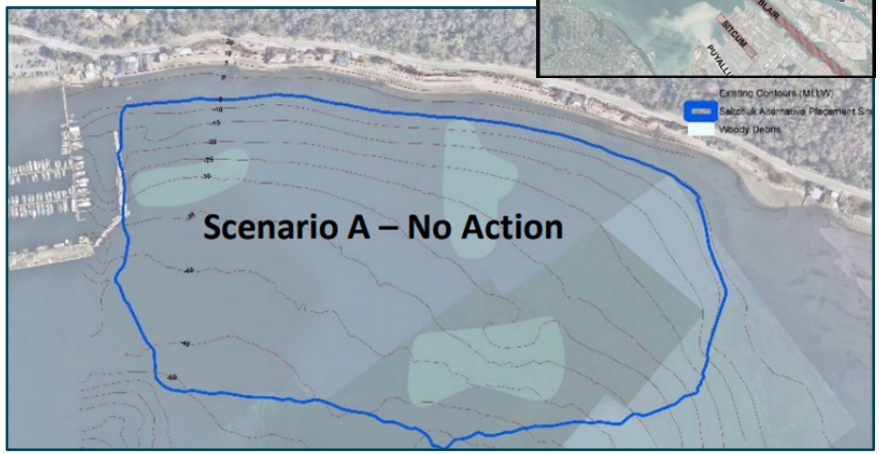


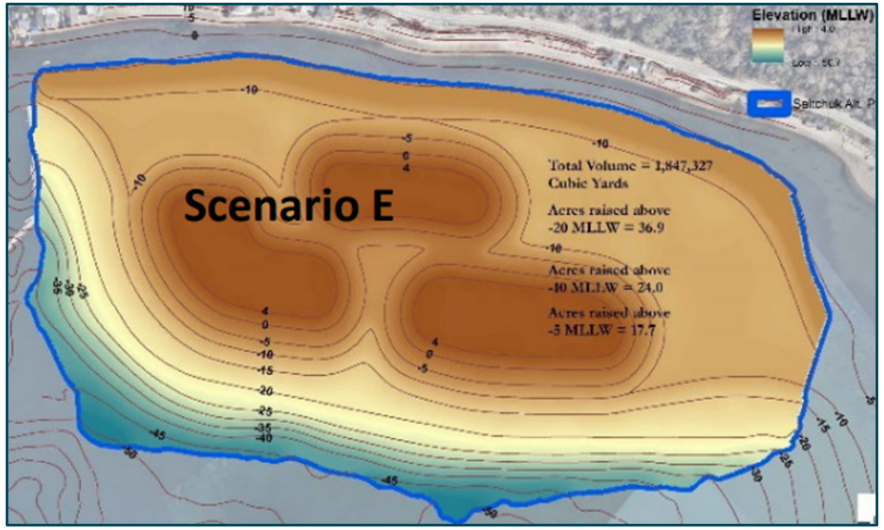
DMMP – Dredge Material Management Program
CY – cubic yards

Saltchuk Beneficial Use Alternative



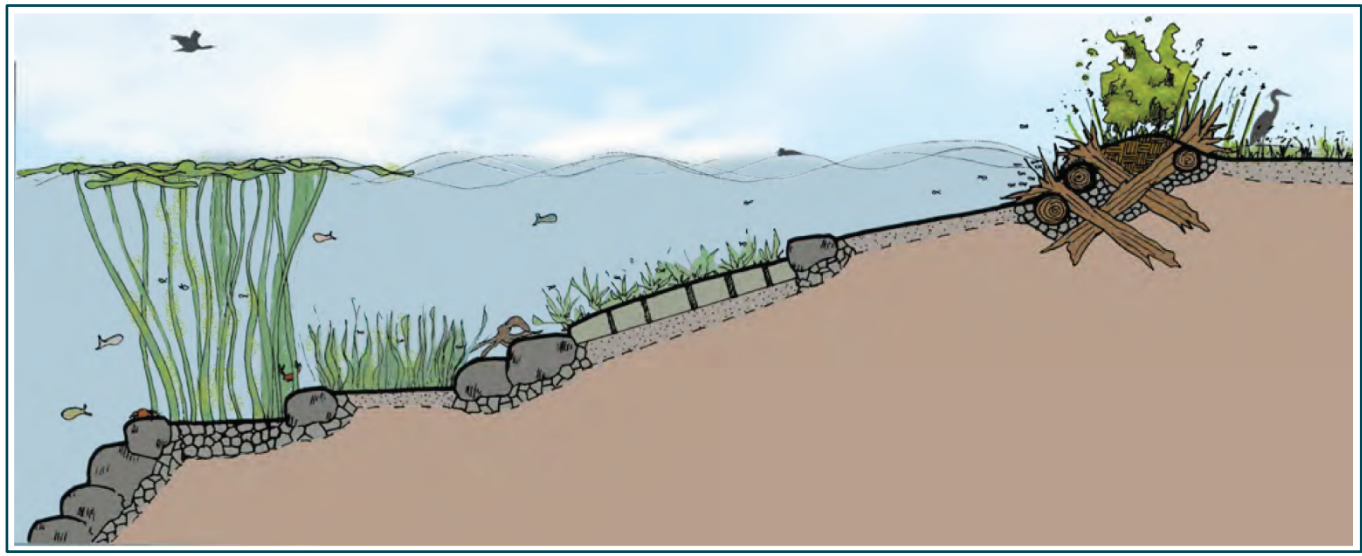






Habitat Valuation

- NMFS Puget Sound Nearshore Habitat Valuation Model
- Lower Shore Zone: +5 to -10 feet MLLW
  - Submerged aquatic vegetation
  - Foraging habitat
  - Benthic invertebrates
- Deeper Critical Habitat Zone: below -10 feet MLLW
- 50-year evaluation



NMFS – National Marine Fisheries Service

Cost Effectiveness and Incremental Analysis

Scenario	Description	Incremental Project First Cost over Base Plan ($1000)	Cost (AAEQ Cost in $1000)	Benefit (Net AAHU Gain)	Average Cost ($1000/AAHUs)	Cost Effective? / Best Buy?
A	No Action	$0	$0	0	$0	Yes / Yes
B	Bench 1	$1,240	$48	0.4	$120	Yes / No
C	Benches 1 and 2	$2,352	$91	3.6	$25	Yes / No
D	Benches 1, 2 and 3	$2,839	$110	4.9	$22	Yes / Yes
E	All benches and islands	$10,631	$410	14.5	$28	Yes / Yes

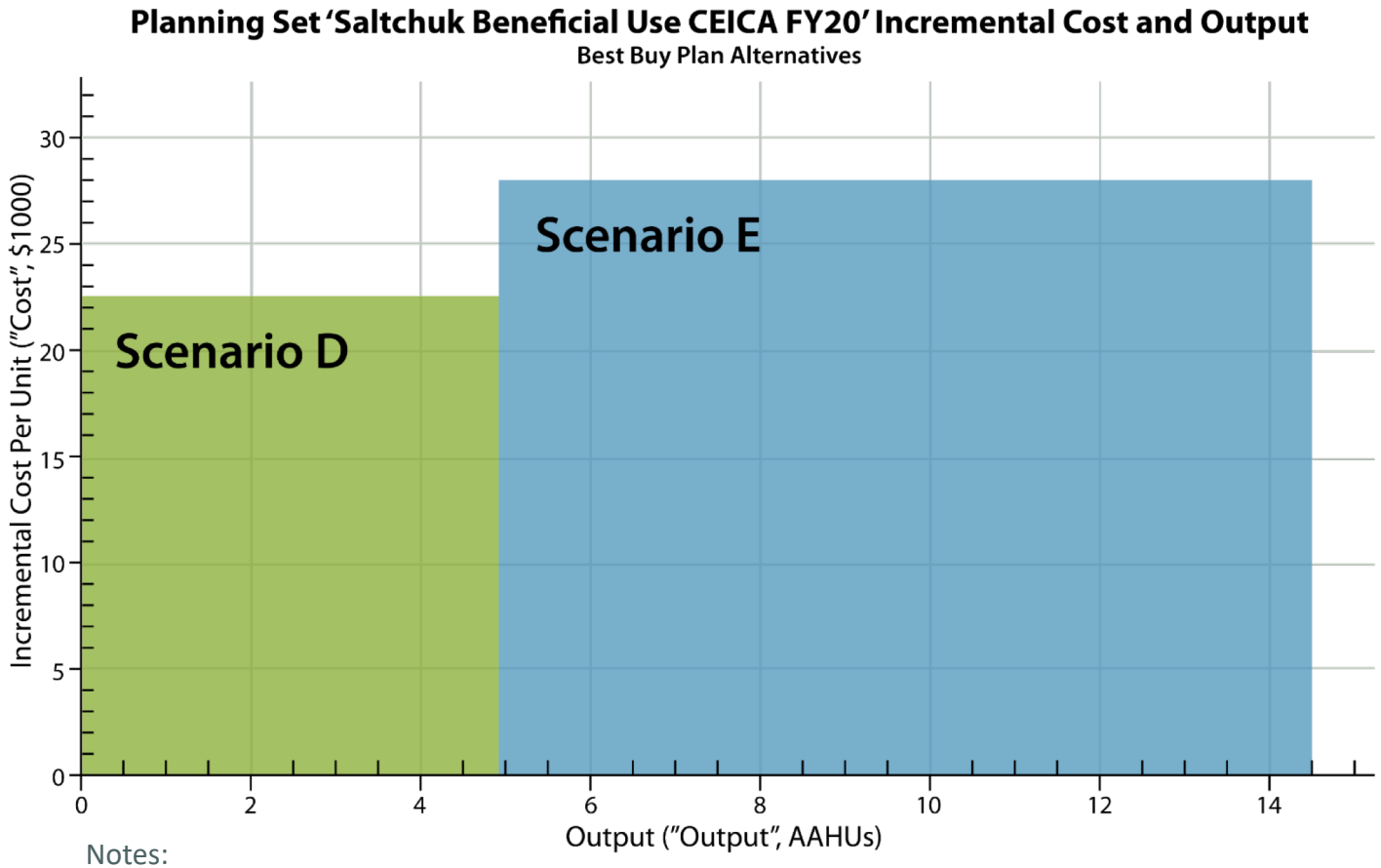
Notes:

AAEQ: Average Annual Equivalent

AAHU: Average Annual Habitat Units (also referred to as benefits or outputs)

Best Buy Alternatives

- Scenario D and E are best buy alternatives
- Scenario E triples the environmental output for less than twice the cost



Notes:

AAHU: Average Annual Habitat Units (also referred to as benefits or outputs)

CEICA: Cost Effectiveness and Incremental Cost Analysis

Beneficial Use Next Steps

- Additional investigation required for state Sediment Management Standards
- Full characterization of deepening sediment for design after authorization
- Port of Tacoma would take on Saltchuk operations and maintenance

Questions/Discussion