Whiteman Cove Project

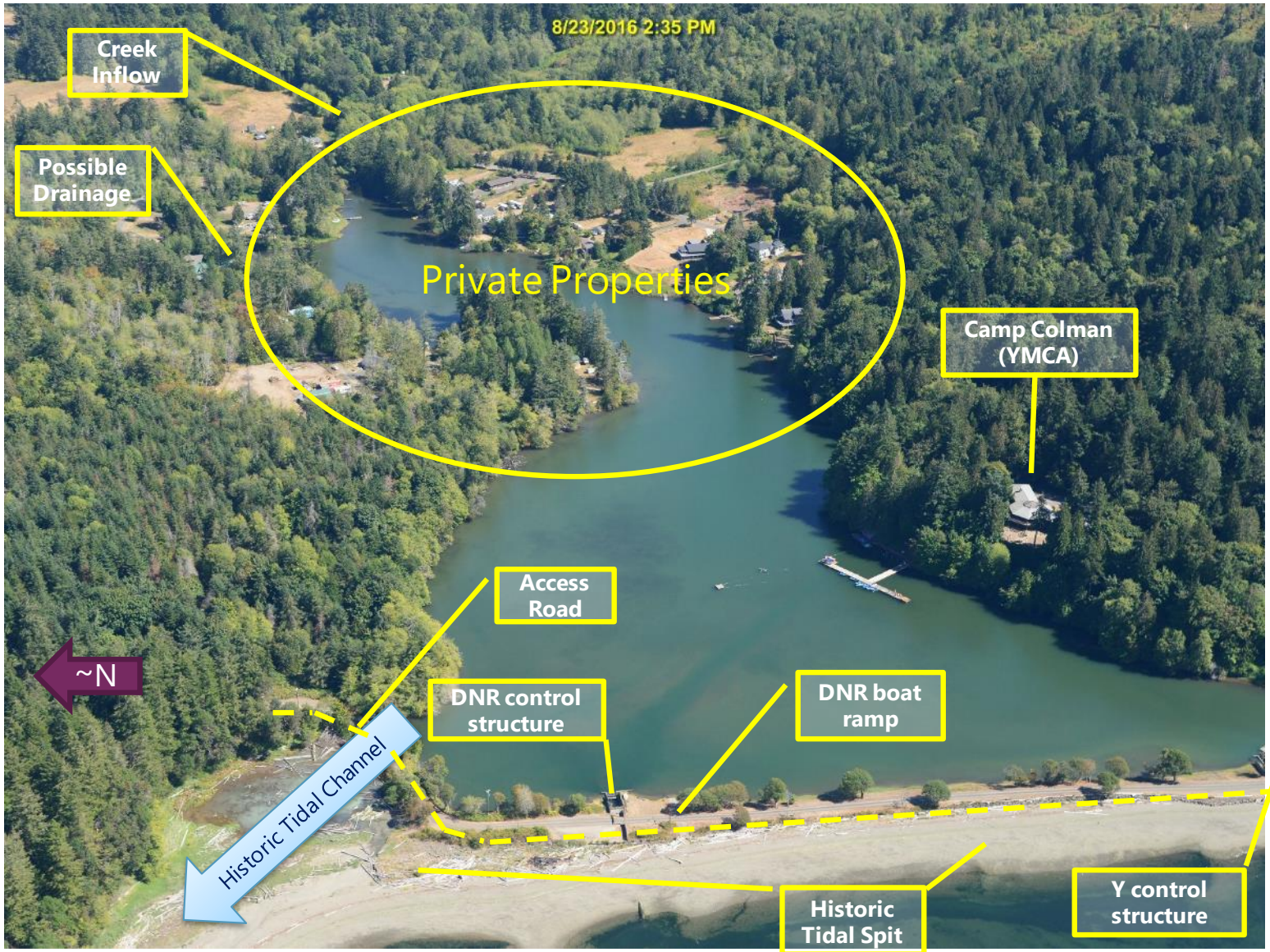
December 16, 2020
Open Meeting

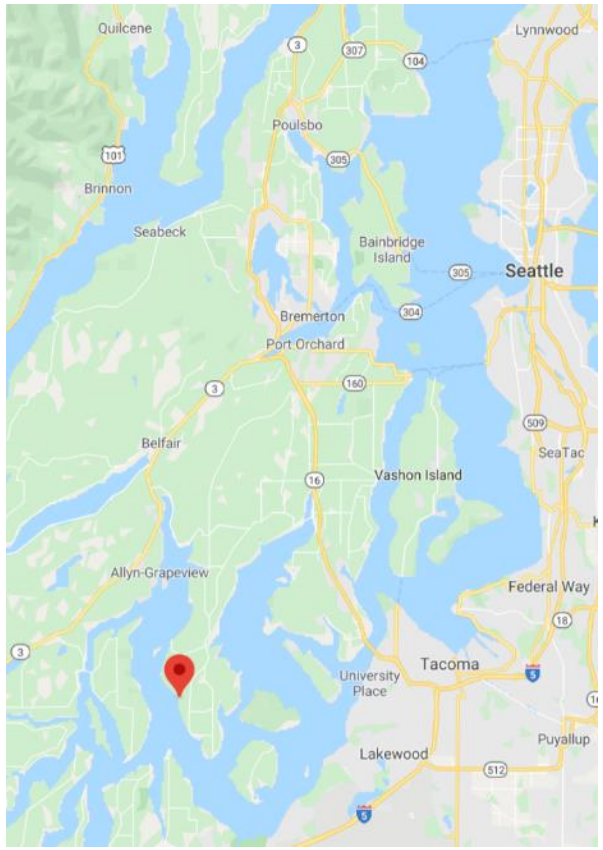
Meeting Agenda

- Introductions and Brief Project Overview (Alex Smith)
- Project Setting (John Small)
- Options Studied and Hydraulic Analysis (Kathy Ketteridge)
- Permitting and Cost Analysis, Summary of Evaluation (John Small)
- Comments/Questions (Alex Smith)
    - Alex Smith is Deputy Supervisor for Aquatic Resources at The Washington State Department of Natural Resources
    - Kathy Ketteridge is a Principal Engineer at Blue Coast Engineering
    - John Small is a Principal Scientist at Anchor QEA

Zoom Instructions

- All lines will be muted during our presentation
- We will answer questions from the chat (hover your mouse at the bottom Zoom window and click on chat to open the chat window)
- We will ask all participants to stay on mute while present and we will take verbal questions after we finish (about 7:00 PM)
  - please limit yourself to two minutes
  - You will have to unmute yourself to be heard
- You can change your view of the meeting with the icon in the upper right corner of the Zoom window


8/23/2016 2:35 PM
Creek Inflow
Possible Drainage
Private Properties
Camp Colman (YMCA)
Access Road
DNR control structure
DNR boat ramp
~N
Historic Tidal Channel
Historic Tidal Spit
Y control structure


Quilcene
Lynnwood
Poulsbo
Brinnon
Seabeck
Bainbridge Island
Seattle
Bremerton
Port Orchard
Belfair
Vashon Island
SeaTac
Allyn-Grapeview
Federal Way
Tacoma
University Place
Puyallup
Lakewood


BAY RD SW
50
50
50
Whiteman Cove
Case
Inlet
50
100
150
39TH ST SW
194TH AVE SW
WHITEMAN COVE RD SW
WHITEMAN RD SW
195TH AVE CT SW
Land Use (Generalized)
Residential
Commercial Aquaculture
Public (Washington State)
YMCA Camp Colman

Project Alternatives

Whiteman Cove Project

Option 1: Control Structure with Gate/Culvert

- Similar to the existing DNR control structure and same location
- Allow exchange at tide elevations above 13 feet MLLW (~25% of the time)
- Flow through one or two 4-foot culverts
- Sediment and wood input a challenge for maintaining function

Existing water level in cove around 13 feet MLLW

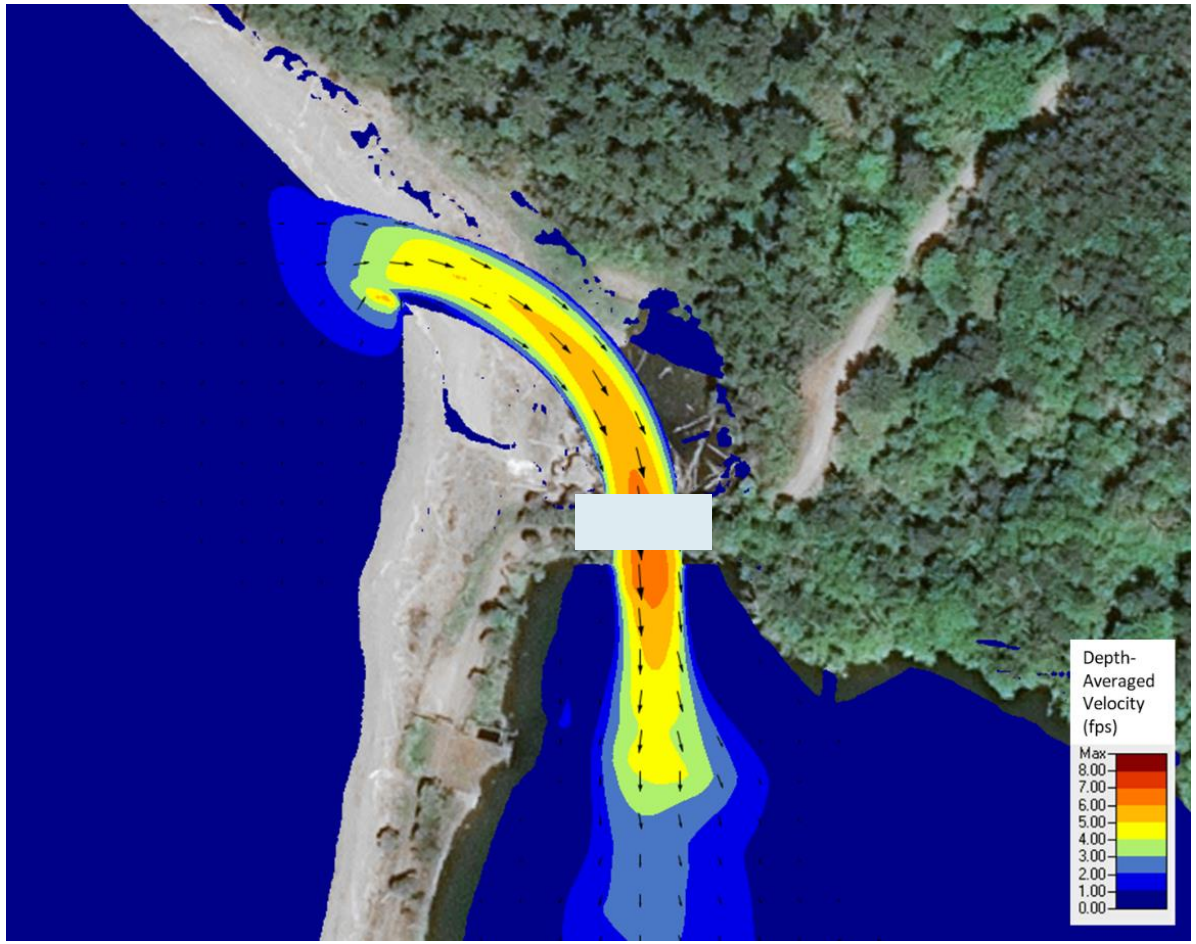
Option 2: Bridge with Weir, 40-Foot Single Span

- 40-foot opening with weir at historical cove opening
- Bridge over opening to provide access to the camp over the spit
- Concrete, rock, or other hard sill (weir) constructed under and along the bridge alignment, top elevation of 13 feet MLLW
- Allow exchange at tide elevations above 13 feet MLLW (~25% of the time)
- At tides lower than 13 feet MLLW, channel disconnected from the cove

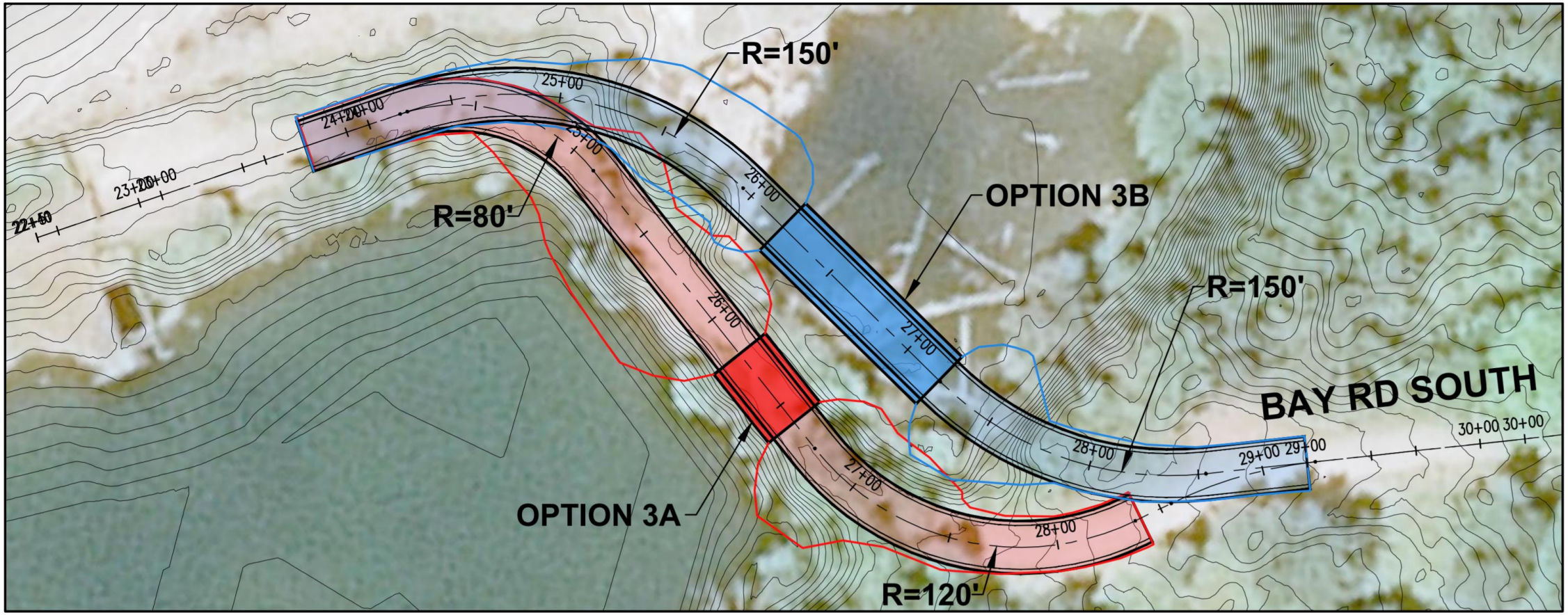
Keyport Lagoon, at right, is example of what Option 2 may look like at Whiteman Cove

Option 3: Open-Channel with Single Span Bridge

- Open channel constructed at historic opening
- Channel elevation set to historical elevations (based on existing information), +7 feet MLLW, with 80-foot width at mean higher high water (14.5 feet MLLW)
- Opening spanned with bridge to provide access to YMCA across spit
- Allow exchange at tide elevations above 7 feet MLLW (70 to 75% of the time)

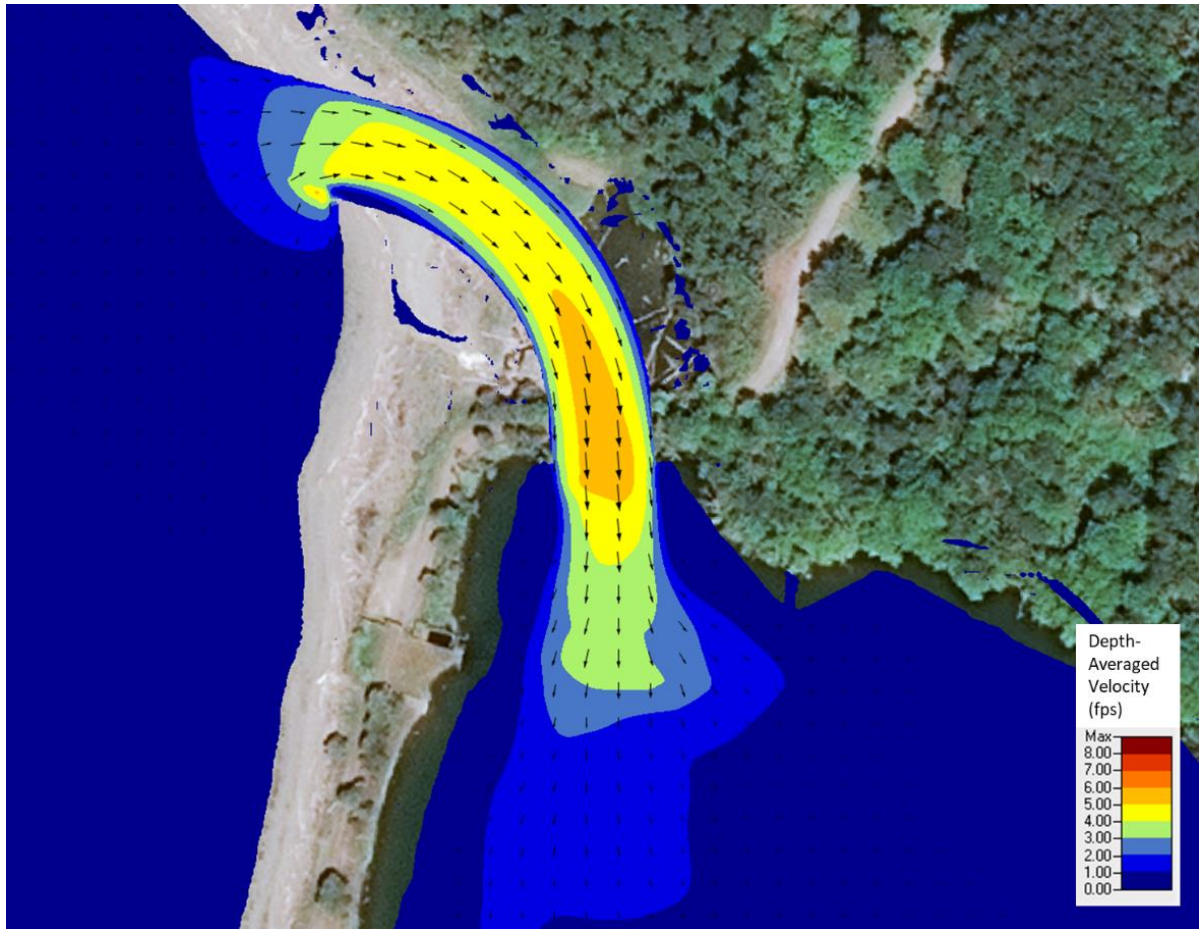


Options 3A (40-Foot Bridge) and 3B (100-Foot Bridge) Were Both Evaluated



Option 4: Open-Channel with No Bridge, Road from South

- Open channel constructed at historic opening
- Channel elevation set to historic elevation and width (based on existing information), +7 feet MLLW and 120 feet wide
- No bridge constructed, no access to YMCA across spit. Access provided from south/south-east.
- Allow exchange at tide elevations above 7 feet MLLW (70 to 75% of the time)
- Primary and smaller tidal channels free to move and become more complex over time via natural processes.
- Approximately 1 mile of new road constructed along existing County ROW to access YMCA



New Roadway Alternatives for Option 4

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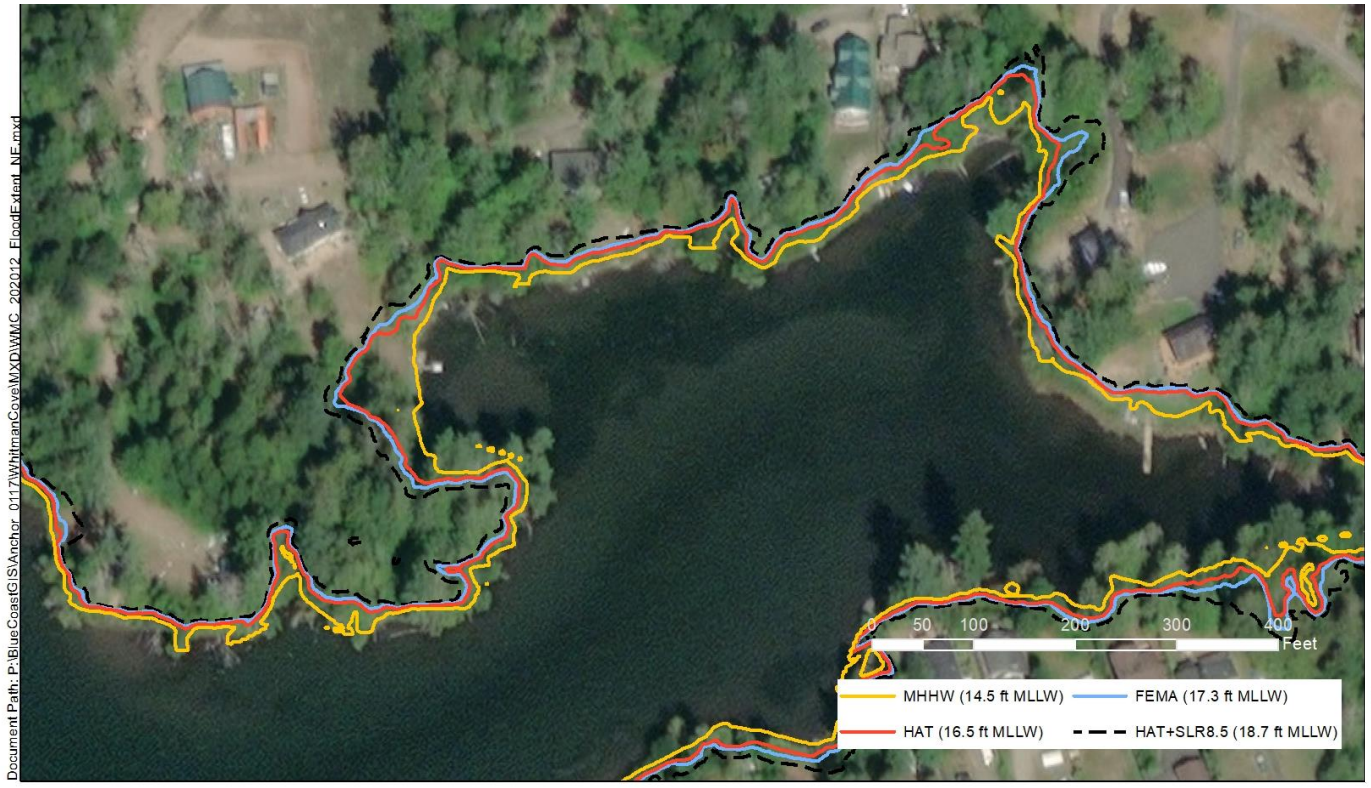
Tides and Water Levels

Whiteman Cove Project

Summary of Hydraulic Information for Options

	Option 1	Option 2	Option 3A	Option 3B	Option 4A/B
Channel "Thalweg" Elevation	+13 feet MLLW	+13 feet MLLW	+7 feet MLLW	+7 feet MLLW	+7 feet MLLW
Channel Width	N/A (culvert)	40 feet	40 feet	80 feet	120 feet
Percent of the time there is a tidal connection to Case Inlet	25%	25%	70% – 75%	70% – 75%	70% – 75%
Percent of the time average velocities are <= 2 feet/second	10 – 20%	25%	70%	70%	85%



High tide elevations* in the Cove

* based on LiDAR

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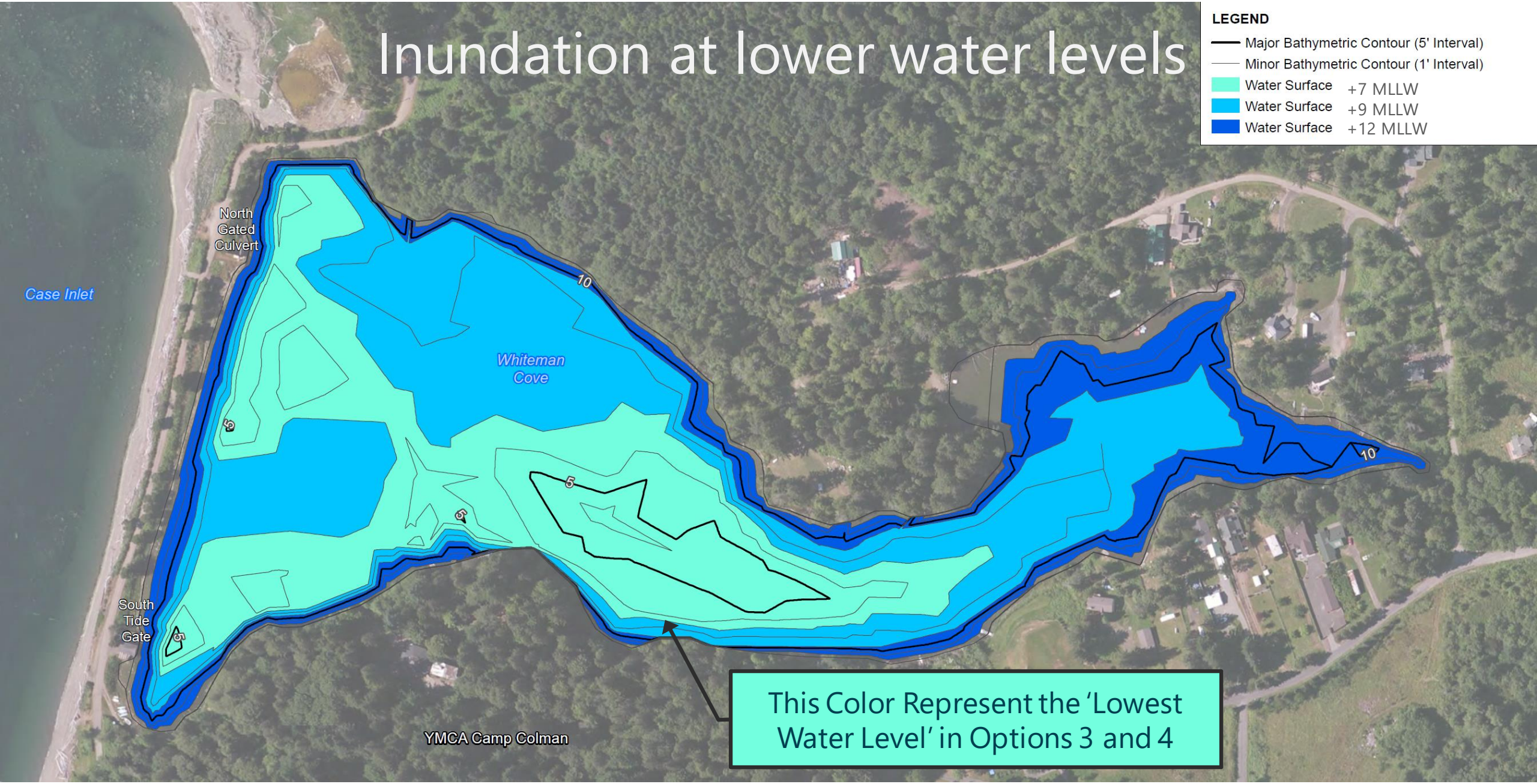
Inundation at lower water levels



Permitting Review

Whiteman Cove Project

Permitting Considerations per Option

Washington Administrative Code 220-660-190(2)(a):

"A person must design water crossing structures in fish-bearing streams to allow fish to move freely through them at all flows when fish are expected to move. All water crossings must retain upstream and downstream connection in order to maintain expected channel processes. These processes include the movement and distribution of wood and sediment and shifting channel patterns. Water crossings that are too small in relation to the stream can block or alter these processes, although some encroachment of the flood plain and channel migration zone will be approved when it can be shown that such encroachment has minimal impacts to fish life and habitat that supports fish life."

In the opinion of WDFW staff:

- Options 1, 2 and 3A: Do not appear to meet the Hydraulic Code
- Option 3B, 4A and 4B: Do appear to meet the Hydraulic Code

Requirements of The 2013 Federal Court Injunction

Whiteman Cove Project

Requirements of the Injunction

- The 2013 federal court injunction requires the state of Washington to remove state owned, man-made barriers to fish passage for "all species of salmon at all life stages at all flows where the fish would naturally seek passage" (United States v. Washington).
- Whiteman Cove was historically accessible at all tides above about 7-feet MLLW, and
- Whiteman Cove was likely used by juvenile Chinook, chum and pink salmon, Pacific herring, surf smelt, stickleback and other species.

Construction Cost

Whiteman Cove Project

Item	Option 1	Option 2	Option 3		Option 4	
			3A – 40ft.	3B – 100ft.	4A (South)	4B (East)
Construct Control Structure (Option 1 only)	$1,500,000	n/a	n/a	n/a	n/a	n/a
Excavate Channel and Place Material On Site	n/a	$180,000	$360,000	$360,000	$510,000	$510,000
Roadway Improvements	$550,000	$189,000	$138,000	$140,000	$3,700,000	$600,000
Bridge Superstructure and Foundations	n/a	$840,000	$840,000	$1,240,000	n/a	n/a
Rock Sill under Bridge	n/a	$340,000	n/a	n/a	n/a	n/a
Utility Relocation	n/a	$50,000	$50,000	$100,000	$200,000	$200,000
Planting	$10,000	$20,000	$20,000	$20,000	$40,000	$40,000
Subtotal	$2,060,000	$1,430,189	$1,408,000	$1,860,000	$4,450,000	$1,350,000
Mobilization (10%)	$206,000	$143,019	$140,800	$186,000	$445,000	$135,000
Subtotal + Mobilization	$2,266,000	$1,573,208	$1,548,800	$2,046,000	$4,895,000	$1,485,000
Contingency (30%)	$679,800	$471,962	$464,640	$613,800	$1,468,500	$445,500
Total	**$2,945,800**	**$2,045,170**	**$2,013,440**	**$2,659,800**	**$6,363,500**	**$1,930,500**

Summary of Evaluation

Whiteman Cove Project

Criteria	Option 1	Option 2	Option 3A	Option 3B	Option 4A	Option 4B
Water Levels • Recreation • Aesthetics • Habitat • Water Quality • Shellfish Impacts	Relatively Minor Changes		Significant Changes including 1. Higher water during king tides and other extreme events 2. Lower water levels most of the time 3. At minimum level 30% of the time 4. Water commonly below existing docks 5. Increased habitat quality and complexity 6. Improved water quality 7. Potential short-term impacts to aquaculture			
Permitting Feasibility	Very Low	Very Low	Low	Moderate	High	High
Meets Injunction	No	No	No	Yes	Yes	Yes
Capital Cost (Million)	$2.9m	$2.0m	$2.0m	$2.7m	$6.4m	$1.9m
Maintenance Cost	Very High	Moderate	Moderate	Moderate	Low	Low

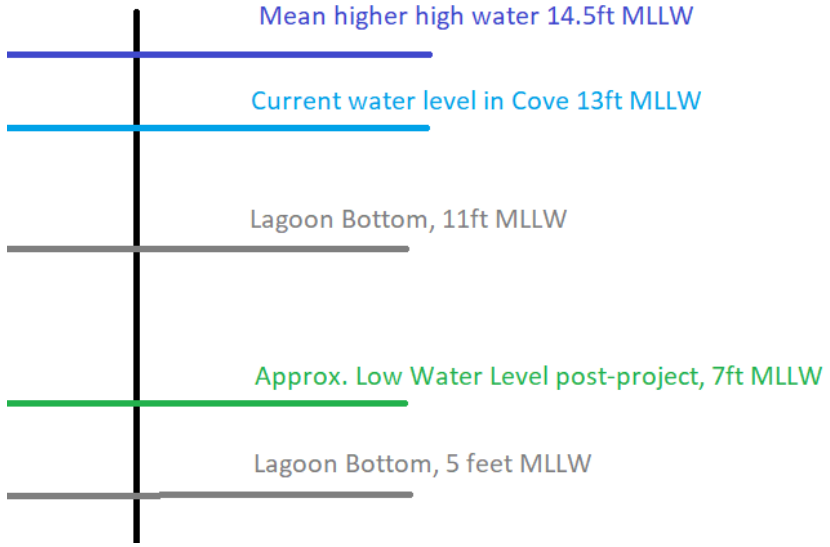
Comments/ Questions

Permitting Approach

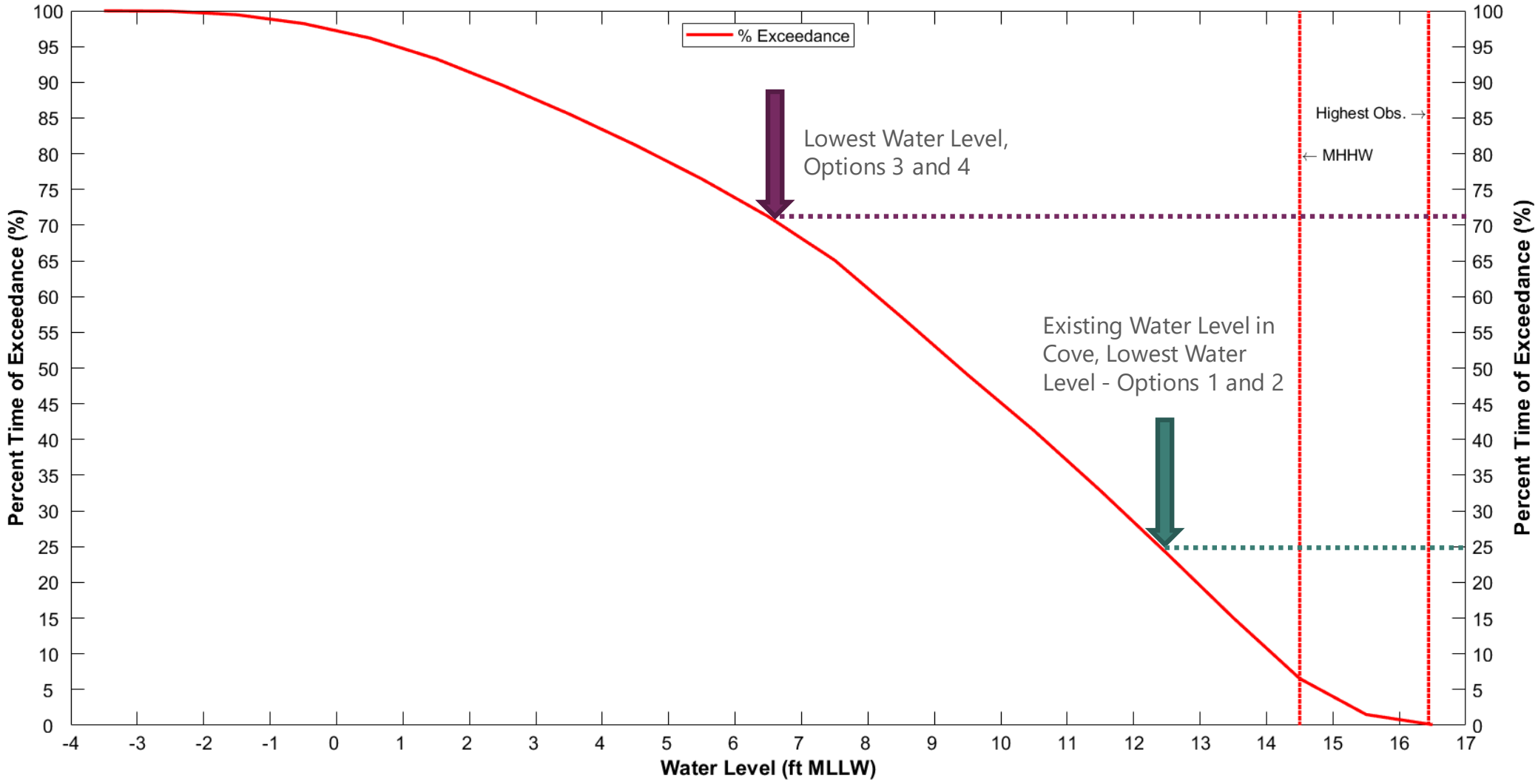
- Preliminary agency meeting in April 2020
- Permits and approvals that may apply for fish passage and/or habitat restoration approach:
  - Corps NWP 27 for Habitat Restoration
  - ESA fish passage restoration programmatic
  - Section 106 concurrence
  - WDFW fish habitat enhancement HPA
  - WDNR SEPA
  - County SSDP, Critical Areas Ordinance compliance
  - Other County permits for structural/ROW work

Important Water Surface Elevations

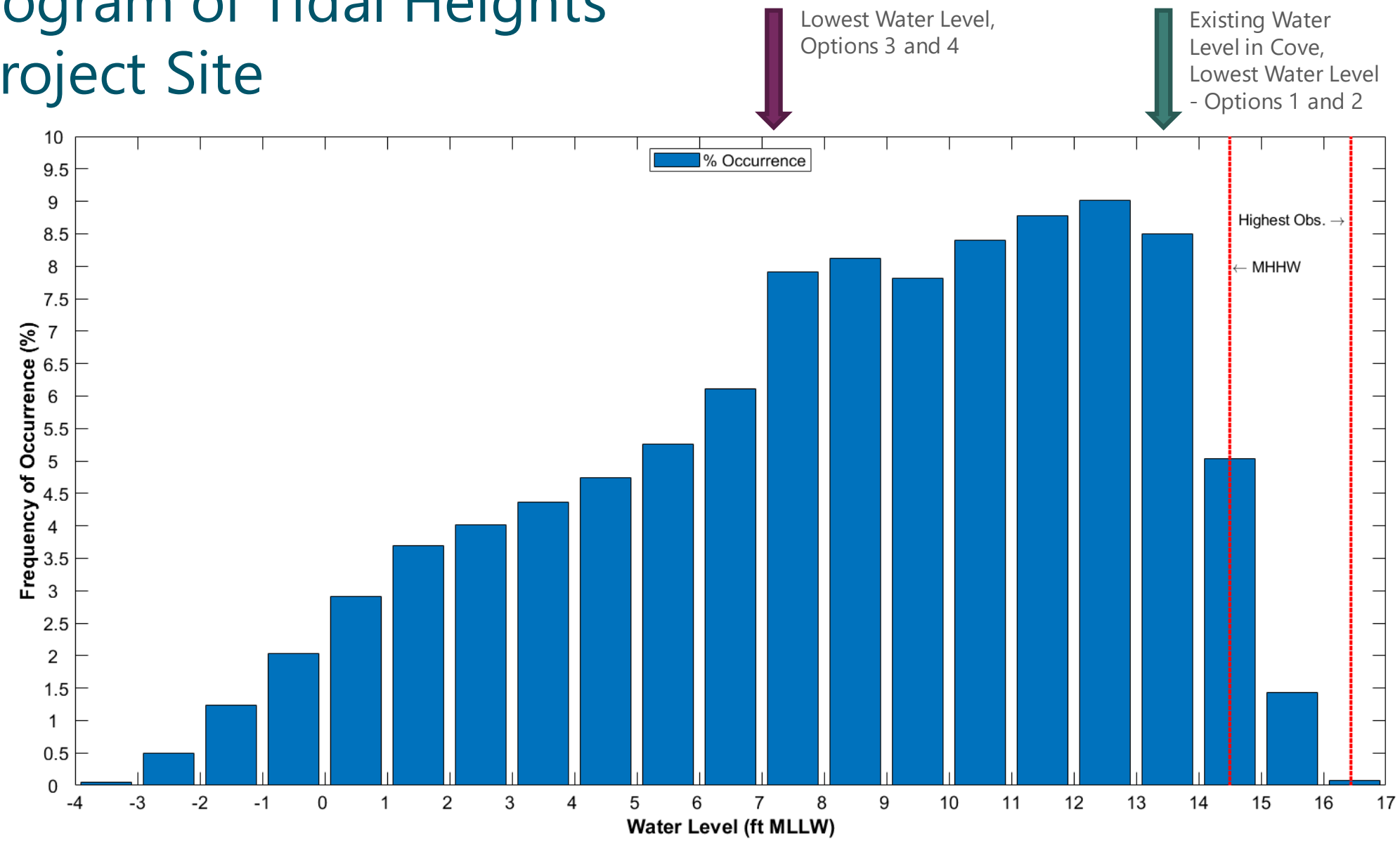
- Current water level in the Cove is about 13 feet MLLW
- Bottom of cove generally ranges from 5 to 11 feet MLLW
- Mean higher high water in Case Inlet is 14.5 feet MLLW
- Mean sea level in Case Inlet is about 8 feet MLLW



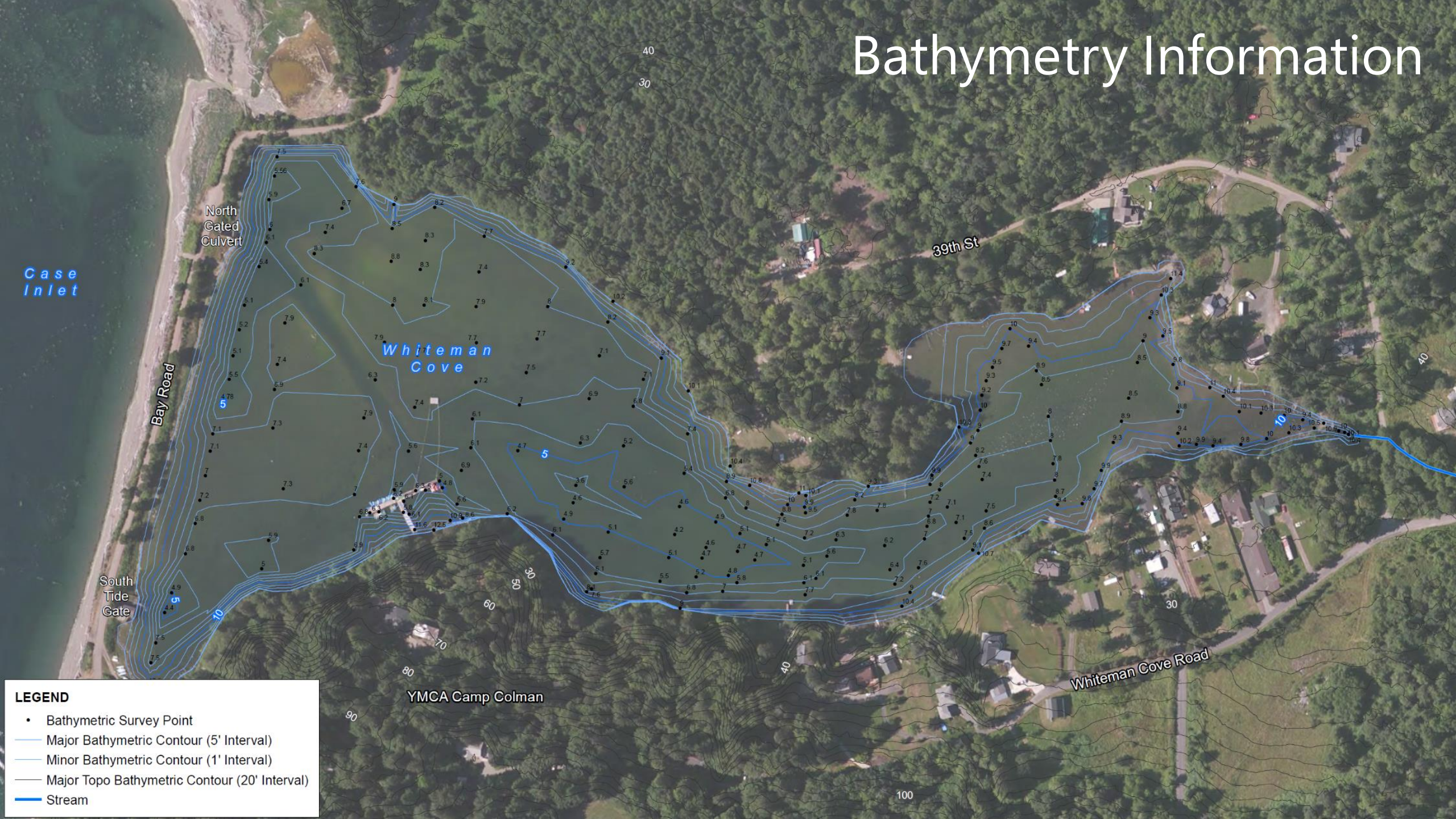
Probability of Exceedance, Tidal Heights at Project Site



Histogram of Tidal Heights at Project Site



Bathymetry Information



Historic Conditions (T-sheet, 1878, H-sheet, 1935)

Historic Conditions, 1951