Mason County Hearing Examiner

Taylor Shellfish Oakland Bay Floating Culture

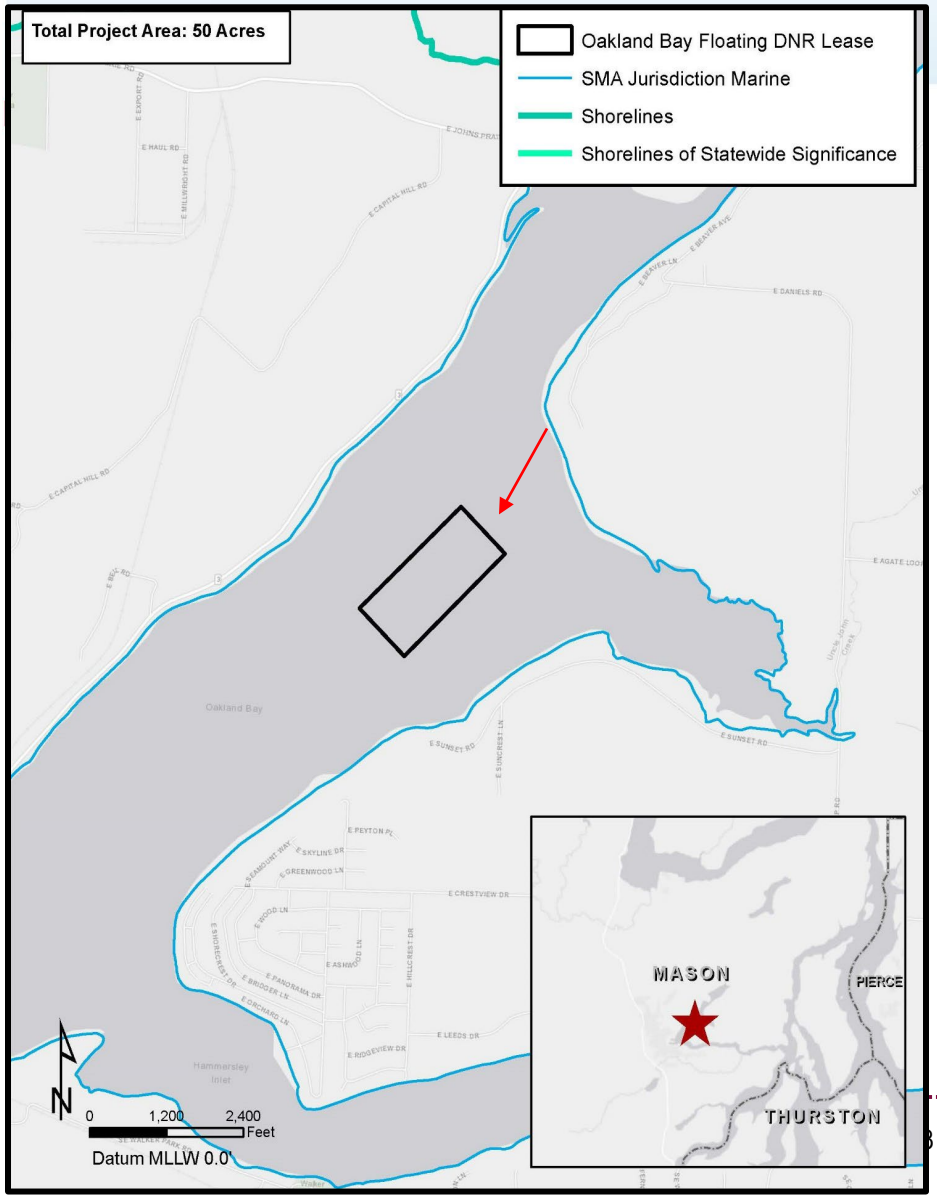
August 9, 2023

Presentation Overview

The presentation will cover the following:

- Proposed project location
- Existing site conditions
- Potential impacts and benefits of the proposed project
- Summary

Project Location



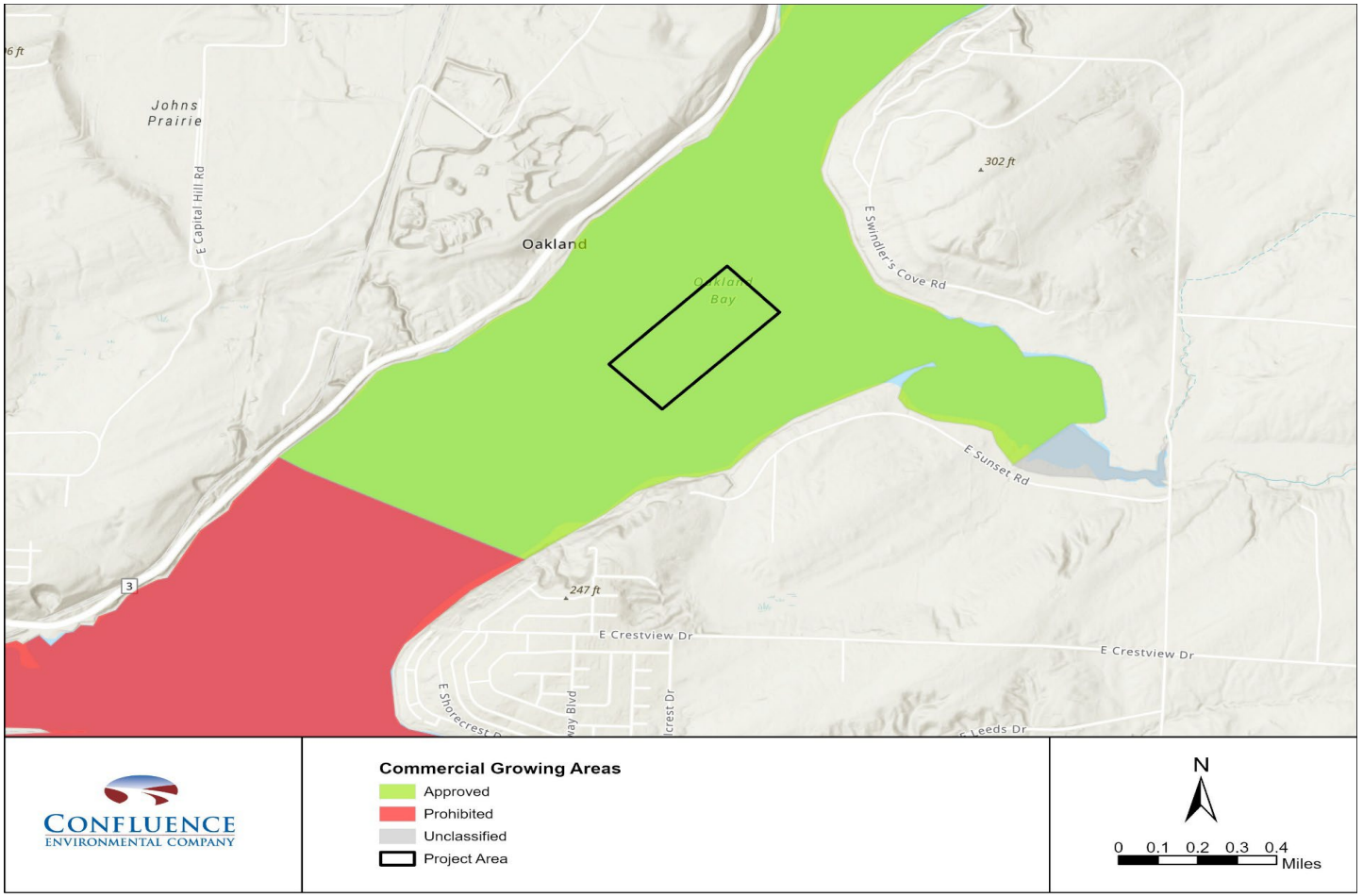
- Location = Oakland Bay, Mason County
  - Shallow estuary
  - 4 miles long and 0.75 miles wide
  - Water depths averaging 10-35 feet
- Culture area = 9.1 acres of floating culture within 50-acre lease
- Culture elevation = floating
- Bathymetry within culture area = -5 feet to -10 feet MLLW

CONFLUENCE ENVIRONMENTAL COMPANY

Existing Site Conditions

- Project area is primarily open water muddy substrate
- No eelgrass present
- No macroalgae present
- Shorelines adjacent to project vicinity include areas of salt marsh, low marsh, and dunegrass (> 1,300’ from project area)
- Adjacent upland includes vegetation and residential dwellings

Existing Site Conditions



Existing Site Conditions

Documented Pacific sand lance spawning habitat in orange.
Documented surf smelt spawning area in green.
Documented Pacific herring pre-spawning holding area in blue.

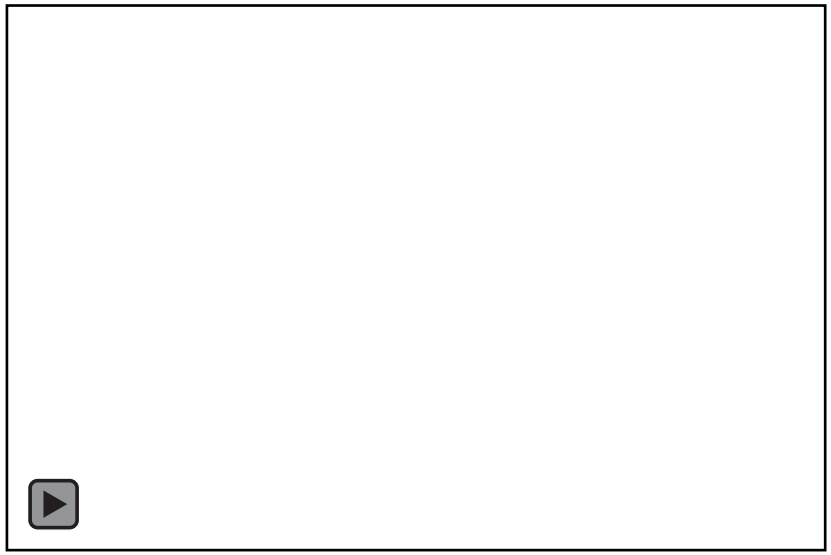
- Surf smelt and sand lance spawning habitat located in the upper intertidal away from the project area
- Documented Pacific herring pre-spawning area approximately 6.6 miles away

Potential Impacts and Benefits:
Presence of Gear

- Physical Effects:
  - Project adds approximately 0.3% of culture to the subtidal zone in Oakland Bay
  - Minor effects on circulation in Oakland Bay (i.e., reduced velocity)
  - No effects to substrate or benthic habitat beyond anchor installation
  - Anchors occupy approximately 0.02 acre of benthic habitat
- Species Effects:
  - Creates new overwater coverage that moves with the tides
  - May attract certain species (e.g., surfperch, forage fish)
  - No indication of difference in use by juvenile salmonids
- Visual Effects:
  - Farm visibility is low due to low profile of gear on the water
  - Located more than 1,000 feet away from public beaches

Potential Impacts and Benefits:

Water Quality/Clarity and Bioextraction

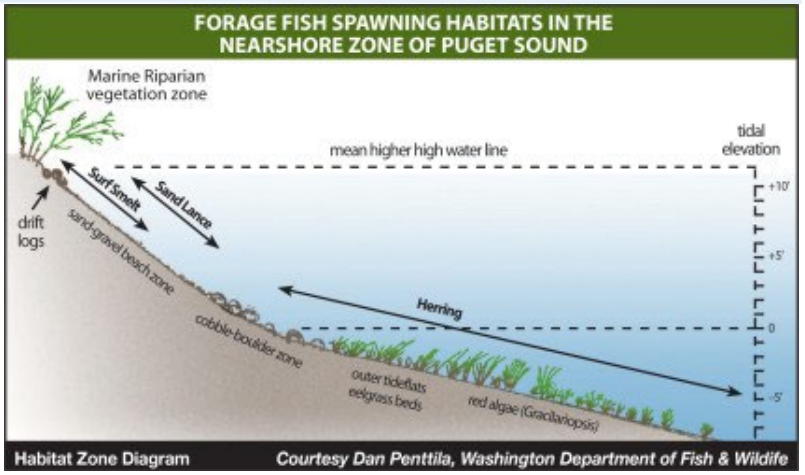


- During the Grow-Out Phase:
  - Presence of shellfish can improve water quality by removing anthropogenic nutrient contributions through filtration
  - Shellfish feeding can modulate phytoplankton blooms and associated nutrient cycling
  - Biodeposition can be extremely important in regulating water column processes

- Bioextraction:
  - Oyster harvest removes large amounts of nitrogen from culture areas
  - The harvest of an oyster farm can offset the nitrogen pollution of 100's of coastal residents (a coastal resident inputs about 8.4 pounds of N per person per year)
  - Shellfish harvesting is one of the only methods available that removes nitrogen after it has entered a system, increasing system resiliency to nutrient loading

Potential Impacts and Benefits:
Forage Fish Spawning

- No Effect:
  - Farm activities occur outside of documented and potential spawning areas
  - Sand Lance Spawning = +5 feet MLLW to mean higher high water
  - Surf Smelt Spawning = +7 feet MLLW to extreme high water



- Conservation measures protect forage fish spawning:
  - Consistent with shellfish culture conservation measures identified in the Programmatic Biological Opinion, NMFS (2015) and Programmatic Biological Opinion for Shellfish Activities in Washington State Marine Waters, USFWS (2016)
  - Avoidance of potential effects, where possible, is the first priority
  - No effect from project on forage fish habitat.

Potential Impacts and Benefits:
Fish and Wildlife Habitat

- Fish Habitat:
  - Sited away from the shoreline and outside of migration channels
  - Impacts to migratory fish are associated with structures that extend out from upland into intertidal areas – such as docks and piers (Ward et al. 1994; Burdick and Short 1999) and not floating culture
  - Floating culture can include higher densities of crab, and crab larvae is an important food source for juvenile salmonids
- Bird Habitat:
  - Impacts to foraging seabirds avoided due to the location (i.e., subtidal)
  - Disturbance from noise would be temporary and minimal because of the long distances from nesting or foraging locations

Potential Impacts and Benefits:
Marine Mammals

- Potential Presence is Low:
  - No occurrence of most whale species – the project area is too restricted
  - Highly unlikely occurrence of humpback, gray, Southern Resident Killer Whale
  - Uncommon occurrence of transient Killer Whale
  - More common species include harbor seals, sea lions, porpoises (harbor and Dall's)
- Potential Use of the Culture Area:
  - Most cetaceans will navigate through the project area and avoid floating culture
  - Forage opportunities exist for smaller species such as harbor seals, otters, and sea lions

Potential Impacts and Benefits:
Marine Mammals

- Existing Risk is with Fishing Gear and Crab Pots:
  - Majority of entanglements occur with fishing gear (gill nets), and loose lines
  - Entanglement with lines associated with commercial crab pots has also been observed along the West Coast
- Aquaculture Gear Entanglement Potential:
  - Extremely limited occurrence of entanglement with aquaculture gear
  - No known instances of entanglement with aquaculture gear on West Coast
  - Worldwide since 1982, only 19 occurrences of entanglement with aquaculture gear (Price et. al 2016)
  - Those entanglements occurred with offshore mussel culture using long free floating catch lines
- Why Floating Oyster Culture is Not a Risk:
  - Entanglement require loose line to wrap around individual
  - Floating oyster array has no loose line
  - Moorage lines and float lines are constantly under tension
  - Maintenance of lines and moorage system occurs continuously

Summary

- Proposed floating culture avoids sensitive habitats and species (e.g., eelgrass, forage fish, kelp).
- Proposed farm is not projected to affect the viability, persistence, or distribution of regulated species potentially present at the project site.
- Proposed farm is employing BMPs and conservation measures to avoid and minimize any potential impacts to species and habitats.
- Proposed farm is sited to avoid interactions and will be well maintained to avoid impacts to fish and wildlife habitat or marine mammals.
- Proposed farm would contribute to improved water quality via filtration and removal of excess nutrients.
- Effects of proposed activities have been found to be localized and limited, and consistently similar or less than the natural disturbance regime.

Questions