

# ARTIFICIAL HABITATS IN WASHINGTON STATE

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**FISH AND**  
**WILDLIFE**

# Artificial Habitats in Puget Sound

- ▣ AHs placed in Puget Sound since 1930s
- ▣ Most legal structures placed in 1970s and 1980s to enhance recreational bottomfishing opportunities
  - Rockfish, lingcod, cabezon, perch
  - Interagency partnership (WDF and WDNR)
  - No clear fishery management policy or goals!
- ▣ Benefits to local economy
  - fishing and dive gear sales
  - boats, motors, fuel sales
  - vessel charters

**No AH in WA coastal water!**



# Artificial Habitats in Puget Sound

- ▣ Detailed history of most structures is lacking
  - State agency documentation lost or never kept
  - Available documents mostly WDNR lease records
- ▣ Level of coordination and planning varied by project
- ▣ Only special projects since 1990s
  - Augmentation of existing habitats
  - Saltwater State Park (new)
  - Toliva Shoal juvenile habitat (added to adult habitat)
- ▣ 40 known legal structures (maybe more)
  - Most within central and south PS basins – none in San Juan Islands or Strait of Juan de Fuca
  - 26 tire modules/bundles
  - 14 mixed construction (concrete, boulder, tires, vessels)
- ▣ Unknown number of clandestine structures

# Artificial Habitats in Puget Sound

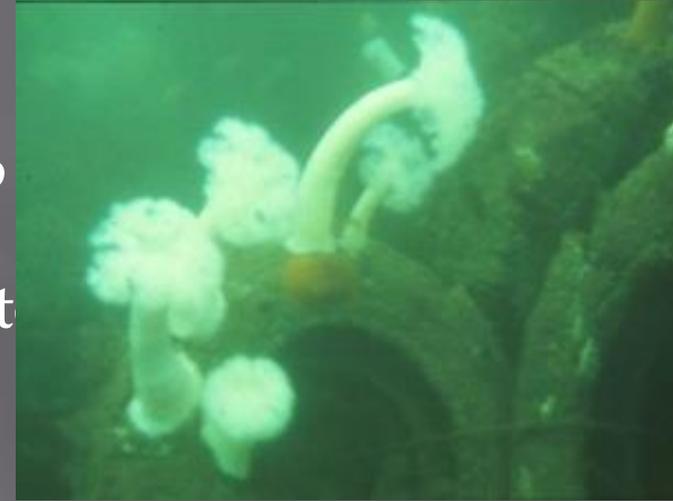
- ▣ Legal
  - Intentionally built or sunk to promote fishing and viewing opportunities
  - RCW 77.177.050 allows WDFW to use AHs to promote bottomfish recovery
  - WAC 220-660-420 regulates design and construction of Artificial aquatic habitat structures
- ▣ Clandestine
  - intentionally built or sunk as private fishing “holes”
- ▣ Unintentionally sunk vessels
- ▣ Other materials
  - Sewer pipes capped with cobble = juvenile rockfish habitat
  - Anchor blocks, sunken logs/rafts, etc.

# Puget Sound's First MPA: Edmonds Underwater Park at Brackett's Landing

- ▣ 1935 - 325' DeLion drydock sunk in front of Edmonds ferry dock as current buffer
- ▣ Additional materials placed over the past 70 years to create dedicated underwater park (no fishing area)
  - Vessels up to 70 feet (about 2/year, to replace loss due to decay)
  - Concrete rubble and sewer vaults, gravel and boulder piles
  - Chains, propellers, PVC structures
  - Diver trails (ropes and milk crates)
  - 500' section of original 520 bridge added in 2008
- ▣ 27-acre footprint
- ▣ 25,000 scuba diver visits per year
- ▣ High densities of rockfish and lingcod in the mid-1990s but declining densities since then

# Artificial Habitats in Puget Sound

- ▣ Several studies conducted on WDF/WDNR AHs shortly after construction
- ▣ Juvenile and adult bottomfish took up residence within first year
- ▣ Tire habitats found to be poor substrata for invertebrate growth –
  - leach toxins
  - most have few fish
- ▣ Concrete/boulder habitats provide greater complexity
  - chemically inert
  - generally have more fish
- ▣ Vessels/drydocks
  - Wood structures decay rapidly (3-20 yrs)
  - Steel structures longer-lived (50 -100 yrs)



# Concerns and Potential Impacts

- ▣ Replaces one habitat with another
- ▣ Displaces/relocates fish
  - Resident fish lose “footprint” space
  - Attracts fish from natural habitats
- ▣ Aggregates structure-oriented bottomfish
  - May increase risk to sensitive and ESA-listed species via predation and fishing
- ▣ Some AHs placed in salmon migration corridors
  - Potential predation risk to ESA-listed salmonids
- ▣ Changes migration/movement patterns
  - Creates sink populations?
- ▣ Alters population dynamics/genetics
- ▣ Changes local community structure
- ▣ Physical alterations
  - Modifies bathymetry, substrate, and current patterns
  - Many tire structures have disintegrated and become dispersed over a much wider area

# Artificial Habitats in Puget Sound

- ▣ No evidence that habitat is limiting for Puget Sound bottomfish
- ▣ No evidence that AHs contribute appreciably to PS bottomfish populations
- ▣ No funds for new construction or monitoring
- ▣ New AHs will likely be permitted only to augment existing structures
- ▣ New AHs will be designated no-fishing areas (presumptive MPAs)

# Artificial Habitats in Puget Sound

- ▣ Strong support for new AHs by PS dive community, especially vessels
- ▣ Must demonstrate need for enhancement or recovery of species/groups
- ▣ 5-year pre- and post-monitoring plans required
- ▣ Multiple permits required
  - DNR, DFW, ACE, NOAA
- ▣ Expensive!

