Prevent, Detect, and Respond to Natural, Accidental, or Intentional Aquatic Contamination

National Laboratory Contributions

- State-of-the-art instrumentation and equipment
- Preventative rad/nuc detection
- Puget Sound 3-D fate and transport model
- West coast's testing and treatment facility for ballast water
- Municipal water system vulnerability assessments
- Risk modeling for Washington State ferry system

Collaborations

- Government agencies (e.g., US Coast Guard, US Navy, Defense Intelligence Agency, US Army Corps of Engineers)
- Local and Regional Agencies (e.g., EPA Region X; NOAA Hazardous Response, Seattle)
- Washington State (e.g., King County Department of Natural Resources)
- Universities (e.g., Oregon State, Portland State, University of Alaska, University of Washington)

Capabilities

PREVENT/PLAN

- Risk assessment
- Modeling, mapping, and event simulation

DETECT/ASSESS

- Change detection systems (rad/nuc, native organism and natural systems)
- Remote sensing
- Analysis of hyperspectral imagery

RESPOND/RECOVER/INVESTIGATE

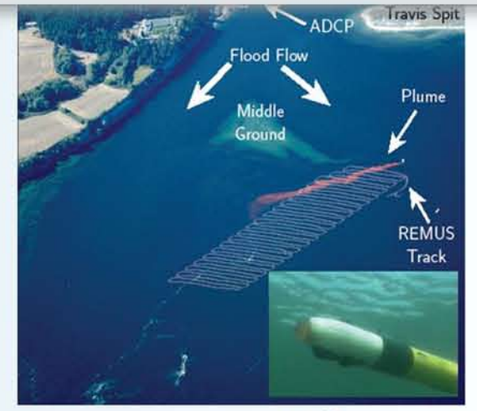
- Fate/transport modeling and mapping
- Response and recovery tools
- Biota impact assessment
- Forensics – signatures, intelligence analysis

SCIENTIFIC EXPERTISE AND EXPERIENCE

- Aquatic food chain implications
- Economic implications
- Salt and fresh water chemistry expertise
- Ecotoxicology expertise
- Rad/nuc expertise

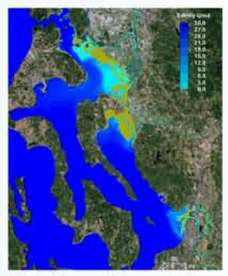
FACILITIES

- Sequim Marine Research Operations
- Coastal Security Institute
- Wet labs (salt and fresh)
- Research vessels



Hydrodynamic Model Grid for Puget Sound Used by PNNL - Puget Sound Model. The inset shows detail for the Skagit Basin.

Circulation Patterns in Puget Sound



Salinity and Inundation in Whidbey Basin

saltwater • maritime • coastal • freshwater • inland • drinking water • wastewater

For more information, contact:
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Science-Based Solutions for Homeland Security