

Cleaning Up Puget Sound

The Big and Not So Small Picture

***Washington State Department of Ecology
Toxics Cleanup Program (February 2010)***

Jim Pendowski -- Program Manager



Puget Sound

Saving the Sound

Reaching the goal of a healthy,
sustainable Puget Sound
now and forever.

Climate Change

in Washington

State...

*meeting the challenge
and seizing opportunities*



Reducing Toxic Threats

Managing Our Water Successfully



Mitigation that works



*Sustaining our resources,
our communities &
our economy*



Program Goals and Mission

Preamble to the Model Toxics Control Act (MTCA)

“Each person has a fundamental and inalienable right to a healthful environment, and each person has a responsibility to preserve and enhance that right. The beneficial stewardship of the land, air, and waters of the state is a solemn obligation of the present generation for the benefit of future generations.”

The goals and mission of the Toxics Cleanup Program is to **get contaminants from the environment and keep them out.**





Toxics Cleanup Program

What does the Cleanup Program do?

We clean up contaminated sites around the state.

Most contamination comes from:

- Leaking underground storage tanks
- Past industrial practices
- Accidental spills (related to industrial practices)

Both State and Federal governments have a program to clean up sites:

- MTCA is the state cleanup law (Model Toxics Control Act).
- Superfund is the federal cleanup law.

Why do we clean up sites?

Contamination can pose a risk to public health and the environment.

People can become exposed to contamination through:

- Ingestion
- Inhalation
- Skin contact

Contamination can affect drinking water sources and the food we eat. It can expose people to chemicals in the water they drink and use at home.

Cleanup Authorities

Cleanups in Washington are conducted under two main authorities:

State: Model Toxics Control Act (MTCA)

Chapter 70.105D RCW

Federal: Comprehensive Environmental Response, Compensation, Liability Act (CERCLA)

These two Laws are based on common principles and share many common features.

Key Distinctions

MTCA:

Department of Ecology

- Hazardous Substances
(includes petroleum)
- Most cleanups done voluntarily or through a legally binding order or decree.
- Many big and small sites
- Cleanup actions must comply with:
 - All applicable laws and regulations
 - Maximum cancer risk =
1 in 100,000

CERCLA:

Environmental Protection Agency

- Hazardous substances
(excludes petroleum)
- Formal agency oversight of cleanups with legally binding agreements.
- Limited number of big sites
- Cleanup actions must comply with:
 - All applicable laws and regulations
 - Maximum cancer risk =
1 in 10,000

Key MTCA Principals

- **Polluter pays**
- **Permanent remedies**
- **Public participation**



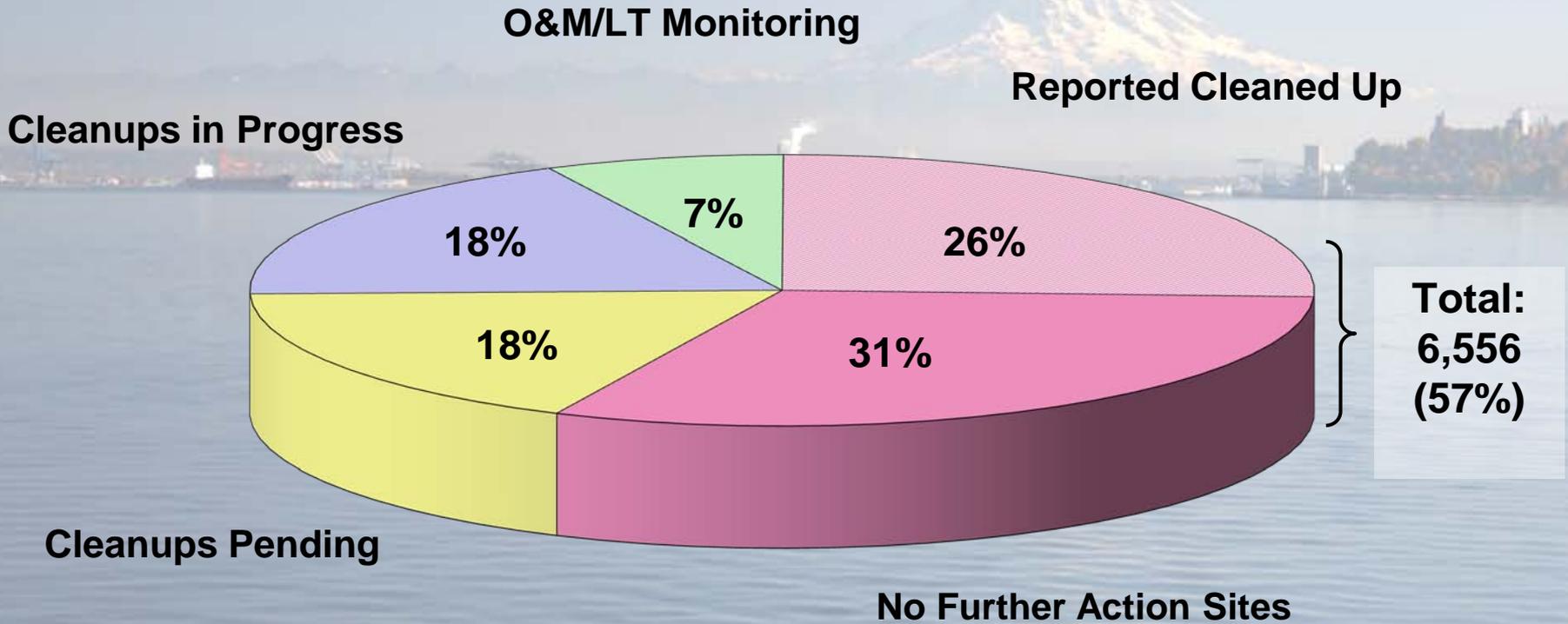
**Thea Foss Waterway:
Industrial activities until the '70s and '80s.**



- **Protection of Human
Health and the Environment**
- **Bias towards action**
- **Innovation**

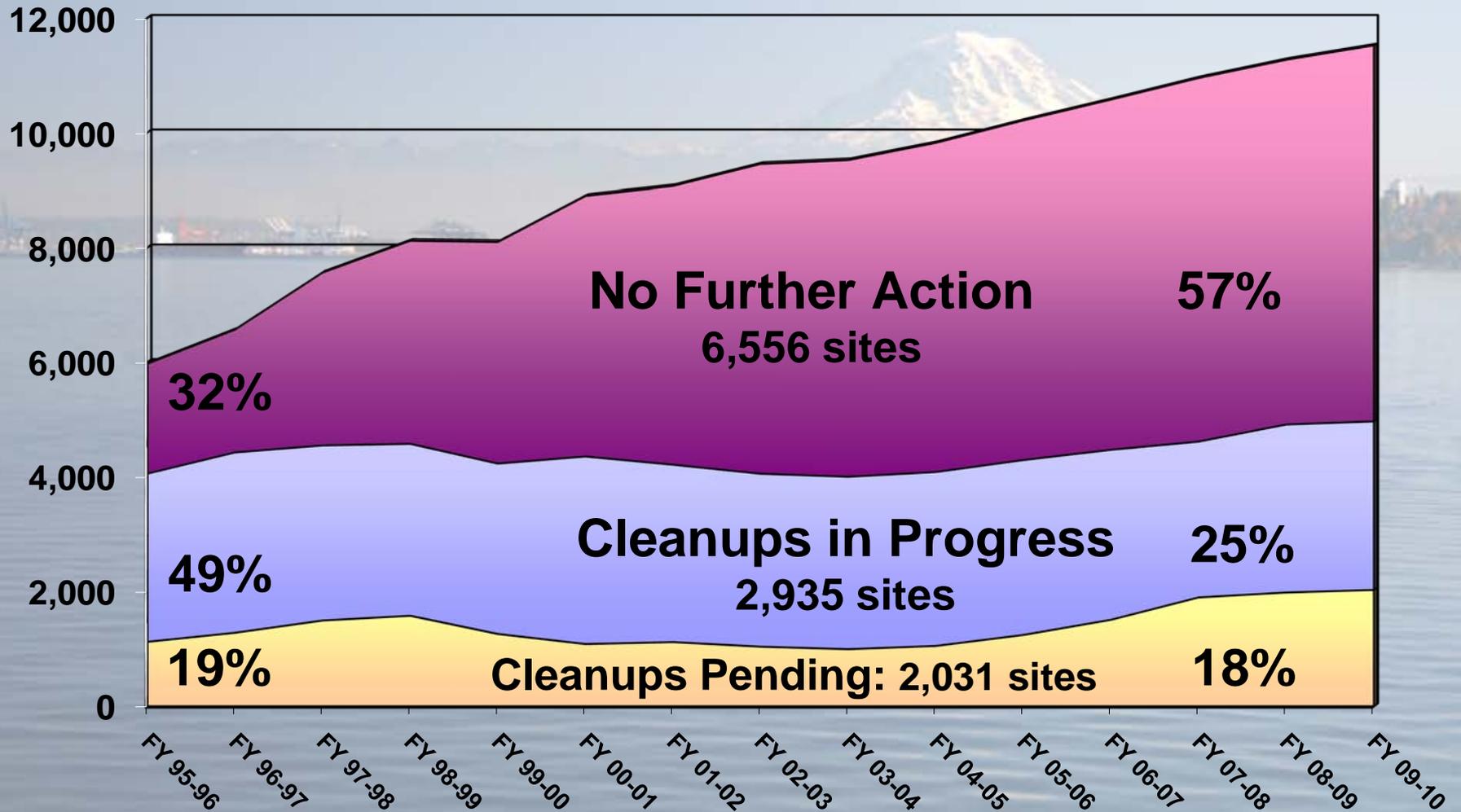
Contaminated Sites in Washington

Total Sites: 11,521

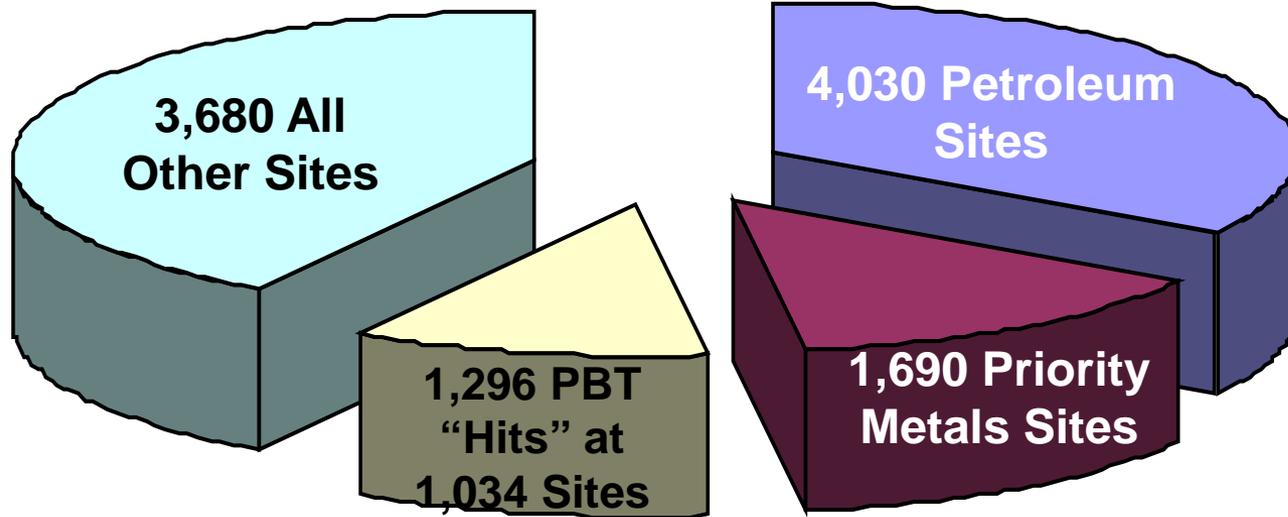


Contaminated Sites in Washington

Total sites: 11,521



Contaminants in Washington



- Petroleum Contaminants
- Metals, including those in the PBT Rule
- PBTs (includes PAHs, Pesticides, PCBs, Dioxins)
- All other Contaminates

Petroleum, 4,030

Halogenated Organic Compounds, 987

Non-Halogenated Solvents, 958

PCBs, 483

Conventional Contaminants, Organic, 289

Phenolic Compounds, 213

Corrosive Wastes, 125

Dioxins, 54

Asbestos, 42

MTBE, 19

Priority Metals, 1,690

Other Metals, 448

PAHs, 569

Pesticides, 297

Conventional Contaminants, Inorganic, 225

Base Neutral Organics, 196

Arsenic, 112

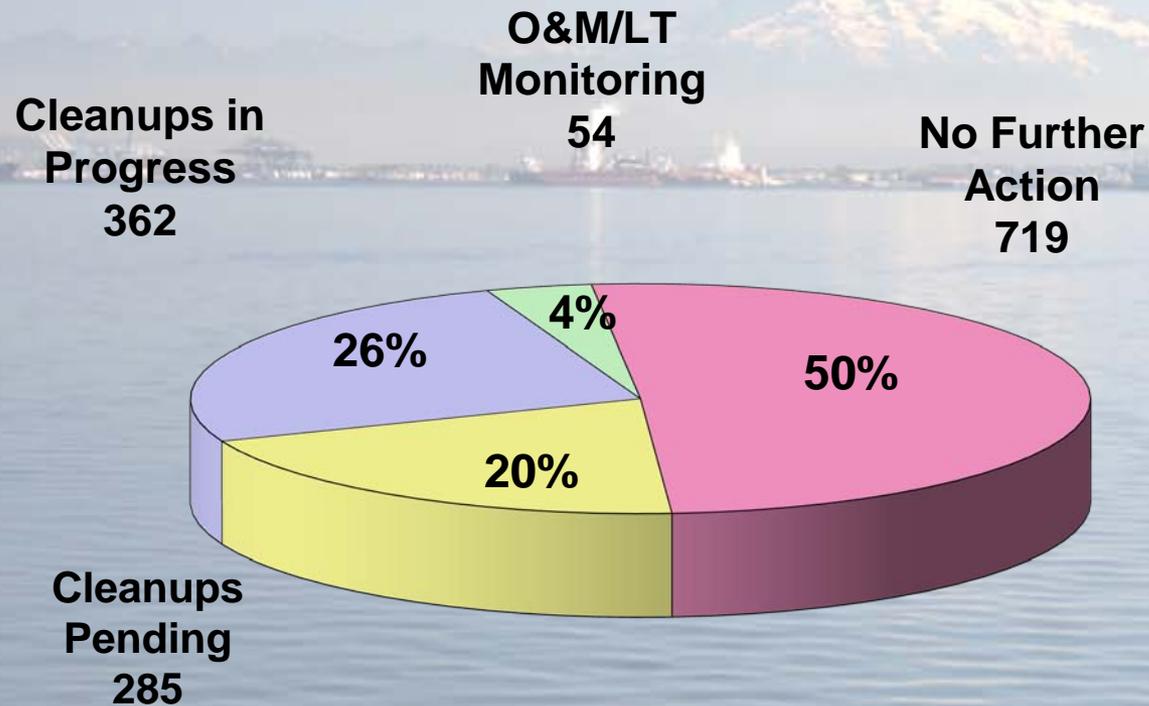
Reactive Wastes, 43

Radioactive Wastes, 22

UXO, 1

Contaminated Sites within ½ mile of Puget Sound

Total Sites: 1,420



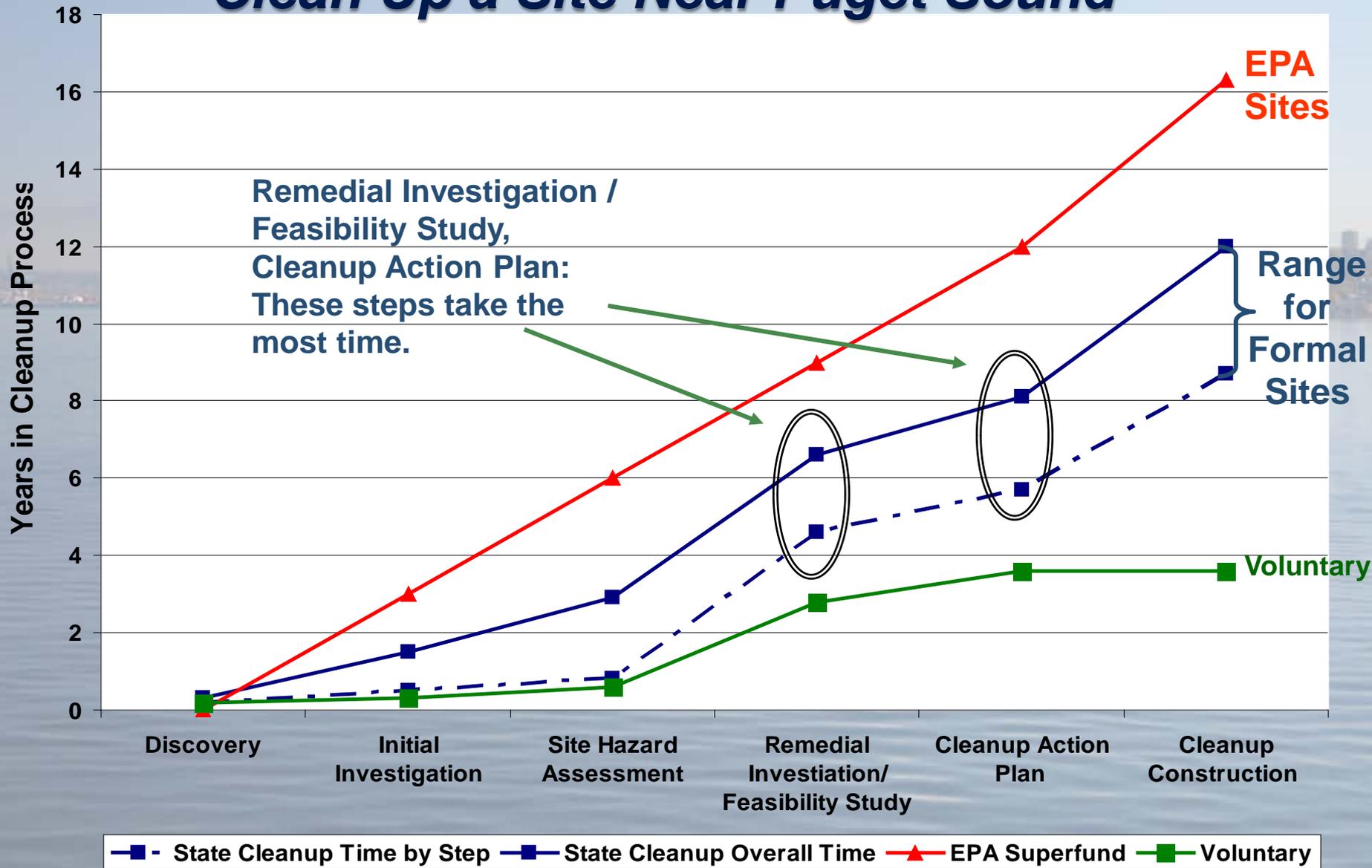
Puget Sound Initiative: Launched 2006

Streamlining Cleanups around Puget Sound

- **Geographic approach**
- **Interagency Agreements**
- **Conduct parallel phases of cleanup**
- **Bay wide sediment characterization**
- **Engage stakeholders early**
- **Increased funding**



Puget Sound Cleanups: Average Time to Clean Up a Site Near Puget Sound



Launched Puget Sound Initiative in 2006

A site by site review was completed on nearly 500 sites within ½ mile of Puget Sound.

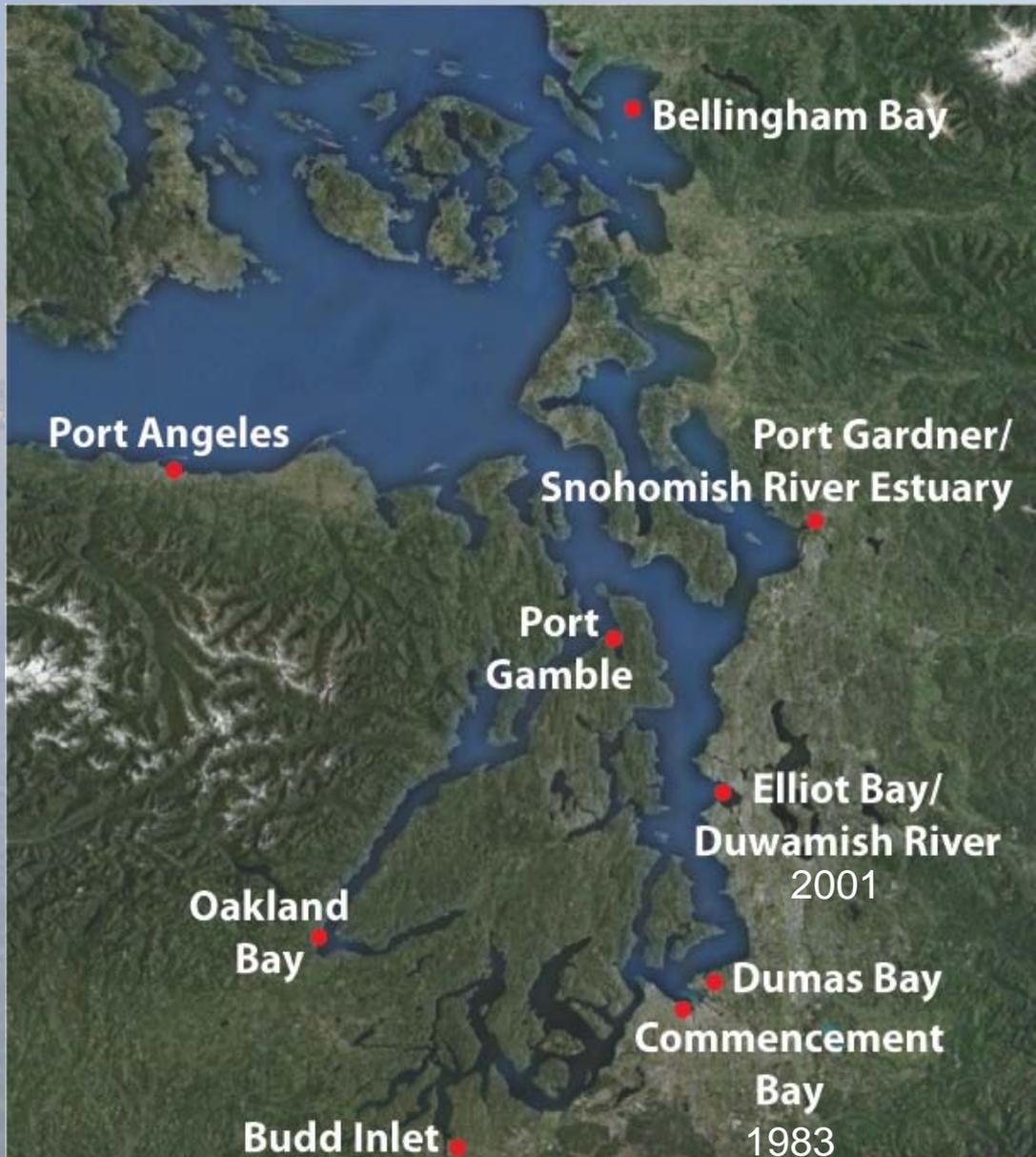
Sites were prioritized for cleanup based on:

- Proximity to Puget Sound
- Hazard Ranking
- Readiness for cleanup



PUGET SOUND INITIATIVE – Reaching the goal of a healthy, sustainable Puget Sound now and forever.

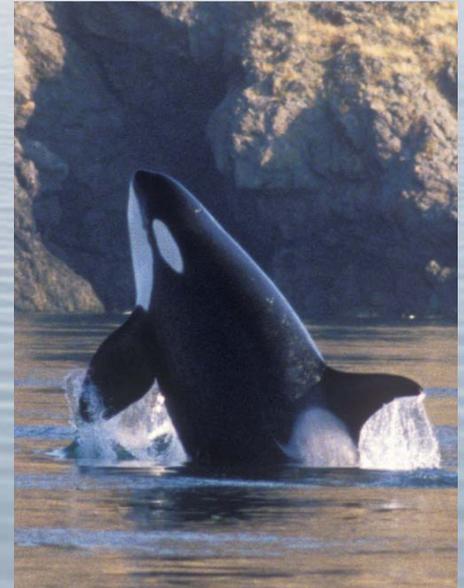
Puget Sound Initiative



Area	Problem
1. Port Gamble (Kitsap Peninsula & Bremerton area)	Wood waste & contaminated sites impacting geoducks, oysters, clams
2. Dumas Bay (Poverty Bay to Dash Point)	Closed geoduck bed due to outfall
3. Padilla Bay/ Fidalgo Bay & Port of Anacortes	Contamination from closed Whitmarsh Landfill & Port of Anacortes
4. Port Angeles	Wood waste and other contaminated sediments
5. Oakland Bay, Shelton	Wood waste impacting oyster beds
6. Port Gardner/ Snohomish River Estuary	Wood waste and other contaminated sediments

In Short, the Puget Sound Initiative Requires Leadership from the State

- Set the vision, goals and schedules early
- Form public/private sector partnerships
- Focus investigations and feasibility studies
- Use interim and removal actions frequently
- Include restoration of habitat



Bellingham Bay



Bellingham Bay: Industrial Legacy

- Loss of traditional economy
- Land and water contamination
- Endangered salmon
- Minimal public access



Bellingham's Central Waterfront



- * Six Cleanup Sites
- * Estimated Cleanup Costs >\$100 Mil
- * Heavy Industrial Property
- * Ecology Grants for Revitalization

Whatcom Waterway



- **Largest Cleanup Site**
- **Historic Mercury Discharges**
- **Consent Decree – Sep. 2007**

Outcome of Study for Cleanup

- 8 Alternatives Evaluated
- Alternative 5 & 6 identified as preferred alternatives
 - Removal
 - Capping
 - Mon. Natural Recovery (MNR)
 - \$42 & \$44 million



Master Planning Considerations

- Environmental Cleanup Strategies
- Seismic Conditions & Tsunamis
- Climate Change & Sea Level Rise
- Zoning Change to Mixed Use
- Public Access
- View Corridors
- Transportation Network
- Economic Viability
- Sustainable Design
- Historic and Cultural Resources
- Habitat/Shoreline Environment
- Public Health and Safety
- Long Term Development Phasing

Convergence of Community Values



Cleanup Protects Planned Land Use



S. Bower '08

Deep Water Areas

- Lower Use by Juvenile Salmon
- Navigation Improvements

Premium Nearshore Habitat

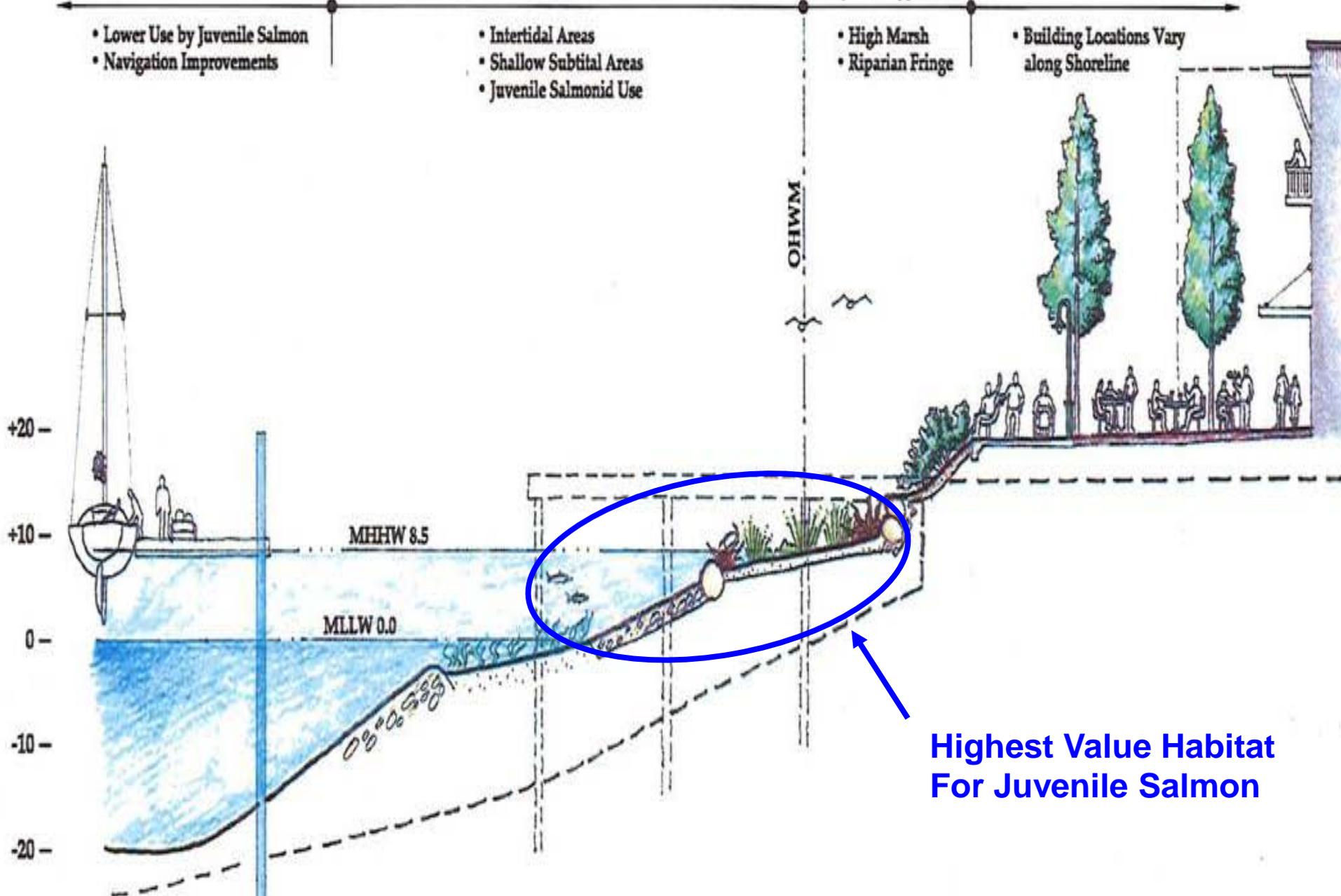
- Intertidal Areas
- Shallow Subtidal Areas
- Juvenile Salmonid Use

*Marine Buffer
(Preferred Approach)*

- High Marsh
- Riparian Fringe

Upland Uses

- Building Locations Vary along Shoreline



**Highest Value Habitat
For Juvenile Salmon**

Clean Ocean Marina Concept

- **Brownfield site reclamation**
- **Habitat restoration**
- **Fish friendly docks and infrastructure**
- **1 mile public access around breakwater**



Clean Ocean Marina



Brownfield Site Reclamation

- Removed 500,000 cubic yards of industrial waste
- Recycled 350,000 cubic yards clean material

Habitat & Coastal Processes

- 28 acres of new aquatic land
- 4,000 feet of shoreline habitat
- Fish passage connections



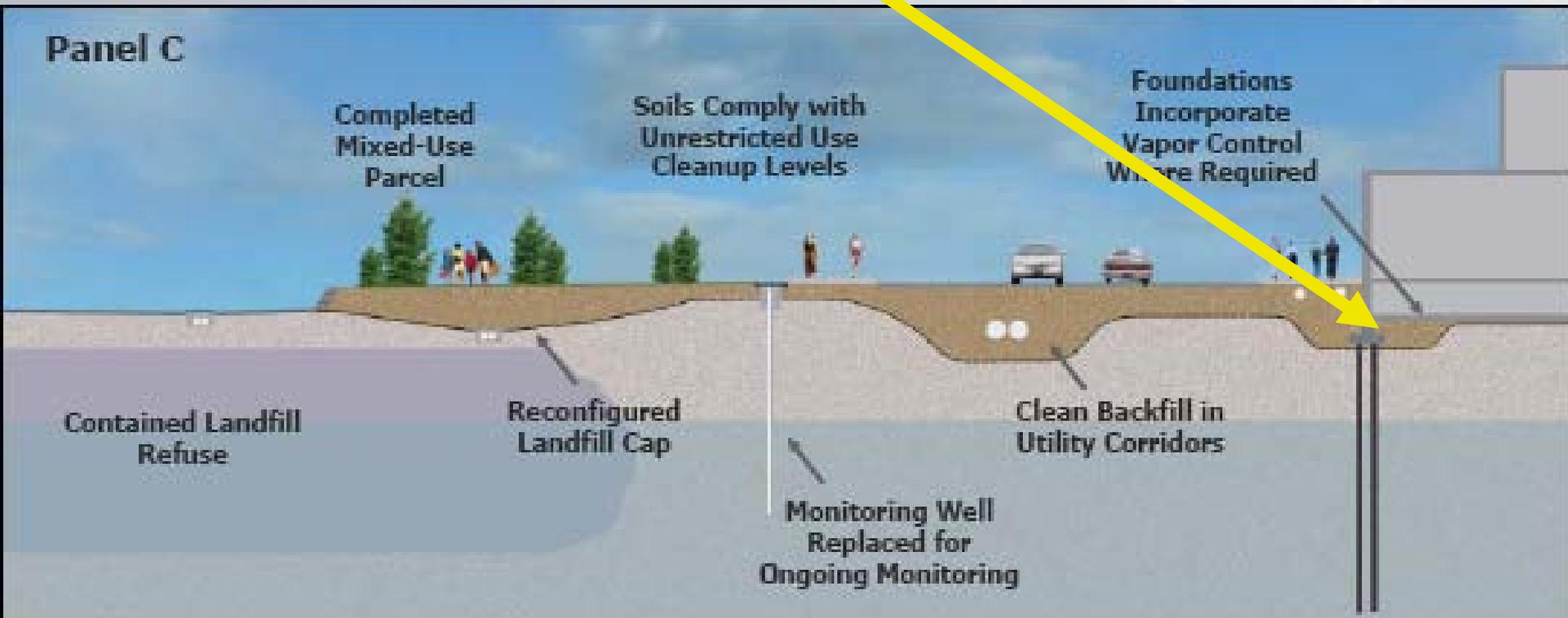
Waterfront Brownfields

- **LID Challenges**
 - Urban/Industrial Conditions
 - Subsurface Soil & Groundwater Contamination



Cleanup Supports Development

Building Foundation often serves as
“environmental cap”



Developed Parcel

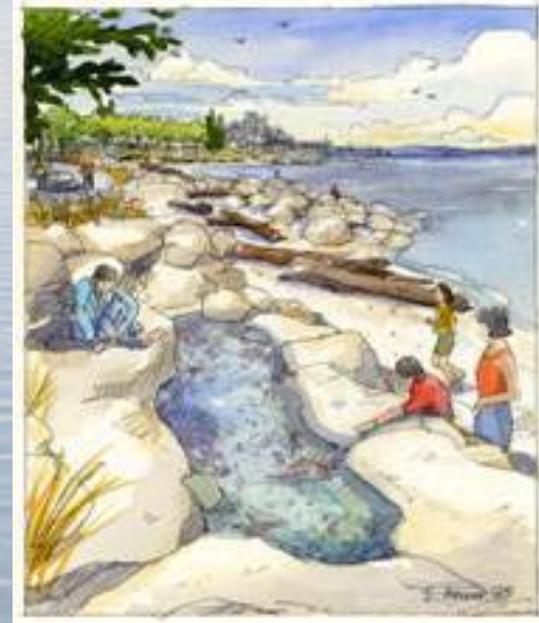
Ecology Grant Supports Charrette

- *City of Bellingham*
- *Port of Bellingham*
- *Department of Ecology*
- *Sustainable Connections*
- *Western Washington University*
- *Local & Regional Architects, Engineers & Technical Experts*



Charrette Results

- **Site Design Considerations**
 - Utilize parks and open space for treatment

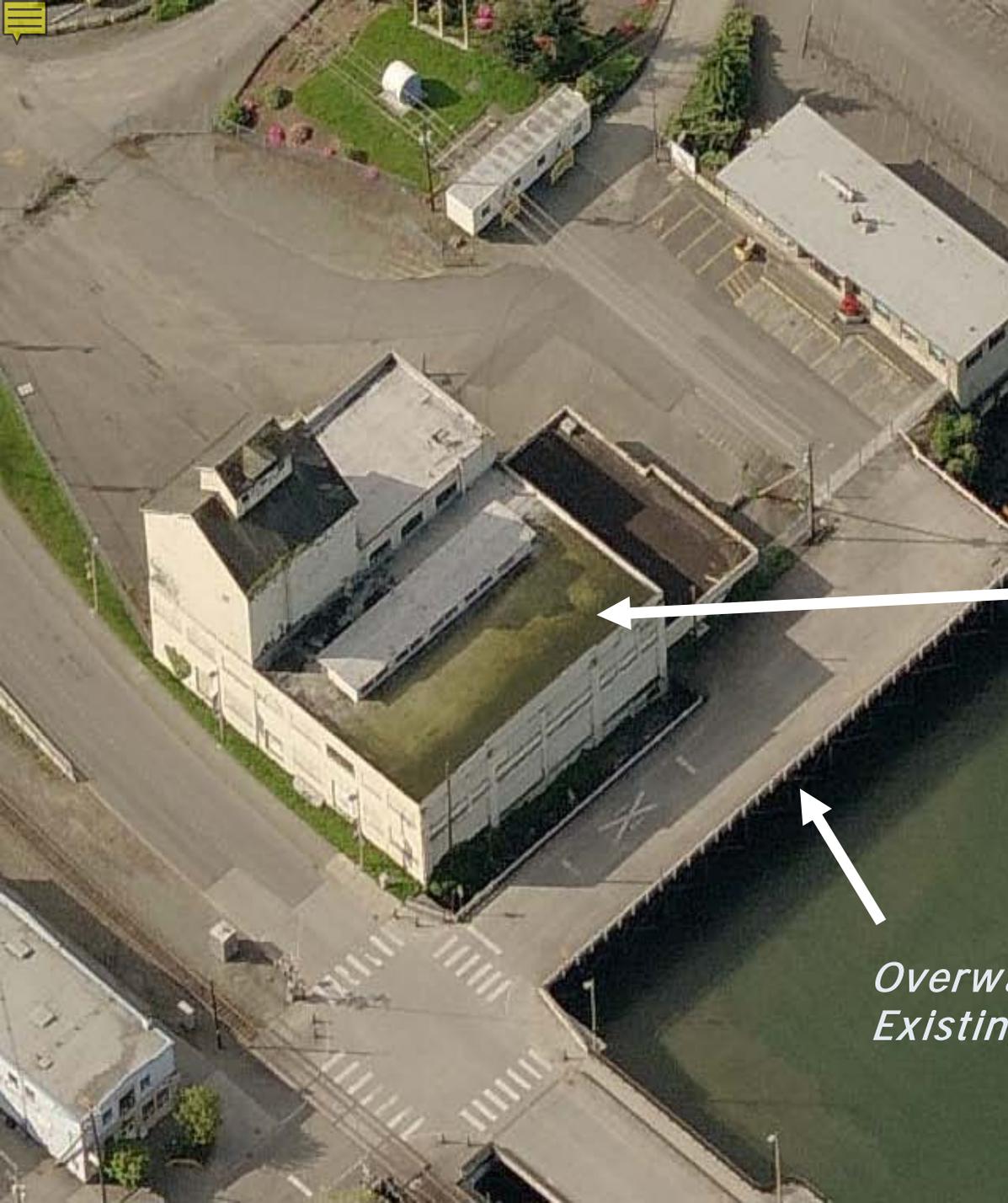


Benefits of Revitalization

- ***Cleanup of historic contamination***
- ***Over 3 miles of new shoreline access***
- ***33 acres of new parks & trails***
- ***Extensive habitat restoration***

J. Bowen '06





1920's Granary Coop Building

Overwater Dock / Existing Right of Way



*Relocate ROW / Modify Building
& Retain Significant Architecture*

Public Access Dock

Washington State Department of Ecology

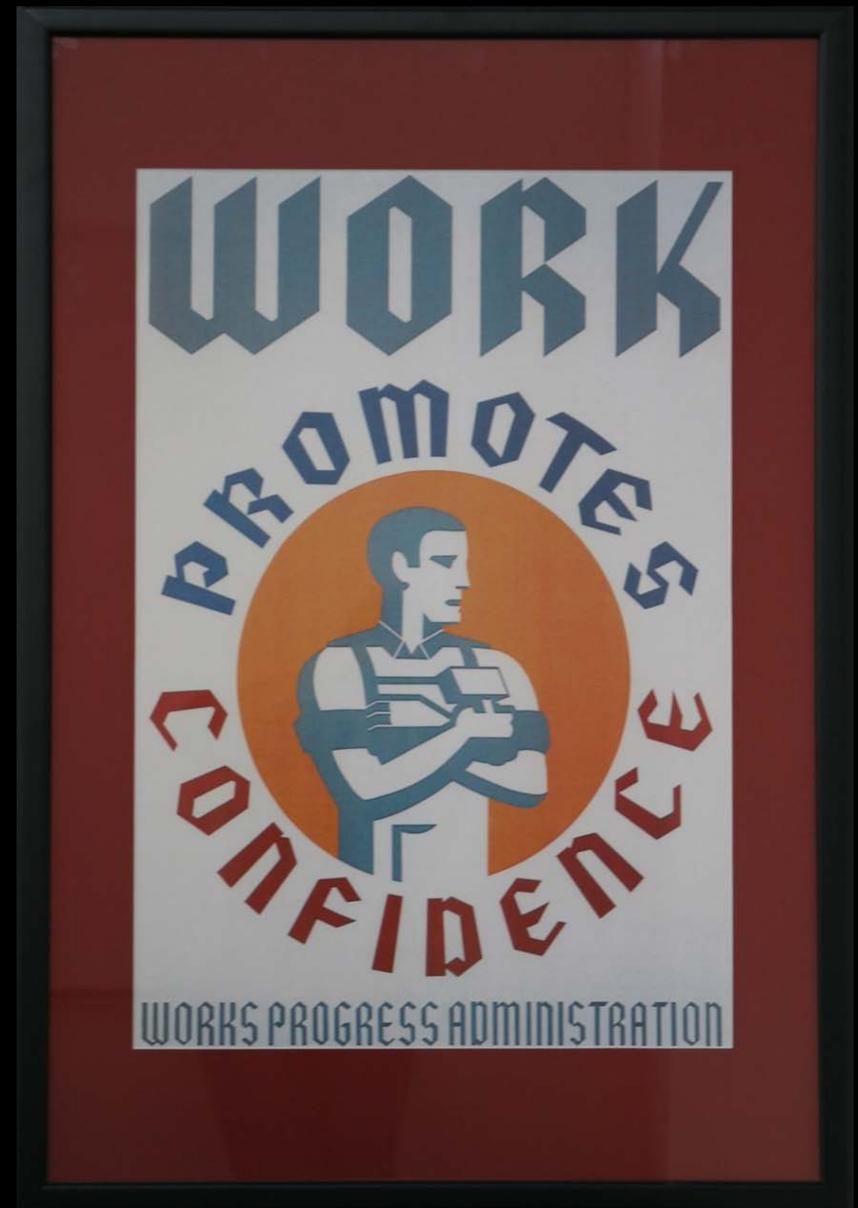
Puget Sound Initiative:

http://www.ecy.wa.gov/programs/tcp/sites/psi/overview/psi_baywide.html

Bellingham Bay Demonstration Project:

http://www.ecy.wa.gov/programs/tcp/sites/blhm_bay/blhm_bay.htm

Puget Sound Partnership
www.psp.wa.gov





S. Bower '06

Stephanie Bower, Architectural Illustration