

# **Weldcraft Boatyard Clean-up and Redevelopment Project**

## ***Habitat Mitigation***

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# **Weldcraft Boatyard Clean-up and Redevelopment Project**

## **Introduction**

The Port of Bellingham (Port) in Bellingham, Washington, utilized creative partnerships and comprehensive strategic environmental planning to cost-effectively clean-up historic industrial contamination and redevelop a dilapidated boatyard. The project was performed by the Port with primary agency oversight by the Washington State Department of Ecology (Ecology). Project design addressed requirements of the state superfund law and the state's salmon recovery program for Endangered Species Act (ESA)-listed species.

The Port maximized the project's environmental and economic benefits by integrating contaminated sediment cleanup, habitat restoration, source control, and shoreline property management. Contaminated marine sediments were removed from the site eliminating a direct and indirect health threat to aquatic organisms (including endangered salmon), wildlife, and humans. Dilapidated structures on the land and in the water were also removed helping to transform derelict waterfront property into a clean site available for lease by water dependent users. The site is now occupied by an active boatyard which provides valuable jobs to the local community and offers important services to the boating community. The Port works closely with the new tenant to ensure environmentally sound work practices and modern technology are used to meet current regulatory standards and prevent site recontamination.

The Army Corps of Engineers (ACOE), a key partner in the overall project, constructed a two-acre marine habitat bench designed by the Port to mitigate for impacts associated with Port project development. ACOE constructed the habitat bench without charge, beneficially re-using sediment from regularly scheduled maintenance dredging of a nearby federal channel. Another key partner, the Washington State Department of Natural Resources (DNR), waived their normal

fee for dredging state-owned material from the federal channel, and also allowed construction of the habitat bench without financial compensation to DNR. ACOE constructed the habitat bench on the outside of a Port-owned marina breakwater, in an area identified as a high priority habitat restoration site by a multi-agency work group that is focused on broad scale habitat restoration in Bellingham Bay. The work group is cosponsored by the Port and consists of 12 different federal, state, local and tribal agencies.

The Port's comprehensive environmental planning and interagency coordination under this project serve as a model for cost-effective habitat mitigation. This project provided key environmental benefits and returned an important part of the community waterfront to productive use. Port districts can benefit both environmentally and economically from an integrated and cooperative approach to contaminated sediment cleanup, habitat restoration, source control, and land-use.

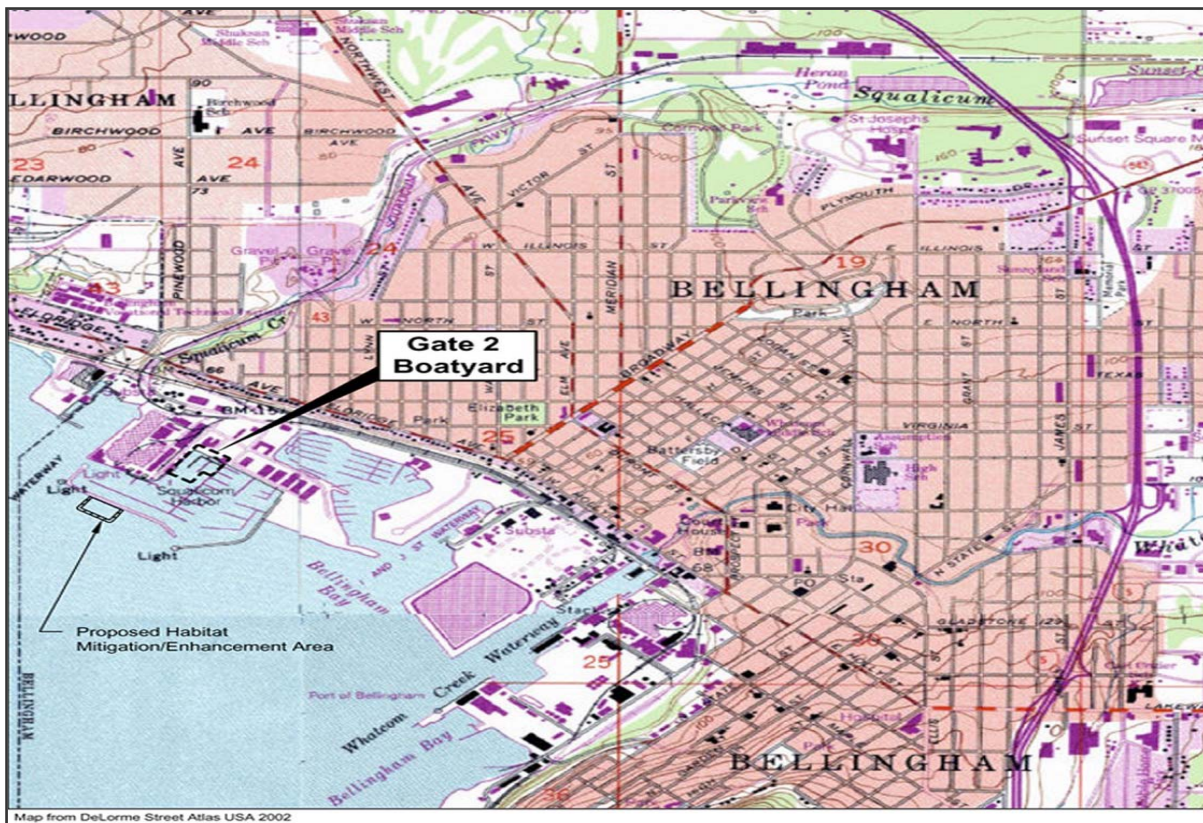
## **Goals and Objectives**

1. Perform sediment dredging to remove contaminated marine sediments under the state's superfund law and re-establish previously authorized navigation depths.
2. Perform compensatory mitigation for habitat impacts associated with site improvements and provide substantial habitat gains beyond compensation in support of the state's salmon recovery program for ESA-listed species.
3. Remove dilapidated structures including the replacement of a failing bulkhead with environmentally friendly materials to support future boatyard operations.
4. Implement the repairs and improvements necessary to allow ongoing water-dependent use of the site.
5. Prevent recontamination of the site by future boatyard operations.

## Background

The Port acquired the property 1927 and leased it to Weldcraft Steel & Marine (Weldcraft) in 1946 for use as a boatyard. In 1998, a Phase II Environmental Site Assessment discovered contaminants of concern in soil, groundwater and sediment. Efforts to engage the boatyard owner in a clean-up plan failed when the owner moved to Canada to avoid legal obligations. The Port terminated the lease in February 2000, and began working with several agencies to clean-up and redevelop the site. In 2002, the Port entered into a lease with Seaview Boatyard. In 2003, the Port entered into a formal agreement with Ecology to perform comprehensive site cleanup and habitat restoration.

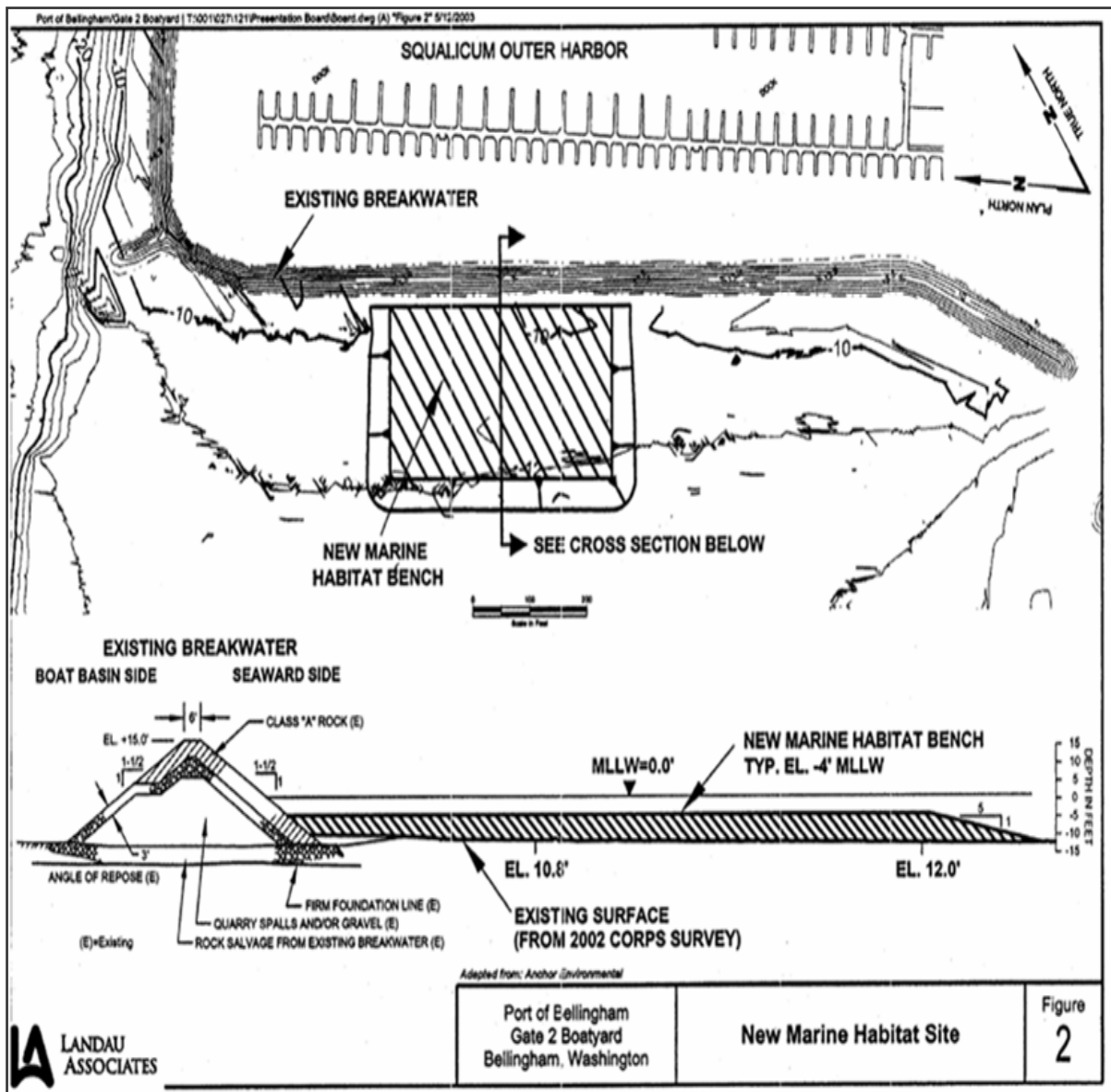
## Site Map



## Objectives and Methodology

1. *Perform sediment dredging to remove contaminated marine sediments under the state's superfund law and re-establish previously authorized navigation depths.*
  - Conducted a sediment remedial investigation to evaluate the horizontal and vertical extent of potential sediment contamination.
  - Removed approximately 8,000 cubic yards of contaminated marine sediment.
  - Performed follow-up sampling to confirm the full removal of contaminated marine sediments.
2. *Perform compensatory mitigation for habitat impacts associated with site improvements and provide substantial habitat gains beyond compensation in support of the state's salmon recovery program for ESA-listed species.*
  - Constructed a two-acre marine habitat bench along the Squalicum Outer Harbor breakwater to provide mitigation for a "loss" of less than 0.5 acres of highly degraded and contaminated habitat.
  - Created over one-acre of marine habitat beyond compensation requirements.
  - Secured a commitment from ACOE to build the habitat bench without charge, using 35,000 cubic yards of clean dredged material which was designated for beneficial reuse and made available through routine dredging of the Squalicum Waterway.
  - Created the habitat bench in a location identified as a high priority habitat restoration site by a multi-agency work group that is focused on broad scale habitat restoration in Bellingham Bay.

## New Marine Habitat Bench



3. *Remove dilapidated structures including the replacement of a failing bulkhead with environmentally friendly materials to support future boatyard operations.*

- Installed a new steel sheet pile bulkhead in front of the existing timber bulkhead where contaminated sediments were removed.
- Removed 215 creosote-treated pilings and about 9,000 ft<sup>2</sup> of creosote-treated timbers from the marine environment.

4. *Implement the repairs and improvements necessary to allow ongoing water-dependent use of the site.*

- Performed environmental decommissioning and maintenance activities in the upland partition of the site including cleaning out three catch basins and two floor drains, and the removal of an inactive underground storage tank.
- Removed waste material left onsite including derelict boats, used oil, scrap metal and fiberglass, unused paints and solvents, and other wastes typically associated with boatyard activities.

5. *Prevent recontamination of the site by future boatyard operations.*

- Evaluated upland conditions to examine potential for future upland releases of contaminants to sediment. The evaluation of potential sources included groundwater discharge, surface soil erosion, and/or discharges through site stormwater outfalls.
- Ongoing collaboration with new tenant to ensure boatyard practices are compliant with state stormwater controls under NPDES permit and will not lead to site recontamination.



## **Award Criteria**

### ***The level and nature of benefits to environmental quality, beautification or community involvement***

The clean-up and redevelopment of the Weldcraft site helped revitalize the community's waterfront by transforming an inactive and dilapidated boatyard into a modern facility offering valuable services 1,400 local moorage customers. The project design had significant environmental benefits and addressed requirements of the state superfund law and the state's salmon recovery program for ESA-listed species. Contaminated marine sediments and decaying structures, including creosote pilings, were removed from the site eliminating a direct and indirect health threat to aquatic organisms (including endangered salmon), wildlife, and humans. To mitigate for habitat impacts caused by site improvements, the Port partnered with ACOE and DNR to cost-effectively create a two-acre marine habitat bench.

ACOE constructed the habitat bench on the outside of a Port-owned marina breakwater in an area designated as a high priority habitat restoration site by a multi-agency work group focused on broad scale habitat restoration in Bellingham Bay. The habitat bench was built using approximately 35,000 cubic yards of clean dredge material made available from routine ACOE maintenance dredging of the Squalicum Waterway, a nearby federal channel. Squalicum Waterway sediment is desirable for habitat construction because the fine-grained material and organic content provide excellent colonization potential for aquatic invertebrates and eelgrass. The shallow subtidal bench gently slopes from -4 ft MLLW to approximately -12 ft MLLW, and over an acre of habitat was created between -4 and -6 MLLW; the shallow subtidal depth most conducive to natural propagation of eelgrass as habitat requirements in the life cycle / food chain of herring and salmon. The habitat bench provided the required 2:1 compensation ratio for a

“loss” of less than 0.5 acres of highly degraded and contaminated habitat associated with site improvements, and also supplied over one-acre of marine habitat beyond compensation requirements to help meet bay-wide restoration and enhancement objectives.

The remediation of contaminated marine sediments addressed metals, tributyltin, and mercury; eliminating direct and indirect health risks to humans, aquatic organisms (including endangered species) and wildlife. A barge-mounted mechanical clamshell dredged 8,700 cubic yards of silt and sand material from the site. The sediment was dewatered and then offloaded to lined rail cars for transport to an upland landfill disposal facility. Lastly, selected dredge areas of the site were backfilled with approximately 1,000 cubic yards clean granular fill material.

The removal of dilapidated structures from the water, including creosote treated timber and piling, provided additional environmental benefits and helped beautify the surrounding area. Creosote has been identified as a pollutant of concern for water and submerged lands because it contains numerous toxic polycyclic aromatic hydrocarbons. In the marine environment, as little as half a part per billion of creosote is lethal to herring fish eggs and larvae. This project removed 215 creosote-treated piles and about 9,000 ft<sup>2</sup> of creosote-treated wood lagging from direct contact with the marine environment in an area close to intertidal habitat used by ESA-listed salmon

The Port performed a number of relevant environmental decommissioning and maintenance activities in the upland portion of the site. The Port cleaned out three catch basins and two floor drains, and removed an inactive underground storage tank from the site. The Port removed accumulated sediment from the catch basins and floor drains to prevent potential future releases of these historically generated contaminants to site sediment and Bellingham Bay through the stormwater conveyance system. The Port also removed a large quantity of waste

materials left onsite from the previous tenant including derelict boats, used oil, scrap metal and fiberglass, unused paints and solvents, and other wastes typically associated with boatyard activities. All waste materials were disposed of in compliance with applicable regulations.

The Port continues to work closely with the new boatyard tenant ensure compliance with state stormwater controls under its NPDES permit and to prevent site recontamination. To this end, the tenant constructed a closed, self-treating boatyard water treatment system that retains, treats, and recycles water from the pressure wash facility. Additionally, the tenant constructed new improvements to treat site stormwater runoff from paved areas outside the pressure wash facility, including a bioswale that treats stormwater runoff to meet state regulations prior to release into the marine environment. These treatments offer a significant improvement in surface water quality over site discharges during the past 50 years.

WEDNESDAY, SEPTEMBER 24, 2003 THE BELLINGHAM HERALD

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# LOCAL & STATE

## HOMETOWN

Inside

### Contamination cleanup begins

**ENVIRONMENT:** Debris, sediment at site of boatyard will be removed.

**BY SCOTT AYERS**  
THE BELLINGHAM HERALD

Work began Tuesday on a \$4.1 million cleanup and environmental improvements at Squalicum Harbor at the former Weldcraft Steel & Marine boatyard.

A crane on a barge belonging to American Construction Co. began pulling up pilings, cross ties and rail lines from the old marine railway that Weldcraft used to haul large boats in and out of the harbor for repair work.

After that job is done, workers will replace an old creosote bulkhead with a new one made of metal sheeting and, sometime in November, begin digging out about 6,600 cubic yards of sediment, most of which is contaminated with metals.

The metals, such as copper and zinc, are from metallic anti-fouling paint formerly used on boats to deter barnacles and other sea creatures from adhering to hulls. The paint was scraped at the boatyard as part of regular boat maintenance, allowing tiny particles of the paint to sink to the bottom.

Creek Waterway will be poured in a deep water site next to the breakwater, creating habitat for juvenile

insurance companies.

**13 polluted sites**  
The Weldcraft site work

Weldcraft operated the site as a private boatyard for more than 50 years until it closed three years ago. In

made at the :craft operated time, official a private boa Stoner ore than 50 years travel lift, ved three years a

RACHEL E. BAYNE HERA



***The level of independent involvement and effort by the Port of Bellingham. The creativity of the solution or programs***

To cost-effectively mitigate for habitat impacted during site improvements, and also support the state's salmon recovery program for ESA-listed species, the Port formed innovative partnerships with ACOE and DNR. With guidance from the Port, ACOE beneficially re-used dredge spoils from regularly scheduled maintenance dredging of the Squalicum Waterway to construct a two-acre marine habitat bench. Squalicum Waterway sediment, classified as high quality habitat material, is typically scheduled for unconfined, open-water disposal with significantly higher transportation and disposal costs. DNR agreed to waive the standard fee for dredging state-owned material from the Squalicum Waterway, and also to allow for construction of the habitat bench without any compensation to DNR.

The Port benefited from its co-sponsorship of a bay-wide environmental planning effort in determining a location for the habitat bench. The Bellingham Bay Demonstration Pilot (Pilot) includes a work group with representatives from 12 different federal, state, local and tribal agencies working together since 1996 to develop comprehensive strategic environmental planning and well-integrated projects that encompass contaminated sediment cleanup, habitat restoration, source control, and shoreline property management. The Pilot work group developed a Habitat Restoration Report, evaluating and prioritizing all potential habitat restoration/protection opportunities in Bellingham Bay. The Habitat Restoration Report identified the Squalicum Harbor Breakwater as a priority habitat restoration opportunity.

The Port demonstrated strong leadership and creativity to successfully meet the project objectives. The Port first established a partnership with a regional boatyard operator to provide an economic driver for the project. The Port agreed to clean-up and redevelop the site to meet

the boatyard operator's needs, and the boatyard operator agreed to install a new 150-ton boat lift and meet high standards of environmental stewardship. The Port also worked closely with Ecology to develop a cleanup strategy allowing the new tenant to begin operations before final completion of the cleanup process. Confirmation sampling in July 2004 established the success of this interim cleanup action, and the Port is currently working with Ecology to finalize the cleanup process.

***Whether the project or program results are apparent (the project must be complete through some beneficial increment)***

Clean-up activities commenced at the site in July 2003 and were completed in May 2004. Post-project sediment monitoring in July 2004 confirmed the successful remediation of 8,000 cubic yards of contaminated sediments. This project removed dilapidated structures including 215 creosote-treated piles and approximately 9,000 ft<sup>2</sup> of creosote-treated wood lagging from direct contact with the marine environment in an area close to intertidal habitat used by juvenile salmonids. This project also constructed a two-acre marine habitat bench in support of the state's salmon recovery program for ESA-listed species.

The clean-up and redevelopment of the Weldcraft site helped revitalize the community's waterfront by transforming an inactive and dilapidated boatyard into a bustling facility operating in compliance with all regulatory requirements. Seaview Boatyard opened in 2002 offering marine restoration and maintenance services to over 1,400 moorage customers, and to the boating community at-large. As part of site negotiations with the Port, Seaview agreed to install a 150-ton boat lift. This piece of equipment attracts regional customers with larger boats to the local community.



***Weldcraft Site Before***



***Weldcraft Site After***

***The cost-effectiveness of the activity or the program***

The Port used creative partnerships and grant funding to substantially reduce the total project costs and, in particular, mitigation costs. ACOE constructed the habitat bench without charge, beneficially re-using sediment from regularly scheduled maintenance dredging of a nearby federal channel. DNR waived the normal fee for dredging state-owned material from the federal channel, and also allowed construction of the habitat bench without financial compensation to DNR. The Port obtained a grant from Ecology for \$900,000 to clean-up contaminated sediments reducing the total cleanup and redevelopment costs to \$3.3 million dollars. Without cost-effective partnerships and grant funding, the site would still be vacant and contaminated.

***The transferability of the technology or idea to the port industry***

The Port's comprehensive environmental planning and interagency coordination serve as a model for cost-effective habitat mitigation. Port districts can benefit environmentally and

economically from an integrated and cooperative approach to contaminated sediment cleanup, habitat restoration, source control, and land-use. This project is an excellent example of how Port's can provide practical, cost-effective environmental and economic improvements to the local community.

## **Conclusion**

The Port utilized comprehensive environmental planning and interagency coordination to successfully, and cost-effectively, clean-up historic industrial contamination and redevelop a vacant and dilapidated boatyard. The Port engaged in a cooperative approach with several agencies to integrate contaminated sediment clean-up, habitat restoration, source control, and shoreline property management. The Port partnered with Ecology to remove contaminated marine sediments and address requirements of the state superfund law. Dilapidated structures on the land and in the water were also removed helping to transform derelict waterfront property into a clean site available for lease by water dependent users.

To cost-effectively mitigate for habitat impacts caused by site improvements, and to address requirements of the state's salmon recovery program for ESA-listed species, the Port partnered with ACOE and DNR to construct a two-acre marine habitat bench. ACOE built the habitat bench without charge, beneficially re-using sediment from regularly scheduled maintenance dredging of a nearby federal channel. DNR waived their normal fee for dredging state-owned material from the federal channel, and also allowed construction of the habitat bench without financial compensation to DNR. The habitat bench was built on the outside of a Port-owned marina breakwater, in an area identified by a multi-agency work group co-sponsored by the Port as a high priority habitat restoration site.

The once vacant and contaminated site is now occupied by an active boatyard which provides valuable jobs to the local community and offers important services to the boating community. The tenant operates in compliance with all regulatory standards, and the Port continues to work closely with the new tenant to ensure sound environmental stewardship. The Port's leadership helped revitalize an important part of the community's waterfront. This project serves as a model for how Port districts can benefit both environmentally and economically from an integrated and cooperative approach to contaminated sediment cleanup, habitat restoration, source control, and land-use.