



CASE STUDY

BRADWOOD LANDING



Bradwood Landing

CLIENT

Bradwood Landing, Astoria, Oregon
A project of NorthernStar Natural Gas

PROJECT

The Salmon Enhancement Initiative – one of the largest private company investments in salmon restoration the northwest has ever seen: \$59 million – whose goal is to create a legacy of sustainability for our environment, economy and community.

CHALLENGE

To create unmistakable awareness for the benefits of the Salmon Enhancement Initiative to the lower Columbia River, by building the image and credibility of the initiative and the company behind it.

SOLUTION

We branded the initiative and developed a direct mail campaign to key local, regional and statewide government officials and environmentalists, soliciting their support for the initiative. The high-impact item was a full color poster, suitable for framing, of salmon in their natural habitat, wrapped in a colorful belly band carrying the call to action and delivered in a mailing tube with a label with a campaign-specific theme. The outreach tools for the initiative were designed and polished to simplify the science in layman's terms for wider understanding and acceptance. These tools included a wall chart, four fact sheets and a kit folder in which all of the materials were contained.

RESULTS

Increased public understanding, acceptance and support of the initiative. Bradwood Landing's Salmon Enhancement Initiative served as a national model for environmental stewardship, corporate social responsibility and sustainable development.



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Good Thinking

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INITIATIVE LOGO





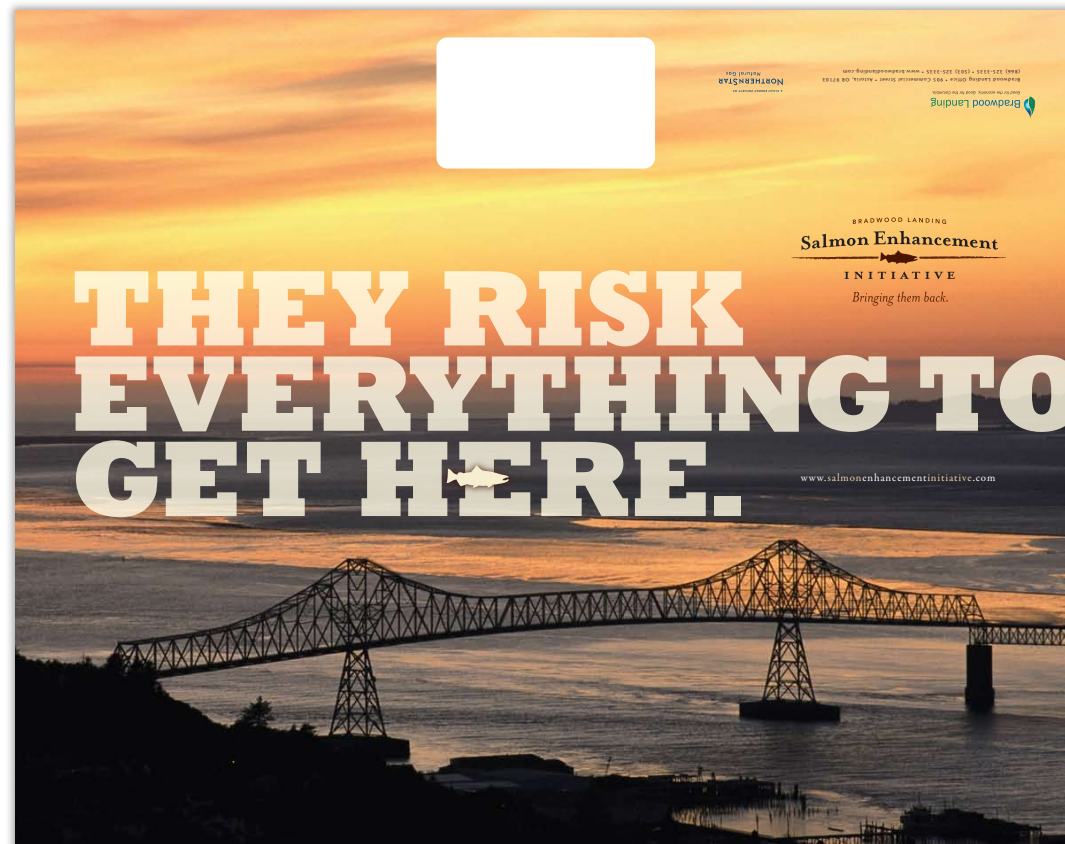
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LABEL



(wrapped around mailing tube)



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BELLYBAND



(wrapped around poster)



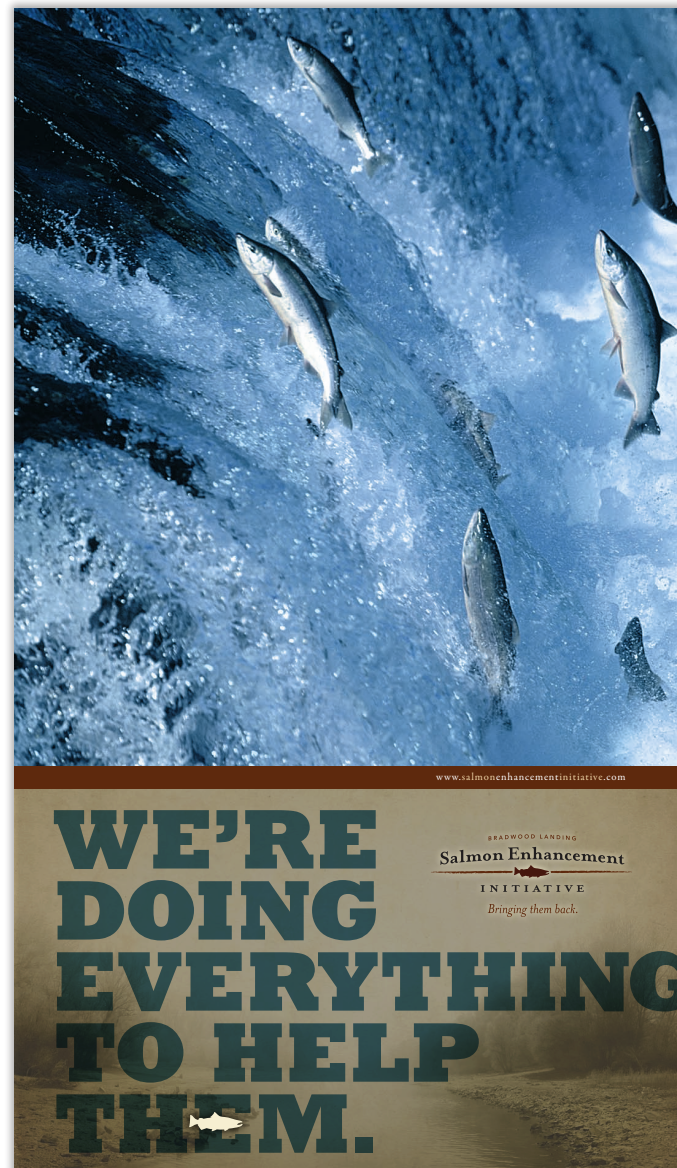
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POSTER





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WALL CHART

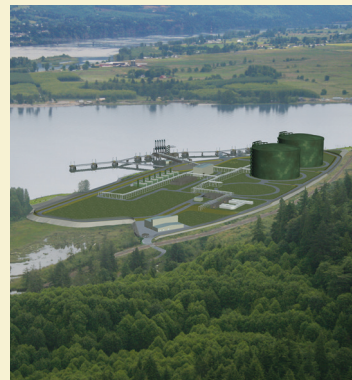


Bradwood Landing Environmental Balance Sheet

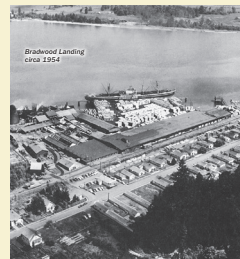
Our Commitment: Make Bradwood Landing a model of Sustainable Development – by improving economic, environmental, and community health, and to ensure that Bradwood Landing is a significant and sustained benefit to salmon and the Columbia Estuary.

Bradwood Landing Office: 905 Commercial Street • Astoria, OR 97103 • (866) 325-3335 • (503) 325-3335 • www.bradwoodlanding.com

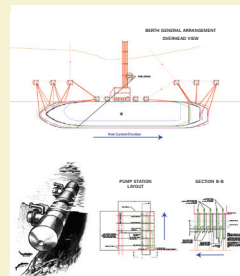
Avoid & Minimize Impacts



The future: With a footprint of less than 40 acres (of the 411-acre site), the Bradwood Landing LNG terminal will be one of the most compact LNG terminals in the world.



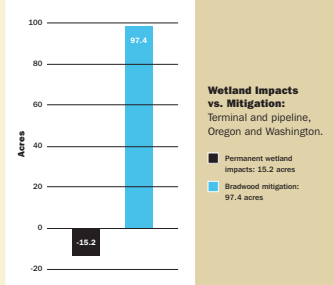
The past: A natural deep-water port, Bradwood Landing has been an industrial site for over 150 years.



Bradwood is pioneering the use of screened water intakes to protect fish. This proposal – designed to avoid entrainment of juvenile salmon into ship ballast and cooling systems, is the first of its kind. This innovative approach will meet unprecedented fish protection standards. A performance standard requires continuous monitoring, reporting and enforcement to ensure compliance.

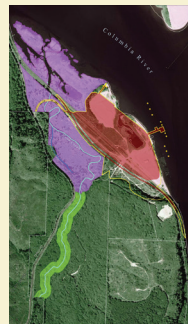
Robust Mitigation

Above-standard mitigation for upland, wetland, and in-water habitats is proposed to ensure that habitat function is not impaired by unavoidable project impacts. The wetland mitigation chart below illustrates just one example of Bradwood's commitment to more than compensate for impacts – producing a net environmental benefit.



Wetland Impacts vs. Mitigation: Terminal and pipeline, Oregon and Washington.

■ Permanent wetland impacts: 15.2 acres
■ Bradwood mitigation: 97.4 acres



Conservation areas at terminal site.

■ Lower conservation area: 61.4 acres
■ Upper conservation area: 13.6 acres
■ Shoreline restoration areas: 3.9 acres
■ Terminal footprint: 39.9 acres

Hunt Creek protection: 79 acres of Hunt Creek and shoreline areas within the 411-acre Bradwood site will be enhanced and conserved for fish and wildlife.



Svensen Island mitigation site: To compensate for 13.6 acres of wetland impacts in Oregon, Bradwood's mitigation includes restoration of 65 acres on Svensen Island in the Columbia estuary to tidal marsh for fish and waterfowl. In addition, another 170 acres of the lower portion of the island will be enhanced and permanently protected.

BRADWOOD LANDING Salmon Enhancement

INITIATIVE

Bringing them back.

Salmon Enhancement Initiative (SEI)

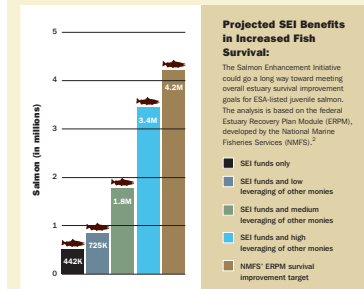
Bradwood's voluntary but legally binding \$59 million Salmon Enhancement Initiative (SEI) is over and above regulatory requirements and will enable significant progress toward achieving estuary recovery goals. The SEI will be a condition of approval for the project.

SEI restoration projects will be selected by an independent panel of experts guided by best available science and recovery plans.

The potential benefits of the SEI are illustrated below, using two alternative performance measures: fish and acres.

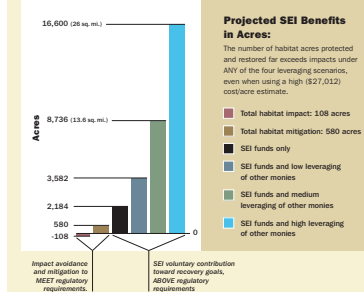
Public monies are available that are intended to be matched with private contributions, such as the SEI, increasing overall potential benefit. For each performance measure, four scenarios are shown using different leveraging assumptions.¹

- Unleveraged - SEI funds only
- Low leveraged - (\$0.64/\$1) - SEI funds and other
- Medium leveraged - (\$3/\$1) - SEI funds and other
- High leveraged - (\$6.67/\$1) - SEI funds and other



Projected SEI Benefits in Increased Fish Survival:

The Salmon Enhancement Initiative could go a long way toward meeting overall estuary survival improvement goals for ESA-listed juvenile salmon. The analysis is based on the Federal Estuary Recovery Plan Module (ERPM), developed by the National Marine Fisheries Service (NMFS).²



Projected SEI Benefits in Acres:

The number of habitat acres protected and restored far exceeds impacts under ANY of the four leveraging scenarios, even when using a high (\$27,012) cost/acre estimate.

Comparison to public funding in the lower Columbia: The SEI represents the largest private sector contribution in history toward restoration of the lower Columbia. To put this in perspective, the annualized SEI funding commitment is equal to more than 40% of Bonneville Power Administration's and 70% of the Army Corps of Engineer's annual restoration budgets for the lower Columbia area.

¹ Based on Community Salmon Fund leveraging (low leveraging) and Salmon Recovery Funding Board leveraging (high leveraging). See SEI Programmatic Effects Analysis.

² The ERPM survival improvement numbers are based on a 2008 estimate of no migration. <http://www.nmfs.gov/Salmon-Recovery-Planning/ESA-Recovery-Plan-Module-module.htm>

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KIT FOLDER & FACT SHEETS

