INDIGENUITY APPLICATION ELLEN SOUTHARD

TWO WATER BODIES ONE SALISH SEA

Our goal is to remove polluted stormwater from bridges that span salmon migration corridors by treating that water in green infrastructure built through public private partnerships created to save salmon and resident orca populations.

In WA State there is no legal mandate to treat polluted runoff from roadway surfaces on bridges. To-date Site Story led outreach and fund development for 12 green stormwater infrastructure (GSI) projects at 6 bridges to improve water quality and salmon habitat on the Lake Washington Ship Canal. Contaminated stormwater from the 6 bridges on the canal has been discharged untreated for over 80 years, impacting migrating salmon and subsequently impacting resident orcas that depend on those salmon as a primary food source. The project is the first in the country addressing polluted stormwater off public bridges to be treated on private land. The work has emphasized bio engineering solutions such as rain gardens, bioswales and other green stormwater infrastructure solutions (GSI). To date we have built 2 bioswales and studied others including now on the Duwamish River which is the largest superfund site in the country and its residents having a predicted lifespan 11 years less than other communities in Seattle. Since our start we have heard from multiple NGO’s and public agencies including dike districts, tribes, conservation districts and NGO’s that want help creating their own projects. Two of the priority water bodies would be the Skagit and Nooksack Rivers which are most critical for the endangered Chinook and Sockeye salmon that make up 92% of the Orca whale diet. Saving salmon on those 2 rivers is to save the orca from extinction. The MONAH INDIGENUITY Prize would help us conduct more outreach to build these coalitions and develop design concepts for the biosawles themselves that can be used for fund raising. In addition to protecting marine species, eliminating polluted stormwater in Puget Sound helps mitigate ocean acidification. Given the cool temperatures of Puget Sound our acidification rate is more rapid. GSI is also a great solution to the flooding problems in our region and serves as treatment "bowls" during peak storm events while also providing habitat and climate resiliency.

I'm applying on behalf of my small practice. We have been providing community engagement and outreach to help build coalitions around removing polluted stormwater off bridges since Fall of 2016. We have been successful at fund raising from private sector tech companies, Boeing the Bullitt Foundation, King County as well as individual donors. Much of our engineering work was provided pro-bono or paid for by foundations. To our knowledge we are the only group doing this type of work in the U.S.

Although we have had help along the way we have been at the heart of the work and the key organization providing outreach to frontline, BIPOC and tribal communities. See quotes from past partners.

"Ellen’s vision and leadership in conceiving bridge-related landscapes as opportunities to address the environmental problems that our bridges produce, are a gift to the future of Puget Sound’s salmon populations. Her long-term commitment to coalition building and the role of creative design will position Ellen and Site Story to effectively continue this leadership." Nancy Rottle, UW Green Futures Lab
"We love working with Site Story as a close partner. They have always been providing resources and capacity to our community to address projects around stormwater and mitigate pollution in salmon corridors like the bridge and elevated highway project in our Duwamish River Valley. We have also appreciated so much the involvement of our youth of color in learning about Stormwater solutions for a sustainable and healthy environment" Paulina López, Executive Director Duwamish River Community Coalition

"More than anyone else, Ellen has led the Greenbridges project and has single handedly kept it alive when other organizations gave up on our policy makers and permit agencies. She is a true hero of salmon." Dan Kent, Salmon-Safe Exec. Director

PROJECT TIMELINE

- December 2015  Seattle Times news article on NOAA and WSU’s Jennifer McIntyre PhD. research reveals that bridge runoff is killing salmon.
- February 2016 volunteer team reaches out to landowner developing new project under the Aurora Bridge.
- October 2016 Boeing awards grant to support efforts to permit and build bioswales under the Aurora Bridge.
- January 2017 with additional donor funding the research team hires KPFF to study all 6 bridges on the Lake Washington Ship Canal.
- February – April 2017 water quality testing performed on the Aurora Bridge. Scientist Richard Horner PhD. and national expert on roadway runoff analyzes the runoff contaminants. He determines it to be the worst tested to-date in U.S. studies.
- March 2017 – Fall 2018 volunteer team kicks off a public awareness campaign addressing the benefits of green infrastructure for treating roadway runoff and address the roadblocks to public private partnerships.
- July 2017 Phase 1 Bioswale completed and certified Salmon-Safe.
- June 2018 water quality testing of Phase 1 bioswale determines that 70% of contaminants are removed after passing through just 3 chambers of the 6-chamber system.
- September 2018 volunteer team kicks off a new phase of public awareness including special interest and school group tours. Boeing Awards team with additional funding for outreach, design and permitting documents for Phase 3 Bioswale.
- October 2018 Phase 2 bioswales begin construction.
- January – March 2019 volunteer team writes legislative proviso to fund to Phase 3 bioswale.
- May 2019 volunteer team is presented with King County Green Globes Award.
- September 2019 Boeing awards Site Story funding to study bridges in the Duwamish.
- June 2020 Phase 3 Bioswale completed.
- December 2020 Seattle Times headline: TIRE DUST KILLING COHO SALMON RETURNING TO PUGET SOUND, NEW RESEARCH SHOWS and the work continues....................... 
- December 2020 to present – volunteer team continues to design concepts for additional bridge projects including the Nooksack and Skagit Rivers; addressing concerns of dike districts that want to remove contaminants from irrigation water.
- August 2022 – EPA kicks off 50th Anniversary of the Clean Water Act at Phase 3 Bioswale under the Aurora Bridge.
Current Situation

Although Southard and her team are frequently in the news and continue to build momentum on coalition building for new green stormwater infrastructure, they have not received any new funding for bridge projects since 2020. All their work continues to be pro-bono.

About Ellen’s Practice Site Story:

Site Story specializes in preserving and growing vibrant communities through storytelling and place making that links environmental and cultural sustainability. Our work is based on the philosophy of human ecology. A fundamental belief that human beings are part of nature rather than separate from nature. We use the power of engagement and storytelling to help clients understand their current narrative and envision the story they’d like to shape. The heart of each project begins with a story which is used to create plans and foster ideas necessary to realize their new vision. Site Story’s primary client is the planet. Everything we do must add up to protecting and restoring the environment while seeking social justice and inclusion. Here in Puget Sound much of work focuses on solving stormwater issues.

Visit us at: https://sitestorynw.com

To understand more about the waning salmon population in WA you can visit the Governor’s State of the Salmon Report https://stateofsalmon.wa.gov/

In Spring of 2022 we created a poster of sight impaired individuals. The poster that follows can be read in an ALT Reader to help convey the project to those with sight loss.
98 MILLION GALLONS of road runoff could be treated from 6 BRIDGES along the Lake Washington Ship Canal (Ballard / Fremont / Aurora / University / I-5 / Montlake).

Duwamish River analysis shows that 2.75 MILLION GALLONS of road runoff could be treated from 2 BRIDGES (1st Ave. & Corson St. Overpass).

Site Story studied the Lake Washington Ship Canal for 5 years considering green stormwater infrastructure (GSI) for all 6 bridges on the canal. In 2020 we engaged youth and Duwamish tribal members in discussions to inform the advancement of the Greenbridges (GB) project. This was the first time a GB project included frontline communities. The team worked to broaden the voices, concerns, and priorities for those who live in the largest superfund site in the U.S., and who have a lower life expectancy due to pollution.

DVYC members learned about GSI. Next to the Burke Gilman bike trail the 3rd bioswale under the Aurora Bridge treats 1.38 Million Gallons/yr.

Aurora Bridge 3 Bioswale

6PPD quinone is used to prevent degradation and cracking in rubber tires. Particles from broken down tires are picked up in road run-off and is known to be toxic and deadly to coho salmon.

Concept for the Corson Street Overpass

Lower Bidwell Park - HWY99 underpass artist Gregg Payne. Courtesy of City of Chico

Murals enliven concrete structures with images of nature. GSI raingardens in a box could treat polluted stormwater.

LAKE WASHINGTON SHIP CANAL

DUWAMISH RIVER

TWO WATERWAYS - ONE SALISH SEA

Greenbridges advancing regeneration in urban waters and placemaking

Common Pollutants in Stormwater

- Zinc
- Nitrogen
- Copper
- Chromium
- Magnesium
- Pesticides
- Cadmium
- PAHs
- Oil & Grease
- Fecal coliform
- Pathogens

GSI raingardens in a box could treat polluted stormwater.