



**COMMISSION
AGENDA MEMORANDUM**

Item No. 8d

ACTION ITEM

Date of Meeting January 28, 2020

DATE: January 6, 2019

TO: Stephen P. Metruck, Executive Director

FROM: Sandy Kilroy, Director, Maritime Environment & Sustainability (ME&S)
Jon Sloan, Sr. Environmental Program Manager (ME&S)

SUBJECT: Interlocal Agreement to support Bio-Barge Research being led by the University of Washington Green Futures Lab

Commitment under the agreement: \$45,000

ACTION REQUESTED

Request commission authorization for the Executive Director to enter into an interlocal agreement with the University of Washington Green Futures Lab in substantially the form attached to fund and provide support for continuation of the Bio-Barge Pilot Project in an amount not to exceed \$45,000.

EXECUTIVE SUMMARY

The Port of Seattle and University of Washington (UW) Green Futures Lab have been engaged in an informal partnership to explore the potential of floating wetland islands, also known as “Bio-Barges,” to provide compact areas of fish and wildlife habitat and water quality improvements in developed areas where restoration potential is otherwise limited. A first generation of prototypes was deployed by UW in March 2019 on port-owned property in the Duwamish River located at Terminal 102, Terminal 105, and Terminal 108, funded primarily by King County Wastewater Treatment Division and Rose Foundation grants. Access to the study sites was facilitated by an access agreement between the UW and port dated July 1, 2018. Once installed, the prototypes were intensively monitored by UW students and faculty, with support from port staff and interns.

A second generation of prototypes is being developed independently by the port for comparison and will be deployed in the Lake Washington Ship Canal at Fishermen’s Terminal and the Maritime Industrial Center in early 2020. The proposed ILA will fund the UW to develop, deploy, and support continued Bio-Barge research by students and faculty as well as to enhance public outreach and engagement in the project. The UW first-generation prototypes will be towed to new locations in the Duwamish River for a second season of data collection. Port staff will provide supplemental technical support, monitoring and reporting as part of the agreement. The UW team will engage Duwamish Valley residents and other community members to participate in work related to the research. Port funding provided through the proposed ILA, in conjunction

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with ongoing funding from King County Wastewater Treatment Division and Rose Foundation, will increase impact and help the UW scale up the pilot project.

JUSTIFICATION

The Port of Seattle Century Agenda includes a goal to restore, create or enhance 40 additional acres of habitat in the Green-Duwamish Watershed and Elliott Bay. Because the available areas for restoration are limited and/or highly constrained, port staff is exploring innovative ways to accomplish more with less. Bio-barges are compact floating islands of wetland vegetation that can improve water quality and provide fish and wildlife habitat along developed shorelines where space is otherwise lacking, including riverbank areas in South Park, Georgetown, and other Duwamish Valley neighborhoods. Innovations such as these will be important for the port to achieve its ambitious Century Agenda goal and to facilitate mitigation required of the port in other contexts. Also, the bio-barge project provides an opportunity to support public involvement in the Port's stewardship activities. To that end, the UW team proposes to engage Duwamish Valley residents and other community members in the project.

Diversity in Contracting

The interlocal agreement will provide funding to the UW project team. The team will take steps to recruit a diverse workforce through outreach, networking, and marketing in order to ensure a well-rounded pool of qualified and diverse applicants. As a federal contractor, the University of Washington must comply with federal law as it relates to Equal Opportunity and Affirmative Action. The University's Office of Equal Opportunity and Affirmative Action (EOAA) supports both legal compliance and a spirit of equal opportunity as it relates to race, color, creed, religion, national origin, citizenship, sex, age, marital status, sexual orientation, gender identity or expression, disability, or status as a disabled veteran or Vietnam-era veteran, or other protected veterans. More details are available in the *University of Washington Affirmative Action Plan*.

DETAILS

Throughout 2019, the UW Green Futures Lab and the port's Maritime Environment & Sustainability staff have worked together in an informal partnership to explore the utility of floating wetland islands, also known as bio-barges, for improving water quality and habitat along highly constrained developed shorelines. The UW's participation was supported in part by grants from the King County Wastewater Treatment Division and The Rose Foundation. The port's support of the work was funded through the Maritime Habitat Initiatives program expense budget.

The port and UW collaborated to provide biological monitoring and water quality sampling for the first generation of bio-barge prototypes that were deployed on port-owned/port-managed property in the Lower Duwamish River at Terminal 105 and Terminal 108 from March 2019 to July 2019. The port participated in the monitoring by providing: study sites per Access Agreement dated July 1, 2018; access to the Port's research vessel and other equipment; staff support; engineering and design services; and a portion of the data processing. The first-generation

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prototypes will be removed and rehabilitated in early 2020 by UW before being re-deployed at new study sites on the Duwamish River.

At the same time, a second generation of bio-barge prototypes has been designed and constructed independently by the port based on lessons learned from the first generation, with a desire to improve cost, practicality, and performance. The second generation is built almost entirely of bio-degradable materials, including: salvage logs received from the U.S. Army Corps of Engineers; coir fabric made from jute and coconut fibers; locally sourced compost; and wetland plants harvested from Port restoration sites. The second-generation prototypes also include engineered light-transmission features which will ensure that the underside of the bio-barges are well lit, to avoid creating preferential habitat for fish that prey on juvenile salmon. The second-generation prototypes will be deployed on port-owned/port-managed property in the Lake Washington Ship Canal, Salmon Bay, Fisherman’s Terminal and the Maritime Industrial Center for evaluation.

Scope of Work

To support continued participation of UW students and faculty in the Bio-Barge research project, as well as to enhance public outreach and engagement (particularly for Duwamish Valley residents), the proposed ILA will fund the UW to undertake the following tasks:

- a. Provide processed water quality data, video monitoring data, analysis, research findings and laboratory reports related to Phase I of the Bio-Barge research project to the port, with emphasis on optimizing design and performance of future bio-barge prototypes;
- b. Update the project’s Water Quality Monitoring Plan to be specific to both generations of prototypes;
- c. Remove, rehabilitate and replace (if necessary) first-generation bio-barge prototypes at Terminal 102; and,
- d. Engage Duwamish Valley residents and other community members during field research to be undertaken in 2020.

For its part, the port will:

- a. Transmit \$45,000 in a lump-sum payment to UW Green Futures Research & Design Lab upon receipt of specific deliverables;
- b. Facilitate site visits for UW staff, students and community members to Port study sites at Fisherman’s Terminal, Maritime Industrial Center, and other sites as identified through a new site access agreement;
- c. Attend periodic meetings between port professional staff and representatives of the UW Green Futures Research and Design Lab to review and comment on presentations and deliverables related to either first- or second-generation prototypes in the research project; and,

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- d. Provide reasonable access to the PORTfolio environmental vessel and operator, as well as other equipment and staff needed to undertake continued monitoring of the first-generation Duwamish bio-barge prototypes (exclusive of laboratory analytical services).

Schedule

Year 2 of the Bio-Barge Research Project will be initiated immediately upon execution of the Interlocal Agreement, with planning tasks to commence in February 2020. Public outreach will be undertaken throughout all tasks, with emphasis on engaging Duwamish Valley residents and other community members between March-July 2020. Throughout the project, the port and UW teams will be in close communication, participating in regularly scheduled meetings to ensure integrity of the field data collection, as well as maintenance of the bio-barge prototypes.

Cost Breakdown

	This Request	Total Project
Technical Support	35,000	35,000
Public engagement (community-based science initiatives)	10,000	10,000
Total	\$45,000	\$45,000

ALTERNATIVES AND IMPLICATIONS CONSIDERED

The Bio-Barge Research Project is a unique opportunity to partner with the UW in an ongoing project which is primarily funded by King County Wastewater Treatment Division and Rose Foundation grants. First-generation prototypes of the bio-barges are wholly owned by the University of Washington; moorage and study sites are owned by the Port of Seattle. Alternatives considered do not include contracting with other parties due to these unique circumstances. However, alternatives with respect to scope, schedule, and locations have been considered.

Alternative 1 – No action, do not promote an Interlocal Agreement for continuation of the Bio-Barge Research Project.

Cost Implications: Port saves \$45,000 in the short-term but may have higher expenses in meeting Century Agenda habitat goal and implementing mitigation required in other contexts due to lack of a diverse range of options.

Pros:

- (1) Saves money in the short term.
- (2) Less administrative effort – no need to manage external partnership and ILA.

Cons:

- (1) Return on prior investments in the Bio-Barge Research Project will not be optimal.
- (2) Lost opportunity for community outreach and engagement.

This is not the recommended alternative.

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Alternative 2 – Undertake Phase II of Bio-Barge Research Project alone w/out partnering with the UW.

Cost Implications: Due to bandwidth and lack of sufficient expertise, the port would need to contract with a consultant to support the project and would lose access to UW-owned first-generation prototypes. This would cost more than the \$45,000 currently proposed in the ILA.

Pros:

- (1) Greater control of data, bio-barge units, experimental design.
- (2) Increases private sector involvement.

Cons:

- (1) Higher costs.
- (2) Reduces opportunity for public outreach and engagement

This is not the recommended alternative.

Alternative 3 – Engage the UW to continue partnership in the Bio-Barge Research Project through an Interlocal Agreement, comparing first- and second-generation prototypes through collaborative monitoring and data analysis.

Cost Implications: The ILA specifies \$45,000 in funding needed to support UW involvement.

Pros:

- (1) Allows access to high level of technical expertise (UW students and faculty).
- (2) Maintains continuity.
- (3) Promotes re-deployment of first-generation prototypes to compare to second-generation prototypes.
- (4) Supports community outreach and engagement goals

Cons:

- (1) Cost of \$45,000.
- (2) Increases administrative burden to manage ILA and partnership.

This is the recommended alternative.

FINANCIAL IMPLICATIONS

<i>Cost Estimate/Authorization Summary</i>	Capital	Expense	Total
COST ESTIMATE			
Original estimate	\$0	\$45,000	\$45,000
AUTHORIZATION			
Previous authorizations	0	0	0
Current request for authorization	0	0	0
Total authorizations, including this request	0	0	0
Remaining amount to be authorized	0	0	0

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Annual Budget Status and Source of Funds

The cost of funding the ILA for \$45,000 is within the \$60,000 annual expense budget authorization for the Maritime Habitat Initiatives line of business.

ATTACHMENTS TO THIS REQUEST

- (1) Presentation slides
- (2) Draft interlocal agreement with the University of Washington

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

There have been no specific Commission actions or briefings related to the Bio-Barge Research Project.