

Jefferson County  
**Marine  
Resources  
Committee**

**Tues, February 6, 2024  
6:00-8:00PM  
Hybrid Meeting**

Join in-person: **Point Hudson Pavilion Building Room (355 Hudson St.)** in Port Townsend

Join by computer/device: <https://us06web.zoom.us/j/81371408943>

Join by phone: +1 (253) 215-8782 US (Tacoma)

Meeting ID: 813 7140 8943

**MEETING AGENDA**

**Officers/Executive  
Committee:**

Gordon King, Chair  
Betsy Carlson, Vice Chair  
Jeff Taylor, NWSC Rep  
Sarah Fisken, NWSC Alt

**MRC Members:**

Janette Mestre, District 1  
Brad Bebout, District 1  
Timothy Behrenfeld, Dist 1 Alt  
Brenda Johnson, District 2  
Jeff Taylor, District 2  
Frank Handler, District 2 Alt  
Sarah Fisken, District 3  
Joanie Hendricks, District 3  
Tim Cross, District 3 Alt  
Betsy Carlson, Envir/Conserv  
Bryan DeCaterina, Env/Cons Alt  
Carol Hasse, Port of PT  
Gordon King, Commercial  
Emily Buckner, Marine Science  
Christopher Kelley, Marine Sci Alt  
Heidi Eisenhour, BoCC  
Troy McKelvey, Recreation  
Roy Clark, Recreation Alt  
Judy Surber, City of PT  
Neil Harrington, Tribal

**Staff:**

Monica Montgomery, Coordinator  
Robert Simmons, WSU Faculty  
c/o WSU Jefferson Extension  
121 Oak Bay Rd  
Port Hadlock, WA 98339  
[www.jeffersonmrc.org](http://www.jeffersonmrc.org)  
[jeff.co.mrc@gmail.com](mailto:jeff.co.mrc@gmail.com)

**6:00** Call to Order & Introductions

**6:05** Amendments to/Approval of Agenda  
Amendments to/Approval of January 2024 Minutes

**6:08** Public Comment

**6:10** **Guest Speakers:** Steve King and Andre Harper, City of Port  
Townsend – Sewer Outfall Replacement Project

**6:25** **Port Update**

**6:30** **BoCC Update**

**6:35** **Recent Meeting Reports & Issue Updates**  
NWSC January Meeting Update (Sarah)

**6:40** **Administrative Updates**  
Needs Assessment Update (Monica - 2 min)  
Internship Reflections - 2 min  
Potential Vote: Letter of Support for Salish Sea Model - 6 min  
Potential Vote: Letter of Support for NW Straits Foundation - 6 min  
Local Youth Representative Discussion - 10 min

**7:06** **Current and New Project Updates**

- Potential Vote: DEI Consultant Contract (Nam - 15 min)
- Storm Surge Monitoring (Jeff - 5 min)
- Shoreline Landowner Outreach (Sarah)
- Forage Fish (Dabob-Sarah)
- Education & Outreach (Joanie)
- Kelp (Emily)
- Derelict Vessels (Heidi)

**7:47** Public Comment

**7:50** Call for Future Agenda Topics/Speakers

**7:52** MRC Member Roundtable/Announcements

**8:00** Adjourn

## **Upcoming Meetings & Events:**

February 7, 5-6pm – MRC Education & Outreach subcommittee meeting

February 12, 9-930am – Kelp subcommittee check-in

February 20, 830-930am – MRC Executive Committee meeting

February 23, 10am-3pm – NWSC meeting ([in-person](#))

February 25, 3-4pm – Port Townsend Marine Science Center Future of Oceans Lecture:  
“Water, Wonder, and Wellness: How Living by Water Makes Life Better” by Paola  
Espitia at Fort Worden Chapel ([details here](#))

March 5, 6-8pm – MRC monthly meeting (location TBD)

March 6, 5-7pm – Joint Clallam-Jefferson MRC meeting at Red Cedar Hall

March 16, 5-9pm – Port Townsend Marine Science Center Auction Dinner ([details here](#))

2nd Wednesdays at 1pm and 4th Wednesdays at 5:30pm – Port of PT [Meetings](#)

Mondays, 9am – Jefferson County BoCC [Meetings](#)



## CONSULTANT SERVICES AGREEMENT

**PROJECT:** Jefferson County Marine Resources Committee & Strait Ecosystem Recovery Network communication and meeting/organization structure around diversity, equity and inclusion

**CONSULTANT:** Usawa Consulting, L.L.C.

THIS AGREEMENT is made and entered into by and between the North Olympic Peninsula Resource Conservation & Development Council (*hereinafter referred to as the "NODC"*) and Usawa Consulting, L.L.C. (*hereinafter referred to as the "Consultant"*) for the furnishing of consultant services for the Jefferson County Marine Resources Committee & Strait Ecosystem Recovery Network communication and structure guidance around diversity, equity and inclusion.

The NODC and Consultant mutually agree as follows:

### **SCOPE AND SCHEDULE OF WORK**

1. Provide feedback and guidance on Jefferson MRC meeting structure, including expanding opportunities for public comment, opening the circle, welcoming in more quality community participation;
2. Provide observations, guidance and suggestions for the ways we conduct our programs;
3. Provide observations, guidance and suggestions for reaching broader avenues and audiences for recruitment and community engagement;
4. Consult with Jefferson MRC DEI subcommittee and Strait ERN Coordinator to scope out the idea of holding a focus group within the community to open meetings to more diverse voices and perspectives.

### **DELIVERABLES**

- Written report with summary recommendations for items 1 through 4 above, as well as proposal of next-steps and further DEI consultant work per those recommendations.

### **COMPENSATION**

Contractor will be reimbursed for the work performed within the Scope of Work listed above, which also corresponds to Task 5.0 (and all associated Sub-Tasks) in NODC's grant contract with the Puget Sound Partnership, at the following hourly rate (*billed in 15-minute increments*):

- Total Hourly Rate: \$175.00, inclusive of all costs including administration and travel.

The total budget for this Contract shall not exceed \$3500.00.

### **LENGTH OF AGREEMENT**

The length of this agreement is from March 1, 2024 to September 30, 2024.



## **RATE AND FEE SCHEDULE AND OUT-OF-POCKET EXPENSES**

NODC shall not be responsible for payment of any fees and out-of-pocket expenses in excess of the amount agreed to in the scope of work. Consultant shall submit detailed invoices on a monthly basis for work completed for each client. NODC will process payment within 30 days of receipt.

## **REPRESENTATIVES**

The NODC's Project Manager and Consultant's Representative for this Agreement are as specified. Alternate representatives may be appointed by either party with written notice to the other party.

### **NODC's Project Manager:**

Karen Affeld, Executive Director  
North Olympic Peninsula Resource Conservation & Development Council P.O.  
Box 2526, Port Angeles, WA 98362  
360-477-1593  
[karen@noprkd.org](mailto:karen@noprkd.org)

### **Consultant's Representative:**

Tonia Burkett, Founder/Facilitator at Usawa Consulting, L.L.C.  
1634 Jackson St, Port Townsend, WA 98368  
(503) 395-8262  
[tonia@usawaconsulting.com](mailto:tonia@usawaconsulting.com)

## **TERMS AND CONDITIONS**

In consideration of the mutual covenants, obligations, and compensation to be paid by the NODC to Consultant, it is agreed that:

### **1. Relationship of the Parties**

Consultant, its subconsultants and employees, is an independent Contractor. Nothing contained herein shall be deemed to create a relationship of employer and employee or of principal and agent.

### **2. Conflicts of Interest**

Consultant warrants that it has no direct or indirect economic interest which conflicts in any manner with its performance of the services required under this Agreement. Consultant warrants that it has not retained any person to solicit this Agreement and has not agreed to pay such person any compensation or other consideration contingent upon the execution of this Agreement.

### **3. Compliance with Laws**

Consultant agrees to comply with all local, state, tribal and federal laws and regulations applicable to the services, including registration and taxes, permitting regulations and those regarding employee safety, the work place environment, and employment eligibility verifications as required by the Immigration and Naturalization Service. Consultant shall obtain all licenses and permits required to complete the scope of work as defined. Consultant acknowledges that services are being funded by a federal award from the Environmental Protection Agency and Consultant must comply with all applicable federal laws, regulations, executive orders, and terms and conditions of the funding award.

### **4. Suspension and Debarment**

By signing this agreement, the Consultant verifies that it has not been suspended or debarred from working on federally funded projects.

### **5. Records and other Tangibles**



Until the expiration of six years after the term of this Agreement, Consultant agrees to maintain accurate records of all work done in providing services specified by the Agreement and following Consultant's receipt of final payment therefore to deliver such records to NODC upon termination of the Agreement or otherwise as requested by NODC.

## **6. Ownership of Work**

The services to be performed by Consultant shall be deemed instruments of service for purposes of the copyright laws of the United States. NODC has ownership rights to the work products prepared by the Consultant in performing these services. Consultant shall not be responsible for changes made in the work products by anyone other than the Consultant. Consultant shall have free right to retain, copy and use any tangible materials or information produced but only for its own internal purposes. Use of documents or other materials prepared under this Agreement for promotional purposes shall require NODC's prior consent.

## **7. Disclosure**

All information developed by the Consultant and all information made available to the Consultant by NODC, and all analyses or opinions reached by the Consultant shall be confidential and shall not be disclosed by the Consultant without the written consent of NODC except to the extent required by law or legal process.

## **8. Deliverables**

Unless otherwise specified in the Scope of Work, Consultant shall provide draft deliverables to NODC for review prior to preparation of final deliverables. Delivery of materials produced shall consist both of the tangible materials and any and all computer files used in the creation of the tangible product in the original format in which it was created and a PDF format or other format specified by NODC.

## **9. Compensation**

As full compensation for the performance of its obligations of this Agreement and the services to be provided, NODC shall pay Consultant as specified in the Agreement. Hourly rates shall include all of Consultant's routine administration and overhead expenses, including all equipment, software, tools and supplies reasonably required to perform the scope of services. NODC will not separately reimburse Consultant for routine overhead expenses or administration including but not limited to:

- Computer hardware or software usage
- Digital camera or recording equipment
- Communications - including phone, internet, fax, postage and courier
- Routine reproduction except for documents produced by outside vendor
- Small tools and expendables.
- Federal, state or local taxes
- Safety training and equipment
- Time devoted to Agreement negotiation, invoicing or dispute resolution.

## **10. Payment Schedule**

Consultant shall submit detailed numbered invoices showing description of work items being invoiced, title of project, total authorized, total current invoice, balance of authorization, individual's names and titles, hours, hourly rate and all authorized expenses itemized, with backup, by the 10<sup>th</sup> of the month to be paid within 30 days of receipt, unless other terms are agreed to by the parties.

## **11. Costs and Disbursements**

Consultant shall pay all costs and disbursements required for the performance of its services under this Agreement.

## **12. Indemnity**

For all claims arising from the performance of the Consultant's professional services Consultant and its subconsultants agree to indemnify and hold harmless NODC, its appointed and elective officers and its employees from and against any



and all suits, claims, actions, losses, costs, penalties and damages of whatever kind and nature, including attorney fees and costs, by reason of any and all claims and demands on it, its officers and employees, to the extent arising from the negligent acts, errors or omissions by the Consultant in the performance of the Consultant's professional services.

### **13. Insurance**

Prior to commencement of services under this Agreement and if required below, Consultant shall procure and maintain one or more lines of insurance coverage to be kept in force for the life of this Agreement. If required, insurance shall be procured from insurance carriers with a current A.M. Best's rating of no less than "A VI". Consultant shall submit to NODC a Certificate of Insurance which shows that it has obtained the required coverage(s). Coverage shall not lapse or be terminated without written notification to NODC, delivered electronically or by mail, not less than thirty (30) days prior to any such lapse or termination. Consultant agrees to notify NODC of any material change of coverage or reduction in limits. Except for professional liability, NODC shall be named as an additional insured on all policies on ISO Form CG 20 10 Form B.

This Agreement  [Does]  [Does not] require commercial general liability insurance. If neither box is checked, commercial general liability insurance is required. If required, the following will apply:

Consultant shall procure and maintain during the life of this Agreement commercial general liability coverage on occurrence form CG0001 or equivalent with limits of \$1,000,000 per occurrence and \$2,000,000 aggregate;

This Agreement  [Does]  [Does not] require automobile liability insurance. If neither box is checked, automobile liability insurance will be required. Consultant shall procure and maintain during the life of this Agreement automobile liability insurance covering owned, non-owned and hired vehicles of \$1,000,000 combined single limit per accident. Sole proprietors may provide coverage on a Personal Auto Policy in lieu of a Commercial Auto coverage form.

This Agreement  [Does]  [Does not] require Professional Liability insurance coverage. If neither box is checked, the Agreement does require this coverage. Consultant shall procure and maintain during the life of this Agreement professional liability insurance of \$1,000,000 per claim and in the aggregate. Insurance shall have a retroactive date before the date of commencement of services and shall remain in effect for the term of this Agreement plus three years.

### **14. Force Majeure**

Neither NODC nor the Consultant shall hold the other party responsible for damages or delay in performance caused by acts of god, strikes, lockouts, accidents, or other events beyond the control of the other or the other's employees and agents.

### **15. Standard of Care**

Consultant shall perform its work to conform to generally accepted professional standards. Consultant shall be responsible for the professional quality, technical adequacy and accuracy, timely completion and coordination of all deliverables prepared under this Agreement. Consultant shall, without additional compensation, correct or revise any errors or omissions in such deliverables. NODC's approval of deliverables shall not relieve Consultant of responsibility for the adequacy or accuracy thereof. The Consultant shall remain liable for damages and costs incurred by NODC to the extent arising from the Consultant's errors, omissions or negligent performance of services furnished under this Agreement.

### **16. Competitive Specification**

This Agreement  [Does]  [Does not] require development of plans or specifications. If required, the following paragraph shall apply:

Consultant shall provide for the maximum use of materials, equipment, construction methods and products that are readily available through competitive procurement, or through standard or proven production techniques. Consultant shall not produce a design or specification which would be restrictive or written in a manner as to contain proprietary requirements other than those based on performance, unless such requirements are necessary to demonstrate a specific outcome or to provide for necessary interchangeability of parts and equipment. Consultant shall justify in writing the use of any sole source. Where brand names are identified, they shall be followed by the salient product performance



characteristics and the words “or approved equal” so that comparable quality or utility may be determined.

### **17. Time**

Time is of the essence in the performance by the Consultant of the services required by this Agreement. The Consultant shall complete its services within the milestones set forth in the project schedule. The Consultant shall also address issues which may result in completion beyond the established schedule or budget.

### **18. Assignability**

Consultant shall not assign any interest in this Agreement and shall not transfer any interest in the Agreement to any party without prior written consent of NODC.

### **19. Term of this Agreement**

The effective dates of this Agreement are as specified. This Agreement may be terminated by NODC for cause when NODC deems continuation to be detrimental to its interests or for failure of the consultant to perform the services specified in the Agreement. NODC may terminate this Agreement at any time for its convenience in which case it shall provide notice to the Consultant and reimburse the Consultant for its costs and fees incurred prior to the notice of termination. This agreement may be terminated by the Consultant at any time with 30 days’ notice. The provisions and warranties contained in this Agreement that by their sense and context are intended to survive the completion of performance or termination of this Agreement shall so survive. All indemnities provided in this Agreement shall survive the expiration or any earlier termination of this Agreement.

### **20. Disputes**

If a dispute arises relating to this Agreement and cannot be settled through direct discussions, the parties agree to endeavor to settle the dispute through a mediation firm acceptable to both parties, the cost of which shall be divided equally. NODC reserves the right to join any dispute under this Agreement with any other claim in litigation or other dispute resolution forum, and the Consultant agrees to such joinder, so that all disputes related to the project may be consolidated and resolved in one forum. Venue for any litigation shall be the Clallam County Superior Court of the state of Washington and the prevailing party shall be entitled to recover its costs and reasonable attorney fees.

### **21. Extent of Agreement**

This Agreement represents the entire and integrated understanding between NODC and Consultant and may be amended only by written instrument signed by both NODC and Consultant.

### **22. Order of Precedence**

The provisions of this Agreement are complimentary and shall be interpreted to give effect to all of its provisions. Any inconsistency in this Agreement shall be resolved in the following order of precedence:

- A. Consultant Services Agreement including Terms and Conditions, as modified by the latest amendment.
- B. Attachment A, Scope of Work, as modified by the latest amendment.

### **AGREED**

This agreement is expressly conditioned upon the Terms and Conditions and any Attachments attached and by reference incorporated herein. Consultant acknowledges reading this Agreement, understands it and agrees to be bound by its Terms and Conditions.



**NORTH OLYMPIC PENINSULA  
RESOURCE AND DEVELOPMENT  
COUNCIL (NODC)**

**TONIA BURKETT, CONSULTANT**

By: \_\_\_\_\_

Karen Affeld

By: \_\_\_\_\_

Tonia Burkett

Title: Executive Director

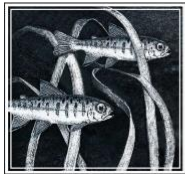
Title: Founder/Facilitator, Usawa Consulting

Date: \_\_\_\_\_

Date: \_\_\_\_\_

DRAFT





Jefferson County  
**Marine  
Resources  
Committee**

January 23, 2024

Tracy Fanara, Ph.D.  
NOS Coastal Modeling Portfolio Manager  
U.S. Integrated Observing System  
1315 East-West Highway, 2<sup>nd</sup> Floor  
Silver Spring, MD 20910

RE: NOAA-NOS-IOOS-2024-2008197 FFO titled "FY2021 Coastal and Ocean Modeling Testbed Project"

Dear Dr. Fanara,

I am pleased to write a letter of support for the grant application from the [Salish Sea Modelling Center \(SSMC\)](#) at the University of Washington, and partners, entitled "Salish Sea & Columbia River Operational Forecast System (SSCOFS) v2: Refinement, Skill Improvement, and Enhancements including BGC and Exposure Forecasts for Pathogens and Harmful Algae Blooms".

The Jefferson County Marine Resources Committee (MRC) is a county advisory group to the Jefferson Board of County Commissioners and one of seven MRCs that are part of the regional Northwest Straits Marine Conservation Initiative. Our MRC is largely comprised of volunteer members working to protect and restore the marine and nearshore ecosystems of East Jefferson County, by advising locally elected officials, implementing hands-on marine stewardship projects, and promoting an ethic of stewardship within our community. Our work is informed by the best available science and informational tools such as the [Salish Sea Model](#) developed by the Pacific Northwest National Laboratory (PNNL).

In March 2023, the MRC invited Dr. Tarang Khangaonkar, Director of the Salish Sea Modeling Center, to present on the shoreline resolving version of the Salish Sea Model for quantifying residence and flushing times and we've since worked with Dr. Khangaonkar to prepare a site-specific animation of currents near North Beach County Park. Our MRC and other partners, including the WA Department of Natural Resources and Puget Sound Restoration Fund, engage in long term monitoring projects for bull kelp beds in this area, known to have a healthy bull kelp population and one of the most intact and biodiverse macroalgal communities in Washington. The model improved our understanding of how the currents influence kelp beds in this area – we found it interesting to see how the largest bull kelp beds we observe here line up with the areas of highest current velocity. Also concerned about an aging sewer outflow within the vicinity, the model helped us to understand how wastewater flows, with the currents almost always flowing east both during the flow and ebb tides. We were also able to ground

truth the Salish Sea Model, confirming that the currents can indeed reach and exceed 1 m/s as predicted by the model.

We were thrilled to learn from Dr. Khangaonkar that SSCOFS will be fully implemented in 2024 and of additional plans to further develop the model with the addition of coastal estuaries, improvements to the Columbia River domain and skill, and more vertical layers and lateral resolution. Expanding the capabilities for biogeochemical (BGC) water quality parameters such as phytoplankton, DO, pH, with forecasts for exposure to fecal bacteria (FB) and harmful algal blooms (HABs) are also of great interest to our MRC. The fully tested and operational Salish Sea Model will undoubtedly improve our understanding of site-specific conditions in our area of the Salish Sea and help to inform local level decision-making. We deeply value the work proposed as it complements our collective mission to achieve a healthy marine environment.

Sincerely,

Gordon King, Chair  
Jefferson County Marine Resources Committee

COMT 2024 – Project Title: **Salish Sea & Columbia River Operational Forecast System (SSCOFS) v2: Refinement, Skill Improvement, and Enhancements including Water Quality and Exposure Forecasts for Pathogens and Harmful Algae Blooms**

**Proposal Summary DRAFT**

**Scientific PI and Primary Contact:** *Tarang Khangaonkar*, Director – Salish Sea Modeling Center (SSMC) **University of Washington (UW)** Tacoma, 326 East D Street, Tacoma, WA 98421-1801, Ph. (206) 612-1598, e-mail: [Tarangk@uw.edu](mailto:Tarangk@uw.edu)

**Primary Recipient Institution:** University of Washington, Tacoma (**UW Tacoma**)

**CO-Investigators:** Lakshitha Premathilake, Adi Nugraha, Cheryl Greengrove, **UW Tacoma**

**CO-PI:** *Wenfei, Ni*, and **CO-I** Su Kyong Yun, Pacific Northwest National Laboratory (**PNNL**)

**Transition PI:** Cristina Urizar, Oceanographer, **NOS CO-OPS**

**Transition CO-PI:** Roxanne Carini, **NANOOS**, Applied Physics Lab, **UW Seattle**

**Technical POCs:** *Machuan Peng*, **NOS CO-OPS** and *Lei Shi*, **NOS CSDL**

**Science Advisor:** *Edward Myers and Corey Allen* – **NOS CSDL**

**Operator 1:** *Patrick Burke*, Chief Ocean. Division - **NOS CO-OPS** (Hydrodynamics)

**Operator 2:** *Tarang Khangaonkar*, Director, **SSMC, UW Tacoma** (Biogeochemistry)

**IOOS Regional Association NANOOS:** Jan Newton, Applied Physics Lab, **UW Seattle**

**2.0 Project Summary:** The SSCOFS developed by PNNL using the Finite Volume Community Ocean Model (FVCOM) framework, is in *operational beta testing* phase at NOAA’s National Ocean service (NOS) and will be fully implemented in 2024. While still in early stages of deployment with a focus on navigation and emergency response, the potential for additional benefits from the NOS operated SSCOFS through future enhancements is highly appreciated by the broader ecosystem research communities, recreation, fishing and shellfish industry, and water quality management agencies. As with any new model development, there is much room to improve in terms of model-resolution, model-skill, and enhancements towards ecosystem forecast capabilities. Based on user community feedback, and a detailed review of the model skill, a follow-on effort is proposed towards an improved version 2 of SSCOFS.

Part 1 of this proposal targets COMT24 priority focus areas under B.1 Advancing Coastal Component of the Unified Forecast System (1) Improvements to Temperature and Salinity Predictions, (2) Improvements to Nearshore Ocean dynamics through model refinements. We will target (a) doubling of vertical number of layers from 10 to 20 based on navigation community needs, and (b) increase in lateral resolution by a factor of 3 or 4 to for improved skill compliance with NOS skill standards. Scope includes additional spatial coverage in the upper Columbia River, and refinement of Pacific Coast estuaries within SSCOFS domain covered by the Physical Oceanographic Real-Time System (PORTS) program. In 2023, NOAA completed the Columbia River tidal current survey. New ADCP data from 25 stations from Astoria, OR to Vancouver WA are now available to facilitate a focused effort on the Columbia River domain to complete the refinement associated with added coverage and robust testing for improved performance and model skill for water surface elevation, temperature (T), and salinity (S).

Part 2 of this proposal targets priority area B.2 Coastal Resilience and Ecosystem Modeling (1) Advancement of BGC Models to support Ocean Acidification, harmful algal blooms (HABs), parasite, and bacteria predictions. The Salish Sea ecosystem management community is in urgent need of operational forecasts to minimize the risk of exposure to pathogens such as fecal bacteria (FB) and harmful algal blooms (HABs) toxins. Shellfish growing areas in the Salish Sea are frequently impacted by the presence of FB delivered by stormwater outfalls and agricultural

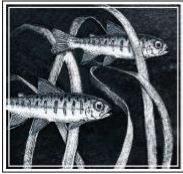
runoff resulting in closures due to potential human health risk. In 2022, 64 shellfish growing areas out of a total of 130 were closed due to FB contamination. Similarly, in 2022, the number of HAB events doubled; 18 commercial and 29 recreational shellfish harvest areas were closed due to HABs and biotoxins related shellfish poisoning. Ecosystem and human health emergency responders such as the Department of Health (DOH) and Ecology, responsible for managing exposure to contaminants from stormwater, combined sewer overflows, and harmful algal blooms, currently lack the benefit of real time forecasts of the marine waters.

We propose the development of SSCOFsv2 and its transition to the designated operators (1) NOS for hydrodynamic forecasts and (2) Ecology for water quality (DO, pH), HABs and FB levels. The following targeted activities will be conducted to achieve this outcome.

- (1) Domain Refinement and Expansion: The existing 10-layer 240k node sigma coordinate setup of SSCOFs will be updated to 20-layers and over 1 M nodes in lateral resolution with cells as fine as 25m in selected bays. We will also add coverage for major coastal estuaries such as Quillayute River, Grays Harbor, Willapa Bay, Tillamook Bay, and Yaquina Bay along Washington-Oregon coast. The existing Columbia River domain will be expanded to include regions of highwater flats beyond the main stem.
- (2) Robust Testing & Model Skill Improvement (Tide, Currents, T & S): SSCOFsv2 with the higher resolution and smaller timestep will be re-calibrated and subjected to robust testing and skill assessment using data from multiple years. Year 2022-2023 data collected by CO-OPS will be used to evaluate skill in the Columbia River Regions. Effort will focus on distributed bed friction and heat flux kinetics to ensure tides, currents, T and S skills are within NOS criteria. ADCP data from Years 2015 to 2017 from 130 stations will be used to revisit and improve model skill in the Salish Sea region.
- (3) Ecological Forecasts for Salish Sea including Intertidal Habitats. SSCOFsv2 based water quality forecasts for the Salish Sea will be generated including the intertidal regions of numerous sub-estuaries that host eelgrass beds, and tidal marshes that are a vital salmon habitat and potential mitigation against ocean acidification and hypoxia. Domain wide forecasts of conventional biogeochemical constituents (nutrients, phytoplankton, detritus, zooplankton) with focus on dissolved oxygen (DO) and pH will first be generated through coupling with an established water quality model of this region (FVCOM-ICM). We will extend our efforts on the following two areas of importance.
  - Fecal Bacteria (FB) Concentration Forecasts: The existing fecal bacteria module within FVCOM-ICM will be improved and validated to generate operational forecast of FB concentrations at selected priority shellfish growing areas. This real-time information may be used to trigger field operations and response for DOH and Ecology to make decision on closure and reopening of shellfish beds.
  - Toward Harmful Algal Blooms (HABs) Predictions: A predictive framework for the risk level of the occurrence of HABs within Salish Sea will be developed based on forecasts of environmental factors using a classification algorithm. Two-day forecasts of risk maps for *Alexandrium catenella* and *Dinophysis* blooms will be generated to provide early warning for coastal communities with a focus on nearshore shellfish growing areas.

**Collaborating Partners:** Amy McFadyen, Chris Barker/NOAA-OR&R, Scott Berbells/ DOH, Helen Berry/DNR, Karen DuBose /Skagit County, Erica Douglas/Whatcom County, James

Kardouni/Ecology, Kara Kuhlman/Lummi Nation, Catherine Gockel/U.S. EPA, Michelle Lepori-Bui/WA.Sea Grant



Jefferson County  
**Marine  
Resources  
Committee**

February 7, 2024

Address to

RE: Support for Adelma Beach Bulkhead Removal and Restoration Project

Dear Name,

The Jefferson County Marine Resources Committee (MRC) wishes to express its support for the Adelma Beach Bulkhead Removal and Restoration Project. The Jefferson MRC is a county advisory group to the Jefferson Board of County Commissioners and one of seven MRCs that are part of the regional Northwest Straits Marine Conservation Initiative, along with the NW Straits Commission and NW Straits Foundation. Our MRC is largely comprised of volunteer members working to protect and restore the marine and nearshore ecosystems of East Jefferson County, by advising locally elected officials, implementing hands-on marine stewardship projects, and promoting an ethic of stewardship within our community.

One of the Jefferson MRC's projects is focused on educating shoreline property owners about how shoreline processes work so that they can choose the best options for protecting their properties while promoting healthy shorelines and wildlife habitat. For this work, we have been a long-time partner of the Northwest Straits Foundation's Shore Friendly Program, co-organizing educational workshops and site visits to provide science-based education, promote community involvement, and connect local landowners with Shore Friendly's technical expertise and shoreline restoration opportunities. The Adelma Beach bulkhead removal and restoration project resulted from direct outreach by the MRC and Northwest Straits Foundation to shoreline homeowners.

For over six years, the MRC monitored a nearby stretch of shoreline at Adelma Beach as an established Washington Department of Fish and Wildlife (WDFW) forage fish index site, documenting both Pacific sand lance and surf smelt spawning during the fall and winter months. Removal of the bulkheads and cabins from the proposed project site will restore sediment processes and create additional spawning habitat currently buried under these structures. As an active partner in the Shore Friendly program, the Jefferson County Marine Resources Committee fully supports this effort and urges you to consider investing in this project.

Sincerely,

Gordon King, Chair  
Jefferson County Marine Resources Committee