

WASHINGTON COASTAL MARINE ADVISORY COUNCIL MEETING

Wednesday, March 19, 2025

Part 1 from 10:00am – 11:30am | Part 2 from 12:00pm – 1:20pm

[TVW's Broadcast Channel](#)

[Link to Materials](#)

[Public Comment Sign-up](#)

Please note that this is a fully remote meeting

Zoom link: <https://us02web.zoom.us/j/82867610842?pwd=o7CGjr9xAfnFtvbMR03qwl3fUaodYp.1>

Meeting ID: 828 6761 0842

Passcode: 031925

Call in number: 1-253-205-0468

March 19th, 2025 Agenda

Time	Agenda Item and Description	Objective	Presenter(s)
10:00 (25 min)	Welcome and Introductions, Agenda Review <ul style="list-style-type: none">Acknowledge recording of WCMAC meetingWelcome from ChairReview agenda, meeting ground rulesRoll call and introductionsEncourage public comments via chatAdopt the summary of December meeting minutes	Information, Action <i>Reference Materials:</i> <ul style="list-style-type: none">March 2025 AgendaDraft December 2024 Meeting Summary (Appendix A)	<ul style="list-style-type: none">Rod Fleck, ChairNicole Gutierrez, Facilitator
10:25 (15 min)	WCMAC Updates <ul style="list-style-type: none">Membership updatesAnnouncements	Information, Action	<ul style="list-style-type: none">Nicole Gutierrez, Facilitator
10:40 (20 min)	WCMAC Work Plan & Accomplishments Review <ul style="list-style-type: none">2024 WCMAC Accomplishments2025 – 2026 work plan	Information, Discussion	<ul style="list-style-type: none">Nicole Gutierrez, FacilitatorAlle Brown-Law, Facilitator
11:00 (30 min)	Updates <ul style="list-style-type: none">Governor's Office UpdatesMRC UpdatesAgency UpdatesGeneral Coastal UpdatesOffshore Wind (OSW) Updates<ul style="list-style-type: none">Executive Order on OSWMRAC Update	Information, Discussion <ul style="list-style-type: none">Technical Committee Meeting Summaries (Appendix B)	<ul style="list-style-type: none">Nicole Gutierrez, FacilitatorOther State Agency representativesWCMAC members

Time	Agenda Item and Description	Objective	Presenter(s)
11:30 (10 min)	Public Comment <ul style="list-style-type: none"> • Link to sign up for public comment. • Encourage commenters to limit their comments to no more than 2-minutes to allow for all public comments to be received. 	Discussion	<ul style="list-style-type: none"> • Public/Observers • Nicole Gutierrez, Facilitator
30 min break at 11:40am Reconvene at 12:10pm using the same Zoom link			
12:10 (20 min)	Ecology MSP Update <ul style="list-style-type: none"> • New Ecology website • New data viewer on Coastal Atlas • Data gaps assessment report published 	Information <ul style="list-style-type: none"> • Access report here 	<ul style="list-style-type: none"> • Casey Dennehy, Ecology • Mai Aoki, Ecology
12:30 (30 min)	Coastal Zone Management 309 Enhancement Strategy <ul style="list-style-type: none"> • 2026-2030 strategy update • Re-opened public comment 	Information <ul style="list-style-type: none"> • See more information here 	<ul style="list-style-type: none"> • Casey Dennehy, Ecology • Noah Linck, Ecology
1:10 10 min	Public Comment <ul style="list-style-type: none"> • Link to sign up for public comment. • Encourage commenters to limit their comments to no more than 2-minutes to allow for all public comments to be received. 	Discussion	<ul style="list-style-type: none"> • Public/Observers • Nicole Gutierrez, Facilitator
1:20	Adjourn and Next Steps		<ul style="list-style-type: none"> • Nicole Gutierrez, Facilitator

Meeting Ground Rules

1. Be Respectful

- Listen when others are speaking. Do not interrupt and do not participate in side conversations. One person speaks at a time.
- Recognize the legitimacy of the concerns and interests of others, whether or not you agree with them.
- Cooperate with the facilitator to ensure that everyone is given equitable time to state their views. Present your views succinctly and try not to repeat or rephrase what others have already said.
- Silence cell phones and refrain from using laptops during the meeting, except to take notes.

2. Be Constructive

- Participate in the spirit of giving the same priority to solving the problems of others as you do to solving your own problems.
- Share comments that are solution focused. Avoid repeating past discussions.
- Do not engage in personal attacks or make slanderous statements. Do not give ultimatums.
- Ask for clarification if you are uncertain of what another person is saying. Ask questions rather than make assumptions.
- Work towards consensus. Identify areas of common ground and be willing to compromise.
- Minimize the use of jargon and acronyms. Attempt to use language observers and laypersons will understand.

3. Be Productive

- Arrive on time and stay until the meeting is adjourned.
- Adhere to the agenda. Respect time constraints and focus on the topic being discussed.
- Volunteer for tasks between meetings.

4. Bring a Sense of Humor and Have Fun.



Appendix A. December 2023 Meeting Summary

Please see meeting summary on next page.

Washington Coastal Marine Advisory Council Meeting

Draft Summary

Tuesday, December 03, 2024

Part 1 from 10:00am – 12:00pm

Part 2 from 1:00pm – 3:30pm

This meeting summary provides key action items and discussion highlights from the WCMAC meeting. For more, see below:

- **Meeting materials and presentations can be found on the WCMAC website:**
<https://www.ezview.wa.gov/?alias=1962&pageid=37058>
- **Meeting recordings – which contain full transcripts – can be viewed here:** [Washington Coastal Marine Advisory Council - TVW](#)

Highlights

- Rod Fleck was confirmed as the WCMAC Chair for 2025.
- Peter Steelquist was confirmed as the WCMAC Vice Chair for 2025.
- WCMAC welcomed Kate Litle as a new member, representing Washington State Sea Grant.
- Members discussed and set objectives and priorities for the 2025 work plan to guide the year ahead.
- WCMAC received a presentation from COHORT and anticipates collaborating with them in the coming years.
- The Council approved a motion for the Chair to send a letter to the incoming Governor and Public Lands Commissioner, introducing WCMAC and highlighting its recent achievements and future priorities.

Upcoming Meetings

- Next WCMAC Meeting: March 19, 2025

WCMAC Members Present	
Anderson, Phil - Recreational Fishing	Litle, Kate – WA Sea Grant
Beugli, David – Shellfish Aquaculture	Niles, Corey – DFW
Blake, Brian – Commercial Fishing	Niles, Matt – State Parks
Bold, Molly – Coastal Port	Polagye, Brian – Energy Organization
Conrad, Michele – Coastal Economic Development Group	Rechner, Michael – DNR
Culbertson, Paula – Wahkiakum MRC	Sessions, Carrie – Governor's Office
Dalan, Garrett – Grays Harbor MRC	Steelquist, Peter – Coastal Recreation
Dolsak, Nives – Educational institution	Talebi, Bobbak - Ecology
Fleck, Rod – North Pacific MRC	Thevik, Larry – Commercial Fishing

Council Members Absent

Arkema, Katie – Science Organization	Nordin, Michael – Pacific MRC
Bowman, Stephanie - Commerce	Zimmerman, Mara - WA Coast Salmon Partnership
Meinig, Christian – Coastal Energy	

Others Present (as noted on the sign-in sheet & Zoom log-in)

Aoki, Mai – Ecology	Mehzun, Merha (Cristina Navarro)
Bell, Henry - Ecology	Nevitt, Kristine – Ecological Economists
Biggs, Chris - WDFW	Nightengale, David
Brown-Law, Alle - Facilitator	Okoniewski, Mike - West Coast Pelagic Conservation Group
Chappelka, Ellen – WA Emergency Management Division	Rolf, Jenna - Makah Tribe
Decker, Kevin - WA Sea Grant	Skelton, Ann – Pacific County MRC
Dennehy, Casey - Ecology	Sritrairat, Sanpisa – WA Sea Grant
Gillett, Maya - BlueGreen Alliance	Thai, Quyen - City of Tacoma
Gutierrez, Nicole - Facilitator	Wells-Yoakum, Kayla - WSU
Krienitz, Jay - Ecology	Wright, Teri - Forest/Salmon/Orca Advocate
Lucine, Rachel	Zimmerman, Olivia - ECY
May, Heather - Ecology	

Welcome and Introductions

- The meeting agenda, ground rules, and expectations for WCMAC members and public observers were reviewed.
- The September Meeting WCMAC Meeting Summary and reviewed the edits were provided.
 - Larry Thevik moved to approve the September Meeting WCMAC Meeting Summary. Phil Anderson seconded the motion. Meeting minutes were adopted.

WCMAC Updates

Announcements

- WCMAC meeting dates for 2025 were shared. Dates were selected to avoid potential overlap with other important marine and coastal meeting dates. The meeting dates are as follows:
 - March 19, 2025; June 4, 2025; October 1, 2025; December 3, 2025
- Kate Litle, Deputy Director at WA Sea Grant, was welcomed as a new WCMAC member, representing WA Sea Grant.
 - Kate shared that she is excited to join WCMAC. She began her career 25 years ago at UW, working on the PNW Coastal Ecosystems Regional Study in Willapa Bay and Grays Harbor. She has since worked on citizen science projects in the coast and Salish Sea, earned a degree at School of Marine Affairs, and spent the last 15 years at Washington Sea Grant.

WCMAC Chair & Vice Chair Elections

[Meeting recording](#) 0:22:09 – 0:33:49

- WCMAC Chair and Vice Chair confirmations were held to fill the positions in 2025.
- **Chair Vote:** Rod Fleck provided a statement, sharing that he would like to continue serving for the remainder of his term on WCMAC (end of 2025), and continue to be a strong voice for what WCMAC wants to focus on in the upcoming year. It's been an interesting ride, and he's looking forward to one more year. He thanked WCMAC for the nomination.
 - Larry Thevik moved to approve Rod Fleck as Chair.
 - Peter Steelquist and Nives Dolsak seconded the motion.
 - WCMAC members approved Rod Fleck as chair with no opposition.
 - Nives thanked Rod for volunteering to serve one more year.
- **Vice Chair Vote:** Peter Steelquist, the WA Policy Manager for the Surfrider Foundation and a second-year member of WCMAC, shared his vision for the committee. He expressed a commitment to continuing WCMAC's important work during the Governor's transition. Highlighting the many pressing issues facing coastal communities, Steelquist emphasized the critical role of WCMAC as a voice for these communities and stated his desire to serve as Vice Chair.
 - Phil Anderson moved to approve Peter Steelquist as Vice Chair.
 - Rod Fleck seconded the motion.
 - WCMAC members approved Peter Steelquist as Vice Chair for 2025
- Rod Fleck thanked Mike Nordin for serving as Vice Chair during the 2024 year. Rod thanked Mike for his passion, dedication, and his commitment to the coast and his community.

Updates

[Meeting recording](#) 0:33:50 – 1:36:06

Governor's Office Update

- Carrie Sessions, Governor's Office Representative, provided an overview of several relevant Governor budget provisos that are still under consideration. The intent was to provide WCMAC with an update, facilitate a discussion, and gather initial feedback. See [Attachment A](#) for slides.
- Three provisos are currently under consideration that seek to do the following:
 1. Advance Science on OSW: Funding would be provided to the Dept. of Ecology to convene a state-Tribal science advisory panel to study OSW ecological impacts, develop mitigation measures, engage experts and stakeholders, create a prioritized science agenda, and report findings to the Governor and Legislature.
 2. State Authorities: Funding would be provided to Dept. of Ecology to clarify state law in federal OSW, improve readiness, test processes, consult Tribes, engage stakeholders, and report to the Governor and Legislature.
 3. OSW Supply Chain: Funding would be provided to Commerce and Maritime Blue to support the Blue Wind Collaborative and advance offshore wind supply chain studies, focusing on port readiness, workforce, and competitive advantage.

- WCMAC discussed the provisos and raised several questions and comments. Highlights are captured below, please refer to the recording for full discussion.
 - Concerns were raised about economic stagnation in rural areas of Washington State, emphasizing the desire to locate offshore wind manufacturing activities in coastal communities. Coastal ports were highlighted as potential hubs for OSW component manufacturing and export, particularly to support California's offshore wind projects.
 - Challenges include limited staff capacity and resources at coastal ports, though there is interest in increasing their involvement and building capacity to engage in these opportunities.
 - Some participants expressed concern about inconsistencies in how OSW development is approached in Washington compared to California. A specific critique was the lack of comprehensive science and understanding of environmental implications for the California Current and marine ecosystems off the California coast.
 - The discussion noted that while Washington has raised such concerns for its own projects, it continues to support California's offshore wind initiatives.
 - A projected \$10–\$12 billion budget shortfall for Washington State over the next four years was discussed. Programs reliant on general funds face potential cuts, while those funded through dedicated accounts like the Climate Commitment Act (CCA) are more protected.
 - CCA funds will continue to support efforts such as salmon recovery, ecosystem restoration, coastal capacity building, and pollution reduction initiatives.
 - OSW projects could be eligible for funding under the CCA, which has been a key enabler for new initiatives in clean energy, natural climate solutions, and clean transportation.
 - The role of WCMAC in advocating for OSW funding before the legislature was discussed. Timing of advocacy efforts was flagged as critical, with suggestions to engage early in the legislative session to influence decisions on budget allocations.
 - There is a desire for a Geographic Location Description for OSW, and more focus on the economic and social costs of OSW, especially since the State Energy Strategy projects OSW's cost-effectiveness may not come until 2045-2050.
 - The current map for overburdened communities, which determines CCA investment eligibility, uses a combination of health disparities data, tribal lands, and federal EPA data. It is specific to the 2023-25 biennium, but there is flexibility for agencies to consider self-identified overburdened communities. A new approach for the next biennium is being developed, with dashboards now available showing HEAL act and CCA investments.

MRC Updates

- **Grays Harbor MRC** had no updates to share at this time.
- **North Pacific MRC** share that the MRC summit was held and a highlight was learning about the work of the Quilete Tribe. There was informative presentations and overall a informative and successful event

- **Wahkiakum MRC** won a grant that will support the Wahkiakum Common Ground/Cohort, a group of people in the community that stimulate grassroots efforts for environmental and fisheries projects.
- **Pacific MRC** had no updates to share at this time.

Agency Updates

- **WA Department of Ecology** is actively responding to the hiring freeze announcement that was recently made by the Governor. Additionally, a new director for the Department of Ecology has been selected by the Governor Elect
- **WA Department of Fish and Wildlife** had no updates to share at this time.
- **WA Department of Natural Resources** is preparing for the transition for the new commissioner. Dave Upthegrove was elected and will transition in January. DNR has also been doing a lot of derelict structure removals and tire removals in Puget Sound. Right off of Tolemi State Park, removed about 27,000 tires from an artificial reef project. There's an additional site that's been identified – Dickman Mill Site in downtown Tacoma.
- **WA State Parks** had no updates to share at this time.

General Coastal Updates

- Phil Anderson shared that WA's recreational fishery had record lingcod landings, mainly in Westport. Canary rockfish guidelines have been halved, prompting new management measures. Halibut fishery performance remains stable, though biomass is low compared to a decade ago, and quotas may be reduced. Pacific whiting quotas for the commercial fishery are being set, with stock assessments pending. This fishery, crucial for Westport processing, faces tough negotiations with Canada.
- Kate Litle highlighted that the WA Sea Grant's biannual request for proposals will be released in January for two-year research projects. Priority areas include the Pacific Coast and Puget Sound. Successful projects in both categories were funded previously. Each project has about \$140k in federal funding per year, with a matching fund requirement. Information will be circulated through a future WCMAC newsletter.
- David Beugli shared that the WA Dept of Health effectively handled paralytic shellfish poisoning this summer, preventing layoffs and product recalls. While markets still feel some impact, industry collaboration with DOH and NOAA ensured a quick reopening of fisheries.

Technical Committee Updates

- **OSW Technical Committee (TC):** Larry Thevik, OSW TC co-lead, provided an overview of key updates that have occurred along the west coast since the last WCMAC meeting regarding OSW.
 - **TC update:** The TC has not finalized a draft of the Objective 2 Action Plan that was mentioned at the last WCMAC meeting. We agreed to instead share an update on what the Action Plan looks like and what it may look like going into the future. We're not going to vote on the Action Plan but we are going to discuss more elements of the Action Plan and how they fit into the new context. This topic will be discussed in further detail during the OSW TC agenda item.
 - **OSW Updates:**

- Oregon has halted the OSW process relative to the BOEM auctions. Governor Kotek expressed concern regarding the BOEM process and on September 16th, the Confederated Tribes of Coos, Lower Umpqua, and [missed] brought forth a lawsuit against BOEM to halt the Oregon auction. BOEM then cancelled the lease sales that were scheduled for October.
- In Washington, BOEM will refund the application fees for the WA OSW unsolicited lease requests, as of yesterday. Reminder that BOEM has no current lease action proposals or plans for any development off of WA. We are not singled out as part of the 30 by 2030 plan, or the 50 by 2035 federal measures.
- BOEM in CA released a CA Programmatic Environmental Impact Statement. Not really about impacts, released on November 14, public comments are being accepted now.

MRAC Update

- Rod Fleck shared that the November MRAC meeting was in person and had several presentations that he flagged as good opportunities for WCMAC to also hear. The upcoming presentation on harmful algal blooms and acidification being one of them. Moving forward, Rod will continue to attend MRAC meetings and flag additional opportunities for information sharing across councils.

Harmful Algal Blooms and Ocean Acidification Update

[Meeting recording](#) 1:36:22 – 1:59:44

Jan Newton, University of Washington, presented an update on the nexus between harmful algal blooms (HABs) and ocean acidification (OA). The presentation covered background and the research and monitoring work done to date in addition to overall findings. Please refer to the recording and slides ([Attachment A](#)) for the full presentation.

Discussion

- Question: Do OA trends observed at one station are consistent across others.
 - The response clarified that the trend shown was a composite of eight Puget Sound stations, spanning areas like the Strait of Juan de Fuca, Hood Canal, South Sound, the Main Basin, and Whidbey Basin, all showing a similar trend of increasing acidification. NOAA's PMEL has conducted similar analyses with buoys off La Push and Cape Elizabeth, as well as sanctuary mooring data, which also indicate a negative slope, though exact trends may vary.
- Question: How do hypoxia events relate to toxic blooms, what are sources of nitrates, do upwelling strengths (intensity) relate to growth? Do wind deficits add to or decrease toxic blooms?
 - Hypoxia can occur after a toxic bloom or any bloom due to organic material sinking, either directly or as zooplankton fecal pellets and carcasses, which decompose at depth and may create hypoxic conditions. Off the Washington coast, the main nitrogen source is dissolved nitrate from deep waters that upwells during north-to-south winds, with

river nutrient contributions being minimal. Increased upwelling leads to more nitrate delivery, promoting phytoplankton growth. However, the impact of wind deficits on toxic blooms is unclear due to the complexity of influencing factors and ocean conditions, making generalizations difficult.

Public Comment #1

- Mike Okoniewski (West Coast Pelagic Conservation Group): NOAA states that over 20,000 phytoplankton species inhabit West Coast waters. These microscopic algae depend on upwelling driven by wind and play a crucial role in oxygen production, carbon cycling, and marine food webs. Globally, phytoplankton are responsible for nearly half of primary production and oxygen generation. While different species contribute varying levels of nutrition to the marine ecosystem, the impact of industrializing the ocean—such as with offshore wind turbines—on phytoplankton cycles, species selection, and their role in carbon capture and the food web remains unknown. There is currently no empirical data on these interactions, highlighting the need for research before advancing commercial offshore wind development.

OSW TC Action Plan Discussion

[Meeting recording](#) 2:05:19 – 2:37:34

Alle Brown-Law, facilitator, presented an overview of the OSW TC Action Plan. Highlighting the purpose of the development process, plan purpose and goals, and next steps. WCMAC members discussed key questions that will be used to inform how the OSW TC should progress and focus on in the coming year. Please note that the highlights below represent discussion and do not represent consensus among WCMAC members.

Discussion Questions

- Question #1: Considering how the OSW landscape has changed since the formation of the TC (California moving forward with Programmatic EIS, Oregon pulling out of the BOEM process, BOEM taking no action in Washington, Governor's provisos in WA), how does WCMAC want to track, stay informed, and be involved in the OSW conversation in the future? Where can WCMAC be most impactful or most meaningful engage with OSW?
 - Members recognized significant changes in the OSW landscape since the Technical Committee (TC) was formed, particularly the slowdowns in Oregon and federal processes. However, there is concern about misinterpreting these slowdowns as reduced interest in OSW.
 - Emphasized the value of the TC as a conduit for information and collaboration. While there was support for continuing its work, some suggested reducing meeting frequency given the slower pace of OSW developments.
 - The TC should align with state-level initiatives, including Governor's provisos, to ensure efforts are not duplicated but complementary.

- It will be important to engage with the incoming Governor to align WCMAC's perspective with state leadership priorities. Ensuring that coastal community voices and concerns are represented early was highlighted as critical.
- OSW remains a critical issue, with concerns about its potential impacts on ecosystems, fisheries, and coastal communities. A cautious and deliberative approach was recommended, guided by the precautionary principle and thorough scientific analysis.
- There is concern that WCMAC is perceived as being anti-OSW or overly critical, which could polarize stakeholders. Members suggested focusing on amplifying lived coastal experiences and concerns, then directing those towards objective, expert-driven analyses rather than WCMAC leading the research itself.
- Members emphasized the need to address data gaps by collaborating with ongoing efforts, such as those by the Pacific Fisheries Management Council and other research initiatives. The TC's role could include aligning these efforts with the Governor's provisos and ensuring coastal priorities are integrated.
- OSW development requires careful consideration of potential environmental, economic, and social impacts. The group advocated for a methodical, rather than rushed, approach to OSW planning and implementation.
- With the potential absence of the unsolicited lease requests, does the foundational language of Objective 2 need to be modified?
 - Language likely does not need to be modified. The existing language remains sufficiently broad.

COHORT Presentation

[Meeting recording](#) 2:37:54 – 3:05:10

Henry Bell, (Ecology), [Sanpisa Sritrairat \(Washington Sea Grant\)](#), and [Ellen Chappelka \(Emergency Management Division\)](#) led a presentation on the Coastal Hazards Organizational Resilience Team (COHORT). This entity was developed in response to coastal communities' request for the state to help address the growing severity of natural hazards. Please refer to the meeting recording and slides ([Attachment A](#)) for more information.

Discussion

- Peter Steelquist shared that Local Surfrider chapters have successfully connected with COHORT, and he thanked COHORT staff for their great work.
- A member asked for more clarity on COHORT fellows' placements. It was shared that the program is still being developed but aims for continuity. Fellows may sometimes work across multiple areas, but dedicated fellows staying in one location for two years is important, reflecting WCMAC's original resilience recommendation.
- Question: Will COHORT address economic impacts related to coastal resiliency, such as invasive species, harmful algal blooms (HABs), and hypoxia?

- Ellen Chappelka explained that COHORT's role is more about connecting communities with agencies like WDFW and DNR, rather than leading on issues like invasive species. Resiliency is defined by the community's needs, not a statutory mandate.
 - Kate Litle shared that WA Sea Grant's broader resiliency team works on issues like invasive species, HABs, and hypoxia, though these aren't directly part of COHORT. Sea Grant is actively involved in these topics and can help connect others to their work.
- Bobbak Talebi mentioned that the Washington Coast Resilience Assessment continues to guide resilience efforts, covering various aspects of coastal resilience, and praised the team's progress.

2025-2026 WCMAC Work Plan

[Meeting recording](#) 3:05:16 – 3:57:09

Nicole Gutierrez, facilitator, reviewed the WCMAC 2024-25 work plan, highlighting work that has been accomplished over the last year. WCMAC members discussed key questions that will be used to inform the 2025-26 work plan. Please note, that the highlights below represent discussion and do not represent consensus among WCMAC members. For the full discussion, refer to the recording.

- Addressing economic resilience, particularly in rural Washington, was emphasized. Especially where budget shortfalls could have significant impacts. Rod Fleck suggested collaborating with WCMAC, COHORT, or Sea Grant to explore how to make economic development more approachable. He also highlighted the opportunity to fund projects that are ecologically, socially, and economically beneficial, like fish habitat restoration and oyster projects.
- Molly Bold supported Rod's comments, noting that economic development districts on the coast could provide valuable insights into existing industries. She suggested inviting these boards to participate in discussions.
- David Beugli suggested that the IPM & Willapa Workgroup representatives (Bobbak, Kate, and David) can provide updates and act as liaisons to keep WCMAC informed. WCMAC can request more in-depth updates if needed.
- Michele Conrad agreed with the need for more focus on coastal economic development. She mentioned the need for an updated fisheries economic analysis and a study to assess port infrastructure needs and impacts from offshore wind and other ocean uses.
- Bobbak Talebi Proposed integrating findings from the WGHEG to support economic development goals and echoed the need for continued focus on economic considerations. He also asked for Kevin Decker's thoughts on how the outcomes of a study could inform recommendations to the Governor.
 - Kevin Decker provided a brief updated on the ASAP process and related economic development projects, including workforce development and marine industry support like the Marine Training Center and Port of Grays Harbor's Marine Trades Training program. He encouraged feedback on these efforts.
- Brian Blake expressed interest in Marine Carbon Dioxide Removal (MCDR) and its potential as a solution for carbon absorption in the ocean. He suggested that WCMAC might need to weigh in on MCDR as it wasn't part of the Marine Spatial Planning (MSP) analysis.

- Casey Dennehy clarified that MCDR wasn't analyzed in the MSP as it was not considered a new ocean use at the time, but could be addressed in future analysis.
- Rod Fleck proposed that WCMAC could create a brief interpretation of the MSP, focusing on offshore energy and emerging uses like MCDR, as the documents should evolve with current issues.
- Additional feedback is welcomed for WCMAC members and can be sent to Nicole Gutierrez (nicole@cascadiaconsulting.com).

COHORT Criteria Discussion

Following the discussion of 2025 work plan priorities, WCMAC members transitioned to a discussion on COHORT criteria that will be used to prioritize projects ([Attachment B](#)). Please note that the highlights below represent discussion and do not represent consensus among WCMAC members. For the full discussion, refer to the recording and presentation.

- Molly Bold opposed the use of the map as it excludes communities like West Port and Chinook. Suggested removing the map to avoid creating barriers for disadvantaged communities. If not removed, communities may not apply if they don't see themselves on the map.
 - Henry Bell acknowledged Molly's concerns but emphasized that funding through the Climate Commitment Act requires prioritizing overburdened communities. ~~Still, he wants to ensure communities with real needs are not excluded.~~ He noted that there are different ways that communities can identify as overburdened other than the map, including by providing a short demonstration of need by citing additional factors or information.
 - Larry Thevik supported Molly's view, stressing the need to either fix the map or eliminate it entirely. He pointed out that some communities likely qualify but are not recognized.
 - Carrie Sessions clarified that the map is not the sole determinant for overburdened community designation. Communities can self-identify, and the program will prioritize them based on that. The map is primarily for reporting funding outcomes, and efforts to improve it are underway, with WCMAC feedback to be incorporated.
- Bobbak Talebi noted the importance of diversity in projects and COHORT's broad expertise. The goal is to create a portfolio of resilience that goes beyond coastal hazard protection and serves as case studies for other communities.
- Rod Fleck agreed with Molly and Larry, noting that the map seems flawed and that WCMAC should consider the census tracts that are missed. Suggested a review of criteria and potential adjustments.
- Phil Anderson proposed changing the word "may" to "can" in the footnote to make it more affirming for communities that don't meet certain criteria.
- Rod Fleck raised concerns about projects being listed as benefits (e.g., electric chargers) that don't align with coastal energy needs. Emphasized the importance of impactful, community-driven projects.
- Kristine Nevitt, observer, asked for clarification on the criteria used for determining the map. Noted that some communities, like Raymond, are being excluded from needed resources.

- Molly Bold advocated for projects that support long-term community efforts, emphasizing local participation and leadership. She highlighted the value of projects with clear deliverables and visible benefits for the community.
- Brian Polagye suggested adopting weighted criteria, particularly giving more weight to visible community benefits and COHORT's expertise.
- Bobbak Talebi emphasized the importance of understanding the expected commitment time upfront, especially for long-term projects. Clear expectations at the start are key for COHORT's engagement.
 - Henry Bell agreed on the importance of clear expectations from the outset for successful project engagement.
- **Call for Feedback:** WCMAC members were encouraged to send comments on the criteria via email for further input and discussion. (sanpisa@uw.edu; hbel461@ecy.wa.gov; Ellen.Chappelka@mil.wa.gov; kayla.wells@wsu.edu).

Gov. Transition and WCMAC (Discussion and Vote)

[Meeting recording](#) Discussion: 3:57:11 – 4:17:44; Vote: 4:25:24 – 4:31:40

Nicole Gutierrez, facilitator, reviewed WCMAC's OSW Recommendations provided to the Governor's Office to date. Following a discussion, a consensus vote was reached approving the Chair to write a letter to the new Governor and Public Lands Commissioner. For the full discussion, refer to the recording.

- Rod Fleck proposed sending a 1-2 page letter to the new Governor introducing WCMAC, summarizing positions on OSW and economic resiliency, and offering assistance. No response is expected, but the Steering Committee feels it's important. Aim for mid-January.
 - Phil Anderson supported sending the letter, suggesting emphasis on OSW and economic resiliency as WCMAC's key focus areas. He advocated for including key principles from past work, like the Gridworks letter, and shared his disagreement with the idea of creating a high-level OSW policy position in the Governor's office.
- WCMAC members generally agreed with Phil's suggested approach. Larry Thevik also suggested referencing foundational legislation that led to WCMAC and MSP. It will be important to highlight WCMAC's role in understanding the science and impacts of actions, rather than taking a pro/con stance.
- Carrie Sessions suggested it would be useful to highlight the unique challenges of the coast, stressing that coastal issues should not be treated the same as issues in other parts of the state. Emphasized WCMAC's role as a vital voice for the coast.

The following motion passed with no opposition, agency members abstained.

- Authorize the Chair to send a letter to governor elect Ferguson and the newly elected commissioner of public lands that:
 - Introduces WCMAC to them, including our statutory foundation and our purpose given the unique character of the coast area and communities.
 - Makes them aware of our recent points of emphasis including economic development and OSW
 - Reiterates key principles and policy considerations relative to OSW

Public Comment #2

- Mike Okoniewski (West Coast Pelagic Conservation Group): The West Coast Pelagic Conservation group recommends the TC continue forward and maintain the same structure, ensuring representation from recreational and commercial fishermen due to their extensive time spent on the water. This representation is vital for addressing issues impacting coastal communities and should be expanded across other fishery-related committees, especially for future OSW initiatives, where data gaps and community impacts are critical considerations. There have been significant changes in OSW development plans. While BOEM initially projected widespread job benefits for all coastal ports, it has become clear that smaller ports can only support light maintenance due to limitations like dredging needs, skilled labor shortages, and infrastructure requirements. Coastal ecosystems are also a concern. Only Puget Sound, Los Angeles, and potentially Humboldt Bay (despite objections due to its preserve status) are viable for large-scale OSW infrastructure. Mike emphasized ongoing uncertainty about the distribution and scale of OSW jobs, noting earlier optimistic projections have shifted to more modest expectations, with only small job gains in some communities. He expressed a desire for clearer answers about OSW job impacts and locations.
- David Nightingale: David expressed support for the precautionary principle, emphasizing the importance of a cautious and deliberate approach to OSW development. He appreciated the ongoing correspondence with the governor as being on target and suggested the technical committee examine the resilience benefits that new energy generation—whether offshore or onshore—could bring to coastal communities. He highlighted emerging technologies, such as buoys that can assess avian species, fisheries, marine mammals, and wind resources offshore, and emphasized the importance of using these tools, along with university and national lab resources, to address scientific gaps. Drawing on his environmental and energy background, David recommended comparing the feasibility, challenges, and costs of onshore wind to offshore wind, noting that onshore wind might be less problematic and more cost-effective. He urged careful analysis and thoughtful decision-making before proceeding with OSW development.
 - Carrie Sessions shared that Ecology has a draft PEIS pertaining to potential impacts of onshore wind. In that, they identify areas of the state suitable for utility-scale wind generation. They find some, but not many, suitable areas on the coast.
<https://apps.ecology.wa.gov/publications/documents/2406012.pdf>
<https://ecology.wa.gov/regulations-permits/sepa/clean-energy/programmatic-eis>

Closing and Adjourn

- Rod closed the meeting and thanked everyone for their attendance.
 - Next WCMAC meeting: March 19th, 2025

Attachment A: Meeting Presentations

See next page for meeting presentations.

1. [WCMAC Presentation](#)
2. [Draft budget provisos under consideration – Offshore Wind \(OSW\)](#)
3. [Harmful Algal Blooms \(HABs\) and Ocean Acidification \(OA\)](#)

DRAFT



December WCMAC Meeting

December 3, 2024



WASHINGTON
COASTAL
MARINE
ADVISORY
COUNCIL



Introductions & Agenda Review

Reminder

This meeting will be broadcast live and recorded by TVW.

WCMAC Agenda

Time	Agenda Item
10:00 – 10:25 AM	Welcome and Introductions, Agenda Review
10:25 – 10:35 AM	WCMAC Updates
10:35 – 10:55	WCMAC 2025 Chair & Vice-chair Elections
10:55 – 11:35 AM	Updates
11:35 – 11:50 AM	Harmful Algal Blooms and Ocean Acidification
11:50 AM – 12:00 PM	Public Comment
12:00 – 1:00 PM	Break
1:00 – 1:30 PM	Offshore Wind Technical Committee
1:30 – 1:50 PM	COHORT Presentation
1:50 – 2:50 PM	Work Planning and Priorities
2:50 – 3:10 PM	Governor Transition & WCMAC
3:10 – 3:20 PM	Public Comment
3:20 – 3:30 PM	Vote on approving the Chair to draft a letter re: WCMAC priorities
3:30 PM	Adjourn and Next Steps

Ground Rules

1. Be Respectful
2. Be Constructive
3. Be Productive
4. Bring a Sense of Humor and Have Fun

Zoom and In-person Reminders

- Zoom
 - Raise your virtual hand (Under “React”)
 - We will be monitoring the chat and members are welcome to use it to share out if more convenient (optional)
 - Having video on is optional – but we’d love to have your video on during discussion if your bandwidth allows
- In-person
 - Bathrooms and emergency exits
 - Use your name placards – tip sideways
 - Be mindful that the mic can pick-up side conversations!

Chair will
acknowledge
WCMAC
members in
order

Expectations for Observers

- **Please use the public comment period link included in the agenda** if you want to make a comment during the public comment period.
- Public comments are encouraged to be 2-3 minutes or less.
- Chat is still available for virtual participants.
- **Public comment periods are not for WCMAC members.**

Roll Call – Introductions (*sorted by first name*)

- **Bobbak Talebi**, Representative of Department of Ecology
- **Brian Blake**, Representative of coastal commercial fishing
- **Brian Polagye**, Representative from energy industries or organizations
- **Carrie Sessions**, Representative of the Governor's Office
- **Christian Meinig**, Representative from coastal energy industries or organizations
- **Corey Niles**, Representative of WDFW
- **David Beugli**, Representative of shellfish aquaculture
- **Garrett Dalan**, Representative of Grays Harbor Marine resources Committee
- **Kate Litle**, Representative of WA Sea Grant
- **Katie Arkema**, Representative from a science organization
- **Larry Thevik**, Representative of coastal commercial fishing
- **Mara Zimmerman**, Representative from Washington Coast Salmon Partnership
- **Matt Niles**, Representative of Washington State Parks
- **Michael Nordin**, Representative of Pacific Marine Resources Committee
- **Michal Rechner**, Representative of Department of Natural Resources
- **Michele Conrad**, Representative from coastal economic development group
- **Molly Bold**, Representative from a coastal port
- **Nives Dolsak**, Representative from an educational institution
- **Paula Culbertson**, Representative of Wahkiakum Marine Resources Committee
- **Peter Steelquist**, Representative of coastal recreation
- **Phil Anderson**, Representative of coastal recreational fishing
- **Rod Fleck**, Representative of North Pacific Marine Resources Committee
- **Stephanie Bowman**, Representative of the Department of Commerce

Adopt September Meeting Minutes

- Corrected outdated links



WCMAC Updates

WCMAC Updates

- Announcements
 - WCMAC 2025 Meeting Dates (all Wednesdays):
 - Q1 March 19th
 - Q2 June 4th
 - Q3 October 1st
 - Q4 December 3rd
 - Welcome new members
 - Kate Litle, Representative of WA Sea Grant





WCMAC 2025 Chair & Vice Chair Elections

Chair & Vice Chair Roles and Responsibilities

- Elected Leadership: 1-year term; eligible for reelection
- Meeting Management: Chair presides; Vice Chair serves as backup.
- Committee Representation:
 - Both serve on Steering Committee.
 - Chair represents Council on WA Marine Resources Advisory Council.
- Communication: Facilitate member and stakeholder discussions.
- Liaison: When appropriate, assist in communications with Ecology, Governor's representative, and legislators.
- Spokesperson: Chair represents Council publicly; align statements with the WCMAC recommendations and positions.

Voting Process

- Each nominee will give a short statement
- Voting*
 - If single nominee, will vote via thumbs up/thumbs down. Majority will win.
 - If multiple nominees, will vote via roll call vote. Person with the majority of votes will be confirmed in that role.

** Quorum must be reached for voting to happen*

Chair Nominee Statements

Nominees:

- Rod Fleck
 - Representative of North Pacific Marine Resources Committee

Vice Chair Nominee Statements

Nominees:

- Peter Steelquist
 - Representative of coastal recreation



Updates

- Governor's Office Updates
- MRC Updates
- Agency Updates
- General Coastal Updates
- Technical Committee Updates
- MRAC Update



Harmful Algal Blooms and Ocean Acidification

Jan Newton, UW

A scenic photograph of a rocky coastline. In the foreground, there are large, moss-covered rocks in the shallow water. In the middle ground, a large, isolated rock formation with a small tree on top stands in the water. In the background, a steep, forested cliff rises from the shore. The sky is overcast with soft clouds.

Public Comment #1

Lunch Break

- Please reconvene at 1:05 pm at the same Zoom link.



Offshore Wind Technical Committee

*Alle Brown-Law, Facilitator
Technical Committee Co-leads*

Discussion Questions

1. Considering how the OSW landscape has changed since the formation of the TC, how does WCMAC want to track, stay informed, and be involved in the OSW conversation in the future? Where can WCMAC be most impactful or most meaningful engage with OSW?
2. With the potential absence of the unsolicited lease requests, does the foundational language of Objective 2 need to be modified?
3. Through the Gridworks report, the TC's development of the Action Plan, and tracking public and tribal comments in Oregon and California, the TC has identified many possible community research and data needs. What do you see as a critical path for WCMAC and TC to pursue/take?

Additional Questions (If Time)

1. As the California OSW process moves forward, what does WCMAC want to understand/track/learn? What information are we looking for, and what data do we want to track?
2. Currently, the OSW TC has been meeting monthly (except for months where there is a full WCMAC meeting). Considering the change in the OSW landscape, how frequently should the TC meet?



COHORT Presentation

Henry Bell, Ecology



Work Planning and Priorities

Seeking Feedback on the 2025 Priorities

1. Is there anything you would like to see WCMAC focus more (or less) on in the coming year?
2. What 2024 work plan goals and objectives should be continued in 2025?
3. What additional work plan goals and objectives would you like to see in 2025?



Governor Transition & WCMAC

Rod Fleck & All WCMAC Members

WCMAC OSW Recommendations

- Washington Coast Marine Advisory Council 2022 Offshore Wind Recommended Principles of Engagement
 - Members came to a consensus on a list of key principles of engagement that would be necessary for BOEM and the state to follow to ensure a transparent, meaningful, and inclusive engagement process.
 - Principles outlined recommendations around:
 - ensuring clear and transparent processes;
 - providing consistent, timely, meaningful, and responsive engagement opportunities;
 - engaging key stakeholders, fishing industries, and coastal community members to publicly inform and vet the data and information used in decision-making;
 - integrating local and community knowledge into decision-making throughout the leasing and permitting process; and
 - reviewing and applying relevant laws and policies, using them to guide and inform engagement with BOEM
- Recommendations on the 2024 Gridworks Report on Proposed Offshore Wind Engagement
 - Provided the WCMAC's response to each of Gridwork's recommendations from the report: "A Proposed Offshore Wind Engagement Framework for Washington State"
 - Notably, WCMAC membership supported:
 - the second recommendation which stated that Washington "should develop and/or support a 3 regional consortium to provide independent expert analysis and peer review of, guidance for, and prioritization of the research and analysis informing responsible OSW development off the Pacific Coast."
 - the fifth recommendation which called for a "thorough investigation and comprehensive catalog 4 of Washington's legal authorities under the federal Coastal Zone Management Act and other jurisdictional authorities" relevant to the permitting of OSW developments via the BOEM process.

A scenic coastal landscape featuring a rocky shoreline in the foreground, a small island with a single tree in the middle ground, and a forested cliff on the right. The sky is filled with soft, white clouds. The water is calm, reflecting the sky and the surrounding land.

Public Comment #2

VOTE

Vote on approving the Chair to draft a letter to the incoming Governor's administration and Public Lands Commissioner re: WCMAC priorities



Thank You for Participating!

Next WCMAC Meeting: [March 19, 2025](#)

Draft budget provisos under consideration – Offshore Wind (OSW)

December 3, 2024

Presentation to the WCMAC



Advancing science on OSW

Funding to Dept. of Ecology to convene a state-Tribal science advisory panel to:

- Advance understanding of potential ecological impacts of OSW on marine & coastal environment
- Advance avoidance, mitigation, and co-use measures
- Seek input from scientific experts, federal gov't, and coastal stakeholders
- Develop a prioritized science agenda for WA State
- Report to the Governor & Legislature



State authorities

Funding to the Dept. of Ecology to collaborate with other state agencies to:

- Report on how & when state laws apply in a federal OSW process
- Identify when public comment & tribal consultation are required
- Recommend improvements to strengthen the state's readiness
- Host scenarios to "test run" the processes
- Consult w/ Tribes; seek input from stakeholders (incl. WCMAC)
- Report to the Governor & Legislature



OSW supply chain

Funding to Dept. of Commerce and Maritime Blue to:

- Continue administration of the *Blue Wind Collaborative*
- Continue studies to further WA's role in the offshore wind supply chain, including technical analysis on port readiness, workforce needs, and comparative advantage



Harmful Algal Blooms (HABs) and Ocean Acidification (OA)

Jan Newton, Terrie Klinger
Washington Ocean Acidification Center

<https://oceanacidification.uw.edu/>



Washington Ocean Acidification Center

At the
University of Washington
EarthLab



WCMAC March 2025 Packet: Page 54 of 75

- **Accelerates and coordinates research and monitoring**
- **Leverages resources and networks, regional scientists, agencies, industry and institutions**
- **Provides input to regional assessments, connecting science, management, and policy**
- **Coordinates monitoring, forecasts, biological experiments, and aquaculture adaptation**

Photo: Klinger

Washington Ocean Acidification Center



Coordinates and synthesizes science in response to Wash. OA Blue Ribbon Panel key early actions to:

1. *Assess water conditions and what's driving ocean acidification*

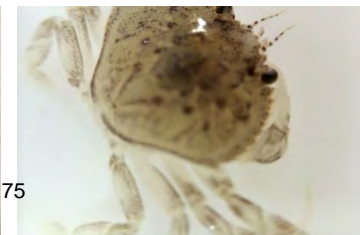
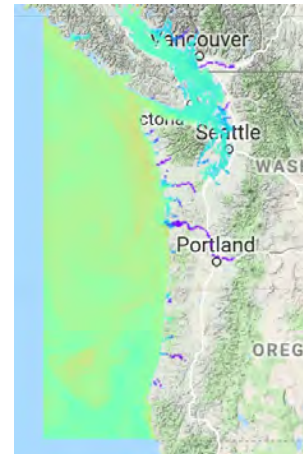
- Monitoring (both in natural environment and at shellfish hatcheries)

2. *Provide forecasts to facilitate adaptation*

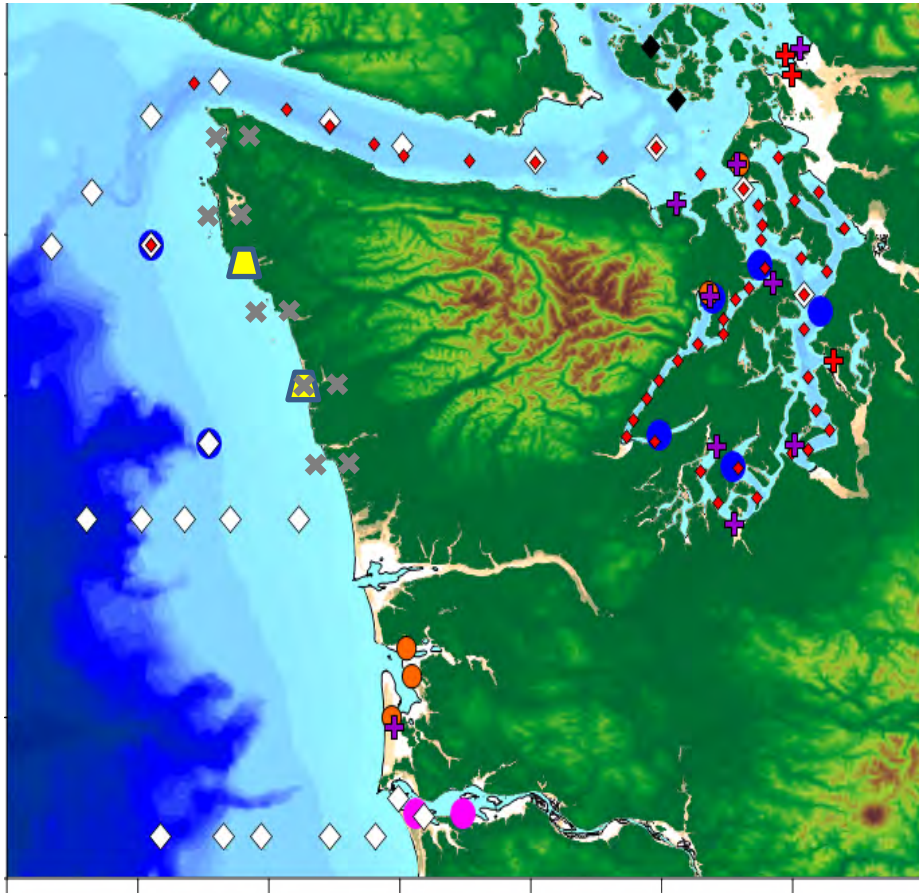
- Forecast modeling

3. *Assess how local species respond*

- Biological experiments

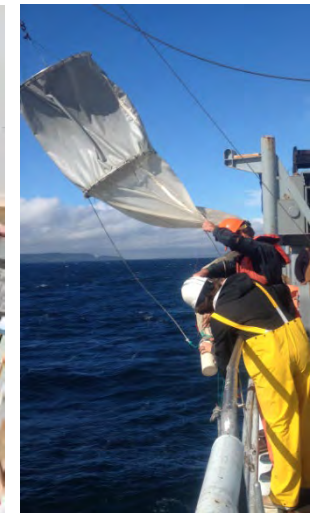


Assessing Washington's waters

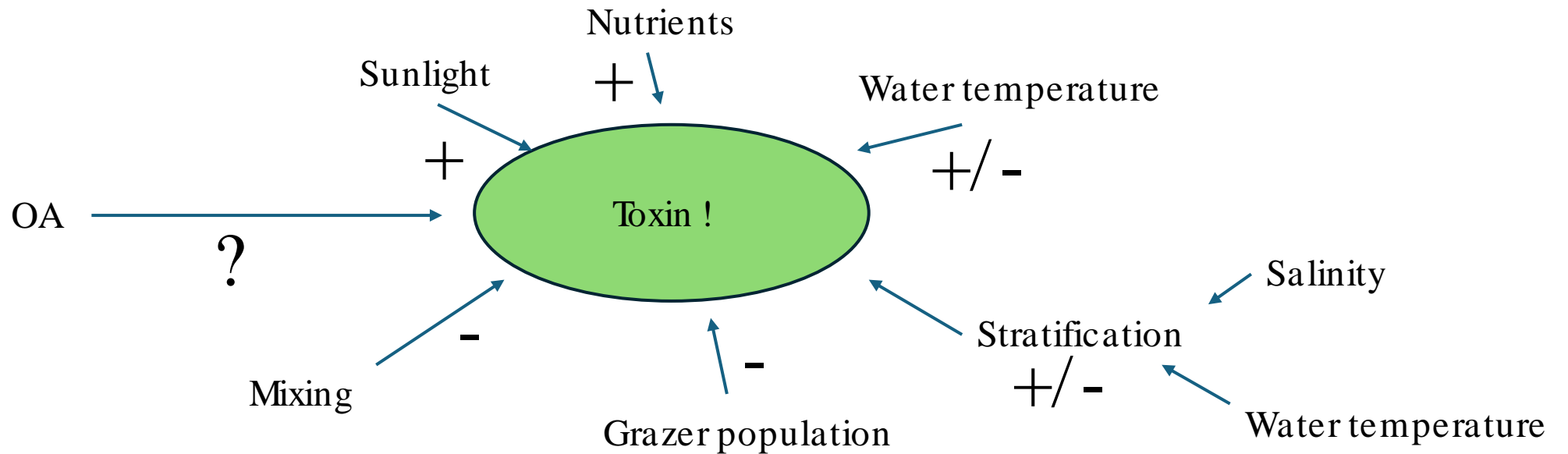


Strategies:

- Both **chemistry** (DIC, TA) and **biology** measurements
- **Temporal** trends (buoys) & **spatial** coverage (surveys)
- **Leverages** existing networks



HABs and OA



WOAC HAB-OA efforts

- Routine observations from cruises, buoys and other programs give context
- Imaging Flow CytoBots (IFCBs) – species ID
 - Catalog
 - New instruments
- eDNA – species ID
- West Coast wide cruise investigation
- Also, synergies with ORHAB, NANOOS, and other programs
 - PNW Bulletin
 - ESP for toxin measurement



Understanding the 2015 West Coast Harmful Algal Bloom

NANOOS provides an on-line overview of what scientists have learned regarding the large, unprecedented Harmful Algal Bloom (HAB) along the U.S. west coast during spring 2015. Prepared by JISAO scientist Ryan McCabe, the overview explains that the HAB was initiated by anomalously warm water temperatures. This has implications for a higher occurrence of HAB events as waters warm, which presents ecological, economic, and human health repercussions. NANOOS is collaborating with UW, NOAA, and other partners on a project to provide HAB forecasts.

21 Feb 2017

[2015 Bloom Overview \(PDF\)](#)

[New HAB Forecasting System](#)

[Link](#)

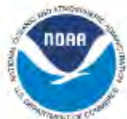
<https://www.nanoos.org/news/index.php?item=2015WestCoastHab170221>

Nutrient limitation dampens the response of a harmful algae to a marine heatwave in an upwelling system

[Alexis D. Fischer](#), [Emilie Houliez](#), [Brian D. Bill](#), [Maria T. Kavanaugh](#), [Simone R. Alin](#), [Andrew U. Collins](#), [Raphael M. Kudela](#), [Stephanie K. Moore](#)

First published: 27 June 2024 <https://doi.org/10.1002/lno.12604>

- Harmful algal blooms caused by toxin-producing species of the diatom genus *Pseudo-nitzschia* have been linked to anomalously warm ocean conditions in the Northern California Current System.
- This study compares summertime concentrations of *Pseudo-nitzschia* spp. and the toxin they produce, domoic acid, during a marine heatwave year (2019) and a climatologically neutral year (2021). An Imaging FlowCytobot was installed on a fishery survey vessel alongside environmental sensors to continuously sample phytoplankton and oceanographic parameters. This was paired with targeted manual sample collections for nutrients, chlorophyll, and domoic acid.
- Accumulations of *Pseudo-nitzschia* spp. were associated with upwelling zones and established hotspot regions: the Juan de Fuca Eddy, Heceta Bank, and Trinidad Head. Overall, however, *Pseudo-nitzschia* spp. and domoic acid concentrations were low during both summers and appear to have been limited by nitrate.
- Nutrient availability may therefore modulate the response of *Pseudo-nitzschia* spp. to warm anomalies. Comparison of these results with 2015, another marine heatwave year but one that produced record concentrations of *Pseudo-nitzschia* spp. and domoic acid, suggests that the timing of marine heatwave conditions in the nearshore relative to seasonal upwelling plays a key role in determining whether a *Pseudo-nitzschia* spp. harmful algal bloom will occur.



Pacific Northwest Harmful Algal Blooms Bulletin

Nov 7, 2024 HAB risk =

HAB risk key:

= low

= medium

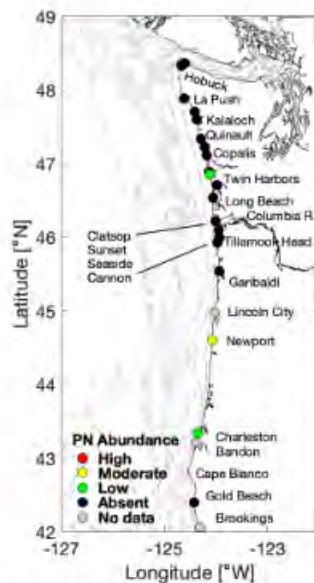
= high



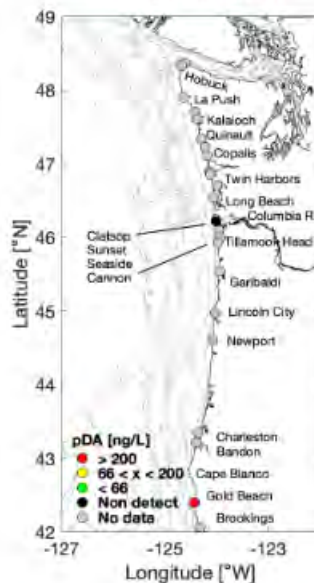
The statements, findings, conclusions, and recommendations do not necessarily reflect the views of NOAA or the Department of Commerce.

Beach Sampling

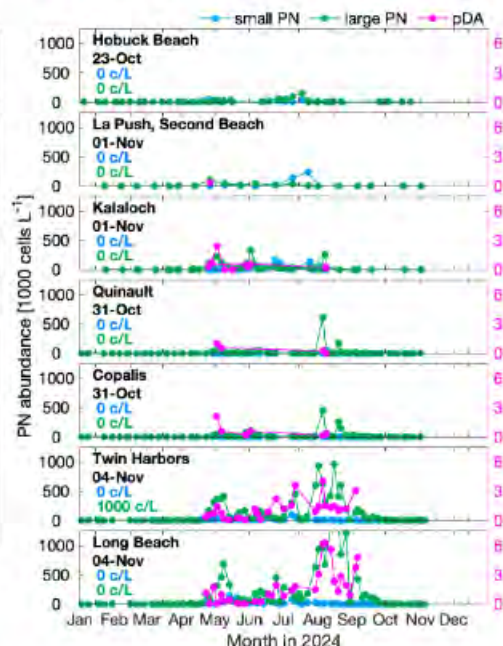
(*Pseudo-nitzschia*)



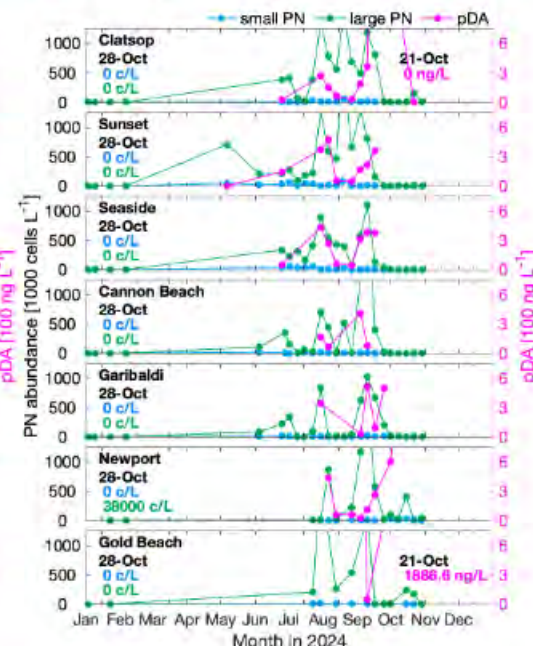
(particulate domoic acid)



WA *Pseudo-nitzschia* & Domoic Acid

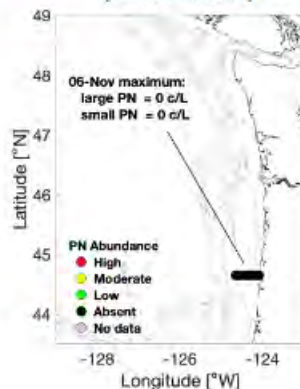


OR *Pseudo-nitzschia* & Domoic Acid

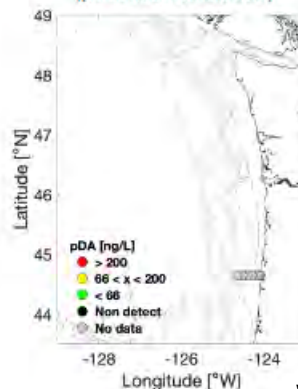


Offshore Sampling

(*Pseudo-nitzschia*)



(particulate domoic acid)



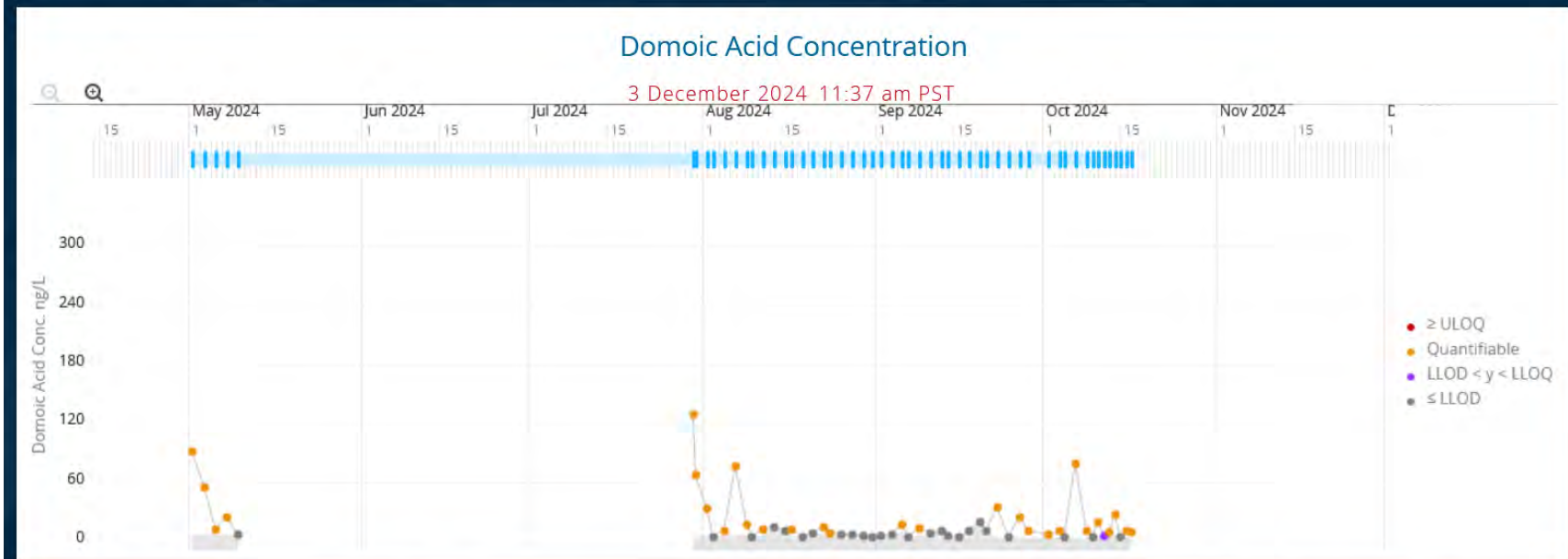
Pseudo-nitzschia (PN) abundances are quantified for large and small cell morphologies using light microscopy. Threshold values: 50,000 cells/L for large PN; 1,000,000 cells/L for small PN; which trigger additional testing for seawater particulate domoic acid (pDA). Seawater pDA values >200 ng/L lead to toxin accumulation in shellfish such as razor clams. Sampling sites, colored by relative PN abundance (high: > threshold value for either cell morphology; moderate: > 1/3 threshold; low: < 1/3 threshold) and pDA, are shown in the upper left two panels. "No data" indicates that there were no data within the previous 15 days. Time series of PN abundance (cells per liter = c/L) and pDA at select beaches are shown in the upper right main two panels. Offshore samples (lower left) are collected and analyzed at ~2 week intervals during late summer/early fall. Additional samples are collected by a remotely operated Environmental Sample Processor (ESP) that is moored off La Push, WA, in late spring and late summer.

Decisions regarding shellfish harvest closures at individual beaches are made by the Washington Department of Health, the Oregon Department of Agriculture, and Coastal Treaty Tribes after measuring toxin levels in shellfish collected from each beach (WA [link](#); OR [link](#)), and not from the information presented here. However, the information presented here aids coastal managers in better understanding and predicting the onset, duration, and magnitude of toxin outbreaks as well as their impacts.

Other coastal efforts

- Maria Kavanaugh, OSU, to site an IFCB in Willapa Bay
- New cooperative fisheries partners coming to WA, successful in OR
- “Real-time HABs” toxin monitoring by Environmental Sensor Processor (ESP)

While the Environmental Sample Processor can detect both phytoplankton species and domoic acid, the focus for deployments starting in 2021 will be on detecting toxins. Data (species and toxin) from previous deployments dating back to 2016 are available on request.



Concentration of particulate domoic acid in seawater. Domoic acid is a toxin produced by some species of phytoplankton in the genus *Pseudo-nitzschia*. If domoic acid concentrations are detected above the Lower Limit Of Quantification (LLOQ, see description below), this means that one or more *Pseudo-nitzschia* species are producing the toxin. There is no regulatory threshold for domoic acid in seawater, rather the toxin is regulated.



Home

Information

Real-Time

Forecasts

Disclaimer



HARMFUL ALGAL BLOOMS



Information

Harmful algae in the
Pacific Northwest



Real-Time

Field data on toxic harmful
algal blooms



Forecasts

Bulletins for HAB event
response

An algal bloom is a rapid increase in the population of algae in freshwater or marine water systems. A harmful algal bloom (HAB) is an algal bloom that causes negative impacts to other organisms via production of natural toxins, mechanical damage to other organisms, or by other means. HABs are often associated with large-scale marine mortality events and have been associated with various types of shellfish poisonings.



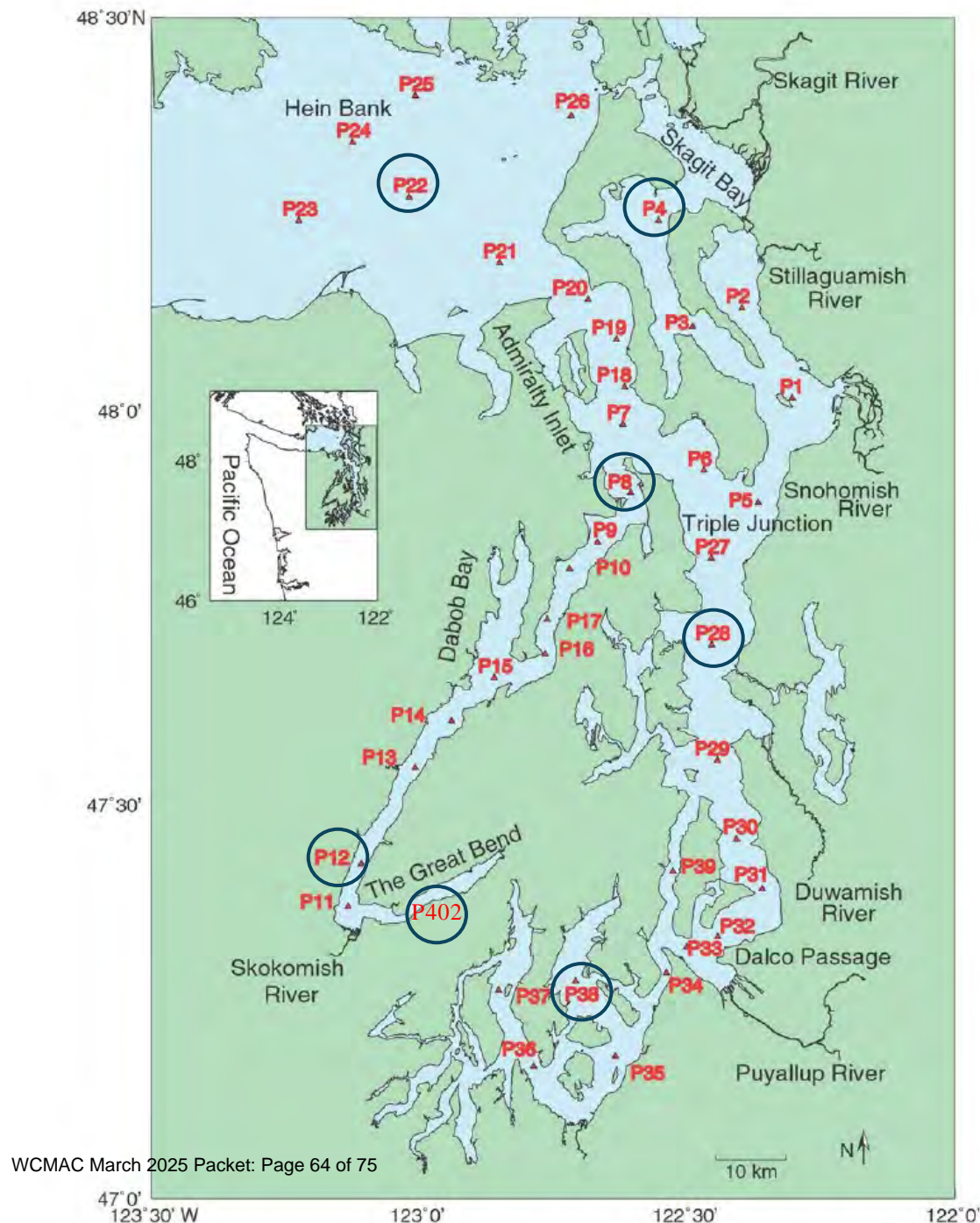
Ocean Glider for HAB Sampling

In September 2018, an ocean glider called Submaran, was deployed on its first mission to sample seawater for HAB cells and toxins. This glider can sample under weather conditions that are too extreme for small boats, and allows for an expanded capacity to sample the Juan de Fuca eddy, one of the known initiation sites for HABs off the Washington coast. The Submaran will bring samples back to shore to be analyzed by the

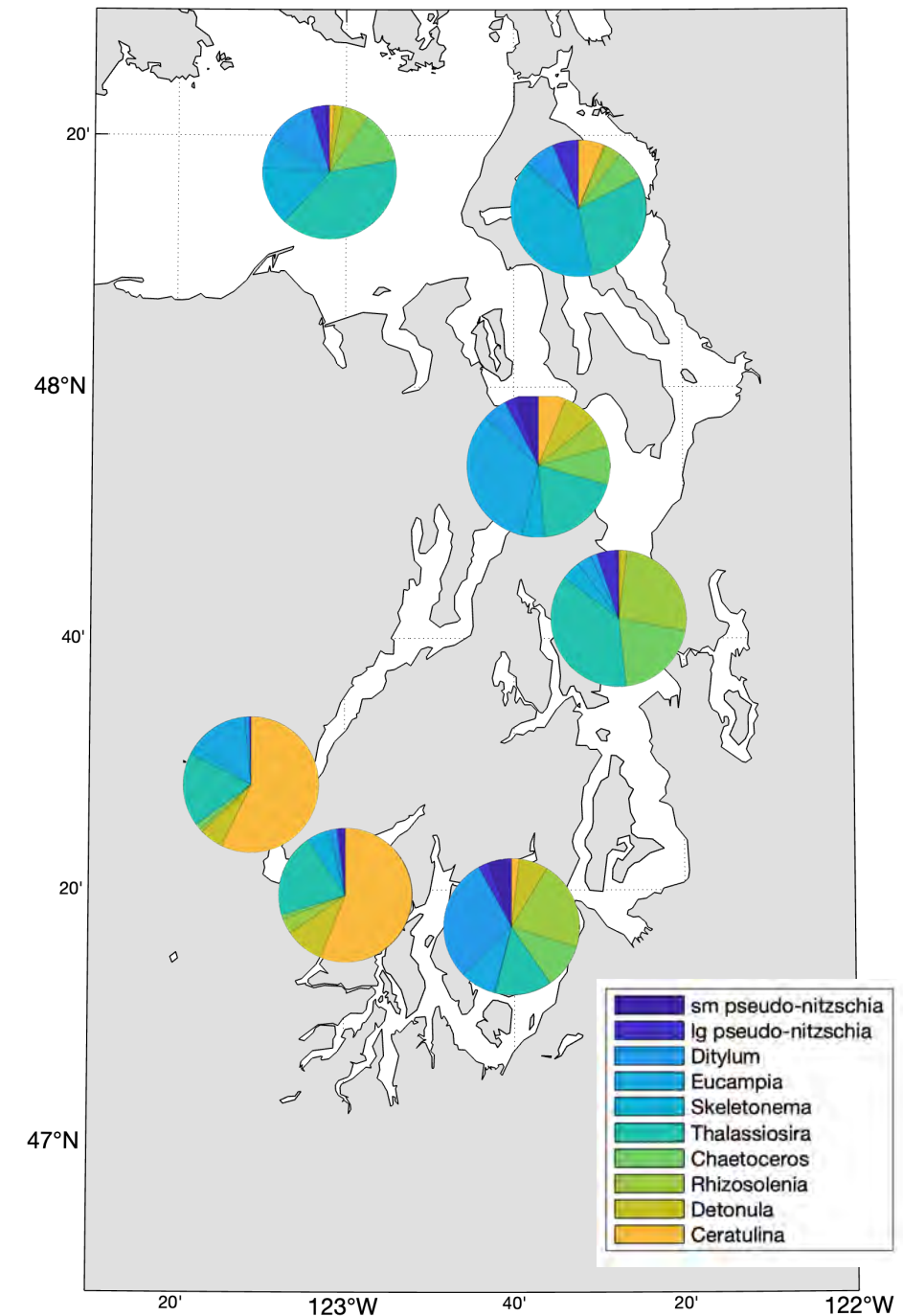
OA and Plankton monitoring stations

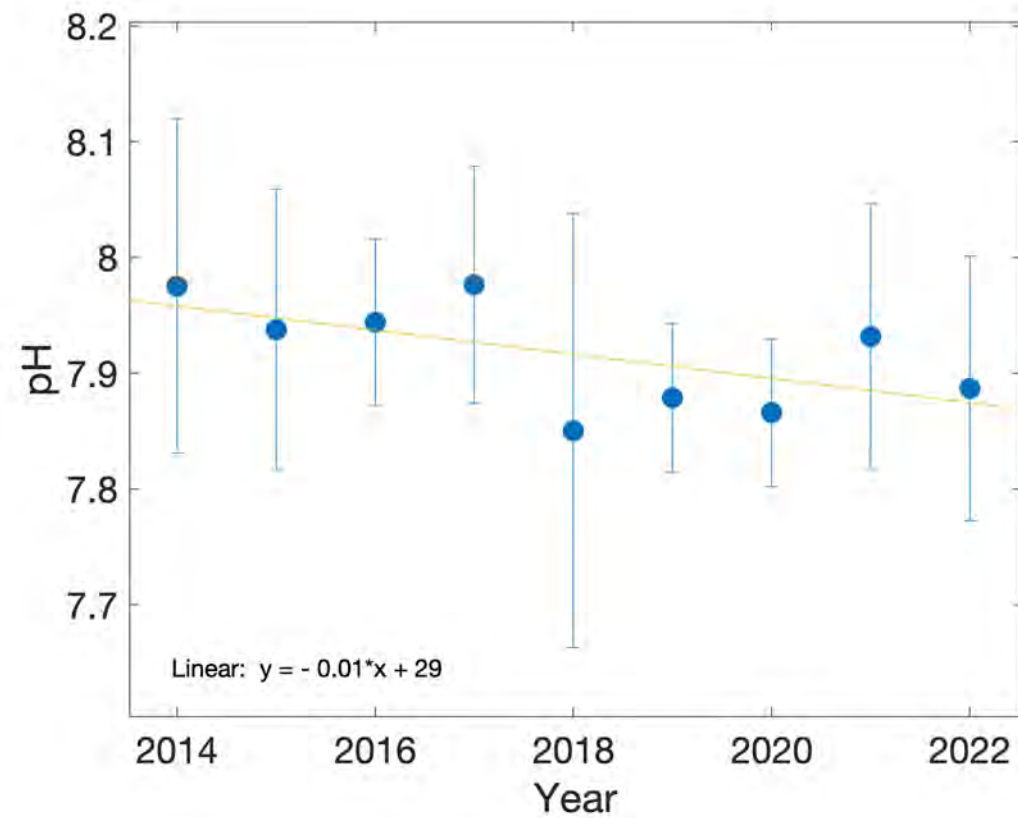
WOAC surveys 3 times per
year (Apr, Jul, Sep)

Jul 2014 – Sep 2024, ongoing



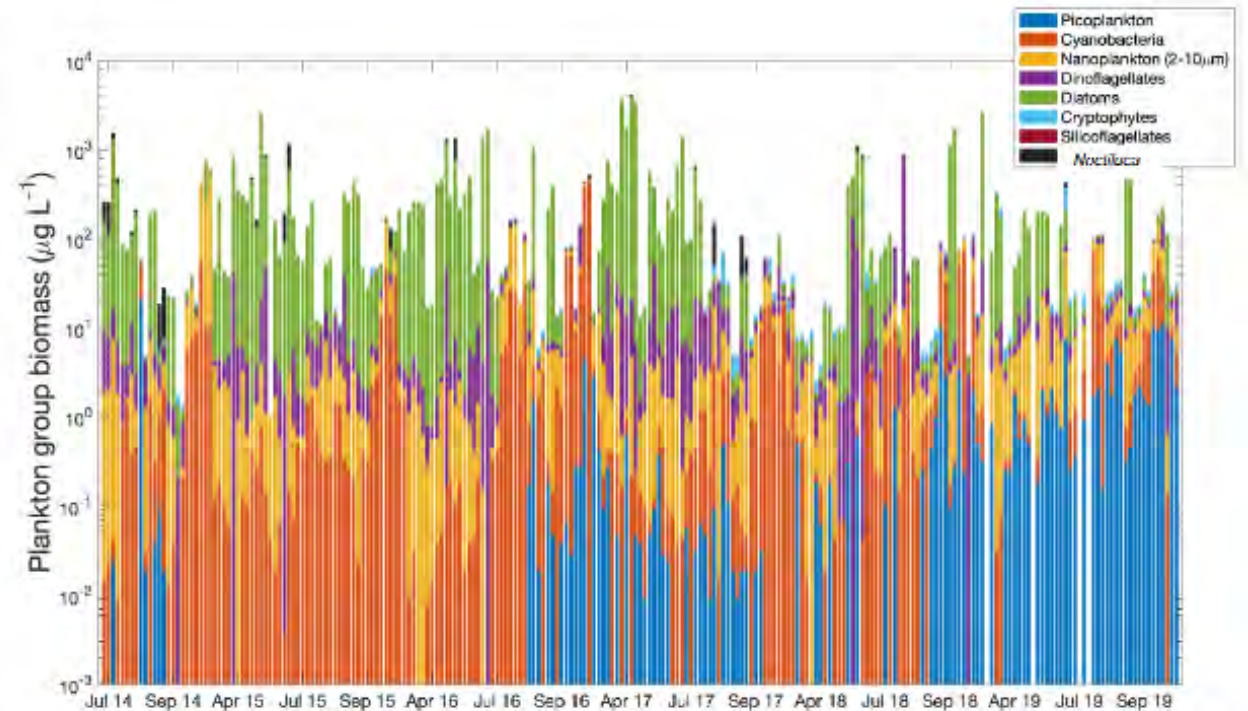
- Over 400 phytoplankton samples collected and analyzed via microscope since 2014, both for cell size and taxonomic ID
- Samples include both surface and sub-surface chlorophyll maximum (via water taken from either 5 or 10 m depth)
- Genus-level phytoplankton identification reveals spatial and temporal variability in phytoplankton communities
- Averaged over all stations and seasons, pH shows a decreasing trend over the past decade
- Data collected to date provide the opportunity to better understand the links between phytoplankton communities, ocean acidification, and environmental parameters



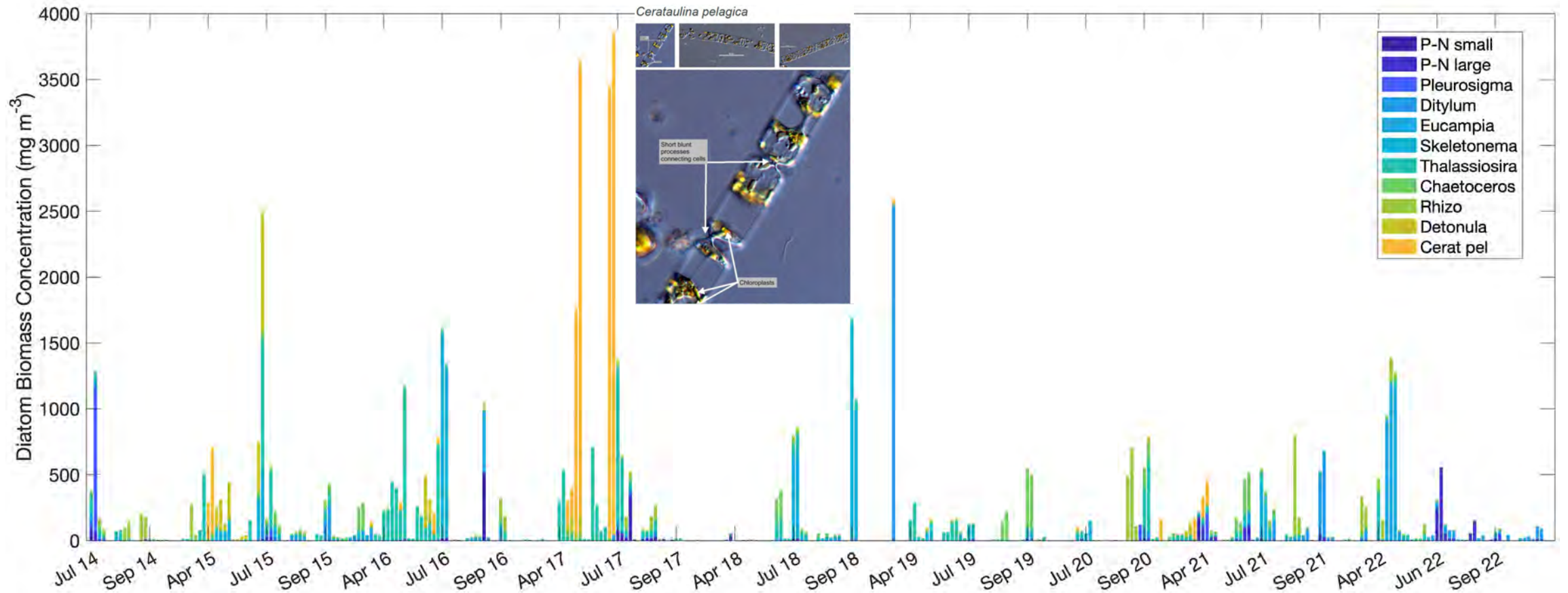


Ali Chase, UW APL

Right: Biomass of phytoplankton groups across all three seasons (April, July, September) during 2014-2019. Colors represent different broad taxonomic categories, apart from Noctiluca, which is shown separately. Biomass (y-axis) is displayed on a log scale.



Will be adding an IFCB this year!



HABs and eDNA:

- WOAC is supporting new research to identify the presence of HAB species *Alexandrium catenella* in WOAC cruise samples.
- We will use a new eDNA probe developed specifically for this species to analyze the presence of *Alexandrium* in samples spanning multiple years and multiple sites in Puget Sound and will evaluate the association of *Alexandrium* with water chemistry variables.
- Earlier analysis using eDNA reliably identified 5 common HAB taxa* and found that, over a 5-year period, there were differences in the probability of occurrence between basins, some of which appeared to be increasingly common in Puget Sound.

**Heterosigma, Alexandrium, Karlodinium, Pseudochattenella, and Phaeocystis*



- HAB-OA connections are difficult to parse
- Ongoing observations and new technologies will help
- Excited for new investigators who have joined us
- We welcome input and information needs at any time!

Attachment B: COHORT Prioritization Criteria

See next page for DRAFT criteria and considerations for COHORT targeted technical assistance.

DRAFT

December 3, 2024 WCMAC Meeting – COHORT criteria discussions

Background

In a [2021 letter to Governor Inslee](#), WCMAC made a series of resilience recommendations that included creating a Coastal Hazards Organizational Resilience Team (COHORT). With funding from the state legislature, the [COHORT](#) was established in 2023, staffed by Ecology, Washington Sea Grant, Emergency Management Division, and WSU Extension.

The objectives and responsibilities of the interagency COHORT are to:

1. Engage with community and Tribal leaders and staff to understand local resilience needs, priorities, and challenges across Washington’s diverse coastlines.
2. Provide information and technical assistance related to coastal natural hazards, climate change adaptation, and other topics related to community and ecological resilience.
3. Spearhead cross-fertilization of ideas, support new collaborations, coordinate across agencies, and build partnerships that span different sectors, jurisdictions, and geographic scales.
4. Connect local project proponents with federal and state funding to support research, projects, and programs that build local capacity, address coastal hazards risks, and create additional benefits for communities, economies, and the environment.
5. **Bolster local capacity through targeted technical assistance for locally led resilience efforts, with a focus on supporting Tribal and community driven processes to identify and advance resilience priorities.**

We are open to feedback and thoughts on any of these objectives, but we hope to focus discussion on Objective 5. The purpose of the COHORT’s targeted technical assistance (also called hands-on support) is to provide holistic early-stage planning and proposal development support to communities that may not have the capacity to undertake this work on their own. The COHORT would provide targeted technical assistance for project or application-specific needs and community-wide resilience needs for up to 24 months.

Given our own limited capacity, we can only provide targeted technical assistance to a limited number of communities each year. Therefore, we must use certain criteria and considerations to help us determine which communities and Tribes to prioritize for hands-on support. We do not expect all criteria or considerations to be met.

Questions for discussion

1. Are any criteria/considerations missing? What should be added?
2. Are any draft criteria/considerations not needed? Should any be reframed or rephrased?
3. Which criteria/considerations should be weighted more heavily?

DRAFT criteria and considerations for COHORT targeted technical assistance:

1. Coastal Hazards

- a. What is the scope of the coastal hazards issue? Are multiple hazards addressed?
- b. Potential for the initiative to reduce risk to people, infrastructure, ecosystems, economies, and/or cultural resources

2. Resilience Co-Benefits

- a. Potential to apply nature-based solutions, holistic approaches, and/or long term visions
- b. Supports habitat protection or restoration
- c. Improves water quality or protects/enhances natural coastal processes
- d. Protects or enhances cultural values or resources
- e. Provides economic benefits or workforce development
- f. Supports public access / recreation
- g. Upholds food sovereignty / Tribal treaty rights
- h. Other

3. Equity and Environmental Justice

- a. Substantial involvement of vulnerable or disadvantaged populations, or Tribal entities¹
- b. Located in an overburdened community ([as directed by HEAL/CCA](#) or otherwise demonstrated by the community)
- c. Located on Tribal Land (federal trust lands or Tribal ownership)
- d. Potential to address disproportionate environmental burdens or inequities

4. Partnership and Coordination

- a. Are there local champion(s) to sponsor the projects? Do they have energy/capacity?
- b. Tribal leadership or partnership
- c. Multiple partners, jurisdictions, or authorities are engaged
- d. Is there public support for the effort? (or is support likely?)
- e. Potential for meaningful community engagement as part of the effort
- f. Is the issue/effort prioritized or identified in an existing plan or document?

5. Local Capacity Building

- a. Would the work build local capacity or momentum for future efforts
- b. Potential to foster new partnerships for long term community resilience and/or support conflict resolution
- c. Fosters increased understanding of innovations in climate adaptation (e.g. pilot or demonstration projects, new approaches, monitoring and sharing successes, etc.)

6. Other Factors

- a. Urgency of the effort / do current conditions create an opportunity that could be missed?
- b. Would additional capacity from COHORT enhance or enable the effort to go forward?
 - i. What is the value-add of COHORT support? (i.e. is our expertise the right fit)
- c. Funding availability (do upcoming funding opportunities align with project scope?)
 - i. Are matching funds required?

¹ Includes [economically disadvantaged communities](#), [overburdened communities](#), and communities that have not received hazards resilience funding in the past three years. Communities that do not meet these criteria may also demonstrate a compelling need by citing additional factors or data.

Appendix B. Technical Committee Meeting Summaries

2024 Offshore Technical Committee summaries can be viewed here: [2024 OSW TC Meeting Summaries](#).



Appendix C. Meeting Presentations

Presentations will be added when available.