

## Prince William Sound Regional Citizens' Advisory Council

Board of Directors Meeting September 19-20, 2024






[Kana Marketplace](#) in Kodiak, Alaska

Zoom link for virtual users meeting audio and presentations: <https://pwsrccac.zoom.us/j/81165611318>

Teleconference: 1-888-788-0099 Meeting ID: 811 6561 1318

### Final Agenda

#### Thursday, September 19, 2024

- 8:30 A Call to Order and Roll Call
- Welcome – President Robert Archibald
  - Introductions/Director reports on activities since the last meeting
- 8:45 B 1-0 Approve Agenda
- 8:50 C 1-1 Approve Minutes of May 2-3, 2024 Board Meeting
- 8:55 D Public Comment Period, limit five minutes per person
- 9:05 E Internal Opening Comments (*Please limit to general information not contained in Agenda*)
- Technical Committee Updates (TOEM, IEC, OSPR, SAC, & POVTS)
  - PWSRCAC Board Sub Committee Updates (Legislative, Finance, & Governance)
- 9:45  BREAK
- 9:55 F External Opening Comments (*Please limit to general information not contained in Agenda*)
- PWSRCAC Ex Officio Members
  - Trans Alaska Pipeline System Shippers, Owner Companies, and Pilots
- 11:00  BREAK
- 11:10 G Alyeska / SERVS Activity Report
- Update on Alyeska efforts to address concerns in VMT System & Safety Culture Issues report
- 12:00  BREAK – *Lunch provided for those attending in person.*
- 1:00 H Alyeska / SERVS Activity Report *continued*
- 1:25 I Consent Agenda
- 3-1 FY2025 LTEMP Budget Modification and Contract Change Order Approval
  - 3-2 Approval of FY2025 Budget Modifications
- 1:30 J Presentation by Repsol, partners with Santos, on the Pikka Project as it will relate to the Valdez Marine Terminal – Walt Hufford and Jim Wade of Repsol
- 2:05 K 4-1 Report Acceptance: Marine Bird Hotspots in Prince William Sound – Dr. Danielle Verna and Dr. Mary Anne Bishop with the PWS Science Center
- 2:40  BREAK
- 2:55 L 4-2 Report Acceptance: Port Valdez Weather Buoy Data Analysis – Roy Robertson and Dr. Rob Campbell with the PWS Science Center
- 3:30 M 4-3 Update on Review of Secondary Containment Liner Testing – Sadie Blancaflor and Dr. Joe Scalia, Subcontractor to Dr. Craig Benson
- 4:15 N 4-4 Update on Tanker Contingency Plan Amendment – Linda Swiss
- 4:45  RECESS

Shaded Items Require Board Action

5:30–7:30 Community Reception at the Kodiak Fisheries Research Center (301 Research Ct.)

#### Friday, September 20, 2024

- 8:30 A Call to Order & Roll Call
- 8:35 B 4-5 Report Acceptance: Non-Indigenous Marine Species in Prince William Sound – Dr. Danielle Verna and Dr. Greg Ruiz with the Smithsonian Environmental Research Center
- 9:10 C 4-6 Miscommunication in Maritime Contexts – Dr. John Guthrie and Dr. Nicole Ziegler with Sky Island Language Learning Research

*Continued on next page*



Agenda may change without prior notice

Times are provided as a guideline only

Council's public proceedings are routinely recorded and may be disseminated to the public by PWSRCAC or the news media

***Citizens promoting the environmentally safe operation of the Alyeska terminal and associated tankers***

*Continued from previous page*

10:00		<b>BREAK</b>
10:15	D	4-7 PWSRCAC Long Range Planning – Hans Odegard and Donna Schantz
10:35	E	Director of Finance’s Report to the Board
10:50	F	Executive Director’s Report to the Board
11:05	G	President’s Report to the Board
11:20	H	Consideration of Consent Agenda Items
11:30	I	Closing Comments
12:00		ADJOURN <i>Lunch provided for those attending in person</i>

Shaded Items Require Board Action

Additional items provided for information only:

- PWSRCAC Contact Roster (*Board Members only*)
- 2-1 List of Commonly Used Acronyms
- 2-2 Budget Status Report
- 2-3 Director Attendance Record
- 2-4 Committee Member Attendance Record
- 2-5 List of Board Committee Members
- 2-6 PWSRCAC One-Page Strategic Plan
- 2-7 List of Board and Executive Committee Actions
- 2-8 PWSRCAC Organizational Chart
- 5-1 September 2024 Program/Project Status Report

Volunteers, scan the code to submit your travel claim:



**PRINCE WILLIAM SOUND  
REGIONAL CITIZENS' ADVISORY COUNCIL  
MINUTES  
ANNUAL BOARD MEETING  
May 2 and 3, 2024  
Valdez, Alaska**

**Members Present**

Robert Archibald	City of Homer
Amanda Bauer	City of Valdez
Robert Beedle <i>(via videoconference)</i>	Cordova District Fishermen United
Mike Bender	City of Whittier
Mike Brittain	City of Seward
Nick Crump	Prince William Sound Aquaculture Corporation
Ben Cutrell	Chugach Alaska Corporation
Wayne Donaldson	City of Kodiak
Mako Haggerty	Kenai Peninsula Borough
Luke Hasenbank	Alaska State Chamber of Commerce
Jim Herbert	Oil Spill Region Recreational Coalition
David Janka <i>(via videoconference)</i>	City of Cordova
Melvin Malchoff	Port Graham Corporation
Dorothy Moore	City of Valdez
Bob Shavelson <i>(via videoconference)</i>	Oil Spill Region Environmental Coalition
Angela Totemoff	Tatitlek Corporation & Tatitlek Village IRA Council
Michael Vigil	Chenega Corporation & Chenega IRA Council
Aimee Williams	Kodiak Island Borough
Kirk Zinck	City of Seldovia

**Members Absent**

Elijah Jackson	Kodiak Village Mayors Association
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**Committee Members Present**

Steve Lewis <i>(via videoconference)</i>	POVTS Committee
Davin Holen <i>(via videoconference)</i>	SA Committee
Savannah Lewis <i>(via videoconference)</i>	IE Committee
Cathy Hart	IE Committee
Ruthie Knight	IE Committee
Kate Morse	IE Committee
Matt Melton <i>(via videoconference)</i>	OSPR Committee
Tom Kuckertz	TOEM Committee
Mikkel Foltmar	TOEM Committee

**Staff Members Present**

Donna Schantz	Executive Director
Joe Lally	Director of Programs
Brooke Taylor	Director of Communications
Hans Odegard	Director of Administration
Ashlee Hamilton <i>(via videoconference)</i>	Director of Finance

Jennifer Fleming  
 Danielle Verna  
 Roy Robertson  
 Linda Swiss  
 Jeremy Robida  
 Alan Sorum  
 Amanda Johnson  
 Sadie Blancaflor  
 Maia Draper-Reich  
 Nelli Vanderburg  
 Jaina Willahan

Executive Assistant  
 Project Manager  
 Project Manager  
 Project Manager  
 Project Manager  
 Project Manager  
 Project Manager  
 Outreach Coordinator  
 Project Manager Assistant  
 Office Coordinator

### **Ex Officio Members Present**

Ytamar Rodriguez  
 Lisa Fox *(via videoconference)*  
 CDR Sarah Rousseau  
 Liza Sanden *(via videoconference)*  
 Steve Weeks  
 Mary Goolie *(via videoconference)*

Alaska Dept. of Environmental Conservation  
 U.S. Department of the Interior  
 USCG MSU Valdez  
 NOAA  
 Bureau of Land Management  
 Environmental Protection Agency

### **Others Present**

John Kurz  
 Andres Morales  
 Klint VanWingerden  
 Mike Day *(via videoconference)*  
 Alyssa Sweet *(via videoconference)*  
 Diana Bouchard *(via videoconference)*  
 Michelle Egan *(via videoconference)*  
 Kate Dugan  
 Suzanne Cunningham *(via videoconference)*  
 Weston Branshaw *(via videoconference)*  
 Kara Kusche  
 Anna Carey  
 Mollie Dunkin  
 Sonja Mishmash  
 Melissa Woodgate  
 Mo Radotich  
 Teresa Melville  
 Jade Gambell  
 Kathy Shea  
 Eileen Oliver *(via videoconference)*  
 John Douglas  
 Chris Merten  
 Sam Norton  
 Andrea West  
 Mark Curtis *(via videoconference)*  
 Rob Kinnear  
 Steve Ferrell

Alyeska Pipeline Service Company  
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 Alaska Dept. of Environmental Conservation  
 Bureau of Land Management  
 City of Valdez  
 Alaska Tanker Company  
 Alaska Tanker Company  
 Polar Tankers  
 Crowley Alaska Tanker  
 Hilcorp  
 Hilcorp



Ben Knowles	Hilcorp
Diane Dunham	Hilcorp
Capt. Josh Weston <i>(via videoconference)</i>	Southwest Alaska Pilots Association (SWAPA)
Tony Parkin	Santos
Joe Balash <i>(via videoconference)</i>	Santos
Steve Wackowski	Santos
Peter Laliberte	Santos
Joe Levesque	Levesque Law Group
Genevieve Cowan <i>(via videoconference)</i>	Blank Rome, PWSRCAC Legislative Monitor (Federal)
Roy Jones <i>(via videoconference)</i>	PWSRCAC Legislative Monitor (Federal)
Gene Therriault <i>(via videoconference)</i>	PWSRCAC Legislative Monitor (State)
KJ Crawford <i>(via videoconference)</i>	Alaska Safety Alliance
Lanette Oliver	Valdez Adventure Alliance
Rick Steiner <i>(via videoconference)</i>	Oasis Earth

### Thursday, May 2, 2024

#### **CALL TO ORDER, WELCOME, AND INTRODUCTIONS**

The annual meeting of the Board of Directors of the Prince William Sound Regional Citizens' Advisory Council was held May 2 and 3, 2024, at the Valdez Civic Center, Valdez, Alaska. President Robert Archibald called the meeting to order at 8:15 a.m. on May 2, 2024, and welcomed everyone to the meeting.

A roll call was taken. The following 17 Directors were present at the time of the roll call, representing a quorum for the conduct of business: Archibald, Bauer, Beedle (via videoconference), Bender, Brittain, Cutrell, Donaldson, Haggerty, Hasenbank, Herbert, Janka (via videoconference), Malchoff, Moore, Shavelson (via videoconference), Vigil, Williams, and Zinck. Nick Crump and Angela Totemoff joined the meeting in person at 8:30 a.m. and 9:50 a.m., respectively.

Valdez City Manager John Douglas welcomed the Council to Valdez.

Introductions and Directors' reports followed.

#### **1-0 AGENDA**

President Archibald presented the agenda (green-colored sheet) for approval.

Michael Vigil **moved to approve the agenda** (green-colored sheet). Jim Herbert **seconded**.

Archibald suggested the addition of a discussion on vessel-whale strikes and voluntary vessel speed reductions in Prince William Sound be added to the executive session.

Dave Janka **moved to amend the agenda** to add a discussion on vessel-whale strikes and voluntary vessel speed reductions in Prince William Sound to the executive session. Mako Haggerty **seconded**, and the **amendment was approved** without objection.

**The agenda was approved as amended.**

#### **4-1 PWSRCAC ANNUAL DIRECTOR APPOINTMENTS**

As outlined in the briefing sheet (Item 4-1) in the meeting notebook, the Board took up the annual seating of member representatives for those seats expiring at this meeting. Executive Director Donna Schantz read the names of those Directors nominated for appointment to the Board and pointed out that there were no changes to those currently holding their seats.

Jim Herbert **moved to confirm the appointment** of the selected representatives for each of the member entities listed for two-year terms expiring May 2026, as follows:

Alaska State Chamber of Commerce	Luke Hasenbank
Chenega IRA Council/Chenega Corporation	Michael Vigil
Chugach Alaska Corporation	Ben Cutrell
City of Cordova	David Janka
City of Valdez	Dorothy Moore
City of Whittier	Mike Bender
Cordova District Fishermen United	Robert Beedle
Kodiak Island Borough	Aimee Williams
Oil Spill Region Environmental Coalition	Bob Shavelson
Port Graham Corporation	Melvin Malchoff

Nick Crump **seconded** and the **motion passed** without objection.

#### **1-1 MINUTES**

Ben Cutrell **moved to approve the minutes** of the Regular Meeting of the Board of Directors of January 25-26, 2024.

Robert Archibald pointed out **corrections on p. 27**. [The organization to which Archibald, Herbert, and Haggerty all belong and for which they asked for a ruling on any conflict of interest was the Friends of Kachemak Bay State Park (FKBSP), not the Prince William Sound Stewardship Foundation (PWSSF).]

#### Corrections:

p.27, to the third and fourth paragraphs under *Item 4-4 Consideration of the Oil Spill Region Recreational Coalition as Class I Member*, **delete** "PWSSF" and **insert** "FKBSP."

p.27, to the first line of the fifth paragraph, **insert** "also" between "was" and "on" ... and **delete** "the Friends of Kachemak Bay State Park" and **insert** "FKBSP."

Nick Crump **seconded** and the **minutes were approved with the corrections**.

#### **1-2 MINUTES**

Michael Vigil **moved to approve the minutes** of the Special Meeting of the Board of Directors of March 27, 2024. Robert Beedle **seconded** and the **minutes were approved** as presented.

#### **PUBLIC COMMENTS**

Alyeska President John Kurz addressed the Council and briefly reviewed items of significance during his first year as president as they relate to PWSRCAC. He stated that Alyeska took the Billie Garde report seriously and was working on the issues raised in that report. He highlighted

his commitment to safety first in Alyeska's operation. He reported that under his leadership Alyeska had established eight safety "mindsets" to motivate individual employees to take certain steps and make certain decisions, and Alyeska is encouraging the entire workforce to adopt these mindsets and carry them forward to deliver the performance that Alyeska wants.

He thanked PWSRCAC for giving Alyeska the opportunity to review some of its reports, including the Tanks 7 and 94 report, before they are released publicly. He emphasized that Alyeska is working on better gathering of information to respond to PWSRCAC's requests for information in a timelier manner.

Jim Herbert thanked Kurz for the tour of the VMT the previous day and expressed appreciation for his leadership. Herbert urged Alyeska to share ideas with PWSRCAC and the USCG, and to work with PWSRCAC on a solution to the problems the new USCG Subchapter M towing regulations will have on the SERVS-contracted fishing vessel fleet. Kurz agreed. He said Alyeska was likewise concerned with the new regulations and the effect it will have on SERVS operations, and he had spoken with CDR Rousseau on this issue.

### **INTERNAL OPENING COMMENTS – PWSRCAC TECHNICAL COMMITTEES**

#### **TERMINAL OPERATIONS & ENVIRONMENTAL MONITORING COMMITTEE (TOEM)**

Amanda Bauer reported on the activities of the TOEM Committee since the January Board meeting as follows:

- TOEM selected a contractor to perform a review of the Valdez Marine Terminal (VMT) Title V Air Quality Permit renewal. It is still unknown at this time when the permit will be released for public comment, so the committee deemed it best to select a contractor who can be ready to start work as soon as the permit renewal is released.
- TOEM issued an RFQ and selected a contractor to perform a review of the VMT Alaska Pollutant Discharge Elimination System (APDES) Water Quality Permit. The permit is expected to be released for public comment in summer/fall 2024.
- Regarding Alyeska's proposal to utilize the non-destructive testing method geoelectric leak location (GELL) to evaluate the integrity of the secondary containment liner at the VMT, the TOEM Committee voted to bring contractor Dr. Craig Benson to the VMT to observe the pilot testing in the VMT West Tank Farm and calibration of GELL. The committee has since learned that Dr. Benson will retire soon and will be sending a subcontractor to do the observation, although he still plans to see the project through to completion. A date for the observation has not yet been scheduled.
- TOEM held additional discussions with Bill Mott of Taku Engineering on his report titled "Review of the Ballast Water Tank 94 and Crude Storage Tank 7 Out-of-Service Inspection Reports." This report was sent to Alyeska for their review and input, at which point Alyeska sent some additional documentation that had not been included with the initial round of requested information. This report is undergoing further revision as a result.

- TOEM recommended following up with Alyeska directly to request information related to the tank bottom processing dike cell fire. A letter was transmitted to Alyeska on February 29, 2024. None of the requested information has been received at this time.

#### **OIL SPILL PREVENTION & RESPONSE COMMITTEE (OSPR)**

Chair Jim Herbert reported for the OSPR Committee on its activities since the January Board meeting, as follows:

- OSPR was updated on area and regional planning efforts for the Alaska Regional Contingency Plan, and the Prince William Sound, Arctic and Western Alaska, and Inland Alaska c-plans and area committees.
  - Comments were recently submitted during the final public comment period for the 2023 proposed major amendment on the Tanker C-Plan. Staff continues to track the public process for the 5-year renewal of the VMT C-Plan.
  - The secondary containment issue at the VMT is also part of the VMT C-Plan renewal. There is currently an outstanding condition of approval from the 2019 VMT C-Plan renewal that requires Alyeska to submit results from a pilot study on the method they selected to evaluate secondary containment liner integrity. The field work for this study is scheduled for this summer. The TOEM Committee is also closely following this.
- OSPR's Virtual Meeting with Contracted Response Vessel Representatives took place via Zoom on March 6. This meeting was considered a success by those in attendance, with suggestions for an in-person meeting next time. Fleet representatives had some suggestions regarding trainings, but felt the program was stable overall and in a good place.
- OSPR received a presentation about the Regional Stakeholder Committee (RSC) task force, which discussed the work that has been done by the task force to develop job aids for the Liaison Officer and RSC members. A similar presentation is on the agenda for this Board meeting.
- OSPR reviewed and accepted various drill reports, including the 2023 Annual Drill Monitoring Report, which is on the agenda for later at this meeting.
- OSPR has been kept updated on various weather-related projects, including repair and maintenance on the Port Valdez weather buoys and the Council's Prince William Sound and Gulf of Alaska weather stations. Dr. Rob Campbell is now working on the analysis of the 2023 Port Valdez weather buoy data.
- Herbert thanked Alyeska for its assistance in tracking down the Jackson Point buoy which escaped its mooring. Alyeska has assisted with getting it re-installed.
- OSPR has also been updated on the non-operational Seal Rocks and Cape Cleare weather buoys in the Gulf of Alaska, both of which stopped working and then broke free from their moorings. The buoys were finally replaced by the National Data Buoy Center in early May.

### **PORT OPERATIONS & VESSEL TRAFFIC SYSTEMS COMMITTEE (POVTS)**

Chair Steve Lewis reported (via videoconference) on the efforts of the POVTS Committee since the January Board meeting:

- The POVTS Committee continues to stay informed about the weather-based projects led by the OSPR Committee and on matters pertaining to the Port Valdez weather buoys.
- **Miscommunication in Maritime Contexts (8520).** The POVTS Committee met to discuss the Miscommunication in Maritime Contexts whitepaper. The committee found the report to be exhaustive and comprehensive, and recommended it for Board approval. The report was approved at the Special Board meeting on March 27.
- **Vessel Operator Tsunami Hazards Guidance Workshop (8025).** Staff and committee members have been working with Nuka Research & Planning Group, LLC, on this project, as well as a steering committee that includes representatives from the City of Valdez, Ground Truth Alaska, the Alaska Division of Natural Resources, and Alaska Pacific University. The workshop is scheduled to take place June 3 and 4. An agenda has been drafted and presenters have been selected. A registration form was sent out to possible interested parties.
- The committee met twice on the voluntary tanker speed reduction/vessel-whale strike issue, and developed findings and conclusions. This will be discussed later in the agenda.

### **SCIENTIFIC ADVISORY COMMITTEE (SAC)**

Chair Davin Holen reported on SAC's activities since the January Board meeting, as follows:

- **Long-Term Environmental Monitoring Project (LTEMP).** SAC has completed a thorough review of the Long-Term Environmental Monitoring Project (LTEMP) since the last Board meeting. This year's fieldwork will start the week following this Board meeting by deploying passive sampling devices in Port Valdez. In early June, the remainder of the field work will occur by retrieving the passive sampling devices and collecting sediment samples and blue mussels in Port Valdez. This year samples will also be collected at remote sites in Aialik Bay, Windy Bay, and Shuyak Harbor.

In addition, SAC has discussed a plan to analyze heavy metals in sediment near the Valdez Marine Terminal (VMT), prompted by concerns raised by researchers from the University of New Orleans about metal accumulation. This will be a preliminary assessment. SAC will reassess the need for heavy metals sampling after results from this year's sampling are received.

- **Marine Bird Surveys.** Unfortunately, the March 2024 marine bird surveys were canceled due to engine failure on board the research vessel. However, the committee anticipates a draft report on a hotspot analysis of marine birds in Prince William Sound using historical data from 2007-2023 to be ready in early June.
- **Marine Invasive Species.** SAC has been discussing ongoing efforts to recruit high school or college-age students for invasive species monitoring internships in Cordova, Kodiak, and

Valdez. These internships will offer students the opportunity to do fieldwork in the marine environment and receive a stipend. The outgoing interns from 2023 have recently been presenting the results of their projects in their local communities.

SAC has received an update on the progress of the Smithsonian's broad-scale invasive species survey that took place last summer and a draft report is expected at its June meeting.

- **Vessel-Whale Strikes Discussion.** SAC has been taking part in the discussion on tanker-whale strikes, along with POVTS. The committee focused on the biological aspects of whales, such as availability of data on whale presence and ship strikes in Prince William Sound.
- **SAC Membership.** Following the recent departure of SAC member Ana Aguilar-Islas, the committee has been discussing the potential recruitment of a new member with expertise in oceanography. The committee is evaluating potential candidates, with a focus on proficiency in physical oceanography and understanding anthropogenic impacts.
- **International Oil Spill Conference.** PWSRCAC Project Manager Danielle Verna and SAC Chair Davin Holen will present a paper titled "Building Collaborative Social Science Research Models to Understand the Social, Cultural, and Economic Impacts of Spills" at the International Oil Spill Conference. Additionally, Jim Payne, a previous LTEMP contractor, will present a paper on LTEMP and transcriptomics at the same conference.

#### **INFORMATION AND EDUCATION COMMITTEE (IEC)**

Committee member Cathy Hart reported in the absence of Chair Trent Dodson. Hart reported that IEC had two regular meetings since the Board met in January, and the committee's activities were as follows:

- **Fishing Vessel Program Community Outreach.** Due to scheduling conflicts with the 2024 SERVS' training dates, IEC had a thoughtful discussion about alternate scenarios for the annual outreach tour. Based on this discussion, IEC moved to return the project funds for FY2024 Fishing Vessel Program Community Outreach to contingency, with the next event scheduled to take place in September 2024 in Whittier. The Whittier event will fall under fiscal year 2025.
- **Youth Involvement.** IEC accepted two final reports from the Alaska Marine Conservation Council as complete and meeting all deliverables.

There are still nine contracts underway with the following contractors: University of Alaska Anchorage, Center for Alaskan Coastal Studies, Wrangell Institute for Science and Environment, Fireweed Academy Charter School, Copper River Watershed Project, Alaska Geographic, and Kenai Mountain-Turnagain Arm National Heritage Area. Four of these contracts are on track to be completed by the end of the fiscal year, with the remaining five scheduled to be completed at the end of September.

A Request for Proposals is currently open for projects during the 2024-2025 school year. The deadline is May 24. IEC is planning to hold a project team meeting in June to review

proposals received. Board members who know of anyone who might be interested in submitting a Youth Involvement proposal should contact Outreach Coordinator Maia Draper-Reich for more information.

- **Illustrated Prevention and Response System Outreach.** In February, author and illustrator Tom Crestodina traveled to Valdez to view vessels and equipment. Following that trip, he began working on the illustrations for the book and has been finalizing the storyboard with input from the project team and industry. He has been posting some of the draft drawings to his Facebook page.
- **Community Outreach.** In March, Board and OSPR member Jim Herbert and Outreach Coordinator Maia Draper-Reich, traveled to Seward to participate as competition officials for the Alaska Ocean Sciences Tsunami Bowl. In April, Board and IEC member Aimee Williams, and Board and SAC member Wayne Donaldson helped host the Council's booth alongside PWSRCAC Project Manager Danielle Verna at ComFish Alaska in Kodiak. Staff have coordinated and participated in many additional outreach events, which will be detailed further during the Community Outreach Annual Report later at this meeting.

IEC is excited to continue supporting outreach efforts in the upcoming months, including events such as the International Oil Spill Conference and the Prince William Sound Natural History Symposium.

- **Conferences.** In March IEC members Cathy Hart and Kate Morse traveled to Portland, Oregon, to attend the 2024 Nonprofit Technology Conference in person, while IEC member Savannah Lewis attended the conference's virtual sessions. Some key topics that were discussed during this conference included board governance software and board engagement technology, website analytics, workforce retention, countering disinformation, intergenerational communication, and fostering work-life balance. This conference continues to be a valuable learning opportunity for volunteers who attend.

Amanda Bauer added thanks to all those who facilitated getting Tom Crestodina on board the vessels for his illustrated storybook project on oil spill prevention and response.

*(This concluded the Opening Comments of PWSRCAC's Technical Committees.)*

## **INTERNAL OPENING COMMENTS -- PWSRCAC BOARD SUBCOMMITTEES**

### **LEGISLATIVE AFFAIRS COMMITTEE (LAC)**

Dorothy Moore reported on the activities of the Legislative Affairs Committee (LAC) on federal and state issues since the last Board meeting in January.

#### **State:**

- The Council has been concerned with the long-term sustainability of the Alaska Department of Environmental Conservation's Spill Prevention & Response (SPAR) Division budget for more than a decade. A recent change made to the way that the SPAR Division calculates the funding coming into the Prevention Account has budget projections indicating that the account will now go into deficit in FY2033, rather than FY2025 as



originally projected. A discussion about the effects of this change is part of the 4-6 Federal & State Government Affairs update on the following day's agenda.

- At the end of the 2023 legislative session, the contents of Senate Bill 67 (relating to PFAS use, regulation, and testing) were inserted into another bill which passed the Legislature but was vetoed by the Governor. The original bill has been revised to remove the language that the Governor found objectionable and is working its way through the legislative process. Activity on this bill is expected towards the end of this legislative session.
- There has been no forward progress on the Governor establishing an Alaska Invasive Species Council through an executive order. Therefore, based on the threat that marine invasive species like the European Green Crab (already found in Metlakatla) pose to Alaska waters, ecosystems, and habitats, PWSRCAC will continue to advocate for legislation to establish this Council in the future.

**Federal:**

- LAC has been following the progress of the request that the Government Accountability Office conduct a review to determine the adequacy of federal and state regulatory oversight of the Valdez Marine Terminal. There is additional information about this topic in the written Executive Director's Report to the Board.
- The Council's legislative monitors in Washington, D.C., have conducted outreach with Alaska Delegation staff regarding the inoperable and off-station Seal Rocks and Cape Clear weather buoys in the Gulf of Alaska. The Council has done outreach to the U.S. Coast Guard, the Response Planning Group, and Alyeska/SERVS to emphasize the importance of replacing these weather buoys as soon as possible.
- The Council has been concerned with the potential serious impacts to the Alyeska/SERVS uninspected response vessel fleet since 2020, when the regulatory issue of the Coast Guard application of Subchapter M towing vessel inspection regulations first arose. At that time, U.S. Coast Guard District 17 updated the PWSRCAC Board on a Marine Safety Information Bulletin that exempted the SERVS vessels. However, in 2023, U.S. Coast Guard Headquarters implemented a Work Instruction that could potentially remove those exemptions and impact the SERVS fleet.

**Recent Updates:**

**State:**

- A team comprised of Council staff and LAC members, supported by our State Legislative Monitor Gene Therriault, met with close to 20 Alaska legislators and their staffs in mid-April to provide information and advocate for addressing the SPAR budget deficit and personnel losses, PFAS legislation, and the Alaska Invasive Species Council. The team also met with the U.S. Coast Guard District 17 Commander and staff to discuss projects and issues of mutual concern.

**Federal:**

- That same Council team will be traveling to Washington, D.C., supported by PWSRCAC's Federal Legislative Monitors Roy Jones and Genevieve Cowan, to meet



with the members of the Alaska Delegation and their staffs to discuss and request support in resolving the issues identified above. The team will also meet with various U.S. Coast Guard Headquarters offices to discuss the potential serious impacts of applying the Subchapter M regulations to the SERVS uninspected response vessel fleet, the replacement of the radar systems in Prince William Sound, and other issues of mutual interest and concern.

On behalf of the committee, Moore expressed appreciation to Director of Programs Joe Lally, who is the staff lead for LAC, for the tremendous amount of time and energy he puts in to supporting the committee. She especially wished to recognize his efforts in developing the briefing materials for the committee's Juneau and Washington, D.C., legislative visits.

#### **BOARD GOVERNANCE COMMITTEE (BGC)**

Chair Luke Hasenbank reported on the Board Governance Committee (BGC) activities since the January Board meeting.

- The committee has not found it necessary to meet since the January Board meeting.
- In late February, the Council was successfully recertified by the Coast Guard.
- Staff support assigned to BGC will change, as Hans Odegard has been appointed Director of Administration. Office Coordinator Jaina Willahan will support the committee going forward.
- Any Board members interested in joining the committee are requested to express their intent during the Board subcommittee appointments (Item 4-9) on the agenda the following day.
- BGC will schedule a meeting, as the need arises, any time pressing issues come up pertaining to the Council's affairs.

#### **FINANCE COMMITTEE (FC)**

Treasurer and Chair Wayne Donaldson reported on the Finance Committee's activities since the January Board meeting.

- The Finance Committee met twice since the Board meeting in January.
- In February, the committee reviewed the December 31, mid-year financial statements. The committee also reviewed the draft IRS Form 990. The committee recommended the Board approve the Form 990, which is the nonprofit version of an IRS tax return. The Board approved the Form 990 for submission to the IRS at the Special Board Meeting on March 27, and it was accepted by the IRS on April 4, 2024.
- The committee discussed the selection of a new auditing firm as BDO, the Council's current auditor, is no longer able to provide services to PWSRCAC. BDO has recommended PWSRCAC no longer continue the agreed-upon procedures special audit, as it is unnecessary given the clean financial condition of PWSRCAC over the prior 10 years and the internal controls to which PWSRCAC adheres. During the April meeting, the

committee selected the audit firm Porter & Allison, Inc., to conduct the FY2025 audit and complete the Form 990. Porter & Allison is headquartered in Anchorage but their staff work remotely.

- During April, the committee reviewed the FY2024 budget modifications as well as Board Policy 303, which governs budget modification authority. Executive Director Schantz has brought budget modifications to the Finance Committee and the Executive Committee for all budget modifications, even when they fall within her level of authority. This item is found under Item 3-7 of the Consent Agenda in the meeting notebook.
- During the April meeting, the committee reviewed and recommended the Board accept the Annual Contract Compliance Verification report for FY2023. This report highlights efforts undertaken to ensure compliance with the terms and conditions of the Alyeska-PWSRCAC contract and is Item 3-5 on the Consent Agenda.
- The committee met in executive session to review salary and benefit data for Executive Director Schantz. The purpose of this review was to assemble recent salary and benefit data for the executive director position. The committee will review and update this data annually, in mid-winter, prior to completion of the executive director's annual performance evaluation so Board members have this information during compensation discussions.
- The committee also discussed the Anchorage Office lease extension at the April meeting which can be found under Item 3-6 of the Consent Agenda. The management team has decided to extend the current Anchorage Office lease for a one-year period with the option to extend it for another year. The management team plans to continue the search for new office space in the meantime.
- Finally, the committee reviewed the draft FY2025 budget, which is before the Board at this meeting under item K. Director of Finance Ashlee Hamilton will be previewing the draft budget under said item on the agenda. The Finance Committee recommends the Board adopt the budget as presented.

*(This concluded the Opening Comments of PWSRCAC's Board Subcommittees.)*

*Break: 9:30 a.m. - 9:40 a.m.*

## **EXTERNAL OPENING COMMENTS - EX OFFICIOS**

### **ALASKA DEPT. OF ENVIRONMENTAL CONSERVATION (ADEC)**

Ytamar Rodriguez, the Inter-Agency Coordination Manager for the Spill Prevention & Response (SPAR) Division of the Alaska Department of Environmental Conservation, reported on ADEC/SPAR activities since the last Board meeting in January.

- **Staffing.** SPAR is now fully staffed with five positions located in the Valdez office. The Prevention Preparedness & Response (PPR) section has recently been assigned three new PCNs, one of which has been assigned to the Valdez office and interviews have already been conducted for that position.

- **Recruitment.** Recruitment is ongoing for the engineering positions. There were two vacancies originally. One has recently been hired to a supervisory position based in Wasilla and will start May 21. The other is still out for recruitment. There is a total of three engineering positions assigned to SPAR.
- **Spill responses.** There were no reportable spill responses as of this date.
- **Prince William Sound Area Plan Updates.**
  - The Prince William Sound Area C-Plans (ACPs) will be moved into the new C-Plan architecture. This will be coordinated with the Prince William Sound Area Administrative Subcommittee.
  - The Regional Stakeholder Committee (RSC) job aids are complete and Rodriguez conveyed the thanks of ADEC to PWSRCAC for its assistance and support on this project.
  - A Prince William Sound Area Plan tabletop drill was held on March 13 that was focused on a vessel that overturned in Jack Bay with over 10,000 gallons of oil and hazardous material products. ADEC appreciated the participation of wildlife agencies with this exercise.
- **Prince William Sound Tanker and VMT oversight activities.**
  - The review of major amendments to Prince William Sound tanker c-plans is under way to incorporate the new 2023 Article 4 regulation updates and the new lightering oil spill response barge (OSRB-5) into the Prince William Sound tanker c-plans.
  - Staff have visited the new Allison Creek response barge and have been coordinating with Alyeska on exercise components for this barge.
  - Staff are continuing to complete tanker inspections and have made visits to the VMT over the winter to observe snow removal efforts.
  - Staff have attended fishing vessel training and operational readiness training that support readiness for the VMT and tanker c-plans.
  - The 5-year review of the VMT C-Plan is also under way and will incorporate 2023 Article 4 regulation updates. Project work regarding the Condition of Approval from the 2019 VMT plan renewal as to the secondary containment liner is being tracked by ADEC plan reviewers and engineers. ADEC is planning to conduct a field visit through this project work.
  - ADEC staff will be participating in the VMT exercise on May 8 and have been part of the planning process. Staff will observe and evaluate the July VMT deployment exercise with a wildlife focus and are involved in planning the October 2024 tanker response exercise.

- **New Regulation Review Updates.** Rodriguez announced that ADEC has initiated two new regulatory projects for 2024: a review of the regulations in Article 1; and a review of the out-of-scope comments that were not addressed in the previous regulatory review of Article 4 and, if recommended, to propose additional revisions.
  - The first review is to update the technical standards referenced in the prevention regulations for flow lines and for facility oil piping (18 AAC 75.047 and 18 AAC 75.080, respectively). These standards have not been updated since 2006. PPR's Guidance & Regulation group and Integrity Engineering unit are working on this project. Public comment on proposed changes is expected to occur in 2024.
  - The second regulatory review project is being called Article 4, Part 2. ADEC will review and propose corrective revisions to Article 4 but not substantive changes. The sources will include a limited subset of public comments under the first review of Article 4, lessons learned during the implementation process, and the need to remove the implementation deadlines that have sunsetted. ADEC anticipates that public comment will occur during 2024.
- ADEC staff will participate in "Alaska X," an exercise that will simulate a 9.2 earthquake in Southcentral Alaska. ADEC has been coordinating with the City of Valdez and the Alaska Department of Emergency Management.

Following his formal report, Rodriguez answered questions from the Board.

He confirmed that SPAR staff will be invited to observe when Alyeska does its testing of the catalytically blown asphalt (CBA) liner.

In response to a question from Jim Herbert about the review and potential additional regulation changes to Article 4, Rodriguez said that it was his understanding the changes will be to provide clarification or corrective actions, not anything that is substantive in nature.

#### **UNITED STATES COAST GUARD (USCG)**

CDR Sarah Rousseau reported that LT Abigail Farrara, Vessel Traffic Service (VTS) Director for MSU-Valdez, was working on updates to VTS user manuals and procedures to home port.

MSU-Valdez recently started communicating with other port partners through the "gov" delivery system which is a subscription-based system that provides updates through marine safety bulletins, including updates to rulemaking, lights, aids to navigation, or announcements to the local area. One local announcement recently released by MSU-Valdez emphasized the importance of communications during high vessel traffic times and seasonal activities. It served as a reminder that it is everyone's responsibility to operate their radios when on the water. Failure to do so can result in fines

CDR Rousseau reported that a recently finalized rulemaking eliminated the shoreside portion of the security zone that is over Alyeska. This was a cleanup of poorly drafted language when it was first implemented after 9/11.

As to the implementation of the new Subchapter M towing regulations, CDR Rousseau noted that implementation of the regulation is in limbo at the present time but emphasized there is no exemption for Prince William Sound. There is simply a delay in implementation of the rule until Congress and USCG District 17 has clarification of the new regulations. Rousseau thanked all the port partners who provided input. She emphasized that she cannot advocate or convey the position of the SERVS fishing vessel response fleet unless she has the information necessary to convey the impacts the rule will have to District 17 and USCG Headquarters. She thanked SERVS for providing good insight into the problems so she could advocate for the fleet to District 17 so they can, in turn, convey the information to USCG Headquarters. She commented that sometimes rules are made without understanding the detrimental impacts in other parts of the country. The more she can communicate that, the better USCG can make better decisions.

In response to an inquiry from Mike Bender about the status of the Seal Rocks and Cape Cleare buoys' redeployment, CDR Rousseau relayed that they should be back in place this month and that was the latest information she had from the National Data Buoy Center.

Amanda Bauer expressed disappointment with the recent and extensive Prince William Sound navigational chart update from NOAA. In her opinion it is not as good as the chart from 10 years prior, and this was especially disappointing in light of NOAA's move to abandon paper charts in favor of electronic ones. Bauer added that Stan Stephens Cruises has contacted NOAA about things that need to be fixed in the update. CDR Rousseau offered to connect Bauer with NOAA personnel coming to town the next week to work on these charts.

In response to a question from Nick Crump, CDR Rousseau clarified the jurisdiction of the USCG security zone is to the water side only and to certain parts where there is over-water transfer. Beyond that, USCG is not responsible for security shoreside in the zone; that is Alyeska's own responsibility. There is an overall facility oversight security plan which is a plan approved by the Captain of the Port and exercised every year, but it is a separate process from the on-water security zone area.

Michael Vigil asked CDR Rousseau to comment on the circulating rumor he had heard that if USCG is called out and it is not a life or limb situation, the person will get a bill. CDR Rousseau clarified that MSU Valdez does not do search and rescue activities. That lies with Sector Anchorage, but in any event there is no bill from USCG for search and rescue efforts.

#### **U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)**

Mary Goolie, via videoconference and filling in for Federal On-Scene Coordinator Torri Huelskoetter at this meeting for EPA's opening comments, thanked PWSRCAC staff for their participation in the Alaska Regional Response Team (ARRT) and Area Committee meetings, and being on the subcommittees reviewing the area c-plans, and providing comments in addition. She also thanked specifically PWSRCAC staff Joe Lally, Jeremy Robida, and Linda Swiss for their participation on the ARRT Regional Stakeholder Committee (RSC) Task Force.

Goolie reported that the job aids mentioned by ADEC's Ytamar Rodriguez have been completed in draft format and will be distributed to the RSC tri-chairs and go out for public comment, starting with the Arctic and Western Alaska C-Plan.

### **NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION (NOAA)**

NOAA's Scientific Support Coordinator Liza Sanden reported (via videoconference) on projects NOAA has been working on in Alaska.

She reported NOAA was working on several training opportunities which included Alaska responders. In March there was a virtual SCAT (Shoreline Cleanup Assessment Techniques) course for the Pacific region. There were over 50 participants from Alaska's USCG and ADEC. There will be a follow-up field day later this year in Juneau and Valdez. She said it is her hope that it will become an annual event, and now that there are so many USCG and ADEC personnel trained in Alaska, she hopes it can be opened up to other partner agencies in Alaska who have already expressed interest.

NOAA has had several responders from Alaska attend its Science of Oil Spills and Science of Chemical Releases courses held in Seattle, WA, and Mobile, AL, and there will be a third Science of Oil Spills course in Ann Arbor, MI, in September. The application deadline for that course is June 6.

NOAA has also been updating Arctic ERMA that NOAA and USCG use for major and minor incidents for preparedness in general. Some of the updates were triggered by the ongoing work on data validation of GRS response strategies in Western Alaska.

The Spatial Data Branch has been working on some updates to ERMA that will allow greater functionality during responses.

Within the broader Alaska NOAA team, they have been working to improve their ability to respond to natural disasters with those that have a focus on coastal impacts.

A new position has been created within the NOAA National Ocean Service known as the Deputy Administrator for Navigation, Observation & Positioning, and that has been filled by Rachel Dempsey. She will be visiting Alaska in a couple of weeks with the objective of learning the needs of Alaska that can be served by the National Ocean Service. Sanden has met with Dempsey recently and the issue of the buoys is one that Dempsey is aware of.

The NOAA Marine Debris Program has a few grant opportunities available with funds for cleanups of marine debris, both hazardous and non-hazardous. One is for Alaska communities and is funded by NOAA to the Alaska SeaGrant Program.

In response to a question from Jim Herbert as to the current status of the buoys that had gone adrift and when they might be re-sited, Sanden indicated that she had no further information beyond what CDR Rousseau had previously provided. Jim Herbert invited Sanden and other NOAA personnel to attend the upcoming workshop in early June on the potential for terrestrial based/tsunami generating landslides in Valdez. Sanden said she cannot attend but others from NOAA's tsunami staff will be attending. As an aside to the issue of terrestrial-based versus tsunami-generated landslides, she added that NOAA is working on determining where NOAA's responsibility begins and ends as it works with the US Army Corps of Engineers to clear shipping routes in coastal waterways impacted by terrestrial and tsunami caused landslides, and which agency will take the lead.

CDR Rousseau added that LT Caroline Wilkeinson of NOAA will attend the tsunami hazards workshop and she will be the person to meet with Amanda Bauer on NOAA's chart updates.

#### **BUREAU OF LAND MANAGEMENT (BLM)**

Steve Weeks reported that BLM personnel had worked closely with ADEC on the situation with the tanks during the winter months, monitoring snow removal, etc., and BLM personnel will be in attendance for the upcoming inspections of the secondary containment liner.

He reported that he will be unable to attend the upcoming spill drill because he will be in Salt Lake City, UT, attending a best available technology conference, but Greg Bjorgo will be in Valdez for the upcoming spill drill.

Weeks reported that the Government Accountability Office (GAO) audit has begun but he could not give details because it is an active audit. The report is not expected until January-February of 2025, and will encompass all federal partners in the Joint Pipeline Office (JPO).

As to staffing, Weeks reported that there are BLM positions within the JPO that have not been filled, but they are not "open" either. There are currently no plans to fill open BLM JPO positions and future filling of those positions may depend on the results of the GAO audit.

Eileen Oliver reported on Alyeska's Alaska Native Hire compliance. The overall combined workforce for TAPS for the first quarter of 2024 for Alaska Native Hire was 23.5% (the goal being 20%), with Alyeska reporting 25.4%, and the designated and reporting contractors at 21.6%. In January she met with Alyeska and its three contractors who are on corrective action plans and this has resulted in an improvement in their compliance numbers for this first quarter of 2024.

#### **U.S. DEPARTMENT OF THE INTERIOR (DOI)**

Lisa Fox (via videoconference) had no items to report that specifically related to TAPS or PWSRCAC but there were a few items of peripheral interest:

In February, the DOI was heavily involved in a session that was presented at the Alaska Forum on the Environment memorializing the 25<sup>th</sup> anniversary of the EVOS. It covered a large array of information and was a well-attended event.

The Spill Response Coordinator for the U.S. Fish & Wildlife Service Alaska Region is now Bridget Crokus.

The National Archives has set a deadline for June for accepting paper records after which no paper records will be accepted. The DOI office in Anchorage has spent considerable time sorting EVOS records on the DOI's role in the spill response and they are on their way to the National Archives.

On May 1, the Council on Environmental Quality published their final rule for another set of National Environmental Policy Act (NEPA) regulations. One item to note is that it has codified the time limits for environmental assessments (EAs) and environmental impact statements (EISs). EAs must be completed within one year of starting; EISs must be completed within two years, and the ability to waive that requirement has been removed from the regulations.



**ALASKA DEPT. OF NATURAL RESOURCES (ADNR)**

(No report.)

**ALASKA DEPT. OF FISH AND GAME (ADF&G)**

(No report.)

**OIL SPILL RECOVERY INSTITUTE (OSRI)**

(No report.)

**ALASKA DEPT. OF HOMELAND SECURITY AND EMERGENCY MANAGEMENT (ADHSEM)**

(No report.)

**U.S. FOREST SERVICE (USFS)**

(No report.)

*(This concluded the External Opening Comments of PWSRCAC's Ex Officio Members)*

**EXTERNAL COMMENTS – TAPS SHIPPERS, OWNER COMPANIES, AND PILOTS****ALASKA TANKER COMPANY (ATC)**

Chris Merten reported on some recent milestones for the company:

In March, ATC and OSG celebrated the fourth anniversary of their successful merger, and operations have continued at the high level they expected. In April, it was the 25<sup>th</sup> anniversary of the founding of ATC.

As to 2024 YTD operations, ATC carried 18 loads from the VMT, using the Alaskan Navigator and the Alaskan Legend, totaling approximately 15 million barrels of oil. There were no lost time injuries, no spills to sea, and no losses of containment over one barrel. The Alaskan Explorer has transitioned to the Gulf of Mexico and the U.S. West Coast.

On May 26, ATC will have an oceangoing towing vessel in Malaysia dead-ship tow the Alaskan Frontier to Singapore and will commence an extensive shipyard to bring her back to service. She has been laid up since 2018.

Steve Lewis said that the POVTS Committee would be interested in hearing how the shipyard and refurbishment goes on the Alaskan Frontier, particularly the new propulsion system and the ballast water treatment system (BWTS) installations.

Merten gave a brief explanation on the operation of the diesel electric propulsion systems on ATC vessels.

Bauer asked Merten about his thoughts on the vessel-whale strike issue and the draft resolution that was on the agenda. Merten relayed that he/ATC has taken part in some of the general discussions and pointed out that ATC does observe voluntary reduced speed limits in other parts of the country. He expressed interest in the presentation scheduled for the following day and any new information that may arise but mentioned he would not be able to attend due to a scheduling conflict.



Mike Brittain asked about the quality of the fuel used by ATC's diesel engines. Merten explained the various stages of testing that is done to ensure good fuel is loaded on board the ATC tankers before sailing. He acknowledged that there are occasionally issues with fuel but with ATC's redundant systems on board, they have not had problems.

### **CROWLEY ALASKA TANKERS (CAT)**

Mark Curtis (via videoconference) reported that YTD 2024 the California had transported over 4 million barrels and the Washington over 3 million barrels of ANS crude oil from Valdez. The Washington is scheduled to leave Valdez for dry dock in May and June, with plans to resume service in July. The California is expected to leave Alaska for its scheduled dry dock maintenance in September, after which it will return to providing service in Alaska.

Curtis announced a replacement has been hired to fill Angie Fuschetto's position. The formal announcement and introduction of the new hire will take place during Tatitlek's Culture Week events the following week, and the individual will also be present at PWSRCAC's September Board meeting. Curtis reported that operationally YTD 2024, CAT had zero lost-time injuries, no loss of containment, and had conducted safe transportation of oil out of Valdez.

Steve Lewis asked about the potential impact to ANS crude futures from the opening of Canada's TMX Pipeline and their enhanced deliveries into the port of Vancouver, and whether Curtis saw any direct competition to the ANS market, given the significant difference in the quality of the two crude oils. He said that the POVTS Committee would appreciate the thoughts of any of the TAPS shippers on the potential future impacts on operations for the VMT and the TAPS fleet that deliveries from this new pipeline would have. Curtis responded that CAT is monitoring the situation.

Sam Norton, President and COO of OSG, responded that OSG has a large operating fleet in the United States and agreed with Lewis's comments that the large volume of Alberta Sands crude coming out of the TMX Pipeline, starting this month, is likely to be destined for the Far East. He noted there are draught limitations in the Port of Vancouver that limit the loadable quantities of TMX crude to 555,000-575,000 barrels, and with the significant difference in quality of TMX crude compared to ANS crude, he surmised that TAPS crude and TAPS shippers would remain competitive for the foreseeable future.

Ben Knowles, Vice President of Marketing for Hilcorp, added that the two crudes are molecularly different and the refineries use them differently. He surmised that geopolitical situations around the world will have more of an impact than pricing.

### **POLAR TANKERS**

Andrea West reported Polar Tankers transported 37 loads and 27.6 million barrels from the VMT with zero spills YTD 2024. In March, Polar Tankers held its officers conference in Houston, Texas. The bridge resource management training course will take place in the fall of 2024.

She announced that Polar Tankers was proud to learn that it is to be the recipient of the prestigious Silver 2024 Benkert Award for Environmental Protection from the USCG and will be going to Washington, D.C., in late May to formally receive the award.

The Polar Enterprise will go to the shipyard for mandatory drydock work in late May and return in late August; the Polar Adventure will depart in late September and return in November.

### **HILCORP**

Rob Kinnear reported that Hilcorp celebrated its 35<sup>th</sup> anniversary as a company in 2023 and had just been named for the tenth year as one of Fortune's top 100 companies to work for and is the top energy company on that list.

Kinnear reported that YTD 2024 Hilcorp had transported 18 cargos via ATC ships from the VMT, amounting to 15 million barrels, and one spot charter in February. Looking ahead, Kinnear expects Hilcorp to manage its production for the remainder of 2024 with the Alaskan Navigator and the Alaskan Legend; neither vessel has a shipyard planned for this year. Hilcorp is watching its North Slope production closely; if there were to be another spot charter in 2024 it would be towards the end of the year and it may not be needed.

### **MARATHON PETROLEUM**

(No report)

### **SOUTHWEST ALASKA PILOTS ASSOCIATION (SWAPA)**

The Southwest Alaska Pilots Association (SWAPA) report was postponed to the following day to accommodate the presenter's schedule.

*(This concluded the External Opening Comments of TAPS Shippers, Owner Companies, and Pilots.)*

*Break: 11:05 a.m. – 11:15 a.m.*

### **ALYESKA/SERVS ACTIVITY REPORT**

Andres Morales, Alyeska's Emergency Preparedness and Response Director gave Alyeska/SERVS' activity report for 2024 YTD.

#### **VMT Operations:**

- Operations: 2024 (1Q)

	<u>2024 (1Q)</u>
○ Tankers Loaded	55
○ Tankers Escorted	56
○ Barrels Loaded	40,311,813

	<u>Since start up (1Q)</u>
○ Tankers Loaded	23,557
○ Tankers Escorted	14,895
○ Barrels Loaded	17,992,434,176

- Safety (TAPS): 2024 (1Q)

○ Days away from work cases	1
○ TAPS Combined Recordable Rate %	0.62

- Environment (Valdez): 2024 (1Q)
  - Spill Volume (Gallons) 2.0039
  - Number of Spills 2

**Fishing Vessel Availability by Port (end of 1Q 2024):**

<u>Port</u>	<u>Tier 1</u>	<u>Tier 2</u>
Valdez	24	13
Cordova	27 (+7 Rapid Resp.)	99
Whittier	7	17
Seward	0	26
Homer	0	44
Kodiak	0	41
<b>Totals</b>	<b>65</b>	<b>240</b>

**2024 (1Q) Quarter Contingency Plan Activities:**

- Support Shippers on PWS C-Plan Amendment RFAI response.
- VMT C-Plan Renewal
  - RFAs received from ADEC March 14, 2024.
  - RFAI responses submitted to ADEC April 10, 2024.

**2023 (1Q) Training & Exercises Completed**

- Unannounced Q1 Notification Exercise.
- Rapid Response Exercise.
- Emergency Towing Assist Exercise – Polar Adventure.
- Tethered Escort Tug Exercise.
- Otter Rehabilitation Training - Anchorage.
- IMT Notification Test.

**2024 Valdez Major Maintenance:**

- BWT Triennial Inspection & Repair A Header & Berth 5.
- VMT Marine Structures Coating Repairs Berth 5.
- Reef Island Power Improvements.
- B5 Foam System Transition.
- ILI of VMT A & B Header.
- External Coating of Tank 54-TK-3 and 54-TK-4 (VMT-Crude).
- 500-2 Refurbishment.

**OSRB-5 and Allison Creek Replacement**

- OSRB-5 has replaced the Mineral Creek.
- Approved in VMT C-Plan and approved as mitigation in the Tanker C-Plan pending amendment.
- Allison Creek (photo).

Morales remarked that three injuries in the first quarter of the year, resulting in the 0.62 recordable rate, was not good. It happened early in the first quarter and is of concern. The company is working to improve that.

As for the two recorded spills, one was two gallons from a loader hose, and the other was a tablespoon from an outdrive on a boat in Valdez.

The fishing vessel availability numbers have improved and stabilized this year.

Morales remarked that SERVS is very pleased with the Allison Creek barge. It is well designed and well-constructed, and a significant improvement from the previous barge.

Following his report, Morales answered questions from the Board:

In response to a question from Steve Lewis regarding work force numbers, Morales reported there are approximately 2,000 employees employed by Alyeska/SERVS, including contractors.

Noting that Tank 8 has been taken out of service, Jim Herbert asked about the possibility that Tank 7 may also be taken out of service. Morales said any time Alyeska does major maintenance on a tank the question of whether it will go back into service is routinely addressed, and any time two tanks are removed from service Alyeska would want them to be in the same dike cell, given a choice, but he had not heard anything definitive as to Tank 7. Klint VanWingerden added there were no current plans to take Tank 7 out of service.

Herbert congratulated Alyeska on its handling of the snow loads this winter.

Mike Bender asked about the transition away from PFAS firefighting foam. Morales said they are still looking at various products, no decision has yet been made, and they may do a pilot study to narrow down the substitute product choice and to figure out the supplemental engineering adjustments that will need to be made for effective application.

In response to a question from Robert Beedle about the timeframe for the testing of the secondary containment liner, Morales reported that no date had yet been set but it would be later this summer.

Herbert again reiterated the importance of Alyeska, PWSRCAC, and USCG working together on the issues facing the SERVS fishing vessel response fleet under the new Subchapter M towing regulations, and invited Alyeska to share information it had with PWSRCAC's LAC delegation going to Washington, D.C., the following week to meet with Alaska's congressional delegation. Morales agreed the situation is concerning and that cooperation will be important to get the collective message across to those in Washington, D.C.

Amanda Bauer asked whether a 2024 VMT maintenance project list would be forthcoming soon. Klint VanWingerden said they had already provided a high level maintenance project list and they were working on a more comprehensive list around everything that has been happening, and he had been in communication with Executive Director Schantz on a possible presentation to the TOEM Committee.

## **APPROVAL OF FY2025 BUDGET**

Director of Finance Ashlee Hamilton presented the FY2025 budget for Board approval. A budget workshop was previously held on April 25, 2024:

Income:	\$4,357,818 (includes assumed interest income and an in-kind donation)
Expenses:	\$4,976,676
Contingency:	\$75,000
Net Assets Used:	\$693,858.00

Mako Haggerty asked for clarification of the LTEMP budget where \$20,000 would be needed from the FY2025 budget to use in May 2024. Hamilton explained that after the budget is approved, the adjustment (reduction) would be made to the FY2025 LTEMP budget before it is imported into the accounting software.

Wayne Donaldson **moved adoption** of the FY2025 budget as presented during the Budget Workshop on April 25, 2024. Total expenses are \$4,976,676, and the contingency is \$75,000. Haggerty **seconded** and the **motion passed** without objection.

## **CONSENT AGENDA**

### **3-1, 3-2, 3-3, 3-4, 3-5, 3-6, 3-7**

There were seven items on the consent agenda (3-1, 3-2, 3-3, 3-4, 3-5, 3-6, 3-7) with respective briefing sheets in the meeting notebook:

Wayne Donaldson **pulled** Item 3-3 LTEMP Contract Authorization for discussion. Item 3-3 was placed on the agenda for the following day under Item K Consideration of Consent Agenda Items.

Dorothy Moore **moved to approve the consent agenda as amended**. Mako Haggerty **seconded** and the **motion passed** without objection.

- **3-1 APPROVAL OF RESOLUTION DESIGNATING PWSRCAC CHECK SIGNERS**  
Adoption of the resolutions provided by First National Bank Alaska to update the list of authorized individuals to sign checks and conduct financial transactions on PWSRCAC's account.
- **3-2 APPROVAL OF FY2025 CONTINGENCY PLAN CONTRACTOR POOL**  
Authorization for individual contracts with Nuka Research and Planning Group, LLC, and Attorney Breck Tostevin for professional services in FY2025 with the aggregate total not to exceed \$80,000.
- **3-4 MARINE BIRD FALL AND EARLY WINTER SURVEYS CONTRACT AUTHORIZATION**  
Authorization for the Executive Director to enter into a sole source contract with the Prince William Sound Science Center to conduct project 9110 – Prince William Sound Marine Bird and Mammal Winter Surveys in 2024 in an amount not to exceed \$78,928.
- **3-5 APPROVAL OF PWSRCAC/ALYESKA CONTRACT COMPLIANCE VERIFICATION REPORT**  
Acceptance of the PWSRCAC/Alyeska Annual Contract Compliance Verification Report.

- **3-6 APPROVAL FOR ANCHORAGE OFFICE LEASE EXTENSION**

Authorization for the Executive Director to sign a one-year lease extension for the Anchorage office located at 3709 Spenard Road. The monthly rent is \$5,950.95, totaling \$71,411.40 over the one-year term.

- **3-7 APPROVAL OF FY2024 BUDGET MODIFICATIONS**

Approval of the FY2024 budget modifications as listed on the provided sheet, with a total revised contingency in the amount of \$204,629.

**NOMINATIONS FOR OFFICERS & EXECUTIVE COMMITTEE MEMBERS-AT-LARGE**

President Archibald announced it was appropriate to take nominations for Officers and Executive Committee Members-at-Large for the coming year, and opened the floor for nominations.

President: Amanda Bauer nominated Robert Archibald. Archibald accepted.  
Hearing no additional nominations for President, nominations were closed.

Vice President: Jim Herbert nominated Amanda Bauer. Bauer accepted.  
Hearing no additional nominations for Vice President, nominations were closed.

Secretary: Amanda Bauer nominated Bob Shavelson (pending his acceptance).  
Hearing no additional nominations for Secretary, nominations were closed.

Treasurer: Michael Vigil nominated Wayne Donaldson. Donaldson declined.  
Wayne Donaldson nominated Mako Haggerty. Haggerty accepted.  
Hearing no additional nominations for Treasurer, nominations were closed.

Members-at-Large: Jim Herbert nominated Ben Cutrell. Cutrell accepted.  
Nick Crump nominated Angela Totemoff. Totemoff accepted.  
Amanda Bauer nominated Dave Janka (pending acceptance).  
Dave Janka nominated Robert Beedle. Beedle accepted but would decline if Janka accepts.

Since several nominations were contingent or pending acceptance, it was agreed that the nominees would be given time to decide whether to accept or decline during the lunch break.

*Lunch Recess: 11:55 a.m. – 1:00 p.m.*

**For the Good of the Order**

Dorothy Moore announced that the Valdez Museum has a model of Old Town Valdez (before the 1964 earthquake) and she would like to show it those interested. She would escort a group of those interested to the museum after this Board meeting recessed for the day.

**NOMINATIONS FOR OFFICERS & EXECUTIVE COMMITTEE MEMBERS-AT-LARGE (Continued)**

Executive Assistant Jennifer Fleming announced that she had confirmed the acceptances of the nominees and ballots would be distributed the following morning.

**VOLUNTEER RECOGNITION**

President Archibald and Executive Director Schantz announced the volunteers being recognized for their service to the Council, and presentations were made as follows:

5-Year Verbal Recognition:	Kirk Zinck (Board)
10-Year Clock:	Bob Shavelson (Board) Sarah Allan (SAC) Mikkel Foltmar (TOEM) Steve Goudreau (TOEM) Tom Kuckertz (TOEM)
15-Year Print:	Ruthie Knight (IEC) Kate Morse (IEC)
20-Year Blanket:	John Kennish (SAC)

**PRESENTATION ON THE PIKKA PROJECT**

Tony Parkin, the Crisis, Emergency & Security Advisor for Santos in Alaska, introduced Joe Balash, Senior Vice President for External Affairs for Santos, who made a presentation on Santos' Pikka Project as it will relate to the Valdez Marine Terminal (VMT). Santos is an Australian-based energy company that is developing the Pikka Project on Alaska's North Slope.

At the conclusion of the presentation, POVTS Committee Chair Steve Lewis asked about Santos' plans for shipping its crude from the VMT, pointing out that PWSRCAC is more confident of the shipping of TAPS crude on U.S.-flagged vessels. He asked if Santos planned to use existing vessels, sell its oil to other shippers, or bring in its own ships into the TAPS trade, and while he recognized that Balash may not be prepared to answer those questions at that time those are the questions that PWSRCAC's POVTS Committee would like answered as Santos gets further into the Pikka Project.

Balash responded that Santos is still working out all its marketing opportunities, and some of the decisions Santos will make are going to be dictated by some of the commercial opportunities available, such as the vessels that are currently serving the VMT, and Santos would like to come back to the Council in September when they have more details.

Lewis thanked Balash for the presentation and said the POVTS Committee will look forward to hearing more information.

*(This was an information item. No action was requested of the Board.)*

**4-2 REPORT ACCEPTANCE: 2023 DRILL MONITORING ANNUAL REPORT**

PWSRCAC Project Manager Roy Robertson presented an overview of the 2023 Annual Drill Monitoring Report for approval and acceptance by the Board. The report summarizes the drills and exercises attended by PWSRCAC staff in 2023. A briefing sheet and a copy of the report were included in the meeting notebook under Item 4-2.

Amanda Bauer expressed concern about the readiness of the fishing vessel fleet and emphasized the importance of doing drills in darkness, as well as unannounced drills, and she urged ADEC and Alyeska to bring those drills back.

Dave Janka pointed out that most of the fishing vessel fleet are only on the water in the summer months and have not exercised in darkness or fog, and some do not know how to use their radar. He would like to see a refresher course for the fishing vessel fleet on their radars for these night exercises, etc.

Amanda Bauer **moved acceptance** of the 2023 Annual Drill Monitoring Report for distribution to the public. Dave Janka **seconded** and the **motion passed** without objection.

#### **4-3 UPDATE ON REGIONAL STAKEHOLDER COMMITTEE (RSC) TASK FORCE**

PWSRCAC Project Manager Jeremy Robida updated the Board on the Regional Stakeholder Committee (RSC) task force that was established by the Alaska Regional Response Team (ARRT) in August 2022. This update was supplemental to the one presented to the Board at its January 2023 meeting at the time the Task Force process was just starting up and where PWSRCAC had considerable concerns over proposed edits to the RSC language.

Robida reported that now the process is nearing completion, PWSRCAC staff is satisfied and supportive of the developed work products. The developed job aids are now generally in agreement with the current Prince William Sound Area Plan and the Regional Stakeholder Committee (RSC) process that PWSRCAC has practiced in large scale exercises. Robida pointed out the importance of consistency in how this potential tool will be applied. This material will be incorporated across all four regions/area plans throughout Alaska that include: 1) Arctic and Western Alaska; 2) Prince William Sound; 3) Alaska Inland; and 4) Southeast Alaska. The finished work products (job aids) have also been expanded from what had previously been included in the Prince William Sound and Arctic and Western Alaska specific area plans.

A briefing sheet was included in the meeting notebook as Item 4-3.

Mako Haggerty pointed out that communications and information flow with the Public Information Office (PIO) in the event of an incident should go in both directions (i.e., from the PIO to the public and vice-versa). In addition, the RSC should not be a set group of people because the stakeholders would change as the seasons change.

*(This was an information item. No action was requested of the Board.)*

#### **4-4 APPROVAL OF COUNCIL'S ONE-PAGE STRATEGIC PLAN**

Staff and the *ad hoc* Strategic Planning Committee sought Board approval of a one-page strategic plan. Executive Director Donna Schantz introduced the one-page strategic plan developed by contractor Agnew::Beck and gave a brief background of the plan. A briefing sheet with the one-page plan was included in the meeting notebook under Item 4-4. If approved, Executive Director Schantz will work with the Long Range Planning Committee to develop the next steps for Phase 2 of this work.

Kirk Zinck **moved to approve** the one-page strategic plan as developed by the Strategic Planning Committee. Jim Herbert **seconded** and the **motion passed** without objection.





Terminal Operations and Environmental Monitoring Committee (TOEM)

Amanda Bauer	Renewal
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Matt Cullin	Renewal
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George Skladal	Renewal
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Note: The committee consists of seven members including renewals.

Director on TOEM: Amanda Bauer.

Oil Spill Prevention and Response Committee (OSPR)

Mike Bender	Renewal
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Dave Goldstein	Renewal
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Tim Robertson	Renewal
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Note: The committee consists of seven members including renewals.

Directors on OSPR: Robert Beedle, Mike Bender, Jim Herbert.

Port Operations and Vessel Traffic Systems (POVTS)

Amanda Bauer	Renewal
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Robert Archibald	Renewal
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Note: The committee consists of five members including renewals.

Directors on POVTS: Amanda Bauer, Robert Archibald.

Information and Education Committee (IEC)

Ruthie Knight	Renewal
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Kate Morse	Renewal
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Aimee Williams	Renewal
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Note: The committee consists of eight members including renewals.

Directors on IEC: Aimee Williams.

Jim Herbert **seconded** and the **motion passed** without objection.

*(This concluded the executive session report and related actions at this time. The Board would take up the issue of voluntary speed reduction of tankers later in the agenda under Item 4-8.)*

**For the Good of the Order – PILOTS OPENING COMMENTS (Revisit)****SOUTHWEST ALASKA PILOTS ASSOCIATION (SWAPA)**

The Board returned to Item G on the previous day's agenda to hear comments from the SWAPA president who was unable to join the meeting the previous day.

Captain Josh Weston gave a brief report on SWAPA membership. He reported SWAPA was currently staffed with:

- 14 full member Very Large Crude Carrier (VLCC) qualified pilots and five deputy pilots. Three of those deputy pilots currently hold 110,000 gross ton limited licenses. One of those deputies is at the 95,000 gross ton limit and one is at the 50,000 gross ton limit.
- Three of their full pilots are transitioning to retirement. One is in his fourth and final year and will retire at the end of this summer season.
- Two pilots retired last year and one retired earlier this year.

- To make up for the retirements, SWAPA currently has six trainees and observers. Two of the trainees are presently doing hands-on supervised maneuvers, and one should receive her deputy license this summer and begin working, and of the six, three of them are in the observer status awaiting their federal pilotage.
- Additionally, there is an opening for a new trainee.

In other news, Weston reported ongoing work involving the “alternative planning criteria” (APC) requirements. SWAPA is actively working with the USCG, the State of Alaska, and with the different APC providers to provide clarity and continuity on the APC requirements. Currently, the issues are statewide and not exclusive to SWAPA's purview area. They include the large disparity of requirements among different providers and questions about ships entering state pilotage waters under presumed *force majeure* to avoid weather.

Weston expressed appreciation to PWSRCAC for its assistance and outreach to Tom Crestodina for his book.

Dave Janka asked whether the SWAPA members were comfortable with the foreign flagged tankers coming into Prince William Sound. Weston said the foreign flagged vessels were well vetted ahead of time and there have been no problems.

#### **ELECTION OF OFFICERS AND MEMBERS-AT-LARGE TO EXECUTIVE COMMITTEE**

The election balloting for Officers and Members-at-Large to the Executive Committee for the upcoming year was held electronically and conducted and tallied by staff.

President Archibald announced the results of the election of Officers and Members-at-Large to the Executive Committee as follows:

President:	Robert Archibald
Vice President:	Amanda Bauer
Treasurer:	Mako Haggerty
Secretary:	Bob Shavelson
Members-at-Large	Ben Cutrell, Angela Totemoff, Dave Janka

#### **4-6 FEDERAL & STATE GOVERNMENT AFFAIRS UPDATE**

Director of Programs and staff lead for the LAC, Joe Lally, led an update of government affairs activities of interest to PWSRCAC since the January Board meeting. He thanked the LAC members for their hard work in meeting every two weeks for the past few months and he also thanked Roy Jones and Genevieve Cowan, the Council's federal legislative monitors, and Gene Therriault, the Council's state legislative monitor, for all their work recently with the Council's legislative concerns and planned trips to Washington, D.C., and Juneau during the Alaska legislative session.

Lally reported that LAC members had just finished their trip to the Alaska Legislature where they met with approximately 20 legislators on the issues of concern to PWSRCAC: the SPAR budget and personnel attrition, PFAS legislation, and the establishment of an Alaska invasive species council. The LAC delegation also met with USCG District 17's Admiral Dean and her staff to work on issues of concern and mutual interest between the Council and the USCG.

Going forward, Lally reported that the same LAC delegation will be visiting Washington, D.C., where Roy Jones and Genevieve Cowan will help guide the LAC members to meet with the Alaska congressional delegation and the USCG Headquarters offices. Issues they will be discussing will include the new Subchapter M towing regulations, and to thank them for their work trying to get the Seal Rocks and Cape Cleare weather buoys back on station and reporting again.

### **Federal Update**

Lally turned the floor over to PWSRCAC's federal legislative monitors, Roy Jones and Genevieve Cowan, who gave an overview of legislative issues of interest to PWSRCAC in Washington, D.C.

Cowan gave a brief update on the Council's upcoming trip to Washington, D.C., slated for May 7-9, to meet with Alaska's congressional delegation to talk about the GAO audit and other TAPS issues, and to meet with USCG Headquarters personnel and Sen. John Rayfield, who is chairman of the House Commerce Committee to discuss USCG issues. Cowan reported that the Senate left without re-authorizing the FAA long extension which expires on May 10, and they may have to pass a shorter version. Cowan said they were hoping that appropriations are authorized on time. An earmark request was sent for additional funding for NOAA for the weather buoys and to improve their budget line item which has not been improved in 20 years.

Roy Jones reported that he was setting up meetings for PWSRCAC's LAC delegation with Alaska's congressional representatives (Sen. Murkowski, Sen. Sullivan, and Rep. Peltola) and their staffs, and they are planning to have lunch in the Members' dining room where PWSRCAC's representatives will have a chance to interface with them and other members of the Senate at that time.

Jones reported that he and Cowan had worked on the Seal Rocks and Cape Cleare buoy redeployments and was told the buoys were being replaced, and he hoped that was fully underway. He reported NOAA had been very helpful in that regard. NOAA had also mentioned that it would be helpful to have additional funding for replacement and/or maintenance of buoys when they go down, so Jones and Cowan worked with Sen Murkowski to have another \$3 million added to the NOAA budget for that, and they let NOAA know what the Council had done. It is hoped the additional funding will pass.

Jones reported that they have had meetings with the USCG and added a Zoom capability so those who cannot physically be at the meeting can join in. This has been helpful in discussing all the issues, including discussions regarding the Subchapter M regulations. Jones expected to meet with the PWRCAC group on May 7, prior to the meetings with USCG on May 8 and 9, and he expected it to be a good interaction and discussion.

Mako Haggerty asked about the status of the Oil Spill Liability Trust Fund. Jones advised that this was on the list of items to be discussed with Alaska's congressional delegation during this upcoming visit to Washington, D.C., and specifically with Sen. Sullivan.

### **State Update**

PWSRCAC's state legislative monitor, Gene Therriault, reported on the items that Therriault was tracking that are of interest to PWSRCAC.

- **The SPAR budget.** The Governor proposed a status quo budget, although there is a return of a couple of staff positions to SPAR. The budget is pending reconciliation of the House and Senate versions and does include a component of undesignated general fund (UGF) dollars that helps to preserve the balance of the funds in the Prevention Account to fund SPAR going forward. However, there is a projection that it will be eroded over the next few years and funds will not be sufficient without the self-funding components that provide general fund dollars for SPAR, and the State will have to continue to increase the UGF amount or there will not be adequate funds going forward.
- **Refined fuels surcharge increase.** Neither pending bills to increase the refined fuels surcharge have advanced this year.
- **Senate Bill 67** (empowering the State Fire Marshal to prohibited the use of PFAS chemicals in the State of Alaska when he finds an alternative chemical that is effective and safe to use). That legislation passed out of the House Finance Committee and goes to the House floor and looks like it is poised for passage.
- **Invasive Species Council.** No legislation or executive action was forthcoming this year. It is an item that PWSRCAC will want to follow and educate legislators about before next year's legislative session.
- **Senate Joint Resolution 20.** A resolution advising the Alaska congressional delegation to take steps as the FAA authorization was pending in Congress to make sure the weather buoys in Prince William Sound receive adequate attention from the federal government. The resolution is a statement of concern backing up the concern that PWSRCAC has expressed and conveys that concern to key members of the federal administration in the Congress. It looks like it is poised for passage this year.

*(This was an information item. No action was requested of the Board.)*

#### **4-7 COMMUNITY OUTREACH ANNUAL REPORT**

Maia Draper-Reich, Outreach Coordinator, presented an annual report to the Board of PWSRCAC's outreach events since May 2023, as well as work accomplished by the Fishing Vessel Program Community Outreach (Project 3410) and Youth Involvement (3530) projects during FY2024.

Executive Director Schantz mentioned that outreach staff also produces a highlight paper of each regular Board meeting which is distributed to Board members and will also be sent to their member entities if they wish. However, staff relies on each Board member to let staff know if they want it distributed to their member entity.

At the conclusion of her report, Board members thanked Draper-Reich for her comprehensive report and offered comments and some suggestions:

Mako Haggerty remarked that bringing in new interest in younger generations is important. He said he would also be curious to know how the different generations respond to the Council's outreach efforts (i.e., whether their interest stems from being students, or political or environmental interest groups, or especially if they are commercial fishermen).

Steve Lewis noted that the Council's volunteers are aging, and while the Council does much to engage the young people of the region, recruitment and generating interest in the mid-life age group could be helpful as well.

Michael Vigil mentioned that he would like to see outreach visits in the future into the Native villages of Tatitlek and Chenega, if the budget allows. He recognized that going into the remote villages, such as Tatitlek and Chenega, is an expensive endeavor but, picking up on a suggestion from Jim Herbert, he said Tatitlek's Cultural Heritage Camp and Nuuciq Spirit Camp, and Chenega's new Spirit Camp would be good places for PWSRCAC to put up a booth to engage all the generations in those Native communities. He thanked Herbert for the original idea.

Draper-Reich reported that staff members Nelli Vanderburg and Sadie Blancaflor would be going to the Tatitlek Cultural Heritage Festival on May 10 to represent PWSRCAC, on a Crowley Alaska Tankers chartered boat from Stan Stephens Cruises.

Suggestions and a general discussion followed about the logistical needs as well as difficulties of getting into the other smaller communities.

*(This was an information item. No action was requested of the Board.)*

*Break: 10:05 a.m. – 10:20 a.m.*

#### **4-8 RESOLUTION REQUESTING A VOLUNTARY VESSEL SPEED REDUCTION BY TAPS TANKERS**

President Archibald introduced a draft resolution for Board consideration and action that was submitted by Rick Steiner of Oasis Earth. The draft resolution requested TAPS tankers to adopt voluntary speed reductions in Prince William Sound to lessen the risk of vessel-whale strikes. A revised briefing sheet and a copy of the draft resolution (Resolution A1) proposed by Mr. Steiner was included in the meeting notebook under Item 4-8. Also included under Item 4-8 as Attachment B was a report to the Board from the POVTS Committee that looked at the issue extensively.

This issue was discussed in the executive session the previous day.

President Archibald read a prepared statement, as follows:

*Today, the Council is being asked to request that the Trans Alaska Pipeline System tankers voluntarily reduce their speeds, when it is safe to do so, to help reduce the risk of vessel-whale strikes. The Council recognizes that vessel-whale strikes are a widespread problem and that reducing vessel speed is currently the most effective way to lower the number of whale strikes. We also recognize that there is currently a lack of information and research specifically regarding the prevalence and risk of tanker-whale strikes in Prince William Sound. I want to make it clear that the Council is concerned about protecting whale populations from impacts of the oil industry in our region, and has been discussing this topic, as well as any advice and recommendation we may wish to convey, for over two years.*

Rick Steiner was given the floor to present his draft resolution and he directed the Board's attention to the background information contained in meeting notebook at 4-8. He also

explained his revised version A1 of the draft resolution which simplified the request outlined in the resolution.

Michael Vigil commended Steiner for his efforts but questioned whether this voluntary resolution would be expanded to other vessels, even fishing vessels. Steiner stated that the target group he contemplated would be tankers, cruise ships, freight vessels, and other "large" vessels. He pointed out that NOAA had declined to act on a similar request for large vessels, therefore it was difficult for him to imagine NOAA would approve it for smaller vessels, such as fishing vessels.

SWAPA's Capt. Weston gave the various current speed restrictions in the Traffic Separation Scheme (TSS) for TAPS tankers, which change during transits depending on the location of the vessel and direction of travel (outbound or inbound), laden and unladen, and a discussion followed on speed limits generally.

Steiner was asked what other organizations he had approached for support and whether he expected PWSRCAC to lead the charge on voluntary speed reductions. Steiner reported that in addition to PWSRCAC, he had approached tanker owners and NOAA, but not beyond that yet, and he had not approached Alaska's congressional delegation. However, if PWSRCAC were to adopt such a resolution, he believed NOAA and the tanker owners would take note.

SWAPA's Capt. Weston commented that there are no documented tanker-whale strikes in Prince William Sound in the past and questioned whether it would solve the problem if there were one. Since there are so few incidents, he questioned whether slowing down a tanker from current restricted speeds would make a difference. He also pointed out that while it is being called a voluntary speed reduction, the oil companies, who are mindful of their public image, will consider it a *de facto* way of operating tankers in Prince William Sound. This could create unintended consequences in that the Prince William Sound Vessel Escort & Response Plan (VERP) requires the tanker master to be on the bridge for the entire transit from outside Hinchinbrook Entrance to the VMT berth, and vice-versa, and can amount to a 10-12 hour day for the master. By requiring a *de facto* speed reduction, masters will be required to be on the bridge for longer than they already are required to be, possibly contributing to fatigue, and certainly not a good move towards increasing safety of operation for the environment. Weston added that while it might be a good move for the whales, it might not be as good a move as it may appear on the surface.

Dave Janka pointed out there are not many really good options to solve the risks of vessel-whale strikes, but the one that has been shown to make a difference is speed reduction, and reduced speed also reduces noise in the water that affects the whales, and it saves fuel. He also noted that there has been a precipitous loss of whale numbers in Prince William Sound. He also pointed out that it is PWSRCAC's mission for safe transportation of oil through PWSRCAC's environment, and whales are part of the environment, and the voluntary speed reduction being requested is only reduced by two knots for outbound tankers. It would be a greater reduction from the current speed restrictions for inbound tankers because they are going faster, and Janka said the additional speed reduction was appropriate in his opinion because a tanker is not going to feel when it strikes a whale and so reduced speed there would make a difference.

Polar Tankers' Andrea West commented that a voluntary speed reduction would add a lot more work requirements for the captains, the chief engineer, and the extra lookouts they have when they come into port. In other areas of the country where tanker operators do participate in



voluntary speed reductions it is not when coming into port, and the captain is not yet on the bridge. So, there are consequences that they would need to evaluate and look at the proposal strategically, and it would need to be well managed. She also commented that it is easy for Polar Tankers to participate in voluntary speed reductions in other areas of the country because it is well managed and Prince William Sound would need to be the same.

POVTS Chair Steve Lewis pointed out that the POVTS Committee did a detailed analysis of increased transit time in April 2023 and calculated an inbound transit time of 5 hrs. 38 mins at the current operating speed requirements, and an 8 hour inbound transit time at a 10 knot overall speed limit. Lewis suggested the Board look at the POVTS report and analysis as a starting point and then decide if the analysis is correct and whether the difference in the transit time conclusion is operationally significant.

Dave Janka **moved to adopt draft Resolution A1** in the meeting notebook. Jim Herbert **seconded**. A roll call vote was taken:

Robert Archibald	No.
Amanda Bauer	No.
Robert Beedle	No.
Mike Bender	Yes.
Mike Brittain	Yes.
Nick Crump	No.
Ben Cutrell	No.
Wayne Donaldson	No.
Mako Haggerty	No.
Luke Hasenbank	No.
Jim Herbert	Abstain.
Dave Janka	Yes.
Melvin Malchoff	No.
Dorothy Moore	No.
Bob Shavelson	(No response.)
Angela Totemoff	(No response.)
Michel Vigil	No.
Aimee Williams	No.
Kirk Zinck	Abstain.

The **motion failed** on a vote of three in favor, 12 against, two abstentions.

Explaining her position against the resolution, Dorothy Moore stated that she would need more scientific data and information in order to vote for such a resolution. She wanted to see the resolution go through the same investigation that other Council resolutions have. While she said she was appalled at the pictures she had been presented of whale strikes, she said it was unknown whether any were caused by TAPS tankers, and any voluntary speed reduction resolution needed to cover all large vessels in Prince William Sound, not only TAPS tankers.

Archibald acknowledged that he did not have an answer to the vessel-whale strike problem but he did know that Alaska has a dwindling whale population.



Jim Herbert **moved** to direct staff to work with the appropriate technical committees to draft an advisory letter to NOAA National Marine Fisheries Service, other relevant regulatory agencies identified, and the TAPS shippers conveying the Council's concerns relating to vessel-whale strikes within the Council's region, and acknowledging the effectiveness of a vessel speed reduction. Mike Bender **seconded** and the **motion passed** without objection.

President Archibald sent the issue back to the technical committees to get information to help the Board with the issues that were brought forward.

#### **4-9 ANNUAL BOARD SUBCOMMITTEE APPOINTMENTS**

The annual appointment to Board subcommittees was led by Executive Director Schantz and President Archibald. A briefing sheet was included in the meeting notebook as Item 4-9 which outlined each of the committee's functions. The following Directors volunteered to serve on each Board committee and were **confirmed by a motion made** by Jim Herbert, **seconded** by Ben Cutrell, and **passed** without objection. (It was agreed that Directors who wanted to serve on a subcommittee but were not present at this meeting could be added later.)

##### FINANCE COMMITTEE

Mako Haggerty (Treasurer), Jim Herbert, Wayne Donaldson, Robert Archibald.

##### LONG RANGE PLANNING COMMITTEE:

Aimee Williams, Robert Archibald, the five technical committee chairs, IEC member Cathy Hart.

##### BOARD GOVERNANCE COMMITTEE:

Robert Beedle, Dorothy Moore, Luke Hasenbank, Mike Bender.

##### LEGISLATIVE AFFAIRS COMMITTEE:

Robert Archibald, Dorothy Moore, Robert Beedle, Kirk Zinck, Mako Haggerty.

*(Staff to follow up with Directors who were not present to confirm whether they wish to be added to any of the Board subcommittees.)*

#### **DIRECTOR OF FINANCE'S REPORT TO THE BOARD**

Director of Finance Ashlee Hamilton thanked the Finance Committee members for their input and assistance.

She especially thanked Ben Cutrell as the go-to check-signer for the organization. His availability to sign checks in Anchorage allows PWSRCAC's payments to be made timely. She said she continued to explore electronic payment methods that would reduce costs, streamline payments, and decrease the risk of fraud.

Since the January Board meeting, Hamilton reported that she spent considerable time on the FY2025 budget which the Board approved at this meeting, and she thanked staff members Jennifer Fleming and Jaina Willahan for their assistance with the budget book.

As reported by Treasurer Wayne Donaldson, the Council's IRS Form 990 was successfully filed with the IRS on April 4, 2024, and this concluded PWSRCAC's relationship with the accounting firm

BDO. Hamilton announced that Porter & Allison, Inc., have been engaged as the Council's new auditors for 2024, and she was arranging an in-person meeting later this summer/fall with the Finance Committee during which Porter & Allison will have the opportunity to provide some valuable education to the Finance Committee members.

Hamilton reported she had attended the Sage Transform Conference in Las Vegas in February. The event allowed her to deepen her understanding of PWSRCAC's new Sage Intacct accounting software and to network with other professionals. In addition, she also had the opportunity to make contact with other add-on vendors to the accounting software Sage Intacct which will greatly enhance PWSRCAC's financial capabilities moving forward. Some of the takeaways from the conference were creating smart rules to streamline PWSRCAC's monthly bank reconciliation, in-depth training on how to modify PWSRCAC's existing reporting capabilities, and she also attended a session on how other nonprofits' financial professionals engage their board members.

Hamilton reported that she had been working with prospective vendors to finalize the selection process for new budgeting software. This is aimed at ensuring that the Council's budgeting process remains consistent and efficient year after year. She commented that by investing in the right tools, PWSRCAC can streamline operations and better serve the organization.

#### **EXECUTIVE DIRECTOR'S REPORT TO THE BOARD.**

A written Executive Director's Report was earlier circulated to the Board via email. Executive Director Schantz highlighted a few items and updated that report at this time.

She noted that the GAO review of the TAPS issues raised in the Billie Garde report has begun. They are currently working on the scope of their review and they expect to visit Alaska in June-July. Their report on that review was not expected to be issued until early 2025, as earlier reported by Steve Weeks. The Council's goal with this recommendation is that it will highlight any deficiencies in state and/or federal oversight of the VMT, such that measures can be taken to address any regulatory gaps that may exist. Schantz gave a brief history of past GAO reviews of TAPS, the JPO, and other regulatory agencies and the positives that have come from those reviews.

She highlighted some of those positive outcomes that have come from recent collaboration and outreach efforts with Alyeska and other industry partners:

- She thanked and recognized Alyeska for the tour they provided to the Council the previous day, and she thanked Hilcorp and ATC for the reception the previous evening.
- She thanked Alyeska for providing some meals for the Youth Involvement Outreach Tour to Bligh Reef. She also recognized Maia Draper-Reich for her efforts on this outreach effort.
- The welcome news from John Kurz that Alyeska was working to improve the timeliness of releasing information that PWSRCAC requests and his comments that seeking Alyeska's input on reports before they are released helps build trust and strengthens PWSRCAC's relationship with Alyeska.
- She noted the great collaboration and partnership on the Council's project with Tom Crestodina and thanked the many who had worked on the project.

- PWSRCAC's ability to observe more drills and exercises in the past year than any year since the pandemic, as reported by Roy Robertson.
- The good Fishing Vessel Program, as mentioned by Jim Herbert.
- Alyeska's commissioning of a new OSRB, the Allison Creek and a new lightering barge.
- The completion of the job aids for the Regional Stakeholder Committee (RSC).
- Danielle Verna and SAC Chair Davin Holen's co-authoring a paper, titled "Building Collaborative Social Science Research Models to Understand the Social, Cultural and Economic Impacts of Oil Spills."

On staffing issues, Schantz announced that John Guthrie had accepted the Maritime Operations Project Manager staff position that was previously held by Alan Sorum, and Hans Odegard had been promoted to Director of Administration to replace KJ Crawford who resigned in January. His former position was currently being advertised.

She thanked Finance Director Ashlee Hamilton for her work on the budget and commented on the amazing team of staff that makes up PWSRCAC. She also commented on the fact that all PWSRCAC's regulatory and industry partners share PWSRCAC's goal for the safe transportation of oil and the importance of working together with those partners to achieve the shared goals. She thanked all the volunteers for their time and the expertise they bring to the organization.

#### **PRESIDENT'S REPORT TO THE BOARD**

President Archibald thanked the Board for electing him President once again.

He commented on the tour at VMT the previous day and was impressed with the activity they saw there.

He commented that oversight is important as it helps one run a safe organization, but pointed out that sometimes Corporate has a different focus.

He said he was still working on saying "our" environment and not "it" or "the," and he was still looking at the balanced "wheel" he had alluded to in his remarks at previous Board meetings and the importance of keeping the wheel balanced by everyone doing their job.

#### **CONSIDERATION OF CONSENT AGENDA ITEMS**

Item 3-3 LTEMP Contract Authorization was pulled from the Consent Agenda for discussion by Wayne Donaldson because the contractor named in the briefing sheet had changed. He pointed out that the change was a name change only; there was no change in the principal contractor.

Ben Cutrell **moved to authorize** individual contracts with Alpha Analytical and Fjord & Fish Sciences with the aggregate total not to exceed the amount approved in the final FY2025 LTEMP budget (Project 9510) for contract expenses, and delegation of authority to the Executive Director to enter into individual contracts with the aforementioned consultants. Michael Vigil **seconded** and the **motion passed** without objection.

Ben Cutrell **moved to authorize** contract work to commence prior to the start of FY2025, as approximately \$20,000 of these funds will need to be expended in May and June 2024. Dave Janka **seconded** and the **motion passed** without objection.

**CLOSING COMMENTS**

Directors were given the opportunity to make closing comments.

**ADJOURNMENT**

There being no further business to come before the Board, and hearing no objections **the meeting was adjourned** at approximately 11:46 a.m.

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Secretary



**PWSRCAC**  
**Acronym List**  
**Updated December, 2023**

<b>AAC</b>	Alaska Administrative Code
<b>ABS</b>	American Bureau of Shipping
<b>ACMP</b>	Alaska Coastal Management Program
<b>ACS</b>	Alaska Clean Seas
<b>ADEC</b>	Alaska Department of Environmental Conservation
<b>ADF&amp;G</b>	Alaska Department of Fish and Game
<b>ADNR</b>	Alaska Department of Natural Resources
<b>AIMS</b>	Alaska Incident Management System
<b>AKOSH</b>	Alaska Occupational Safety and Health
<b>AMOP</b>	Arctic & Marine Oil Spill Program (Technical Seminar)
<b>ANS</b>	Alaska North Slope or Aquatic Nuisance Species
<b>ANSTF</b>	Aquatic Nuisance Species Task Force
<b>ANWR</b>	Arctic National Wildlife Reserve
<b>AOOS</b>	Alaska Ocean Observing System
<b>API</b>	American Petroleum Institute
<b>APSC</b>	Alyeska Pipeline Service Company
<b>ARRT</b>	Alaska Regional Response Team
<b>AS</b>	Alaska Statute
<b>ATC</b>	Alaska Tanker Company
<b>ATOM</b>	Alyeska Tactical Oil Spill Model
<b>AVTEC</b>	Alaska Institute of Technology (formerly Alaska Vocational Technical Center)
<b>BAT</b>	Best Available Technology
<b>BBL</b>	Barrel (42 Gallons = 1 bbl)
<b>BGC</b>	Board Governance Committee (PWSRCAC Committee)
<b>BTEX</b>	Benzene, Toluene, Ethylbenzene, Xylene
<b>BLM</b>	U.S. Bureau of Land Management
<b>BOO</b>	Barge of Opportunity
<b>BMPP</b>	Best Management Practices Plan
<b>BP</b>	British Petroleum or bollard pull
<b>BTT</b>	Biological Treatment Tanks
<b>BWT(F)</b>	Ballast Water Treatment (Facility), Alyeska
<b>C-Plan</b>	Contingency Plan

<b>CAA</b>	Clean Air Act
<b>CAOS</b>	Coastal Alaska Observing System
<b>CDFU</b>	Cordova District Fishermen United
<b>CERCLA</b>	Comprehensive Environmental Response, Compensation and Liability Act
<b>CFR</b>	Code of Federal Regulations
<b>CIP</b>	Community Impacts Planning
<b>CIRCAC</b>	Cook Inlet Regional Citizens Advisory Council
<b>CISPRI</b>	Cook Inlet Spill Prevention and Response, Incorporated
<b>CMT</b>	Crisis Management Team
<b>COA</b>	Condition of Approval
<b>COSRS</b>	Community Oil Spill Response System
<b>COTP</b>	Captain of the Port (USCG)
<b>CWA</b>	Clean Water Act
<b>DAF</b>	Dissolved Air Flotation
<b>DEIS</b>	Draft Environmental Impact Statement
<b>DES</b>	Division of Emergency Services
<b>DMR</b>	Discharge Monitoring Report
<b>DNV</b>	Det Norske Veritas – Norwegian Quality Assurance consultant
<b>DOI</b>	U.S. Department of the Interior
<b>DOT</b>	U.S. Department of Transportation
<b>DPS</b>	Dynamic Positioning System
<b>DR&amp;R</b>	Dismantling, Removal and Restoration
<b>DTTS</b>	Disabled Tanker Towing Study
<b>DWT</b>	Deadweight ton
<b>ECO</b>	Edison Chouest Offshore
<b>ECP</b>	Employee Concern Program
<b>EIA</b>	Environment Impact Assessment
<b>EIS</b>	Environmental Impact Statement
<b>EOC</b>	Emergency Operations Center
<b>EPA</b>	U.S. Environmental Protection Agency
<b>EPPR</b>	Emergency Prevention Preparedness and Response
<b>ERB</b>	Emergency Response Building
<b>ERP</b>	Emergency Response Plan
<b>ERV</b>	Emergency Response Vessel
<b>ETA Tool</b>	Ecological Tradeoff Assessment Tool

<b>ETT</b>	Enhanced Tractor Tug
<b>EVOS</b>	Exxon Valdez Oil Spill
<b>EVOSTC</b>	Exxon Valdez Oil Spill Trustees Council
<b>FBU</b>	Fairbanks Business Unit, Alyeska
<b>FLIR</b>	Forward-looking infrared
<b>FOIA</b>	Freedom of Information Act
<b>FOSC</b>	Federal On-Scene Coordinator
<b>FV</b>	Fishing Vessel
<b>FWPca</b>	Federal Water Pollution Prevention and Control Act
<b>GAO</b>	U.S. Government Accountability Office aka General Accounting Office
<b>GIS</b>	Geographic Information System
<b>GOA</b>	Gulf of Alaska
<b>GPS</b>	Global Positioning System
<b>GRS</b>	Geographical Response Strategies
<b>HAPs</b>	Hazardous Air Pollutants
<b>HAZWOPER</b>	Hazardous Waste Operation and Emergency Response
<b>HERO</b>	Hinchinbrook Entrance Response Options
<b>HIRD</b>	Harassment, Intimidation, Retaliation, Discrimination
<b>HOPs</b>	Hydrocarbon Oxidation Products
<b>IAP</b>	Incident Action Plan
<b>IAP2</b>	International Association of Public Participation
<b>ICCOPR</b>	Interagency Coordinating Committee on Oil Pollution Research
<b>IC</b>	Incident Command
<b>ICS</b>	Incident Command System
<b>IEC</b>	Information & Education Committee (PWSRCAC Committee)
<b>IMO</b>	International Maritime Organization
<b>IMT</b>	Incident Management Team
<b>IOSC</b>	International Oil Spill Conference
<b>IPL</b>	Independent Protection Layers
<b>IRIC</b>	Initial Response Incident Commander
<b>ISAC</b>	Invasive Species Advisory Committee
<b>IWWS</b>	Industrial Waste Water System
<b>JIC</b>	Joint Information Center
<b>JPO</b>	Joint Pipeline Office
<b>KPIs</b>	Key Performance Indicators

<b>KYP</b>	Keeping you Posted (Alyeska Internal Communication)
<b>LEPC</b>	Local Emergency Planning Committee
<b>LAC</b>	Legislative Affairs Committee (PWSRCAC Committee)
<b>LDAR</b>	Leak Detection and Repair
<b>LIO</b>	Legislative Information Office
<b>LOSC</b>	Local On-Scene Coordinator
<b>LRP</b>	Long Range Plan
<b>LTEMP</b>	Long Term Environmental Monitoring Project
<b>MAC</b>	Multi-stakeholder Agency Committee
<b>MEPC</b>	Marine Environmental Protection Committee (IMO)
<b>MIS</b>	Marine Invasive Species
<b>MMS</b>	U.S. Minerals Management Service
<b>MOA</b>	Memorandum of Agreement
<b>MOU</b>	Memorandum of Understanding
<b>MSO</b>	Marine Safety Office
<b>MSDS</b>	Material Safety Data Sheets
<b>MSU</b>	Marine Safety Unit
<b>NDBC</b>	National Data Buoy Center
<b>NEPA</b>	National Environmental Policy Act
<b>NESHAP-OLD</b>	National Emission Standard for Hazardous Air Pollutants – Organic Liquid Distribution
<b>NIIMS</b>	National Interagency Incident Management System
<b>NIS</b>	Non-Indigenous Species
<b>NISA</b>	National Invasive Species Act
<b>NOAA</b>	National Oceanographic & Atmospheric Administration
<b>NOBOB</b>	No Ballast on Board
<b>NPDES</b>	National Pollutant Discharge Elimination System
<b>NPREP</b>	National Preparedness & Response Exercise Program
<b>NRDA</b>	Natural Resource Damage Assessment
<b>NSF</b>	National Science Foundation
<b>NTSB</b>	U.S. National Transportation Safety Board
<b>NWS</b>	National Weather Service
<b>OCC</b>	Operations Control Center
<b>OHMSETT</b>	Oil and Hazardous Materials Simulate Environmental Test Tank
<b>OMS</b>	Oil Movements and Storage
<b>OPA 90</b>	Oil Pollution Act of 1990



<b>OSC</b>	On-Scene Coordinator
<b>OSHA</b>	U.S. Occupational Safety and Health Administration
<b>OSLTF</b>	Oil Spill Liability Trust Fund
<b>OSRB</b>	Oil Spill Response Barge
<b>OSPR</b>	Oil Spill Prevention and Response Committee (PWSRCAC Committee)
<b>OSREC</b>	Oil Spill Region Environmental Coalition
<b>OSRI</b>	Oil Spill Recovery Institute
<b>OSRL</b>	Oil Spill Response Limited
<b>OSRO</b>	Oil Spill Response Organization(s)
<b>OSRV</b>	Oil Spill Response Vessel
<b>OWE</b>	Open Work Environment
<b>PAH</b>	Polycyclic Aromatic Hydrocarbon
<b>PHA</b>	Process Hazard Analyses
<b>PHMSA</b>	U.S. Pipeline and Hazardous Materials Safety Administration
<b>PM</b>	Preventative Maintenance
<b>PMCR</b>	Preventative Maintenance Change Request
<b>POD</b>	Physical Oceanography Data
<b>POVTS</b>	Port Operations and Vessel Traffic System (PWSRCAC Committee)
<b>PPE</b>	Personal Protective Equipment
<b>PRAC</b>	Primary Response Action Contractor
<b>PRT</b>	Prevention and Response Tug
<b>PS</b>	Pump Station
<b>PSM</b>	Process Safety Management
<b>PV</b>	Power Vapor
<b>PWS</b>	Prince William Sound
<b>PWSAC</b>	Prince William Sound Aquaculture Corporation
<b>PWSC</b>	Prince William Sound College
<b>PWSEDD</b>	Prince William Sound Economic Development District
<b>PWSRAS</b>	Prince William Sound Risk Assessment Study
<b>PWSRCAC</b>	Prince William Sound Regional Citizens' Advisory Council
<b>PWSSC</b>	Prince William Sound Science Center
<b>PWSTA</b>	Prince William Sound Tanker Association
<b>RC</b>	Response Center or Response Coordinator (SERVS)
<b>RCAC</b>	Regional Citizens' Advisory Council
<b>RCM</b>	Reliability Centered Maintenance

<b>RFAI</b>	Request for Additional Information
<b>RFI</b>	Request for Information
<b>RFP</b>	Request for Proposal
<b>RFQ</b>	Request for Qualifications
<b>RMROL</b>	Realistic Maximum Response Operating Limitations
<b>RPG</b>	Response Planning Group
<b>RP</b>	Responsible Party
<b>RPOSC</b>	Responsible Party's On-Scene Coordinator
<b>RPS</b>	Response Planning Standard
<b>RRT</b>	Regional Response Team
<b>RSC</b>	Regional Stakeholders Committee
<b>SAC</b>	Scientific Advisory Committee (PWSRCAC Committee)
<b>SCAT</b>	Shoreline Cleanup Assessment Team
<b>SERC</b>	State Emergency Response Commission (or) Smithsonian Environmental Research Center
<b>SERVS</b>	Ship Escort Response Vessel System
<b>SETAC</b>	Society of Environmental Toxicology and Chemistry
<b>SMS</b>	Safety Management Systems
<b>SOS</b>	Seldovia Oil Spill Response
<b>SOSC</b>	State On-Scene Coordinator
<b>SPAR</b>	Spill Prevention and Response (A division within ADEC)
<b>SPO</b>	State Pipeline Coordinator's Office
<b>SRP</b>	Scientific Response Plan
<b>SWAPA</b>	Southwest Alaska Pilots Association
<b>TAG</b>	Technical Advisory Group
<b>TAPS</b>	Trans Alaska Pipeline System
<b>TF</b>	Task Force
<b>TOEM</b>	Terminal Operations & Environmental Monitoring (PWSRCAC Committee)
<b>TOO</b>	Tanker of Opportunity
<b>TROG</b>	Total Recoverable Oil and Grease
<b>TVCS</b>	Tanker Vapor Control System
<b>UC</b>	Unified Command
<b>UP</b>	Unified Plan
<b>USCG</b>	United States Coast Guard
<b>USF&amp;WS</b>	United States Fish & Wildlife Service
<b>VBU</b>	Valdez Business Unit, Alyeska

<b>VERP</b>	Prince William Sound Vessel Escort & Response Plan
<b>VEOC</b>	Valdez Emergency Operations Center
<b>VIDA</b>	Vessel Incidental Discharge Act
<b>VMT</b>	Valdez Marine Terminal
<b>VOCs</b>	Volatile Organic Compounds
<b>VOO</b>	Vessel of Opportunity
<b>VTC</b>	Vessel Traffic Center
<b>VTs</b>	Vessel Traffic System
<b>XCOM</b>	PWSRCAC Executive Committee

Prince William Sound Regional Citizens' Advisory Council  
Budget Status Report  
As of August 28, 2024

	Original Budget	Budget Modifications	Summary	Actual	Commitments	Total	Remaining Amount	Percentage Remaining
Revenue								
Alyeska Pipeline Service Co Contract	4,277,712.00	-	4,277,712.00	2,138,856.17	-	2,138,856.17	2,138,855.83	50.00 %
Funds								
Interest Income	55,000.00	-	55,000.00	12,448.95	-	12,448.95	42,551.05	77.37 %
In Kind Contributions	25,500.00	-	25,500.00	-	-	-	25,500.00	100.00 %
Total Revenue	4,358,212.00	-	4,358,212.00	2,151,305.12	-	2,151,305.12	2,206,906.88	50.64 %
Functional Area								
Programs & Projects								
3100 - Public Information Program	7,897.00	-	7,897.00	-	-	-	7,897.00	100.00 %
3200 - Observer Newsletter	7,500.00	-	7,500.00	2,138.65	-	2,138.65	5,361.35	71.48 %
3300 - Annual Report	8,000.00	-	8,000.00	-	4,400.00	4,400.00	3,600.00	45.00 %
3410 - Fishing Vessel Program Comm Outreach	19,000.00	-	19,000.00	-	15,840.00	15,840.00	3,160.00	16.63 %
3500 - Community Outreach	60,060.00	-	60,060.00	9,264.16	(90.00)	9,174.16	50,885.84	84.73 %
3530 - Youth Involvement	73,243.00	-	73,243.00	2,500.00	69,993.00	72,493.00	750.00	1.02 %
3600 - Public Communications Program	4,599.00	-	4,599.00	-	-	-	4,599.00	100.00 %
3610 - Web Presence Best Available Technology	7,140.00	-	7,140.00	-	1,440.00	1,440.00	5,700.00	79.83 %
3810 - Illustrated Prevention & Response System	35,720.00	-	35,720.00	-	15,000.00	15,000.00	20,720.00	58.01 %
4000 - Program & Project Support	1,868,210.00	-	1,868,210.00	221,225.25	-	221,225.25	1,646,984.75	88.16 %
4010 - Digital Collections Program	2,500.00	-	2,500.00	-	-	-	2,500.00	100.00 %
4400 - Federal Government Affairs	109,100.00	-	109,100.00	7,582.15	14,917.85	22,500.00	86,600.00	79.38 %
4410 - State Government Affairs	41,800.00	-	41,800.00	-	-	-	41,800.00	100.00 %
5000 - Terminal Operations Program	29,000.00	-	29,000.00	458.00	24,542.00	25,000.00	4,000.00	13.79 %
5051 - Water Quality Permit Review	23,800.00	-	23,800.00	-	23,800.00	23,800.00	-	-
5053 - VMT System Integrity and Safety Culture	25,000.00	-	25,000.00	2,600.60	-	2,600.60	22,399.40	89.60 %
5057 - Air Quality Review	37,437.50	-	37,437.50	-	30,012.50	30,012.50	7,425.00	19.83 %
5081 - Storage Tank Maintenance Review	38,000.00	-	38,000.00	-	38,000.00	38,000.00	-	-
5591 - Crude Oil Piping Maintenance Review	51,744.00	-	51,744.00	-	-	-	51,744.00	100.00 %
5595 - Review of VMT Cathodic Protection System	34,000.00	-	34,000.00	-	-	-	34,000.00	100.00 %
5640 - Alaska North Slope Crude Oil Properties	5,000.00	-	5,000.00	-	-	-	5,000.00	100.00 %
6000 - Spill Response Program	4,000.00	5,000.00	9,000.00	-	-	-	9,000.00	100.00 %
6510 - State Contingency Plan Reviews	80,000.00	-	80,000.00	2,842.50	65,157.50	68,000.00	12,000.00	15.00 %
6512 - Secondary Containment - Adj Hearing	87,930.00	-	87,930.00	-	38,000.00	38,000.00	49,930.00	56.78 %
6530 - Weather/Sea Currents	18,500.00	-	18,500.00	845.60	-	845.60	17,654.40	95.43 %
6531 - Port Valdez Weather Buoys	63,200.00	-	63,200.00	13,224.18	22,375.00	35,599.18	27,600.82	43.67 %
6536 - Analysis of Port Valdez Weather Buoys	22,806.00	-	22,806.00	-	5,806.00	5,806.00	17,000.00	74.54 %
6540 - Copper River Delta/Flats GRS History	25,000.00	-	25,000.00	-	-	-	25,000.00	100.00 %
6560 - Peer Listener Training	35,000.00	-	35,000.00	-	-	-	35,000.00	100.00 %
6575 - Comparison of Windy Application and Seal	35,000.00	-	35,000.00	-	-	-	35,000.00	100.00 %
7000 - Spill Response Operations Program	4,250.00	-	4,250.00	-	-	-	4,250.00	100.00 %
7520 - Preparedness Monitoring	42,300.00	-	42,300.00	309.19	-	309.19	41,990.81	99.27 %

Prince William Sound Regional Citizens' Advisory Council  
Budget Status Report  
As of August 28, 2024

	Original Budget	Budget Modifications	Summary	Actual	Commitments	Total	Remaining Amount	Percentage Remaining
8000 - Maritime Operations Program	17,000.00	-	17,000.00	929.33	-	929.33	16,070.67	94.53 %
8250 - Assessing Non-Indigenous Species Biofoul	5,750.00	-	5,750.00	-	-	-	5,750.00	100.00 %
8520 - Miscommunication in Maritime Contexts	60,000.00	-	60,000.00	-	30,000.00	30,000.00	30,000.00	50.00 %
9000 - Environmental Monitoring Program	18,700.00	-	18,700.00	-	-	-	18,700.00	100.00 %
9110 - PWS Marine Bird Winter Survey	95,598.00	-	95,598.00	-	95,598.00	95,598.00	-	-
9510 - Long-Term Environmental Monitoring	118,157.32	-	118,157.32	-	104,724.32	104,724.32	13,433.00	11.37 %
9520 - Marine Invasive Species	55,000.00	-	55,000.00	15,000.00	40,000.00	55,000.00	-	-
9521 - Marine Invasive Species Internship	6,500.00	-	6,500.00	-	3,000.00	3,000.00	3,500.00	53.85 %
9700 - Social Science Workshop	30,000.00	-	30,000.00	-	-	-	30,000.00	100.00 %
Total Programs & Projects	3,313,441.82	5,000.00	3,318,441.82	278,919.61	642,516.17	921,435.78	2,397,006.04	72.23 %
Board of Directors								
1350 - Information Technology - Volunteers	500.00	-	500.00	-	-	-	500.00	100.00 %
2100 - Board Administration	139,653.00	-	139,653.00	15,767.27	-	15,767.27	123,885.73	88.71 %
2150 - Board of Director Meetings	180,600.00	-	180,600.00	13,834.89	1,320.00	15,154.89	165,445.11	91.61 %
2200 - Executive Committee	3,000.00	-	3,000.00	-	-	-	3,000.00	100.00 %
2222 - Finance Committee	3,500.00	-	3,500.00	-	-	-	3,500.00	100.00 %
2700 - Legislative Affairs Committee (LAC)	18,675.00	-	18,675.00	-	-	-	18,675.00	100.00 %
Total Board of Directors	345,928.00	-	345,928.00	29,602.16	1,320.00	30,922.16	315,005.84	91.06 %
Committees & Committee Support								
2250 - Committee Support	214,867.00	-	214,867.00	16,180.73	-	16,180.73	198,686.27	92.47 %
2300 - Oil Spill Prevention & Response (OSPR)	15,000.00	-	15,000.00	-	-	-	15,000.00	100.00 %
2400 - Port Ops & Vessel Traffic System (POVTS)	8,000.00	-	8,000.00	-	-	-	8,000.00	100.00 %
2500 - Scientific Advisory Committee (SAC)	15,000.00	-	15,000.00	-	-	-	15,000.00	100.00 %
2600 - Terminal Ops & Envrn Monitoring (TOEM)	11,500.00	-	11,500.00	-	-	-	11,500.00	100.00 %
2800 - Information & Education Committee (IEC)	11,000.00	-	11,000.00	-	-	-	11,000.00	100.00 %
Total Committees & Committee Support	275,367.00	-	275,367.00	16,180.73	-	16,180.73	259,186.27	94.12 %
General & Administrative								
1000 - General & Administrative	494,003.00	-	494,003.00	44,323.00	412.96	44,735.96	449,267.04	90.94 %
1050 - General & Administrative - Anchorage	219,806.00	-	219,806.00	18,137.06	-	18,137.06	201,668.94	91.75 %
1100 - General & Administrative - Valdez	182,768.00	-	182,768.00	23,830.10	-	23,830.10	158,937.90	86.96 %
1300 - Information Technology	118,538.00	-	118,538.00	9,219.99	-	9,219.99	109,318.01	92.22 %
Total General & Administrative	1,015,115.00	-	1,015,115.00	95,510.15	412.96	95,923.11	919,191.89	90.55 %
Total Expenses	4,949,851.82	5,000.00	4,954,851.82	420,212.65	644,249.13	1,064,461.78	3,890,390.04	78.52 %
Contingency	75,000.00	(5,000.00)	70,000.00	-	-	-	70,000.00	100.00 %

## PWSRCAC Director Attendance Record

September 2024

(Attendance recorded through May 2-3, 2024 Board Meeting)

<b>Board Member</b> <i>(date appointed)</i>	<b>Overall Attendance</b> <i># attended / # missed</i>	<b>Last 3 Mtgs.*</b> <i># attended / # missed</i>	<b>Term Expires</b>
Archibald, Robert <i>(May 2015)</i>	51/1	3/0	5/25
Bauer, Amanda <i>(May 2012)</i>	66/1	3/0	5/25
Beedle, Robert <i>(May 2013)</i>	59/4	3/0	5/26
Bender, Mike <i>(Sept. 2015)</i>	42/9	2/1	5/26
Brittain, Mike <i>(May. 2023)</i>	4/2	2/1	5/25
Crump, Nick <i>(May. 2021)</i>	14/6	3/0	5/25
Cutrell, Ben <i>(Jan. 2020)</i>	26/1	3/1	5/26
Donaldson, Wayne <i>(Jan. 2015)</i>	51/2	3/0	5/25
Haggarty, Mako <i>(May 2015)</i>	41/9	3/0	5/25
Hasenbank, Luke <i>(May 2016)</i>	36/12	2/1	5/26
Herbert, Jim <i>(January 2023)</i>	9/0	3/0	5/25
Jackson, Elijah <i>(May 2021)</i>	9/10	1/2	5/25
Janka, David <i>(January 2023)</i>	9/0	3/0	5/26
Malchoff, Melvin <i>(Sept. 2016)</i>	30/15	2/1	5/26
Moore, Dorothy <i>(Jan. 2007)</i>	91/2	2/1	5/26
Shavelson, Bob <i>(Sept. 2014)</i>	56/9	3/0	5/26
Totemoff, Angela <i>(May 2021)</i>	16/4	3/0	5/25
Vigil, Michael <i>(Sept. 2015)</i>	42/9	3/0	5/26
Williams, Aimee <i>(May 2022)</i>	13/3	3/0	5/26
Kirk Zinck <i>(May 2019)</i>	29/3	3/0	5/25

\* PWSRCAC policy states that member groups will be notified in writing if their appointed Board member misses three consecutive Board meetings.

Note: Overall attendance includes all voting meetings (regular and special Board meetings), but does not include non-voting meetings (e.g. LRP, budget workshops or Board retreats).



## PRINCE WILLIAM SOUND

### REGIONAL CITIZENS' ADVISORY COUNCIL

#### PWSRCAC Committee Member Attendance Record

Port Operations and Vessel Traffic Systems (POVTS)			
Committee Member	Overall	Last 3 mtgs	Term Expires
Robert Archibald (Director)	25/0	3/0	5/26
Amanda Bauer (Director) (Vice Chair)	37/6	3/0	5/26
Steve Lewis (Chair)	21/0	3/0	5/25
Max Mitchell	5/0	3/0	5/25
Gordon Terpening	15/1	3/0	5/25

Oil Spill Prevention and Response (OSPR)			
Committee Member	Overall	Last 3 mtgs	Term Expires
Robert Beedle (Director)	42/16	3/0	5/25
Mike Bender (Director)	31/16	2/1	5/26
Dave Goldstein	82/21	3/0	5/26
Jim Herbert (Chair) (Director)	60/0	3/0	5/25
Matt Melton	6/1	3/0	5/25
Tim Robertson	4/0	3/0	5/26
Gordon Scott	71/79	1/2	5/25

Terminal Operations & Environmental Monitoring (TOEM)			
Committee Member	Overall	Last 3 mtgs	Term Expires
Amanda Bauer (Director) (Vice Chair)	61/10	3/0	5/26
Harold Blehm	56/12	1/2	5/25
Matt Cullin	21/13	3/0	5/26
Mikkel Foltmar (Chair)	39/14	3/0	5/25
Steve Goudreau	36/16	2/1	5/25
Tom Kuckertz	43/10	2/1	5/25

**Ratios are # meetings present/ # of absences**

<b>Scientific Advisory Committee (SAC)</b>			
<b><i>Committee Member</i></b>	<b><i>Overall</i></b>	<b><i>Last 3 mtgs</i></b>	<b><i>Term Expires</i></b>
Sarah Allan	95/10	3/0	5/26
Wei Cheng	66/6	3/0	5/25
Wayne Donaldson (Director)	81/9	3/0	5/25
Roger Green	159/24	2/1	5/25
Davin Holen (Chair)	72/9	2/1	5/26
John Kennish	154/14	3/0	5/25
Dorothy Moore (Director)	138/14	3/0	5/25

<b>Information &amp; Education Committee (IEC)</b>			
<b><i>Committee Member</i></b>	<b><i>Overall</i></b>	<b><i>Last 3 mtgs</i></b>	<b><i>Term Expires</i></b>
Trent Dodson (Chair)	39/28	3/0	5/25
Jane Eisemann	88/14	2/1	5/25
Cathy Hart (Vice Chair)	81/23	2/1	5/25
Andrea Korbe	36/29	2/1	5/25
Ruth E. Knight	85/10	3/0	5/26
Savannah Lewis *since recommitment date	54/0*	3/0	5/25
Kate Morse	62/32	2/1	5/26
Aimee Williams	11/7	2/1	5/26

**Ratios are # meetings present/ # of absences**



## **Current List of Board Committee Members**

As of May 2024

### **Executive Committee**

- Robert Archibald, President
- Amanda Bauer, Vice President
- Mako Haggerty, Treasurer
- Bob Shavelson, Secretary
- Ben Cutrell, Member-at-Large
- Dave Janka, Member-at-Large
- Angela Totemoff, Member-at-Large

### **Long Range Planning Committee**

- Aimee Williams
- Robert Archibald
- Sarah Allan (SAC Chair)
- Mikkel Foltmar (TOEM Chair)
- Jim Herbert (OSPR Chair)
- Steve Lewis (POVTS Chair)
- Trent Dodson(IEC Chair)
- Cathy Hart

### **Board Governance Committee**

- Robert Beedle
- Dorothy Moore
- Luke Hasenbank
- Mike Bender

### **Legislative Affairs Committee**

- Robert Archibald
- Dorothy Moore
- Robert Beedle
- Mako Haggerty
- Kirk Zinck

### **Finance Committee**

- Mako Haggerty (Treasurer)
- Jim Herbert
- Wayne Donaldson
- Robert Archibald

# Prince William Sound Regional Citizens' Advisory Council Strategic Plan

*This Plan is intended to summarize the Board's priorities for organizational goals and direction. Board, staff, and committee members are to refer to this Plan to help guide decision-making and project development.*

## Vision

Establish PWSRCAC as a premier advisory group, such that governments and industries solicit and value citizen input at all levels and stages of oil transportation decisions that potentially impact the environment

## Mission

Citizens promoting the environmentally safe operation of the Alyeska terminal and associated tankers

## Core Values

**Advocacy:** Provide a voice for citizens in the region impacted by the Exxon Valdez oil spill.

**Stewardship:** Promote and protect the people, environment, and communities of our region

**Partnership:** Collaborate with partners, volunteers, and stakeholders; facilitate open communications; and respectfully invite diverse perspectives

**Accountability:** To seek and verify information, promote scientific integrity, and encourage transparency

**People:** Recognize volunteers and staff as the most important assets of our organization

**Excellence:** Demonstrate organizational excellence and commit to continuous improvement

## Core Functions, Goals, and Strategies

### Maintain Compliance with OPA 90 and Alyeska Contractual Requirements

- ☐ <sup>(1)</sup> Obtain annual recertification and funding
- ☐ <sup>(2)</sup> Maintain regional balance
- ☐ <sup>(3)</sup> Link projects and programs to OPA 90 and Alyeska contract

### Prevent Oil Spills, Reduce Risks, Promote Response Readiness, and Facilitate Research

- ☐ <sup>(4)</sup> Combat complacency and reduce risk by means of observing, monitoring, informing, and advising
- ☐ <sup>(5)</sup> Monitor and advise on the condition and operation of the terminal, tankers, and spill prevention and response system
- ☐ <sup>(6)</sup> Monitor and advise on environmental indicators and reportable incidents
- ☐ <sup>(7)</sup> Monitor and advise on the development of, and compliance with, applicable laws and regulations
- ☐ <sup>(8)</sup> Advocate for funding and staffing of regulatory agencies to provide comprehensive oversight
- ☐ <sup>(9)</sup> Advocate for interagency coordination, and public transparency and participation within the regulatory framework
- ☐ <sup>(10)</sup> Advocate for continuous improvement to the environmental safety of marine terminal operations and oil transportation
- ☐ <sup>(11)</sup> Promote and facilitate effective research for scientific, operational, and technical excellence
- ☐ <sup>(12)</sup> Promote risk reduction measures, best available technologies, and best practices for oil spill prevention and response.

### Develop and Maintain Effective External and Internal Communication

- ☐ <sup>(13)</sup> Maintain and improve relationships and information sharing with key partners
- ☐ <sup>(14)</sup> Engage and educate the public, partners, and member entities
- ☐ <sup>(15)</sup> Advocate for timely and responsive information from Alyeska
- ☐ <sup>(16)</sup> Ensure availability of PWSRCAC information
- ☐ <sup>(17)</sup> Foster public awareness, responsibility, and citizen participation in our work

### Achieve Organizational Excellence

- ☐ <sup>(18)</sup> Recruit and develop knowledgeable and committed volunteers and staff
- ☐ <sup>(19)</sup> Improve efficiency of internal processes, including introducing new technology
- ☐ <sup>(20)</sup> Improve systems that preserve documentation and institutional knowledge
- ☐ <sup>(21)</sup> Be a model for citizen oversight
- ☐ <sup>(22)</sup> Assess and improve the Long Range Planning process
- ☐ <sup>(23)</sup> Demonstrate fiscal responsibility

# PWSRCAC BOARD AND EXECUTIVE COMMITTEE ACTIONS

Meeting Date      Action Item



**PRINCE WILLIAM SOUND**  
REGIONAL CITIZENS' ADVISORY COUNCIL

XCOM	7/18/2024	<b>Approval of Professional Agreement for Legal Services:</b> The Executive Committee authorized the Executive Director to enter into a sole source professional services agreement with Landye Bennett Blumstein, LLP for legal services. Is this contract in place?	<b>File Code</b> (if any)		<b>Responsible</b> Odegard	<b>Disposition</b> Done
XCOM	7/18/2024	<b>Approval of Advisory Letters to the TAPS Shippers:</b> The Executive Committee directed staff to send the proposed advisory letter to the TAPS Shippers requesting consideration of voluntary vessel speed reductions as a prevention measure for potential vessel-whale strikes in Prince William Sound, when it is safe to do so, and requesting additional information about operational impacts of reduced speeds. Has this letter been sent?	<b>File Code</b> (if any)	900.105.240719.RPGwhalespeed	<b>Responsible</b> Verna	<b>Disposition</b> Done
XCOM	7/18/2024	<b>Approval of Advisory Letters to NOAA:</b> The Executive Committee directed staff to send the proposed advisory letter to NOAA – National Marine Fisheries Service requesting additional data review and outreach to assess and mitigate the risk of vessel-whale strikes in Prince William Sound. Has this letter been sent?	<b>File Code</b> (if any)	900.105.240718.NOAAwhalespeed	<b>Responsible</b> Verna	<b>Disposition</b> Done
XCOM	7/18/2024	<b>Approval of Contract Increase for Secondary Containment Liner Testing:</b> The Executive Committee authorized the Executive Director to increase the contract with Dr. Craig Benson for deliverables associated with project 6512 Maintaining the Secondary Containment Liner, in an amount not to exceed \$38,000. Is the contract increase in place?	<b>File Code</b> (if any)		<b>Responsible</b> Blancaflor	<b>Disposition</b> Done
XCOM	7/18/2024	<b>Approval of Storage Tank 7 &amp; 94 Maintenance Review Report:</b> The Executive Committee accepted the report titled “Review of Ballast Water Tank 94 and Crude Oil Storage Tank 7 Out-of-Service Inspection Reports” dated May 2024 as final and for public distribution. Has the report been distributed?	<b>File Code</b> (if any)	500.431.240501.TakuTanks7and94 and 500.105.240718. APSCTaku94and7	<b>Responsible</b> Blancaflor	<b>Disposition</b> Done
XCOM	7/18/2024	<b>Approval of Storage Tank 2 Inspection Report:</b> The Executive Committee accepted the report titled “Review of Crude Oil Storage Tank 2 Out-of-Service Inspection Report” dated May 2024 as final and for public distribution. Is this report in place?	<b>File Code</b> (if any)	500.431.240501.TakuTank2OOS	<b>Responsible</b> Blancaflor	<b>Disposition</b> Done
XCOM	7/18/2024	<b>Amicus Curiae Brief Budget Increase:</b> The Executive Committee authorized a budget modification of \$5,000 from the contingency fund to project 6000 to finalize and submit the amicus curiae brief in support of the City of Valdez's appeal of the Regulatory Commission of Alaska's ruling relating to the disclosure of Hilcorp/Harvest Alaska's financial information.	<b>File Code</b> (if any)		<b>Responsible</b> Schantz	<b>Disposition</b> Pending

# PWSRCAC BOARD AND EXECUTIVE COMMITTEE ACTIONS

Meeting Date Action Item



**PRINCE WILLIAM SOUND**  
REGIONAL CITIZENS' ADVISORY COUNCIL

XCOM	7/18/2024	<b>Approval of In-State Travel:</b> The Executive Committee authorized in-state travel for Directors Jim Herbert and OSPR Committee member Tim Robertson to travel to Valdez to be interviewed by members of the Government Accountability Office on August 6, 2024, in an approximate amount of \$1,720 and \$2,120 per traveler, respectively. Has the travel taken place?	<b>File Code</b> (if any)	<b>Responsible</b> Fleming	<b>Disposition</b> Done
Board	5/2/2024	<b>PWSRCAC DIRECTOR APPOINTMENTS:</b> The Board confirmed the two-year terms of the selected representatives for each of the following: L. Hasenbank (Ak State Chamber of Commerce), M. Vigil (Chenega), B. Cutrell (Chugagh Alaska Corporation), D. Janka (Cordova), D. Moore (Valdez), M. Bender (Whittier), R. Beedle (CDFU), A. Williams (Kodiak Island Borough), B. Shavelson (OSREC), and M. Malchoff (Port Graham). Are these appointments in place?	<b>File Code</b> (if any)	<b>Responsible</b> Fleming	<b>Disposition</b> Done
Board	5/2/2024	<b>APPROVAL OF FY2025 BUDGET:</b> The Board adopted the FY2025 budget as presented during the Budget Workshop on April 25, 2024. Total expenses of \$4,976,676, and the contingency is \$75,000. Is the approved budget in place?	<b>File Code</b> (if any)	<b>Responsible</b> Hamilton	<b>Disposition</b> Done
Board	5/2/2024	<b>APPROVAL OF RESOLUTION DESIGNATING PWSRCAC CHECK SIGNERS:</b> The Board adopted the resolutions provided by First National Bank Alaska to update the list of authorized individuals to sign checks and conduct financial transactions on PWSRCAC's account. Are these resolutions in place?	<b>File Code</b> (if any)	<b>Responsible</b> Hamilton	<b>Disposition</b> Done
Board	5/2/2024	<b>APPROVAL OF FY2025 CONTINGENCY PLAN CONTRACTOR POOL:</b> The Board authorized individual contracts with Nuka Research and Planning Group, LLC. and Attorney Breck Tostevin for professional services in FY2025 with the aggregate total not to exceed \$80,000. Are these contracts in place?	<b>File Code</b> (if any)	<b>Responsible</b> Swiss	<b>Disposition</b> Done
Board	5/2/2024	<b>MARINE BIRD FALL AND EARLY WINTER SURVEYS CONTRACT AUTHORIZATION:</b> The Board authorized the Executive Director to enter into a sole source contract with the Prince William Sound Science Center to conduct project 9110 – PWS Marine Bird and Mammal Winter Surveys in 2024 in an amount not to exceed \$78,928. Is this contract in place?	<b>File Code</b> (if any)	<b>Responsible</b> Verna	<b>Disposition</b> Done
Board	5/2/2024	<b>APPROVAL OF PWSRCAC/ALYESKA CONTRACT COMPLIANCE VERIFICATION REPORT:</b> The Board accepted the PWSRCAC/Alyeska Annual Contract Compliance Verification Report. Is this report in place?	<b>File Code</b> (if any)	<b>Responsible</b> Hamilton	<b>Disposition</b> Done

100.109.240429.ContrComplRpt

# PWSRCAC BOARD AND EXECUTIVE COMMITTEE ACTIONS

Meeting Date Action Item



**PRINCE WILLIAM SOUND**  
REGIONAL CITIZENS' ADVISORY COUNCIL

Board	5/2/2024	<b>APPROVAL FOR ANCHORAGE OFFICE LEASE EXTENSION:</b> The Board authorized the Executive Director to sign a one-year lease extension for the Anchorage office located at 3709 Spenard Road. The monthly rent is \$5,950.95, totaling \$71,411.40 over the one-year term. Is this extension in place?	<b>File Code</b> (if any)	<b>Responsible</b> Odegard	<b>Disposition</b> Done
Board	5/2/2024	<b>APPROVAL OF FY2024 BUDGET MODIFICATIONS:</b> The Board approved the FY2024 budget modifications as listed on the provided sheet, with a total revised contingency in the amount of \$204,629. Are these modifications in place?	<b>File Code</b> (if any)	<b>Responsible</b> Hamilton	<b>Disposition</b> Done
Board	5/2/2024	<b>ELECTION OF OFFICERS AND MEMBERS-AT-LARGE:</b> The Board elected the following: President - Robert Archibald; Vice President - Amanda Bauer; Treasurer - Mako Haggerty; Secretary - Bob Shavelson; Members-at-Large - Ben Cutrell, Angela Totemoff, Dave Janka. Are these confirmations in place?	<b>File Code</b> (if any)	<b>Responsible</b> Fleming	<b>Disposition</b> Done
Board	5/2/2024	<b>REPORT ACCEPTANCE: 2023 DRILL MONITORING ANNUAL REPORT:</b> The Board accepted the 2023 Annual Drill Monitoring Report for distribution to the public. Is this report in place?	<b>File Code</b> (if any)	752.431.240101.DrillMon2023 <b>Responsible</b> Robertson	<b>Disposition</b> Done
Board	5/2/2024	<b>APPROVAL OF COUNCIL'S ONE-PAGE STRATEGIC PLAN:</b> The Board adopted and approved the one-page strategic plan as developed by the Strategic Planning Committee. Is this plan in place?	<b>File Code</b> (if any)	<b>Responsible</b> Lally	<b>Disposition</b> Done
Board	5/2/2024	<b>TECHNICAL COMMITTEE MEMBER APPOINTMENTS:</b> The Board approved the following technical committee members to two-year terms on their respective committees: Scientific Advisory Committee (SAC) - S. Allan, and D. Holen; Terminal Operations and Environmental Monitoring Committee (TOEM) - A. Bauer, M. Cullin, and G. Skladal; Oil Spill Prevention and Response Committee (OSPR) - M. Bender, D. Goldstein, and T. Robertson; Port Operations and Vessel Traffic Systems (POVTS) - A. Bauer and R. Archibald; and, Information and Education Committee (IEC) - R. Knight, K. Morse and A. Williams. Are these confirmations in place?	<b>File Code</b> (if any)	<b>Responsible</b> Vanderburg/	<b>Disposition</b> Done
Board	5/2/2024	<b>RESOLUTION REQUESTING A VOLUNTARY VESSEL SPEED REDUCTION BY TAPS TANKERS:</b> The Board directed staff to work with the appropriate technical committees to draft an advisory letter to NOAA – National Marine Fisheries Service, any other relevant regulatory agencies identified, and the TAPS shippers conveying the Council's concerns relating to vessel-whale strikes within the Council's region and acknowledging the effectiveness of a vessel speed reduction. Have these letters been sent?	<b>File Code</b> (if any)	See 4/23/24 XCOM action. <b>Responsible</b> Verna	<b>Disposition</b> Done

# PWSRCAC BOARD AND EXECUTIVE COMMITTEE ACTIONS

Meeting Date Action Item



PRINCE WILLIAM SOUND  
REGIONAL CITIZENS' ADVISORY COUNCIL

Board	5/2/2024	<b>ANNUAL BOARD SUBCOMMITTEE APPOINTMENTS:</b> The Board approved the appointments to the following Board subcommittees: <u>Finance</u> - Mako Haggerty (Treasurer), Jim Herbert, Wayne Donaldson, Robert Archibald; <u>Long Range Planning (LRP)</u> - Aimee Williams, Robert Archibald, the five technical committee chairs, IEC member Cathy Hart; <u>Board Governance (BGC)</u> - Robert Beedle, Dorothy Moore, Luke Hasenbank, Mike Bender; and <u>Legislative Affairs (LAC)</u> - Robert Archibald, Dorothy Moore, Robert Beedle, Kirk Zinck, Mako Haggerty. Are these appointments in place?	<b>File Code</b> (if any)	<b>Responsible</b> Fleming	<b>Disposition</b> Done
Board	5/2/2024	<b>FY2025 LTEMP CONTRACT AUTHORIZATION:</b> The Board authorized individual contracts with Alpha Analytical and Fjord & Fish Sciences with the aggregate total not to exceed the amount approved in the final FY2025 LTEMP budget (Project 9510) for contract expenses, and delegation of authority to the Executive Director to enter into individual contracts with the aforementioned consultants; and authorized that the contract work commence prior to the start of FY2025, as approximately \$20,000 of these funds will need to be expended in May and June 2024. Are these steps in place?	<b>File Code</b> (if any)	<b>Responsible</b> Verna	<b>Disposition</b> Done
XCOM	4/23/2024	<b>Approval of Agenda for Upcoming Board Meeting:</b> The Executive Committee approved the agenda for the PWSRCAC Board meeting, May 2-3, 2024. Has the agenda been distributed?	<b>File Code</b> (if any)	<b>Responsible</b> Fleming	<b>Disposition</b> Done
Board	3/27/2024	<b>Approval of Out-of-State Travel to Washington, DC for Legislative Visits:</b> The Board approved out-of-state travel for Directors Dorothy Moore and Robert Beedle to conduct annual legislative outreach visits in Washington, DC, May 5-11, 2023 in the approximate amount of \$5,114, per traveler. Has the travel taken place?	<b>File Code</b> (if any)	<b>Responsible</b> Fleming	<b>Disposition</b> Done
Board	3/27/2024	<b>Approval of In-State Travel to Valdez for Tsunami Workshop:</b> The Board approved in-state travel for Robert Archibald, Jim Herbert, Dave Janka, and Max Mitchell to attend the Tsunami Workshop in Valdez, June 3-4, 2024 in an approximate amount of \$2,325 per traveler; and approve a budget modification adding \$9,300 to project 8025 from the contingency fund for this travel.	<b>File Code</b> (if any)	<b>Responsible</b> Fleming	<b>Disposition</b> Done
Board	3/27/2024	<b>White Paper Acceptance – Miscommunication in Maritime Contexts:</b> The Board accepted the white paper titled "Miscommunication in Maritime Contexts" by Dr. Nicole Ziegler as meeting phase one of contract 8520.23.01 and allow Dr. Ziegler to seek professional publication of the paper. Is this report in place?	<b>File Code</b> (if any) 852.431.231331.MisComsLitSearch	<b>Responsible</b> Sorum/Lally	<b>Disposition</b> Done

# PWSRCAC BOARD AND EXECUTIVE COMMITTEE ACTIONS

Meeting Date Action Item



**PRINCE WILLIAM SOUND**  
REGIONAL CITIZENS' ADVISORY COUNCIL

Board	3/27/2024	<b>Approval of IRS Form 990:</b> The Board authorized the Executive Director to sign the Form 990 on behalf of PWSRCAC and submit it to the IRS on or before May 15, 2024. Has the IRS Form 990 been transmitted to the IRS?	<b>File Code</b> (if any)	<b>Responsible</b> Hamilton	<b>Disposition</b> Done
Board	3/27/2024	<b>Annual Evaluation of the Executive Director:</b> The Board approved extending the Executive Director's contract for one year and authorized a one-time bonus of \$2,500. Have these actions taken place?	<b>File Code</b> (if any)	<b>Responsible</b> Hamilton	<b>Disposition</b> Done
Board	1/25/2024	<b>REPORT ACCEPTANCE: 2022-2023 LONG-TERM ENVIRONMENTAL MONITORING:</b> The Board accepted the reports titled "Long-Term Environmental Monitoring Program 2022–2023 Summary Report" and "Long-Term Environmental Monitoring Program 2022–2023 Technical Supplement" by Morgan Bender of Owl Ridge Natural Resource Consultants, Inc., both dated December 2023, as meeting the terms and conditions of contract number 951.24.04, and for distribution to the public. Is this report in place?	<b>File Code</b> (if any) 951.431.231201OwlRidgeTech	<b>Responsible</b> Verna	<b>Disposition</b> Done
Board	1/25/2024	<b>BUDGET MODIFICATIONS:</b> The Board approved the FY2024 budget modifications as listed on the provided sheet, with a total revised contingency in the amount of \$111,654. Are these modifications in place?	<b>File Code</b> (if any)	<b>Responsible</b> Hamilton	<b>Disposition</b> Done
Board	1/25/2024	<b>CONTRACT APPROVAL FOR AIR QUALITY MONITORING AT THE VMT:</b> The Board authorized a contract with Ron Sahu, PhD, in an amount not to exceed \$50,000 to conduct work related to VMT Title V air quality permit review and associated air quality issues under project 5570 - Valdez Air Quality. Is this contract in place?	<b>File Code</b> (if any)	<b>Responsible</b> Blancaflor	<b>Disposition</b> Done
Board	1/25/2024	<b>APPROVAL OF FY24 CONTRACT WITH TAKU ENGINEERING FOR ENGINEERING SUPPORT:</b> The Board authorized a contract increase with Taku Engineering in the amount of \$21,720, for a new not to exceed total of \$46,720, to provide engineering support related to Alyeska's request for information on the oxygen content of the head spaces of the VMT crude oil storage tanks. Is this contract in place?	<b>File Code</b> (if any)	<b>Responsible</b> Blancaflor	<b>Disposition</b> Done
Board	1/25/2024	<b>2023 VMT C-PLAN RENEWAL &amp; APPROVAL OF C-PLAN CONTRACT INCREASE:</b> The Board delegated authority to the Executive Director to negotiate contract increases with selected contingency plan review contractors at a cost not to exceed \$90,000 for project 6510: State Contingency Plan Reviews for FY2024. Is this contract in place?	<b>File Code</b> (if any)	<b>Responsible</b> Swiss	<b>Disposition</b> Done

# PWSRCAC BOARD AND EXECUTIVE COMMITTEE ACTIONS

Meeting Date Action Item



**PRINCE WILLIAM SOUND**  
REGIONAL CITIZENS' ADVISORY COUNCIL

Board	1/25/2024	<b>BYLAW AMENDMENT – SECTION 2.2.1 ADDING A RECREATION SEAT AS A CLASS I MEMBER:</b> The Board approved of the proposed amendment to section 2.2.1 of the PWSRCAC Bylaws to remove the Temporary Recreation Seat and add the Oil Spill Region Recreational Coalition to the list of Class I members; and, the proposed amendment to the Bylaws to include listing the definition of recreation as developed by BGC in the footnotes on page 2 of Attachment A. Are these amendments in place?	File Code (if any)	Responsible Fleming	Disposition Done
Board	1/25/2024	<b>DIRECTOR APPOINTMENT FOR OIL SPILL REGION RECREATIONAL COALITION:</b> The Board confirmed the appointment of Jim Herbert as representing the Oil Spill Region Recreational Coalition with a term set to expire at the May 2025 annual meeting. Is this appointment in place?	File Code (if any)	Responsible Fleming	Disposition Done
Board	1/25/2024	<b>CONTRACT APPROVAL - FEDERAL GOVERNMENT AFFAIRS MONITOR:</b> The Board approved a contract with Blank Rome to work with PWSRCAC's Federal Legislative Monitor Roy Jones, and the Legislative Affairs Committee, under project 4400 Federal Governmental Affairs in an amount not to exceed \$22,500 for Fiscal Year 2024. Is this contract in place?	File Code (if any)	Responsible Lally	Disposition Done
Board	1/25/2024	<b>PWSRCAC FY2025-FY2029 LONG RANGE PLAN APPROVAL:</b> The Board approved the Five-Year Long Range Plan for Fiscal Years 2025–2029, as developed and finalized for consideration by the Board at the January 24, 2024 Long Range Plan work session.	File Code (if any)	Responsible Vanderburg	Disposition Done
XCOM	1/18/2024	<b>Out-of-State Travel Request to International Oil Spill Conference:</b> The Executive Committee approved out-of-state travel for Director Kirk Zinck and OSPR Committee member Matt Melton to attend the International Oil Spill Conference May 13-16, 2024 in New Orleans, LA in the approximate amounts of \$4,779 and \$3,881, respectively. Has the travel taken place?	File Code (if any)	Responsible Fleming	Disposition Done; Zink withdrew
XCOM	1/18/2024	<b>Agenda for Upcoming PWSRCAC Board Meeting:</b> The Executive Committee approved the agenda for the PWSRCAC Board meeting, January 25-26, 2024 as amended.	File Code (if any)	Responsible Fleming	Disposition Done
XCOM	12/13/2023	<b>Oil Spill Region Recreational Coalition:</b> The Executive Committee recommend seating the Oil Spill Region Recreational Coalition as a Class 1 member of the PWSRCAC Board of Directors to represent recreation interests. Has the Board been made aware of this recommendation?	File Code (if any)	Responsible Crawford	Disposition Done



# PWSRCAC BOARD AND EXECUTIVE COMMITTEE ACTIONS

Meeting Date Action Item



**PRINCE WILLIAM SOUND**  
REGIONAL CITIZENS' ADVISORY COUNCIL

XCOM	12/13/2023	<b>Travel for January 24, 2024 Long Range Planning Workshop:</b> The Executive Committee authorized staff and volunteers residing outside of Anchorage city limits, for winter safety reasons, to drive to Anchorage for the January 24, 2024 Long Range Planning Workshop on January 23, 2024. Has this travel taken place?	<b>File Code</b> (if any)	<b>Responsible</b> Fleming	<b>Disposition</b> Done
XCOM	12/13/2023	<b>Approval of International Travel to the Conference on Aquatic Invasive Species (ICAIS) Conference:</b> The Executive Committee approved international (within Canada) travel for SAC member, Dr. Roger Green, to attend the 2024 International Conference on Aquatic Invasive Species, May 12-16, 2024 in Halifax, Nova Scotia, Canada with travel in an approximate amount of \$3,057. Has this travel take place?	<b>File Code</b> (if any)	<b>Responsible</b> Odegard	<b>Disposition</b> Done
Board	11/21/2023	<b>Approval of FY2023 Audit:</b> The Board approved the FY2023 audit by BDO. Is this audit in place?	<b>File Code</b> (if any)	<b>Responsible</b> Hamilton	<b>Disposition</b> Done
Board	11/21/2023	<b>Appointment of Tim Robertson to OSPR Committee:</b> The Board approved Tim Robertson to the OSPR Committee with a term set to expire at the May 2024 annual Board meeting. Is this appointment in place?	<b>File Code</b> (if any)	<b>Responsible</b> Vanderburg	<b>Disposition</b> Done
Board	11/21/2023	<b>Executive Director 2023 Evaluation:</b> The Board awarded and 8.1% increase to Schantz' pay, retroactive to the first pay period of FY2024. Is this increase in place?	<b>File Code</b> (if any)	<b>Responsible</b> Hamilton	<b>Disposition</b> Done
Board	11/21/2023	<b>Approval of FY2024 Budget Modifications:</b> The Board approved the FY2024 budget modifications listed on the provided sheet, with a total revised contingency in the amount of \$181,607. Are these modifications in place?	<b>File Code</b> (if any)	<b>Responsible</b> Hamilton	<b>Disposition</b> Done
Board	11/21/2023	<b>Approval of Travel for K. Morse and C. Hart to NTEN:</b> The Board approved travel for IEC members Kate Morse and Cathy Hart to attend the NTEN Conference, March 13-15, 2024 in Portland, Oregon, with travel costs in an approximate amount of \$3,272 and \$2,963, respectively. Has the travel taken place?	<b>File Code</b> (if any)	<b>Responsible</b> Willahan	<b>Disposition</b> Done

# PWSRCAC BOARD AND EXECUTIVE COMMITTEE ACTIONS

Meeting Date Action Item



PRINCE WILLIAM SOUND  
REGIONAL CITIZENS' ADVISORY COUNCIL

Board	9/21/2023	<b>APPROVAL OF ANNUAL SAGE INTACCT LICENSING FEE:</b> The Board approved a FY2024 budget modification in the amount of \$17,094 from the contingency fund into budget 1300 Information Technology for the annual Sage Intacct licensing fee; and the FY2024 licensing fee with Sage Intacct in the amount of \$17,094 for continued support of the Council's accounting system. Are these steps in place?	File Code (if any)	Responsible	Disposition
				Hamilton	Done
Board	9/21/2023	<b>APPROVE DEFERRAL OF PROJECT 5591: CRUDE OIL PIPING INSPECTION REVIEW:</b> The Board approved the deferral of TOEM project 5591: Crude Oil Piping Inspection Review transferring \$51,744 of the funds into the FY2024 contingency fund. Is this deferral in place?	File Code (if any)	Responsible	Disposition
				Blancaflor	Done
Board	9/21/2023	<b>REPORT ACCEPTANCE: PORT VALDEZ WEATHER BUOY DATA ANALYSIS 2019-2022:</b> The Board accepted the Port Valdez Weather Buoy Data Analysis 2019-2022 by Robert W. Campbell, Ph.D., and the Prince William Sound Science Center, as meeting the terms and conditions of the Contract 6536.23.01, and for distribution to the public. Is this report in place?	File Code (if any)	Responsible	Disposition
			653.431.230901.PtVdzWxBuoyData	Robertson	Done
Board	9/21/2023	<b>APPROVAL OF RESOLUTION IN SUPPORT OF COAST GUARD CUTTER HOMEPORTING:</b> The Board adopted Resolution 23-01 "Urging the United States Coast Guard to Homeport a Sentinel-Class Cutter, Also Known as the Fast Response Cutter, in Port Valdez." Is this resolution in place?	File Code (if any)	Responsible	Disposition
			210.106.230921.USCCutter	Sorum	Done
Board	9/21/2023	<b>PWSRCAC EFFORTS TO ADDRESS VMT SYSTEM INTEGRITY &amp; SAFETY CULTURE ISSUES:</b> The Board authorized a FY2024 budget modification moving \$15,000 from the contingency fund to project 5053 and authorized a professional services agreement with Billie Garde in the amount of \$15,000 to assist staff in following up on the recommendations contained in the report titled "Assessment of Risks and Safety Culture at Alyeska's Valdez Marine Terminal." Are these steps in place?	File Code (if any)	Responsible	Disposition
				Blancaflor	Done
Board	9/21/2023	<b>Class I Recreation Seat:</b> The Board voted in favor of supporting the efforts to form a coalition of recreation entities to potentially fill a Class I Recreation seat on the PWSRCAC Board of Directors, and delegation of authority to the Executive Director to engage PWSRCAC legal counsel to review the draft Memorandum of Agreement provided by the groups currently proposing the Recreation Coalition. Are these steps in place?	File Code (if any)	Responsible	Disposition
				Crawford	Done
Board	9/21/2023	<b>REPORT ACCEPTANCE: OXYGENATED HYDROCARBONS:</b> The Board accepted the report titled "Examining the Effectiveness of Ballast Water Treatment Processes: Insights into Hydrocarbon Oxidation Product Formation and Environmental Implications" by Maxwell Harsha and Dr. David Podgorski from the University of New Orleans dated August 1, 2023, as meeting the terms and conditions of Contract 9512.22.01, and ready for distribution to the public. Is this report in place?	File Code (if any)	Responsible	Disposition
			951.431.230921.NOLAOxyHydro	Verna	Done

# PWSRCAC BOARD AND EXECUTIVE COMMITTEE ACTIONS

Meeting Date Action Item



**PRINCE WILLIAM SOUND**  
REGIONAL CITIZENS' ADVISORY COUNCIL

Board	9/21/2023	<b>REPORT ACCEPTANCE: PRINCE WILLIAM SOUND MARINE BIRD WINTER SURVEYS:</b> The Board accepted the report titled "Marine Bird Winter Surveys in Prince William Sound" by the Prince William Sound Science Center dated June 26, 2023, as meeting the terms and conditions of Contract 9110.23.01, and for distribution to the public. Is this report in place?	<b>File Code</b> (if any)	900.431.230626.WinterBrdSvys	<b>Responsible</b>	<b>Disposition</b>
					Verna	Done
Board	9/21/2023	<b>REPORT ACCEPTANCE: PEER LISTENER TRAINING MANUAL:</b> The Board accepted the "Peer Listener Training Manual" by Agnew::Beck Consulting, Inc., dated August 1, 2023, as meeting the terms and conditions of Contract 6560.23.01, and for distribution to the public. Is the report in place?	<b>File Code</b> (if any)	656.431.230921.CopeTechDstrs	<b>Responsible</b>	<b>Disposition</b>
					Verna	Done
Board	9/21/2023	<b>PWSRCAC LONG RANGE PLANNING:</b> The Board approved the protected project list for the upcoming Long Range Planning process as presented in Attachment A to the briefing sheet under Item 4-7 in the meeting notebook. Is the project list in place?	<b>File Code</b> (if any)		<b>Responsible</b>	<b>Disposition</b>
					Crawford	Done
Board	9/21/2023	<b>CONTRACT AUTHORIZATION: MARINE BIRD WINTER SURVEYS:</b> The Board authorized the Executive Director to enter into a sole source contract with the Prince William Sound Science Center to conduct project 9110 Marine Bird Winter Surveys in 2024 in an amount not to exceed \$65,138. Is this contract in place?	<b>File Code</b> (if any)		<b>Responsible</b>	<b>Disposition</b>
					Verna	Done
XCOM	9/14/2023	<b>Deferral of Project 8018 - State of the Industry: Advances in Escort Tugboat Technology and Regulatory Frameworks:</b> The Executive Committee approved the transfer of \$45,000 from project 8018 – State of the Industry: Advances in Escort Tugboat and Regulatory Frameworks to the FY2024 contingency. Is this transfer in place?	<b>File Code</b> (if any)		<b>Responsible</b>	<b>Disposition</b>
					Sorum	Done
XCOM	9/14/2023	<b>Acceptance of Report Titled "Crude Oil Storage Tank Vent Snow Damage," by Taku Engineering, LLC.:</b> The Executive Committee accepted the technical memorandum titled, "Crude Oil Storage Tank Vent Snow Damage," by Taku Engineering, dated July 2023, with direction for staff to forward the memo to Alyeska and state and federal regulators accompanied by a cover letter summarizing findings and recommendations with requests for appropriate action and a complete response. Has the report been transmitted?	<b>File Code</b> (if any)	500.431.230601.TankVentSnowDmg	<b>Responsible</b>	<b>Disposition</b>
					Blancaflor	Done
XCOM	9/14/2023	<b>FY2024 budget modification to update "Then &amp; Now," not to exceed \$6,000:</b> The Executive Committee approved an FY2024 budget modification in the amount of \$6,200 from the contingency fund into budget 3562 Then & Now for the update and reprinting of this document ahead of the 35th anniversary of EVOS. Is this budget modification in place?	<b>File Code</b> (if any)		<b>Responsible</b>	<b>Disposition</b>
					Taylor	Done

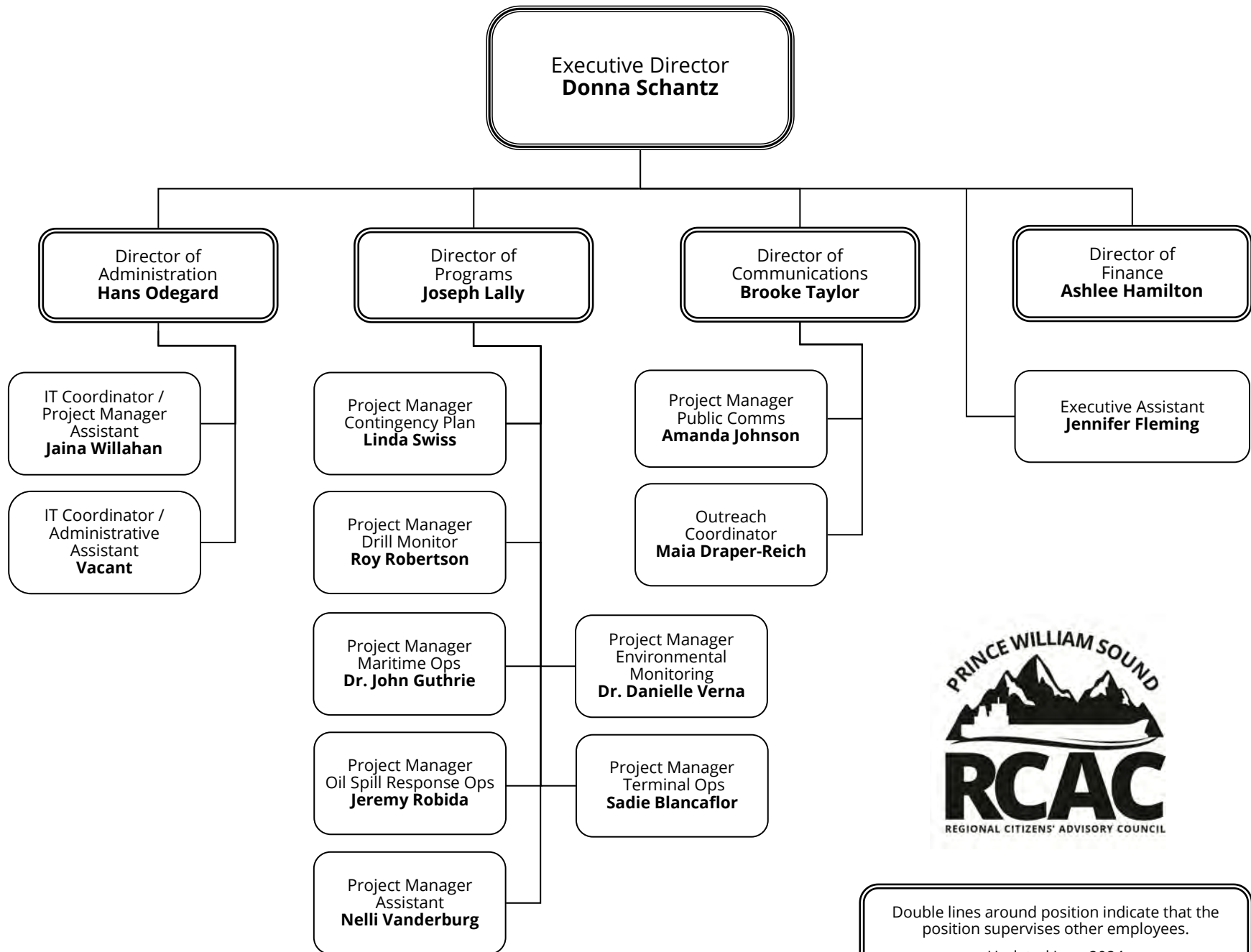
## PWSRCAC BOARD AND EXECUTIVE COMMITTEE ACTIONS

Meeting Date Action Item



PRINCE WILLIAM SOUND  
REGIONAL CITIZENS' ADVISORY COUNCIL

XCOM	9/14/2023	<b>PWSRCAC's State Legislative Monitor Contract Increase:</b> The Executive Committee approved Gene Therriault's requested contract increase from \$25,700 to \$31,700 to continue as a legislative monitor for FY24. Approve a budget modification from the contingency fund to Project 4410 State Government Affairs in the amount of \$6,000 to increase PWSRCAC's Legislative Monitor contract amount to \$31,700. Is the revised contract in place?	<b>File Code</b> (if any)	<b>Responsible</b> Lally	<b>Disposition</b> Done
XCOM	9/14/2023	<b>Out-of-State Travel to Pacific Marine Expo:</b> The Executive Committee approved out-of-state travel for Max Mitchell and Matt Melton to attend the Pacific Marine Expo, November 8-10, 2023 in Seattle, Washington with total travel costs in an approximate amount of \$2,116 for Mitchell (based in Homer) and \$1,456 for Melton (based in Anchorage). Has the travel taken place?	<b>File Code</b> (if any)	<b>Responsible</b> Draper-Reich	<b>Disposition</b>
XCOM	9/14/2023	<b>Agenda for Upcoming PWSRCAC Board Meeting:</b> The Executive Committee approved the agenda for the PWSRCAC Board meeting, September 21-22, 2023 in Homer as presented with the changes. Is the agenda in place?	<b>File Code</b> (if any)	<b>Responsible</b> Fleming	<b>Disposition</b> Done



**Consent Agenda Briefing for PWSRCAC Board of Directors – September 2024****ACTION ITEM**

**Sponsor:** Danielle Verna and the Scientific Advisory Committee

**Project number and name or topic:** 9510 - Long-Term Environmental Monitoring (LTEMP)

1. **Description of agenda item:** The Board is being asked to approve a FY2025 budget modification in the amount of \$6,005.38 for project 9510 and authorize a contract change order with Fjord & Fish Sciences, contract 9510.25.06. Dr. Morgan Bender, Principal at Fjord & Fish Sciences, assisted the project manager with field work for the collection and dissection of blue mussels at three remote LTEMP sites accessed via float plane from Homer. While Dr. Bender had planned to participate in field work at sites in Port Valdez, this additional field work was outside the original scope and cost estimate of the project. The timing of this remote field work was delayed due to weather, creating a gap in the availability of Council staff to participate. Dr. Bender was available and offered to assist. Dr. Bender's contribution to the remote field work and lab-based dissections was valuable, as it improved efficiency and safety, and provided her an opportunity to gain site familiarization, which is important as she analyzes and interprets the resulting data.

2. **Why is this item important to PWSRCAC:** The Oil Pollution Act of 1990 directs PWSRCAC to "devise and manage a comprehensive program of monitoring the environmental impacts of the operations of terminal facilities and crude oil tankers while operating in Prince William Sound" – LTEMP is designed to address this directive. LTEMP results are used to assess the environmental impacts of the Valdez Marine Terminal and the crude oil tankers operating in Prince William Sound, including the long-term impacts of the Exxon Valdez oil spill.

3. **Previous actions taken by the Board on this item:**

<u>Meeting</u>	<u>Date</u>	<u>Action</u>
Board	5/2/2024	The Board authorized individual contracts with Alpha Analytical and Fjord & Fish Sciences with the aggregate total not to exceed the amount approved in the final FY2025 LTEMP budget (Project 9510) for contract expenses, and delegation of authority to the Executive Director to enter into individual contracts with the aforementioned consultants; and authorized that the contract work commence prior to the start of FY2025, as approximately \$20,000 of these funds will need to be expended in May and June 2024.

4. **Summary of policy, issues, support, or opposition:** None known.

5. **Committee Recommendation:** None.

6. **Relationship to LRP and Budget:** Project 9510 – Long-Term Environmental Monitoring Program, is in the approved FY2025 budget and annual work plan.

7. **Action Requested of the Board of Directors:** Authorize a budget modification in the amount of \$6,006 from the contingency fund to project 9510 in the FY2025 budget and authorize the Executive Director to carry out a corresponding change order to increase contract 9510.25.06 with Fjord & Fish Sciences in a not to exceed amount of \$61,731.
8. **Alternatives:** Do not authorize the budget modification or change order.
9. **Attachments:** Fjord & Fish Sciences' Homer field work cost breakdown.



<b>Briefing for PWSRCAC Board of Directors – September 2024</b>
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**ACTION ITEM****Sponsor:** Ashlee Hamilton**Project number and name or topic:** FY2025 Budget Modifications

1. **Description of agenda item:** The Board is asked to approve modifications to the FY2025 budget as outlined below. The Finance Committee is scheduled to meet on August 27 to review these budget modifications and will deliver their comments and/or recommendations at the Board meeting. If the changes proposed in this briefing sheet are approved, the FY2025 contingency will be \$36,147.50

Description	Task #	Expenses	Contingency
Beginning balance			\$75,000.00
Amicus brief project - funds were not included in original budget. This budget modification was approved by the Executive Committee on 7/18/24.	6000 / OSPR Program	\$5,000.00	(\$5,000.00)
Travel for Tim Robertson and Jim Herbert to attend the GAO interview in person in Valdez. The Executive Committee approved this travel on 7/18/24, but the corresponding budget modification was mistakenly excluded from the action.	5053 / Addressing Risks at VMT	\$3,840.00	(\$3,840.00)
Committed FY2024 contract carryover not originally budgeted	5057 / Title V Air Quality	\$5,012.50	(\$5,012.50)
Committed FY2024 contract carryover not originally budgeted	8520 / Miscomms in Maritime Contexts	\$25,000.00	(\$25,000.00)
Total changes before adjustment to contingency		\$38,852.50	
<b>Total contingency if changes are approved</b>			<b>\$36,147.50</b>

Note: The FY2025 contingency will be further reduced to \$30,141.50 if item 3-1 on the consent agenda is also approved.

2. **Why is this item important to PWSRCAC:** PWSRCAC's annual budget provides the organizations' spending plan and authorities. This list is the first batch of budget modifications proposed for FY2025.

3. **Previous actions taken by the Board on this item:**

<u>Meeting</u>	<u>Date</u>	<u>Action</u>
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## Approval of FY2025 Budget Modifications 3-2

Board	5/2/24	Adopted the FY2025 budget as presented during the April 25, 2024 Budget Workshop with total expenses in the amount of \$4,976,676, and a contingency of \$75,000.
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4. **Committee Recommendation:** The Finance Committee will review these budget modifications at their August 27 in-person meeting and deliver their recommendation during the opening comments.

5. **Action Requested of the Board of Directors:** Approve the FY2025 budget modifications as listed above, with a total revised contingency in the amount \$36,147.50.

6. **Alternatives:** None recommended.

7. **Attachments:** None.

## Briefing for PWSRCAC Board of Directors – September 2024

**ACTION ITEM**

**Sponsor:** Danielle Verna and the Scientific Advisory Committee

**Project number and name or topic:** 9110 - Marine Bird Hotspots in Prince William Sound

1. **Description of agenda item:** The Board is being asked to accept the report titled “Marine Bird Hotspots in Prince William Sound” dated July 2024, by Mary Anne Bishop and Anne Schaefer of the Prince William Sound Science Center. This report describes a hotspot analysis performed with 14 years of at-sea marine bird survey data collected during March 2007-2014 and 2018-2023. Twelve marine bird species groups are identified within the analysis. The result is a series of maps that identify high-use areas in Prince William Sound during late winter, often observed in bays, passages, and semi-protected waters. Contractors will share a brief presentation with the Board summarizing the report’s results and recommendations, and will be available to answer questions.

2. **Why is this item important to PWSRCAC:**

The Oil Pollution Act of 1990 tasks the Council with monitoring “the environmental impacts of the operation of the terminal facilities and crude oil tankers” as well as “identifying highly sensitive areas which may require specific protective measures in the event of a spill in Prince William Sound.” The PWSRCAC funded three years of winter marine bird surveys used in this hotspot analysis (2021-2023) toward meeting these directives. A fourth year of surveys was supported in 2024, but was cancelled due to mechanical issues on board the research vessel. The timing and location of these surveys is valuable because they add depth to our understanding of bird populations, risks posed to birds from an oil spill, and where special monitoring or protection is needed. Additionally, these surveys provide baseline monitoring information that can be used to understand the environmental impacts of terminal and tanker operations on marine bird species. The hotspot analysis combines years of data to assess high-use locations that will be useful for future monitoring and response in the event of an oil spill. The results of the surveys will be made publicly available through the Alaska Ocean Observing System and NOAA’s Environmental Response Management Application.

3. **Previous actions taken by the Board on this item:**

<u>Meeting</u>	<u>Date</u>	<u>Action</u>
Board	9/17/20	Authorized a contract with the Prince William Sound Science Center to conduct project 9110 - Marine Winter Bird Survey at an amount not to exceed \$39,000.
XCOM	8/12/21	Approved a sole source contract with the Prince William Sound Science Center to conduct Project 9110 - Prince William Sound Marine Winter Bird Survey at an amount not to exceed \$40,400.
Board	9/16/21	Accepted the report titled “Marine Winter Bird Surveys in Prince William Sound: by Prince William Sound Science Center,” dated July 19, 2021.

## Report Acceptance: Marine Bird Hotspots in PWS 4-1

Board	9/22/22	Accepted the report titled "Marine Winter Bird Surveys in Prince William Sound" by Prince William Sound Science Center, dated August 5, 2022.
XCOM	11/10/22	Approved a sole source contract with the Prince William Sound Science Center to conduct Project 9110 – Prince William Sound Marine Bird Winter Surveys at an amount not to exceed \$41,700.
Board	9/21/2023	Accepted the report titled "Marine Bird Winter Surveys in Prince William Sound" by the Prince William Sound Science Center, dated June 26, 2023, and authorized a sole source contract with the Prince William Sound Science Center to conduct project 9110 - Marine Bird Winter Surveys in 2024 in an amount not to exceed \$65,138.
Board	5/2/24	Authorized a sole source contract with the Prince William Sound Science Center to conduct project 9110 – PWS Marine Bird and Mammal Winter Surveys in 2024 in an amount not to exceed \$78,928.

4. **Summary of policy, issues, support, or opposition:** None known.
5. **Committee Recommendation:** The Scientific Advisory Committee recommended the Board of Directors accept this report at its meeting on July 16, 2024.
6. **Relationship to LRP and Budget:** Work associated with this project was included in the FY2024 budget under contract 9110.24.01 in an amount not to exceed \$39,420.
7. **Action Requested of the Board of Directors:** Accept "Marine Bird Hotspots in Prince William Sound" by Mary Anne Bishop and Anne Scheafer of the Prince William Sound Science Center, dated July 2024, as meeting the terms and conditions of contract number 9110.24.01, and for distribution to the public.
8. **Alternatives:** None.
9. **Attachments:** Draft report titled "Marine Bird Hotspots in Prince William Sound" by Mary Anne Bishop and Anne Scheafer of the Prince William Sound Science Center, dated July 2024.

**Marine Bird Hotspots in Prince William Sound**

July 2024

**MA Bishop and A Schaefer**

*Prince William Sound Science Center, PO Box 705, Cordova, AK*

*Contract 9110.24.01*

The opinions expressed in this Prince William Sound Regional Citizens' Advisory Council  
commissioned report are not necessarily those of the Council.

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## **Acronym List**

C: Centigrade

ERMA: Environmental Response Management Application, NOAA

ESI: Environmental Sensitivity Index, NOAA

EVOS: Exxon Valdez oil spill

EVOSTC: *Exxon Valdez* Oil Spill Trustee Council

GOA: Gulf of Alaska

GPS: Global positioning system

GWA: Gulf Watch Alaska, a survey program funded by EVOSTC

km: Kilometers

m: Meters

s: Seconds

NOAA: National Oceanic and Atmospheric Administration

PWS: Prince William Sound

PWSRCAC: Prince William Sound Regional Citizens' Advisory Council

PWSSC: Prince William Sound Science Center

USFWS: U.S. Fish and Wildlife Service

## **Executive Summary**

Of the marine birds that overwinter in Prince William Sound (PWS), Alaska, nine species and one species group were initially injured by the 1989 Exxon Valdez oil spill (EVOS; *Exxon Valdez Oil Spill Trustee Council*, 2014). This Prince William Sound Regional Citizens' Advisory Council (PWSRCAC) commissioned study, now in its fourth year, conducted marine bird and marine mammal surveys in under-surveyed areas in and around the PWS tanker escort zone during March 2021-2023. These annual surveys were designed to complement the *Exxon Valdez Oil Spill Trustee Council* (EVOSTC) funded Gulf Watch Alaska marine bird surveys in PWS conducted from 2007-2022 by the PWS Science Center.

For this report, we analyzed 14 years of PWS at-sea marine bird survey data collected during the month of March from 2007-2014, and 2018-2023. We conducted a hot spot analysis for each of 12 marine bird species groups to identify where high-use areas occur in PWS during late winter. Marine birds were observed in 95.2% of all 5 km x 5 km survey cells. Among the 12 marine bird species groups analyzed, large-gulls and murres were recorded most often (65% and 64% of 5 km x 5 km cells, respectively) followed by cormorants (57%) and murrelets (53%).

Highest densities of marine birds were observed in PWS bays, passages, and on a larger scale, in the semi-protected waters and bays around northeast PWS (Port Fidalgo to Simpson Bay) and northern Montague Island (Zaikof Bay to Green Island). These semi-protected and protected habitats provide a refuge from both winter storms and the harsher conditions of the Gulf of Alaska. Northeast PWS and northern Montague Island are also important habitats for Pacific herring and pollock, both critical forage species for piscivorous marine birds.

In areas associated with the tanker escort zone, Port Valdez was an important habitat for grebes, cormorants, inshore ducks, mergansers, and murrelets, while Valdez Arm was an important habitat for kittiwakes only. The tanker anchorage in northeast PWS was an important habitat for loons, cormorants, scoters, large gulls, kittiwakes, murrelets, and guillemots. At Hinchinbrook Entrance, the bays and waters between Montague Island and Hinchinbrook Island were important habitats for all species groups except inshore ducks and mergansers.

We found areas of repeated high marine bird density that may warrant prioritized protection in the event of anthropogenic disturbance, such as an oil spill. The primary areas for protection include Hinchinbrook Entrance (Port Etches, Zaikof Bay, Rocky Bay, and outer coastlines), and the head of Port Valdez between the Valdez Container Terminal and the outflow of Lowe River. Additional areas meriting heightened protection include from the mouth of Port Fidalgo to the mouth of Port Gravina, an area that includes the tanker anchorage and the Southwest Passages. Our hot-spot analyses are important for understanding marine bird vulnerability to environmental change and anthropogenic disturbance, and could be used to update oil spill response planning tools and refine response efforts during late winter.



## **Introduction**

In Alaska, and specifically Prince William Sound (PWS), most studies on marine birds are conducted during the breeding season when marine birds congregate at or near colonies to nest and forage. However, breeding season dynamics are not representative of the community composition or spatial distribution during the winter. The nonbreeding season (September through March) is a critical period of survival for marine birds overwintering at higher latitudes as food tends to be relatively scarce or inaccessible, the climate more extreme, light levels and day-length reduced, and water temperatures cooler.

Between 2007-2021, personnel from the PWS Science Center (PWSSC) conducted marine bird surveys in PWS during the nonbreeding season as part of the *Exxon Valdez* Oil Spill Trustee Council (EVOSTC) Herring Research and Monitoring Program and the Gulf Watch Alaska (GWA) Program. During 12 years, at-sea surveys were conducted during late winter (March). Beginning in March 2021, we added survey transects in and around the Alyeska Pipeline Service Company's Valdez Marine Terminal and the associated tanker escort zone as part of an agreement with the Prince William Sound Regional Citizen Advisory Council (PWSRCAC; Table 1).

Prior to the March 2021 surveys, marine bird distribution and density around much of the tanker lane, Valdez Arm, and Port Valdez were largely unknown. Between 1990 and 2010, the U.S. Fish and Wildlife Service (USFWS) conducted marine bird surveys throughout PWS during March (n = 11 surveys). While portions of their surveys included the tanker lane, in particular Valdez Arm and Port Valdez had few to no survey transects (Cushing et al. 2012).

We recently investigated the physical and biological variables driving habitat use by marine birds in PWS by modeling marine bird abundance data from 15 nonbreeding seasons (2007/08 – 2021/22; Schaefer and Bishop 2023a). We used a Poisson hurdle model (Arab 2015) to relate marine bird distribution to one temporal and six physical variables. Our temporal variable, season, was divided into four categories to cover the 7-month nonbreeding season: September–October, November–December, January–February, and March. The six physical variables included 1) habitat type (bay, mouth of bay or passage, passage <3 km wide, and open water); 2) wave exposure (exposed, semi-protected, and protected to very protected); 3) distance from shore; 4) bottom depth; 5) slope (angle) of the seafloor; and 6) sea surface temperature.

Our results demonstrated consistent seasonal differences in the abundance for all 11 species groups examined, indicating movements into and out of PWS over the course of the nonbreeding season. For most species groups the key environmental covariates identified included water depth, distance from shore, and habitat type. When significant, species groups were generally more likely to be present and in greater numbers closer to shore and in shallower water. Grebes, mergansers, small gulls, and murrelets were less likely to be present in open water habitats. In contrast, cormorants were more likely to be

present in mouths of bays and passages and open water habitats. Murres were more likely to occur in open water habitats compared to bays and scoters were more likely to be found in mouths of bays and passages (Stocking et al. 2018; Schaefer and Bishop 2023a).

For this report, we have focused on our March at-sea survey data from 2007 onward and conducted a hot spot analysis to identify where high-use marine bird areas occur in PWS in late winter. We prepared a series of PWS maps that depict the consistency and the intensity of use (density) by species groups. In addition, our report provides recommendations for prioritizing oil spill response efforts in and around the tanker escort lane and other key areas in PWS.

## **Methods**

### *Study area*

PWS is located on the coast of southcentral Alaska, primarily between 60° and 61°N (Figure 1). The Sound is separated from the adjacent Gulf of Alaska (GOA) by large mountainous islands, providing extensive ice-free coastal habitat for wintering birds. The ~5600 km of coastline is rugged and extensive, with many islands, fjords, and bays. Water depths in fjords and bays range from <50 m to >400 m. Outside of the bays and fjords are many basins and passages of varying depths up to 700 m (Figure 2). Severe storms are common from October through March (Wilson and Overland 1986). Sea-surface temperatures decrease across winter and by March can be as low as 1°C causing some bays and fjords to be blocked by ice (Gay and Vaughn 2001).

### *Data collection and analyses*

We conducted at-sea marine bird surveys during daylight hours following established USFWS protocols (USFWS 2007). As part of the EVOSTC Herring Research and Monitoring Program and the GWA Program, we placed observers on vessels (15 – 18 m length) chartered to conduct multi-year Pacific herring (*Clupea pallasii*) surveys (n = 8), walleye pollock (*Gadus chalcogrammus*) surveys (n = 1), and humpback whale (*Megaptera novaeangliae*) surveys (n = 1; Table 1). From 2019-2022, additional EVOSTC funding was secured to charter the PWSSC's research vessel, the MV New Wave (12 m length) specifically for marine bird surveys. This dedicated funding allowed us to designate a series of permanent marine bird transects in bays, open water, and nearshore areas. Beginning in 2021, with funding from PWSRCAC, we designated additional permanent marine bird transects in and around the PWS tanker zone (Table 1).

For all surveys, the vessel traveled at a constant speed between 3 and 10 knots with observations taking place in the vessel's wheelhouse or, in the case of the MV New Wave, from an elevated platform ~2.5 m above the water line. An experienced observer using 10x binoculars continuously identified and recorded all marine birds sighted within a 180° arc extending 150 m forward and to either side of the vessel (for more detail on survey

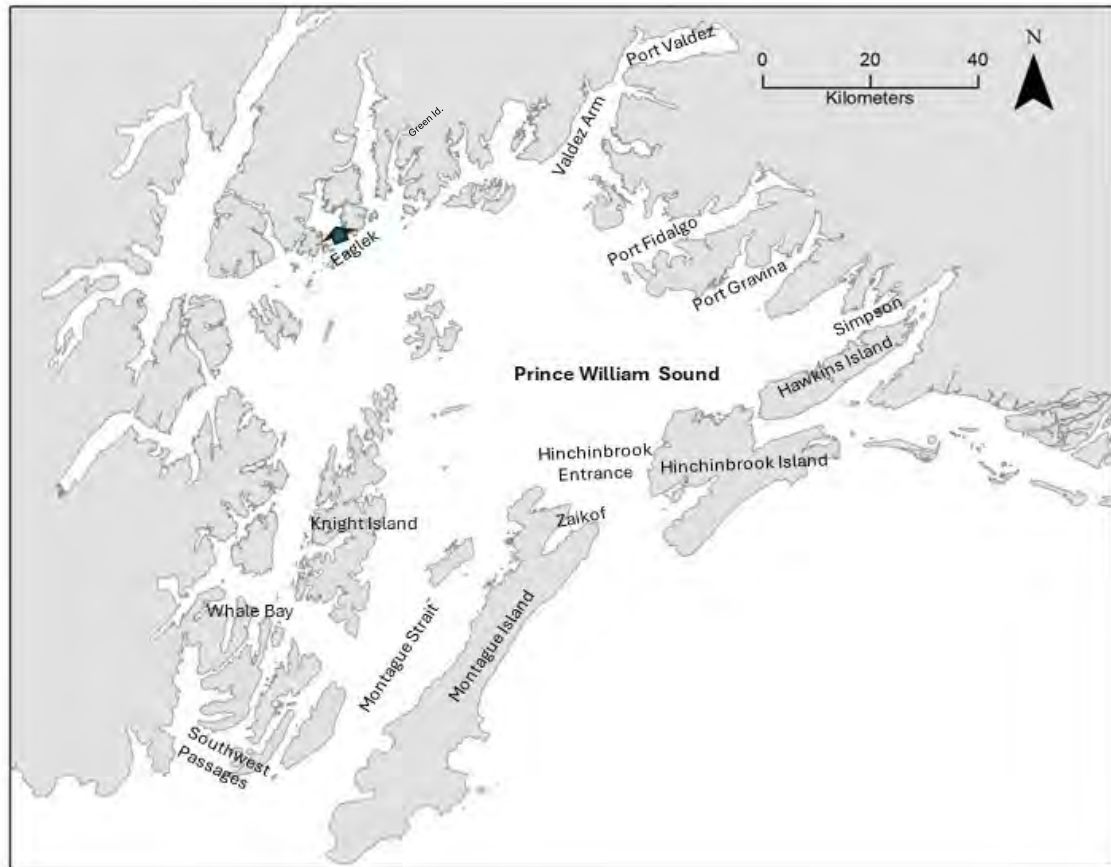


Figure 1. PWS including major bays surveyed during March.

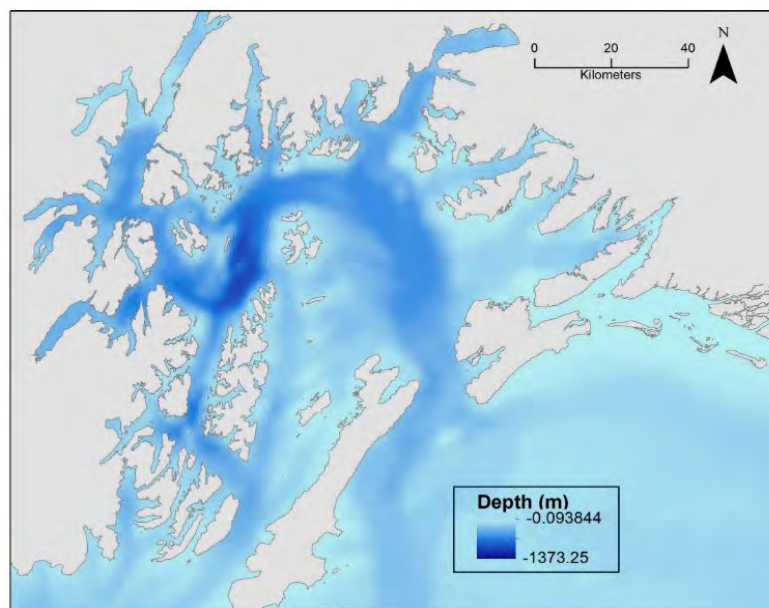


Figure 2. Water depths in PWS.

Table 1. Dates and years (n = 14) of PWS seabird surveys, March 2007-2023.

Year	Survey	Dates	
		Start	End
2007	EVOSTC-Herring	18-Mar	24-Mar
2008	EVOSTC-Herring	16-Mar	23-Mar
2009	EVOSTC-Humpback Whale	2-Mar	6-Mar
	EVOSTC-Herring	17-Mar	24-Mar
2010	EVOSTC-Herring	16-Mar	21-Mar
2011	EVOSTC-Herring	7-Mar	16-Mar
2012	EVOSTC-Herring	15-Mar	21-Mar
2013	EVOSTC-Herring	27-Mar	3-Apr
2014	EVOSTC-Herring	14-Mar	16-Mar
2015-2017		No Mar surveys	
2018	EVOSTC-Pollock	10-Mar	15-Mar
2019	EVOSTC-Seabirds	4-Mar	7-Mar
2020	EVOSTC-Seabirds	27-Feb	3-Mar
2021	RCAC/EVOSTC Seabirds	1-Mar	16-Mar
2022	RCAC/EVOSTC Seabirds	6-Mar	11-Mar
2023	RCAC/EVOSTC Seabirds	2-Mar	7-Mar

techniques, see Dawson et al. 2015). This radius was selected to minimize variance in detectability for smaller birds (Hyrenbach et al. 2007). To the same end, surveys were not conducted when wave height exceeded 1 m (Beaufort sea state >3). Flying individuals were recorded when first sighted and ignored thereafter to minimize effects of vessel attraction (Tasker et al. 1984). We assumed the probability of detection was close to or equal to 1 and that any biases that did occur would be consistent across cruises and locations (Dawson et al. 2015).

We recorded observations of marine birds and environmental conditions into a laptop computer integrated with a global position system (GPS) using either dLOG software (2007-2021 surveys; R.G. Ford Consulting, Portland OR) or SeaLog software (2022 onward; ABR, Inc.). Location data (latitude, longitude) was automatically recorded every 15-20 s and with each observer entry. Additionally, the observer tracked the sea state and weather conditions on-site. We processed the data using the program QA/QSea (ABR, Inc.), dividing each survey trackline into ~3 km segments. We then aggregated the corresponding observations, grouping taxonomically similar species into 12 focal species groups (Table 2). We performed all spatial data extraction and summarization using ArcMap 10.8.1 (ESRI, 2020).

We conducted a hot spot analysis to identify high use marine bird areas in PWS during March. Following the methods used in Pegau (2022), we used GIS software to overlay a 5km x 5km grid over PWS. We compiled all PWSSC marine bird survey data for March (2007-2014, 2018-2023) and assembled the data into two categories: 1) individual focal species groups; and 2) all marine birds (all 12 focal species groups combined).

For each focal species group and for all marine birds we developed two map products. First, we summarized the number of years the defined group was observed within each 5 km x 5 km grid cell corrected by effort (the number of years that grid cell was surveyed) to examine if use of that area was consistent or sporadic over time. Next, we determined the mean bird density (birds/km<sup>2</sup>) within each grid cell for all marine birds and for each focal species group. Density breaks were defined based on the Jenks Natural Breaks algorithm (deSmith et al 2021). With this method, classifications are based on natural groupings present in the data, grouping similar values together and maximizing differences between classes. Each density map had six density categories ranked in order of magnitude. Relative to the specific species group, we refer to these density categories throughout the report as 1) zero, 2) low, 3) near-mid, 4) mid, 5) near-high, and 6) high.

## **Results & Discussion**

Between 2007 and 2023, we conducted 15 marine bird surveys during March (Table 1). Across the 5 km x 5 km cells with surveys (n = 249 cells), the majority (53%) were surveyed 1-2 times, while 25% of the cells were surveyed between 5-13 times (Figure 3). In particular, bays that were part of the EVOSTC Herring Research and Monitoring and GWA study areas (Simpson Bay, Port Gravina, Port Fidalgo, Zaikof Bay, Eaglek Bay, and Whale Bay; see Figure 1) each included areas that were surveyed 9-13 times. In all we recorded birds in 95.2% of all cells (237/249 cells; Figure 3).

Among the 12 species groups, large-gulls and murrelets were observed most often in our 5 km x 5 km survey cells (65% and 64% of cells, respectively), followed by cormorants (57%), murrelets (53%), small gulls (46%), and kittiwakes (45%). Of the remaining six species groups, the percentage of survey cells with observations ranged from a low of 19% (inshore ducks) to 34% (loons; Table 2).

Combining all marine bird species groups (Figure 4), the highest mean densities were concentrated primarily in protected waters including the major survey bays in northeast PWS, the Southwest Passages, and northern Montague Island, including both Zaikof Bay and the semi-protected, open waters near Green Island (Figure 1). Of these areas, both northeast PWS and northern Montague Island were also the most important herring spawning areas during our survey years (McGowan et al. 2021, Alaska Department of Fish and Game Prince William Sound Herring Interactive Map <https://experience.arcgis.com/experience/53d54699cbf54e72aa1a4daf405076b7?org=adfg>).

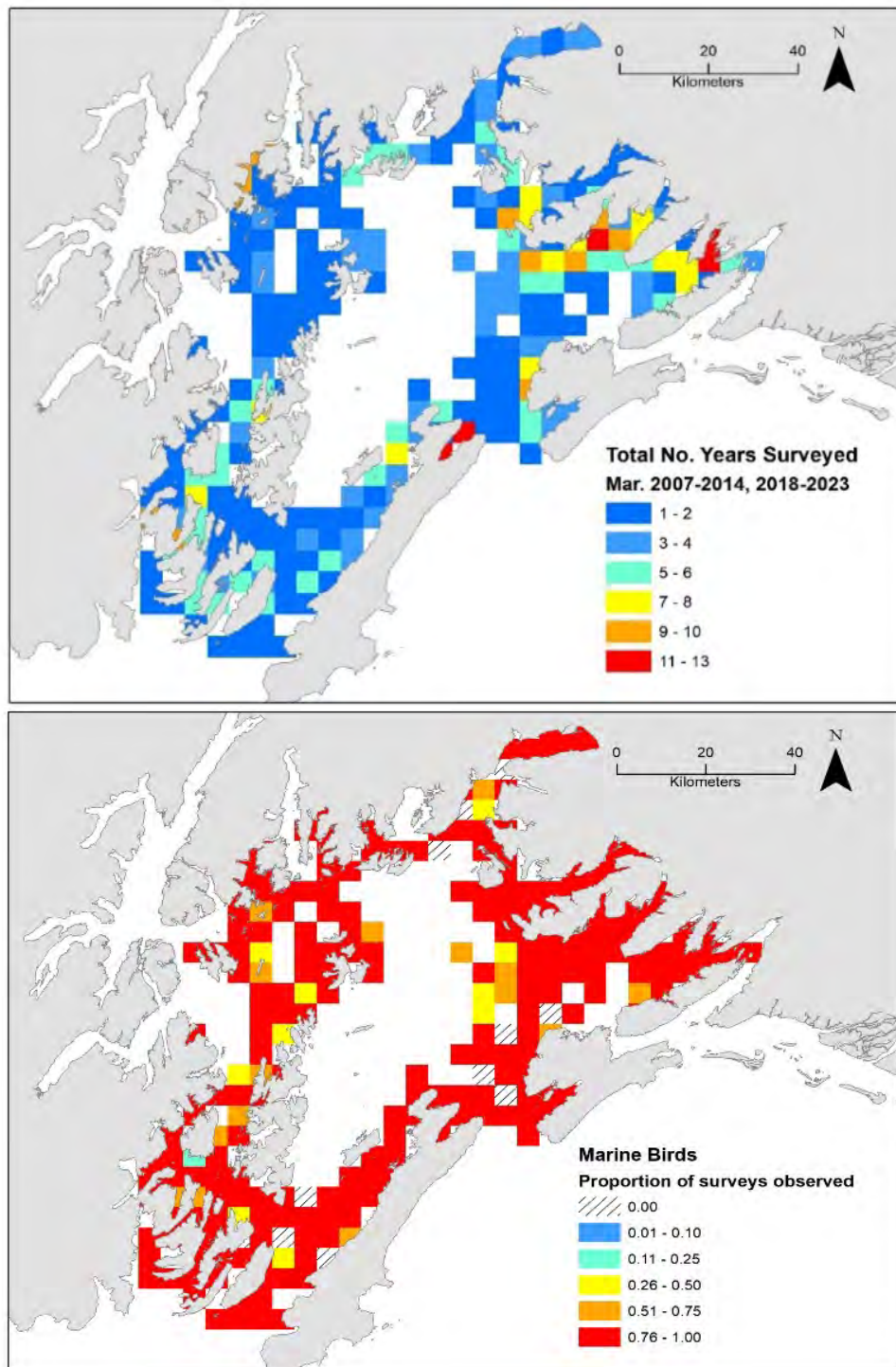


Figure 3. Allocation of March survey effort shown in 5 km x 5 km grid cells (top). Of total surveys conducted in a grid cell, proportion of those surveys that recorded marine birds (bottom).

Table 2. Number and percent of 5 km x 5 km grid cells (n = 249 cells) where a species group was recorded and for each species the percent (%) of total species group observed during marine bird surveys. PWS, March 2007-2014, 2018-2023.

Species group	Grid cells n (%)	Common name	Scientific name	Species %
Loons	84 (34%)	Pacific	<i>Gavia pacifica</i>	33.5
		Common	<i>G. immer</i>	12.7
		Yellow-billed	<i>G. adamsii</i>	2.3
		Red-throated	<i>G. stellata</i>	4.6
		Unidentified	-	46.9
Grebes	59 (24%)	Horned	<i>Podiceps auritus</i>	40.7
		Red-necked	<i>P. grisegena</i>	37.5
		Unidentified	-	21.8
Cormorants	142 (57%)	Pelagic	<i>Phalacrocorax pelagicus</i>	84.4
		Double-crested	<i>P. auritus</i>	7.1
		Unidentified	-	8.5
Scoters	79 (32%)	Surf	<i>Melanitta perspicillata</i>	60.9
		White-winged	<i>M. deglandi</i>	28.7
		Black	<i>M. americana</i>	1.5
		Unidentified	-	8.9
Inshore Ducks	48 (19%)	Barrow's Goldeneye	<i>Bucephala islandica</i>	71.4
		Bufflehead	<i>B. albeola</i>	11.2
		Common Goldeneye	<i>B. clangula</i>	5.2
		Unidentified Goldeneye	-	12.2
Mergansers	63 (25%)	Common	<i>Mergus merganser</i>	39.1
		Red-breasted	<i>M. serrator</i>	37.8
		Unidentified	-	23.1
Large Gulls	162 (65%)	Glaucous-winged	<i>Larus glaucescens</i>	98.6
		Herring	<i>L. argentatus</i>	0.6
		Glaucous	<i>L. hyperboreus</i>	0.0
		Unidentified	-	0.8
Small Gulls	115 (46%)	Short-billed	<i>L. brachyrhynchus</i>	97.6
		Bonaparte's	<i>L. philadelphia</i>	0.1
		Unidentified	-	2.3
Kittiwakes	111 (45%)	Black-legged	<i>Rissa tridactyla</i>	100
Murrelets	160 (64%)	Common	<i>Uria aalge</i>	99.8
		Unidentified	-	0.2
Murrelets	132 (53%)	Marbled	<i>Brachyramphus marmoratus</i>	78.8
		Kittlitz's	<i>B. brevirostris</i>	0.2
		Unidentified	-	21.0
Guillemots	50 (20%)	Pigeon	<i>Cephus columba</i>	100



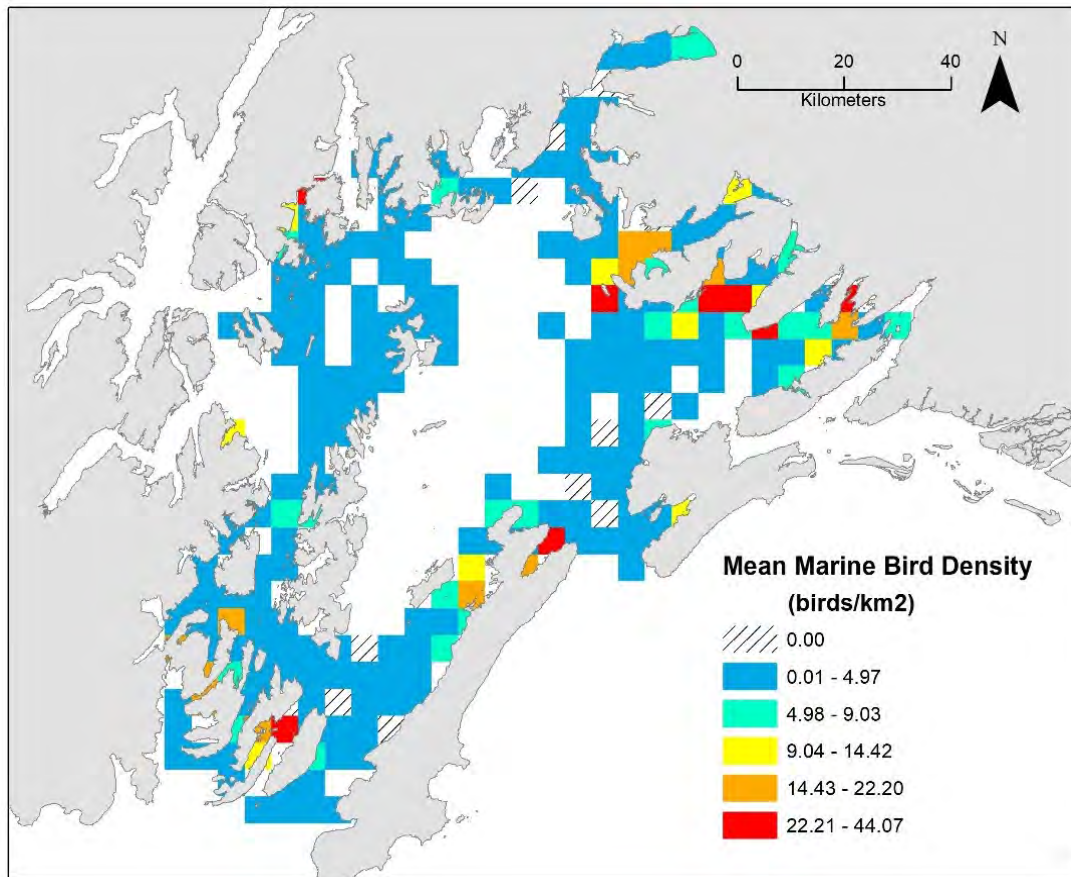


Figure 4. Mean marine bird density (birds/km<sup>2</sup>) for each 5 km x 5 km grid cell surveyed during March.

While spawning typically does not begin until early April, a portion of the PWS herring population is known to overwinter in and around their spawning grounds. In addition, herring that winter in other areas including the GOA, also begin to return to their spawning grounds during March (Bishop and Gallenberg, 2023). The presence of adult herring would tend to attract the deeper-diving piscivorous birds such as loons, cormorants, and murre, as well as large gulls that can consume adult herring driven to the surface by the diving birds.

We also calculated the number of species groups observed in each 5 km x 5 km cell. Survey bays hosted most, if not all 12 species groups, reflecting the importance of protected waters during late winter for all marine birds. In contrast, we recorded the fewest species groups in the deeper (Figure 2) and typically more open and exposed waters (Figure 5).



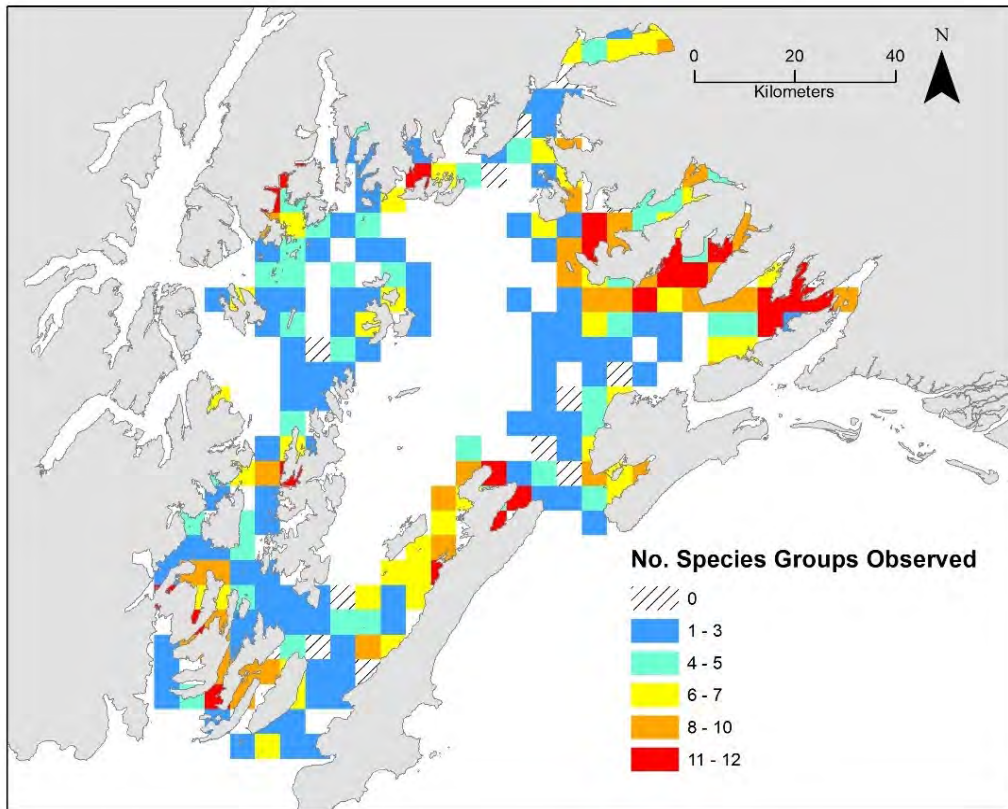


Figure 5. Number of marine bird species groups observed in each 5 km x 5 km cell during March surveys.

#### *Patterns by individual species group*

**Loons.** Pacific loon was the loon species observed most often (33.5%); however, an additional 46.9% of all loon observations were not identified to species. While loon observations were scattered throughout the Sound, mean densities were highest (2.7 - 8.0 birds/km<sup>2</sup>) in two bays: Port Fidalgo and Zaikof Bay. Two other bays, Port Gravina (adjacent to Port Fidalgo), as well as Rocky Bay (adjacent to Zaikof Bay) and the coastline of northwest Montague Island, recorded mid to near-high mean densities (Figure A-1) suggesting that these two geographic areas (Port Fidalgo/Port Gravina) and northern Montague Island are critical late-winter habitat.

**Grebes.** Horned and red-necked grebes were observed in almost equal percentages (40.7% and 37.5%, respectively). Although grebes were observed in only 24% of the grid cells (Table 2), the mean densities trended higher in the heads of bays. We recorded the highest mean densities of grebes (2.1– 2.9 birds/km<sup>2</sup>) at the head of Simpson Bay in northeast PWS. Nearby Simpson Bay, the western shoreline of Hawkins Island recorded intermediate (mid) densities suggesting that the eastern end of Orca Bay is an important wintering area (Figure A-2).

Cormorants. Cormorant observations were dominated (>84%) by pelagic cormorants. Cormorants were widespread, occurring in 57% of the 5 km x 5 km cells (Table 2). While lower densities occurred in more open, exposed waters, the highest densities ( $x = 4.1 - 9.3$  birds/km<sup>2</sup>) were recorded in northeast PWS (Port Fidalgo and the western shore of Hawkins Island) and in Elrington Passage (a Southwest Passage; Figure A-3). The area from Port Fidalgo east to and including Hawkins Island is an important herring spawn area, and cormorants may be targeting overwintering and returning herring.

Scoters. Surf and white-winged scoters were observed in <1/3 of the 5 km x 5 km cells, with surf scoters the dominant species of the two species observed (60.9% vs 28.7%, respectively; Table 2). Highest mean scoter densities (7.7 - 13.9 birds/km<sup>2</sup>) occurred in one of the Southwest Passages (Bainbridge). Scattered locations near the Southwest Passages, along the western Montague Island coastline, and in northeast PWS (Port Fidalgo and Port Gravina) also held near-high mean densities (4.3 - 7.7 birds/km<sup>2</sup>).

Inshore ducks. Barrow's goldeneyes accounted for 71.4% of the inshore ducks observed. Inshore ducks were highly scattered and were logged in <20% of all 5 km x 5 km grid cells (Table 2). Observations of inshore ducks were recorded almost exclusively in bays and the Southwest Passages. The highest mean densities (4.5 - 9.5 birds/km<sup>2</sup>) occurred in Port Gravina and in the southwest Sound, including around Whale Bay and the Southwest Passages (Figure A-5).

Mergansers. Merganser observations were comprised almost equally of common mergansers (39.1%) and red-breasted mergansers (37.8; Table 2). Similar to the other waterfowl species, mergansers were highly scattered and recorded in only 25% of all 5 km x 5 km cells (Table 2). Higher densities occurred at the heads of survey bays, with the highest mean densities (2.9 - 10.1 birds/km<sup>2</sup>) recorded at the head of Eaglek Bay (Figure A-6).

Large gulls. Dominated by glaucous-winged gulls (98.6% of observations), the large gull species group was observed widespread throughout the Sound and was logged in 65% of the 5 km x 5 km grid cells (Table 2). The highest mean densities (2.6 - 5.7 birds/km<sup>2</sup>) occurred in northeast PWS, around Port Fidalgo and Port Gravina, and in Port Etches, a large bay located on southwest Hinchinbrook Island, adjacent to Hinchinbrook Entrance. Near-high mean densities (1.3 - 2.6 birds/km<sup>2</sup>) were recorded in Simpson and Zaikof Bays, and along the coastline of northern Montague Island. Large gulls regularly consume both adult herring and herring spawn (Bishop and Green 2001, Bishop et al. 2013). Herring have spawned in recent years in all the areas with high and near-high mean large gull densities suggesting the gulls are targeting this forage fish.

Small gulls. Small gulls were recorded in 46% of the 5 km x 5 km grid cells and were overwhelmingly (97.6%) short-billed gulls (Table 2). The highest mean densities recorded (2.3 - 3.9 birds/km<sup>2</sup>) occurred in northeast PWS at the north end of Orca Inlet. Near-high

mean densities were recorded at the heads of Simpson Bay, Eaglek Bay, and around the Southwest Passages (Figure A-8).

Kittiwakes. Kittiwake observations were all black-legged kittiwakes and were recorded in 45% of the 5 km x 5 km grid cells (Table 2). Densities were among the lowest for all species groups, with highest mean densities recorded ranging from 1.3 – 2.2 birds/km<sup>2</sup> (Figure A-9). These low, maximum densities recorded are likely due to seasonal movement patterns. Our EVOSTC nonbreeding surveys determined kittiwakes are more likely to be present in PWS during fall (September-October; Stocking et al. 2018; Schaefer and Bishop 2023a). By early winter most kittiwakes have departed for offshore wintering habitats and do not begin to return until March (McKnight et al. 2011). As a result, March numbers of kittiwakes tend to fluctuate and are related to variability in the timing of their return from their offshore wintering grounds (Schaefer and Bishop 2023b).

Murres. Murres were almost exclusively common murres (99.8%, Table 2) and after large gulls were the species group observed most often in the 5 km x 5 km cells (n = 64% of all cells; Table 2). Despite their widespread distribution, highest mean densities were recorded only in the Southwest Passages (21.4 – 40.6 birds/km<sup>2</sup>), although near-high mean densities (10.8 – 21.3 birds/km<sup>2</sup>; Figure A-12) were recorded around northern Montague Island, a herring spawning area, and around Port Gravina, an adult herring overwintering and spawning area.

Murrelets. Murrelets were recorded in 53% of the 5 km x 5 km grid cells, with marbled murrelets comprising most murrelet observations (Table 2). Highest mean densities (4.1 – 6.0) were located primarily at the heads of bays in eastern PWS. Near-high mean densities (2.4 – 4.1 birds/km<sup>2</sup>) were recorded often at the mouths of and inside bays (Figure A-11).

Guillemots. Pigeon guillemot sightings were highly scattered and occurred in only 20% of the 5 km x 5 km grid cells (Table 2). This species was also observed in the lowest densities of any species group. The highest mean densities recorded were 0.6 – 0.9 birds/km<sup>2</sup> and occurred in Zaikof Bay (Figure A-12).

#### *Densities in and around the tanker escort lane*

We summarized densities by species group in Port Valdez, Valdez Arm, in and around the tanker anchorage at Knowles Head (between Ports Fidalgo and Gravina), and at Hinchinbrook Entrance – including the bays on both sides of the initial entrance from the GOA (Zaikof and Rocky bays at Montague Island, and Port Etches and Constantine Harbor at Hinchinbrook Island; Table 3, Figure 6). If an area included a mid, near-high, and/or high-density grid cells, we considered it as important habitat.

Table 3. Summary of density categories by species group and area. Areas include: Port Valdez, Valdez Arm, around the tanker anchorage at Knowles Head (between Ports Fidalgo and Gravina), and Hinchinbrook Entrance (including adjacent bays on both sides of Montague Island and Hinchinbrook Island).

Species Group	Port Valdez	Valdez Arm	Tanker Anchorage	Hinchinbrook Entrance
Loons	Zero	Low	Low to Near-High	Low to High
Grebes	Low to Mid	Low	Zero	Low to Mid
Cormorants	Low to Mid	Low to Near-Mid	Low to High	Low to Mid
Scoters	Low	Low to Near-Mid	Low to Near-High	Low to Mid
Inshore Ducks	Mid to Near-High	Low	Zero	Low
Mergansers	Near-High	Zero	Low	Low to Near-Mid
Large Gulls	Low	Low	Low to High	Low to High
Small Gulls	Low	Low	Low	Low to Mid
Kittiwakes	Low	Low to Near-High	Low to High	Low to High
Murres	Zero	Low	Low to Near-Mid	Low to Near-High
Murrelets	Low to Mid	Low	Low to Near-High	Low to High
Guillemots	Low	Zero	Low to Mid	Low to High

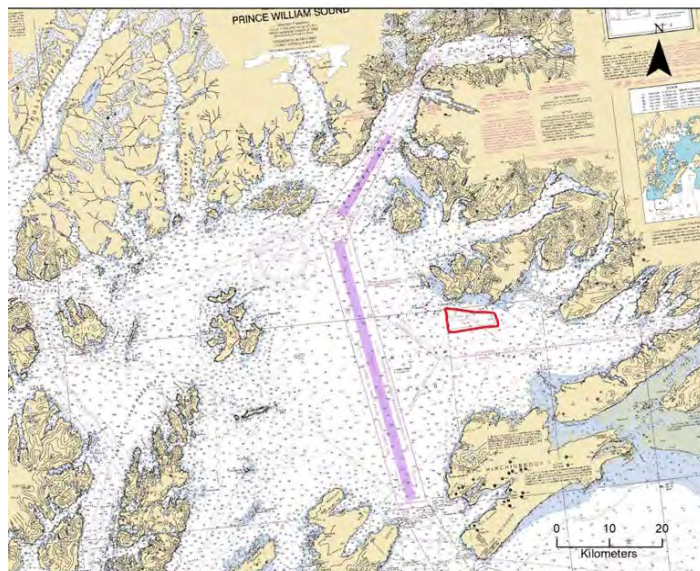


Figure 6. Map of Prince William Sound showing the oil tanker escort lane (purple) and the location of the tanker anchorage (outlined in red).

Port Valdez was an important habitat for grebes, cormorants, inshore ducks, mergansers, and murrelets, especially at the head of the bay (Table 3). The shallow and extensive mudflats at the head of Port Valdez are also important for dabbling ducks, a species group not considered in our hotspot analyses due to the limitations of our vessel to conduct surveys in shallow waters. Our 2021-2023 surveys documented large flocks of dabbling ducks such as mallards (*Anas platyrhynchos*) outside of our transects and along the northeast shoreline between the Valdez Container Terminal and Allison Creek. In contrast to Port Valdez, Valdez Arm was important for kittiwakes only. We suggest this is because the waters in Valdez Arm are highly exposed, with frequent high winds.

To the southeast of Valdez Arm, the tanker anchorage by Knowles Head, between Ports Fidalgo and Gravina (Figure 6), was one of the few areas in PWS with high mean densities for all marine birds (Figure 4). Waters around the tanker anchorage were important habitat for loons, cormorants, scoters, large gulls, kittiwakes, murrelets, and guillemots. While most of Hinchinbrook Entrance held low marine bird densities, the bays and waters between Montague Island and Hinchinbrook Island were important habitat for all groups except inshore ducks and mergansers.

## **Conclusions and Recommendations**

Our hotspot analysis presents a tool to identify multiple areas of consistently high and low marine bird densities during late winter. Our maps show that marine birds tend to prefer shallow and protected habitats that are closer to shore compared to deep offshore habitats. Lowest mean bird densities were recorded in the more exposed habitats such as Valdez Arm, as well as in waters that were farther from shore. Highest mean densities were observed in PWS bays, passages, and on a larger scale, in the semi-protected waters and bays around northeast PWS and northern Montague Island. These semi-protected and protected habitats provide a refuge from both winter storms and the harsher conditions of the GOA (Stocking et al. 2018, Schaefer and Bishop 2023).

Areas of persistent use by marine birds in PWS inform where predictable prey are located during late winter. The shallow waters of PWS bays are documented rearing grounds for juvenile Pacific herring and pollock (Lewandoski and Bishop 2018, Gray et al. 2021), both important forage species for marine birds in PWS (Bishop et al. 2015). Similarly, by late winter both northeast PWS and northern Montague Island host high densities of marine birds. These areas are important habitats not only for juvenile herring, but in particular for adult herring, a critical forage species for piscivorous divers such as loons, cormorants, and murrelets.

Our hotspot analyses also provide support for protection of four areas including: southern Hinchinbrook Entrance, northeast PWS between Ports Fidalgo and Gravina including the tanker anchorage, Port Valdez, and the Southwest Passages. Around southern Hinchinbrook Entrance, the protected bays on northern Montague Island and southwest Hinchinbrook Island adjacent to the GOA waters (Zaikof and Rocky bays, Port Etches)

included high-density areas for multiple marine bird species (Table 3). Marbled murrelets and pigeon guillemots, two species that were injured by the EVOS and whose populations have not yet recovered (EVOSTC 2014), both occurred in high densities in this area, and further emphasize the importance of these protected (i.e., not exposed) waters to sensitive marine bird species during the nonbreeding season. Hinchinbrook Entrance is particularly vulnerable to anthropogenic disturbance because it is where tankers enter and exit PWS and because of the importance of Porpoise Rocks to marine wildlife. Located at the mouth of Port Etches, Porpoise Rocks supports an important seabird colony for black-legged kittiwakes, common murre, and tufted puffins (*Fratercula cirrhata*; see North Pacific Seabird Data Portal <http://axiom.seabirds.net/maps/north-pacific-seabirds/>). In addition, Porpoise Rocks also serves as a roost-site for cormorants and as a haul-out site for endangered Steller sea lions.

Our analyses also supports protections for the waters in and around the tanker anchorage, including between the mouths of Port Fidalgo to Port Gravina. While PWSRCAC recommended in 2022, in comments to Alaska Department of the Environment, that this area not be used for distressed tankers between March and June to protect the herring population, we suggest that marine birds be included in future recommendations concerning distressed tankers. Except for inshore ducks and small gulls, we documented near-high to high densities for all marine species from the mouth of Port Fidalgo to Port Gravina.

While our hot-spot maps of marine bird densities are based on only three years of March surveys in Port Valdez and Valdez Arm, our maps justify support for the protection of the head of Port Valdez due to the high marine bird density, including large flocks of inshore ducks and other waterfowl species. Importantly, the head of Port Valdez is particularly vulnerable to disturbance because of the proximity to human infrastructure, including the Valdez Marine Terminal, harbor, and fuel dock.

The Southwest Passages also merit protection. While seemingly distant from the tanker lane, the trajectory of EVOS brought oil into the north end of the LaTouche Passage, as well as into close proximity to the outflows of the four passages (Figure 7). We recorded high mean densities for all marine bird species groups in the Southwest Passages except for loons and kittiwakes, however both of these species were recorded in high densities in the adjacent waters of southwest Montague Strait.

Finally, while our 15 years of March surveys do not include all areas that potentially may be impacted by an oil spill, nor do they capture all marine bird habitats in PWS, they do depict critical locations where marine birds would be vulnerable to future perturbations, including oil spills. Our density maps can be used to update oil spill response planning tools and to refine response efforts for PWS. Among these tools, the maps can be used to update the National Oceanic and Atmospheric Administration (NOAA) Environmental Sensitivity Index



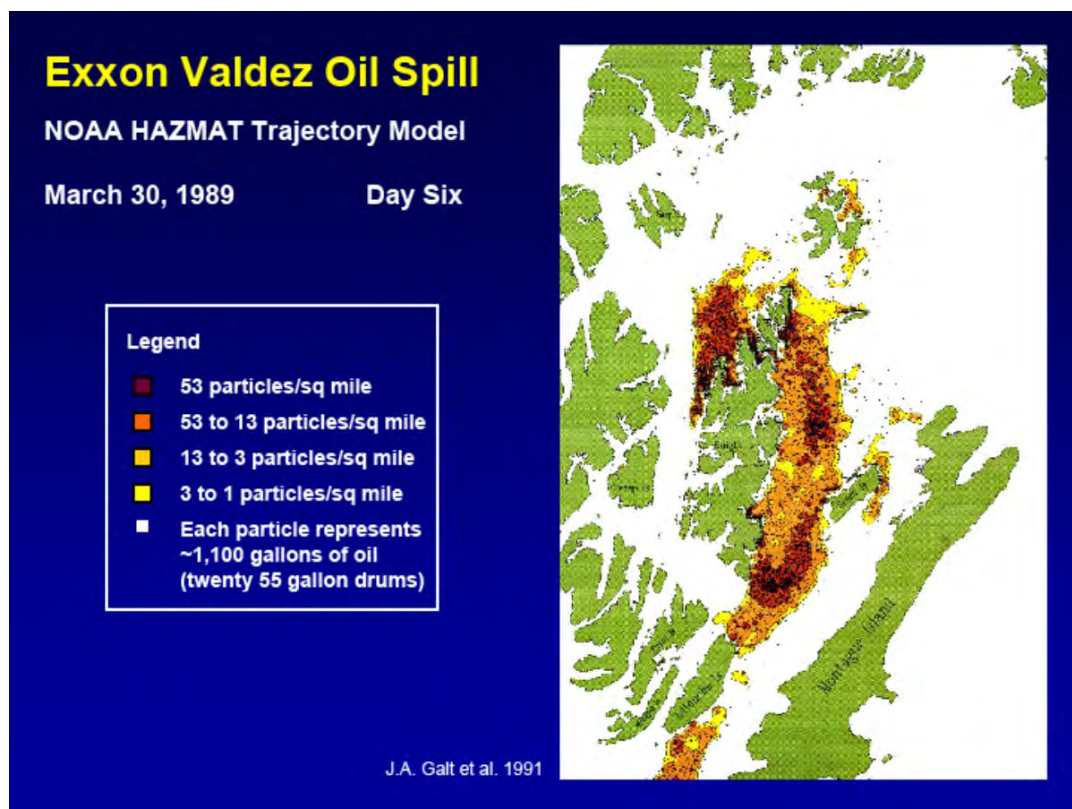


Figure 7. Location of EVOS trajectory in southwest PWS, March 30, 1989. From: <https://evostc.state.ak.us/oil-spill-facts/spill-map/>. Southwest Passages are bottom left.

(ESI) maps which are used by responders, managers, and planners to identify coastal resources at risk in the case of an oil or chemical spill, or added to the NOAA Environmental Response Management Application (ERMA), an online tool to aid in environmental response, damage assessment, and recovery/restoration.

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## Appendix

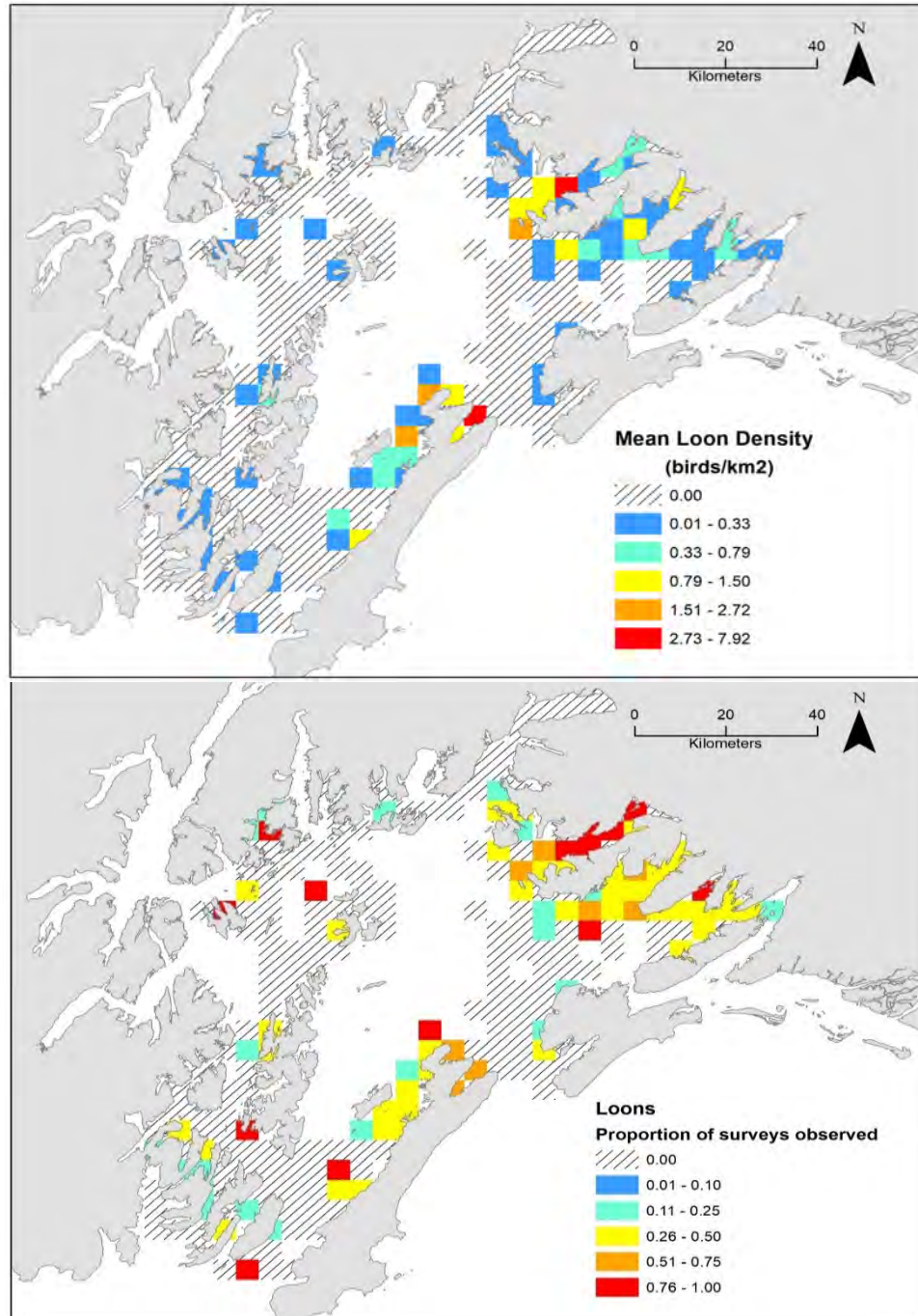


Figure A-1. Distribution of loons (common, Pacific, unidentified) during March by density (birds/km<sup>2</sup>; top) and by proportion of surveys observed (bottom) within a 5 km x 5 km cell in PWS.

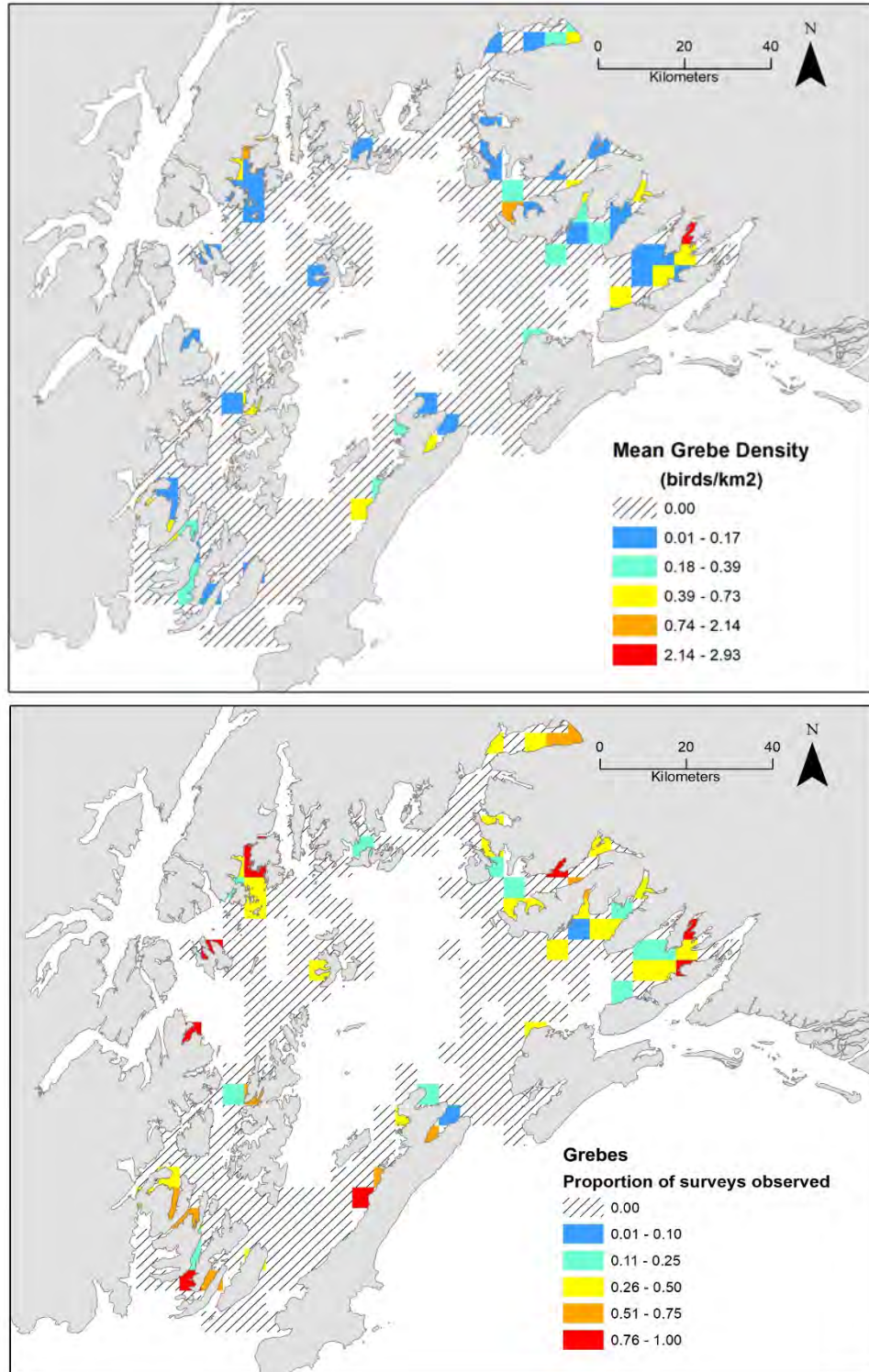


Figure A-2. Distribution of grebes (horned, red-necked, unidentified) during March by density (birds/km<sup>2</sup>; top) and by proportion of surveys observed (bottom) within a 5 km x 5 km cell in PWS.



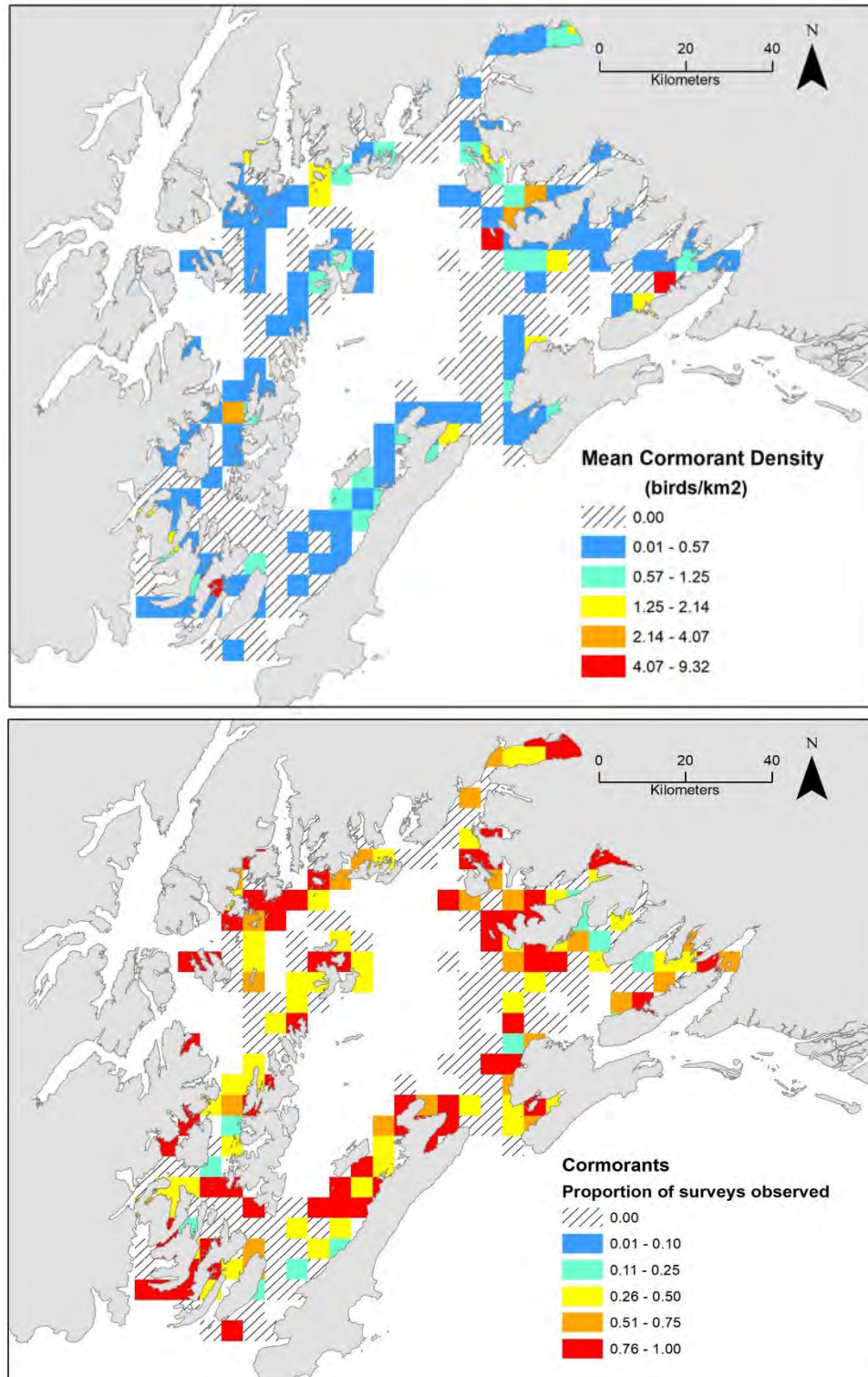


Figure A-3. Distribution of cormorants (double-crested, pelagic, unidentified) during March by density (birds/km<sup>2</sup>; top) and by proportion of surveys observed (bottom) within a 5 km x 5 km cell in PWS.

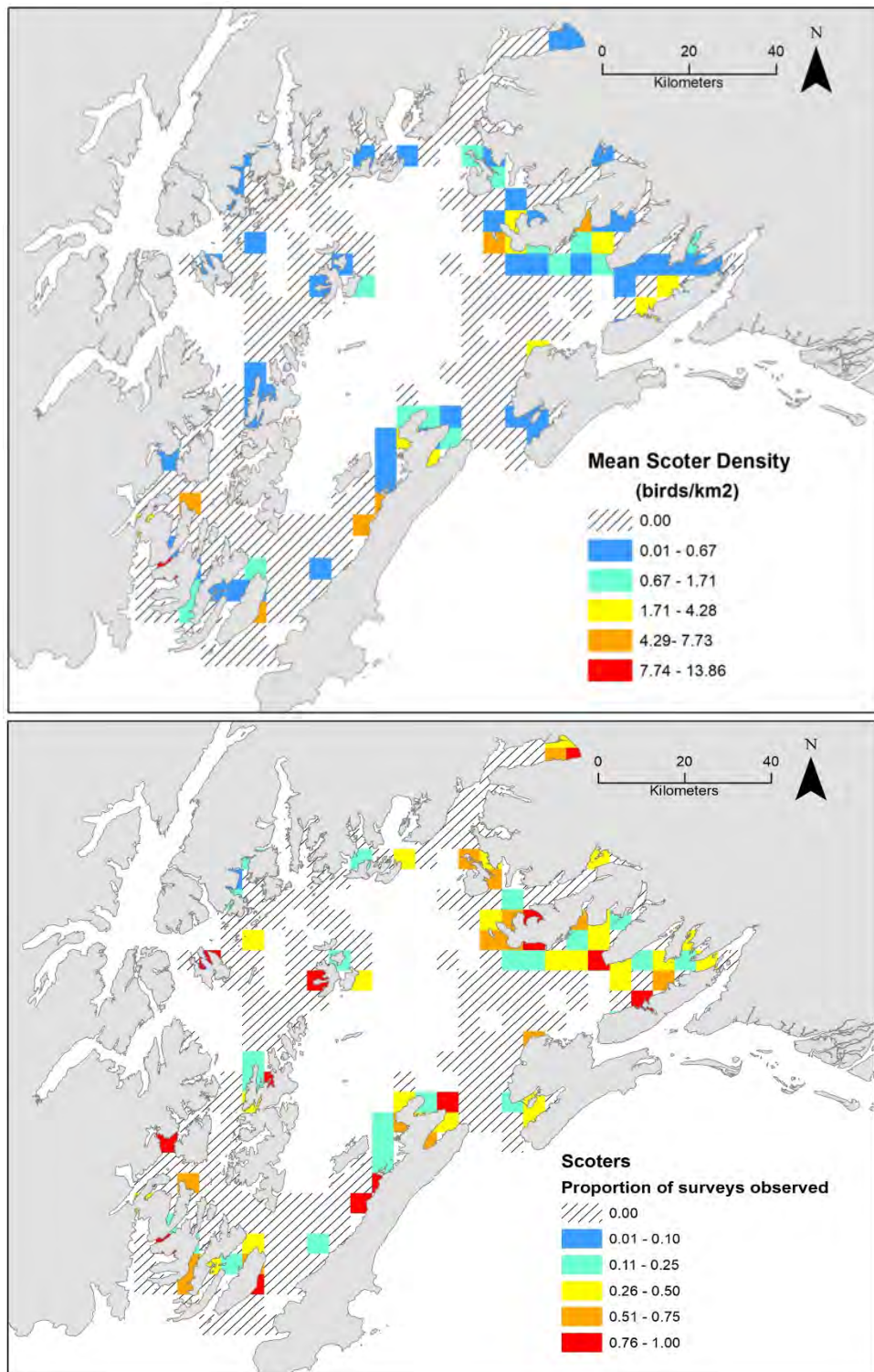


Figure A-4. Distribution of scoters (black, surf, white-winged, unidentified) during March by density (birds/km<sup>2</sup>; top) and by proportion of surveys observed (bottom) within a 5 km x 5 km cell in PWS.



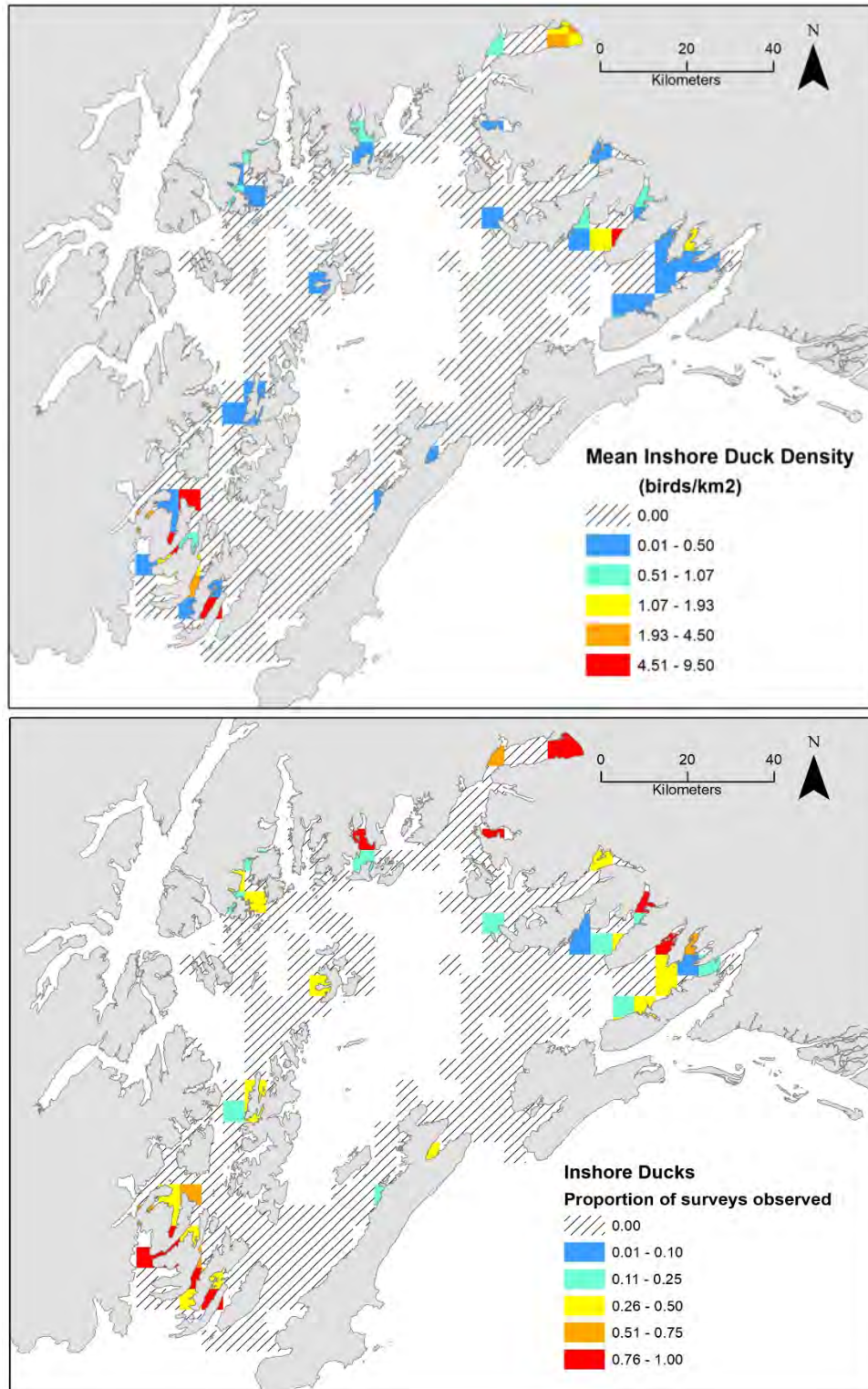


Figure A-5. Distribution of inshore ducks (Barrow's goldeneyes, common goldeneyes, unidentified goldeneyes, buffleheads) during March by density (birds/km<sup>2</sup>; top) and by proportion of surveys observed (bottom) within a 5 km x 5 km cell in PWS.

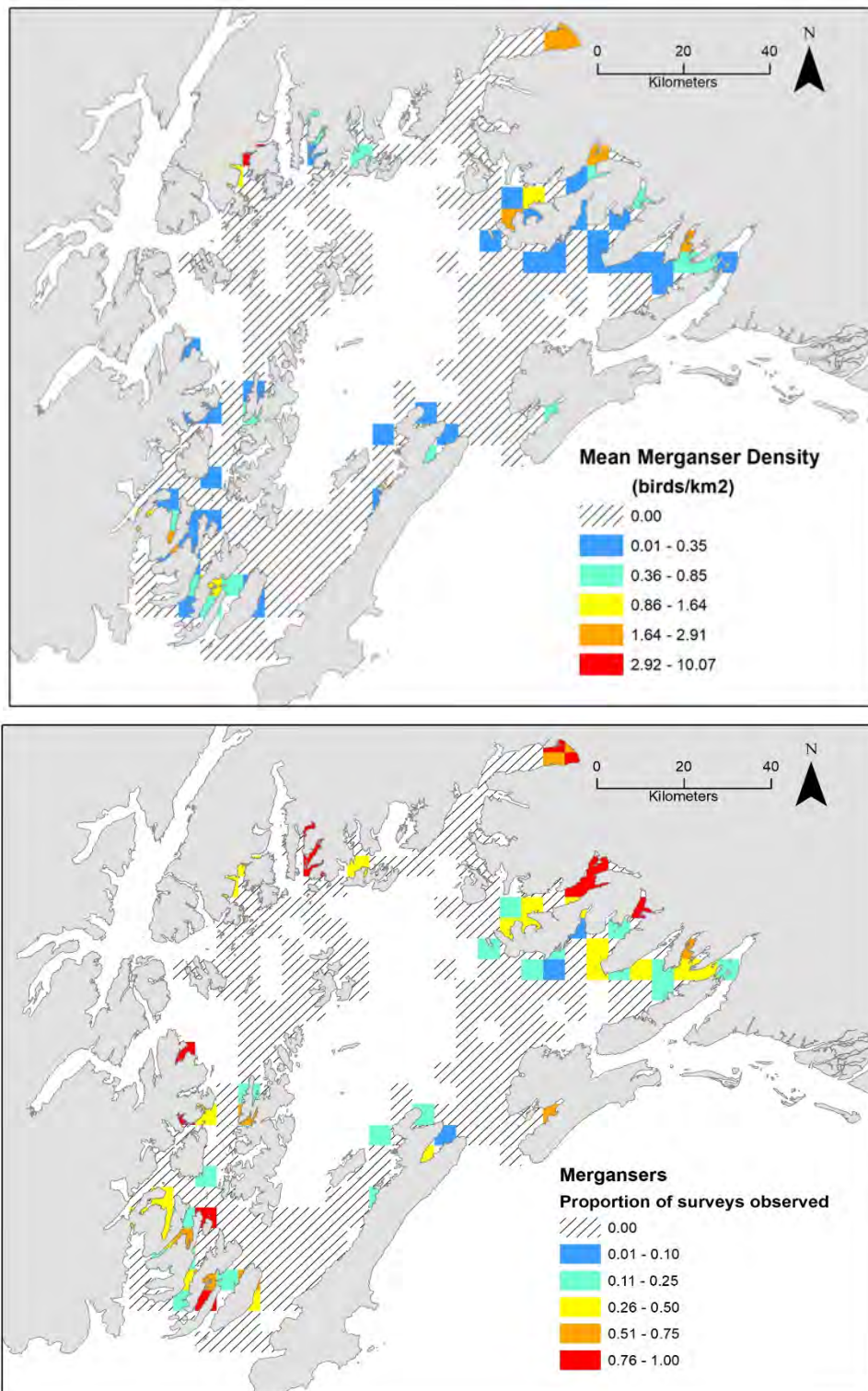


Figure A-6. Distribution of mergansers (common, red-breasted, unidentified) during March by density (birds/km<sup>2</sup>; top) and by proportion of surveys observed (bottom) within a 5 km x 5 km cell in PWS.



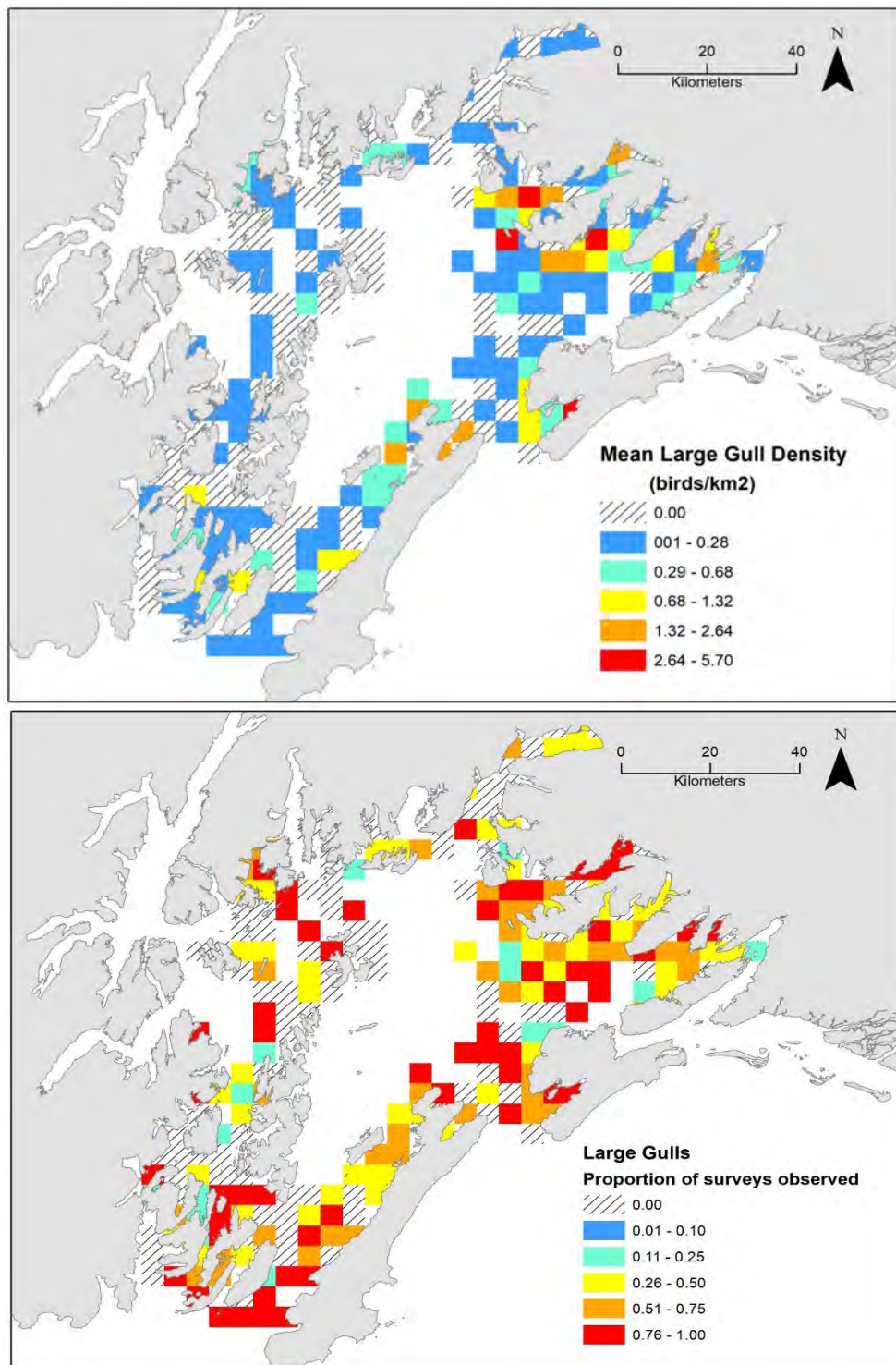


Figure A-7. Distribution of large gulls (glaucous-winged, herring, unidentified) during March by density (birds/km<sup>2</sup>; top) and by proportion of surveys observed (bottom) within a 5 km x 5 km cell in PWS.



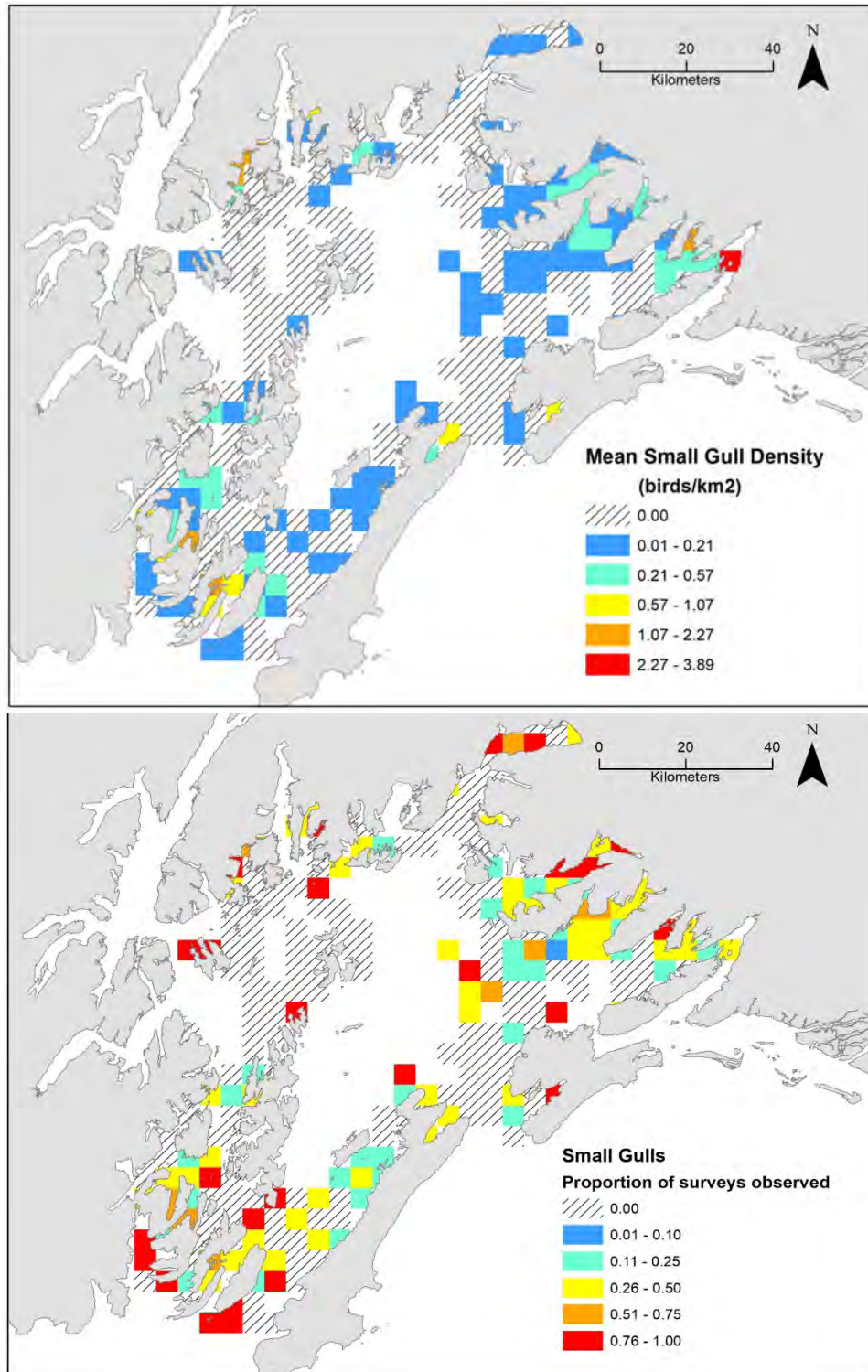


Figure A-8. Distribution of small gulls (short-billed, unidentified) during March by density (birds/km<sup>2</sup>; top) and by proportion of surveys observed (bottom) within a 5 km x 5 km cell in PWS.

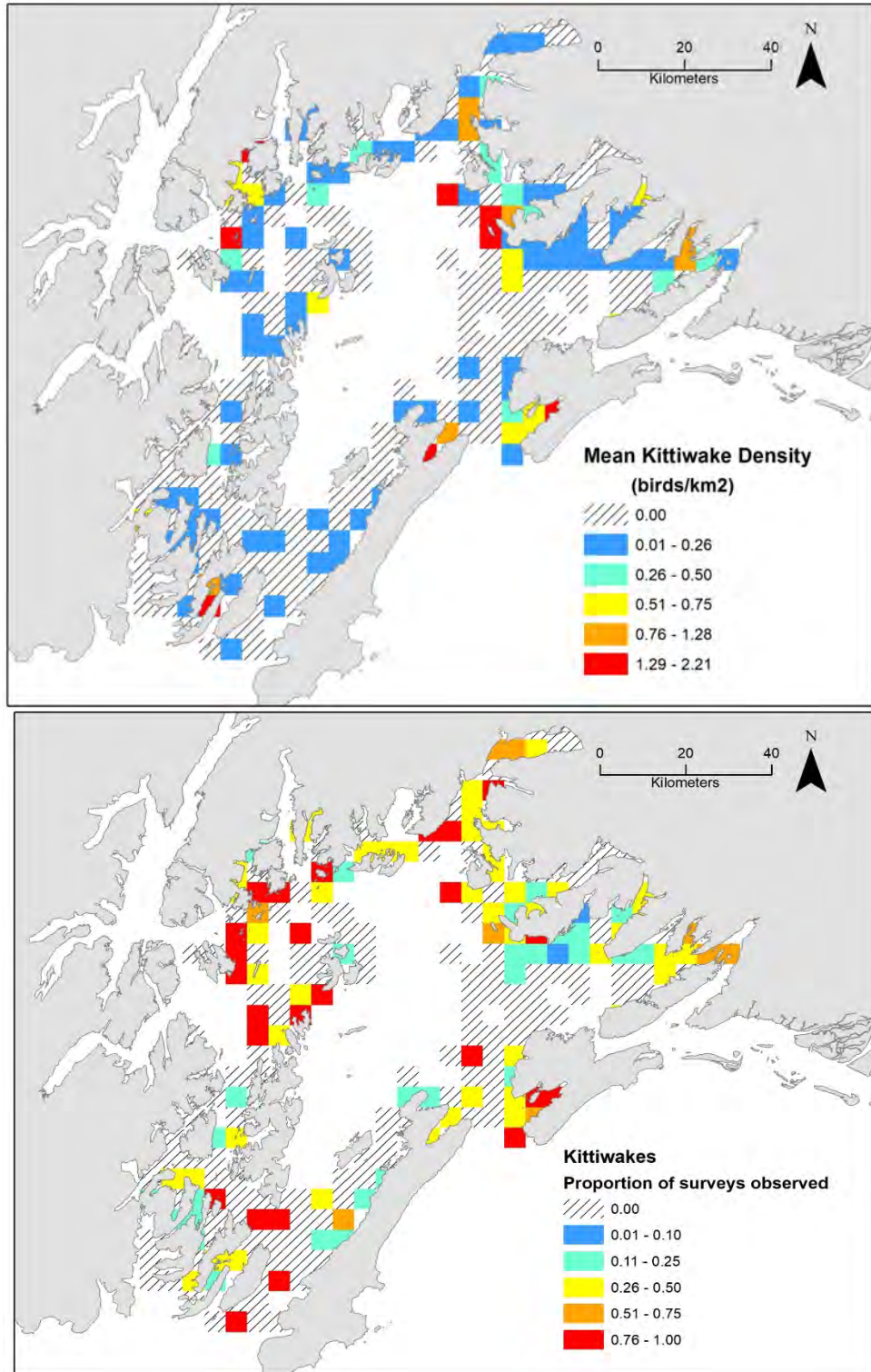


Figure A-9. Distribution of black-legged kittiwakes during March by density (birds/km<sup>2</sup>; top) and by proportion of surveys observed (bottom) within a 5 km x 5 km cell in PWS.



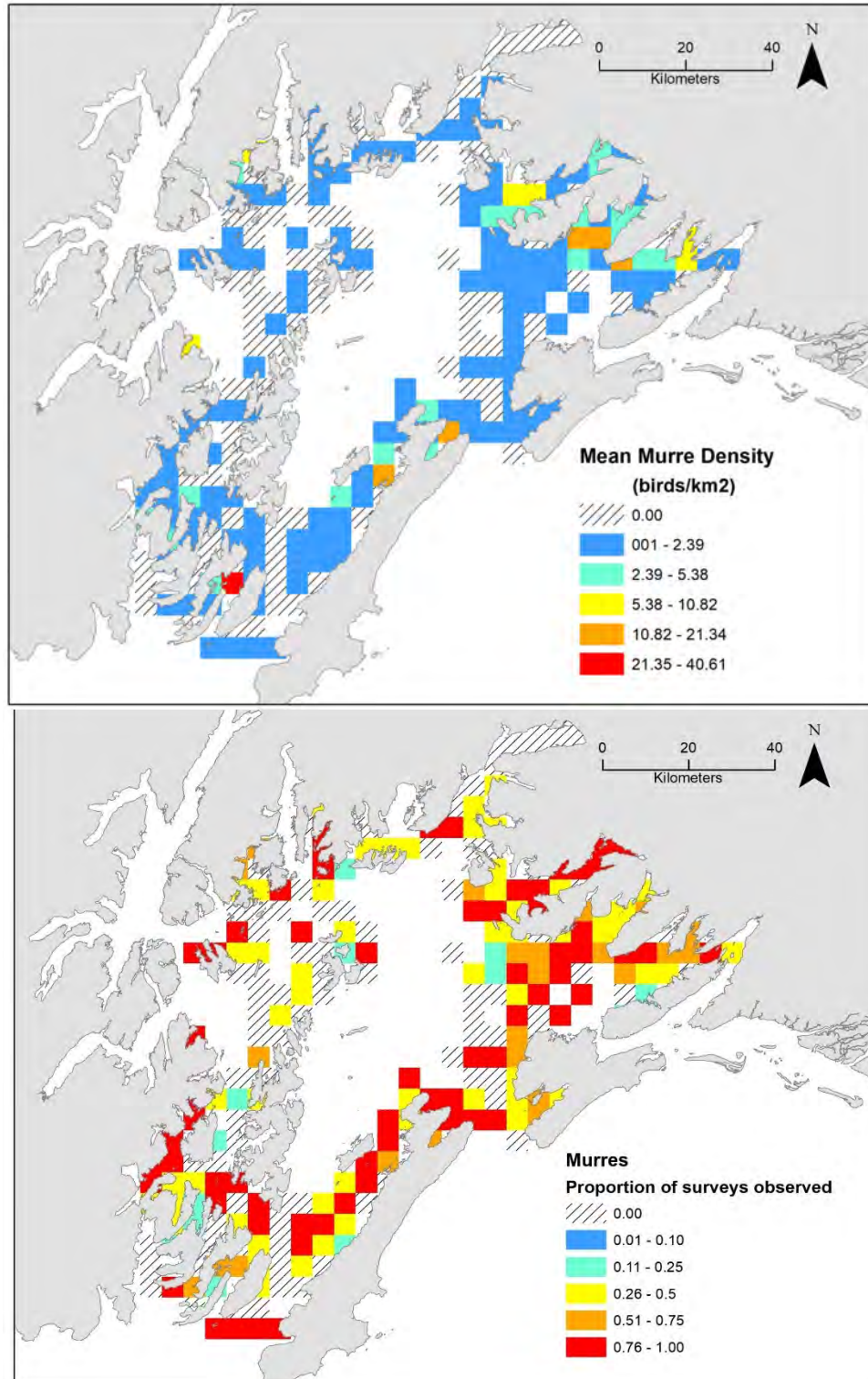


Figure A-10. Distribution of common murres during March by density (birds/km<sup>2</sup>; top) and by proportion of surveys observed (bottom) within a 5 km x 5 km cell in PWS.

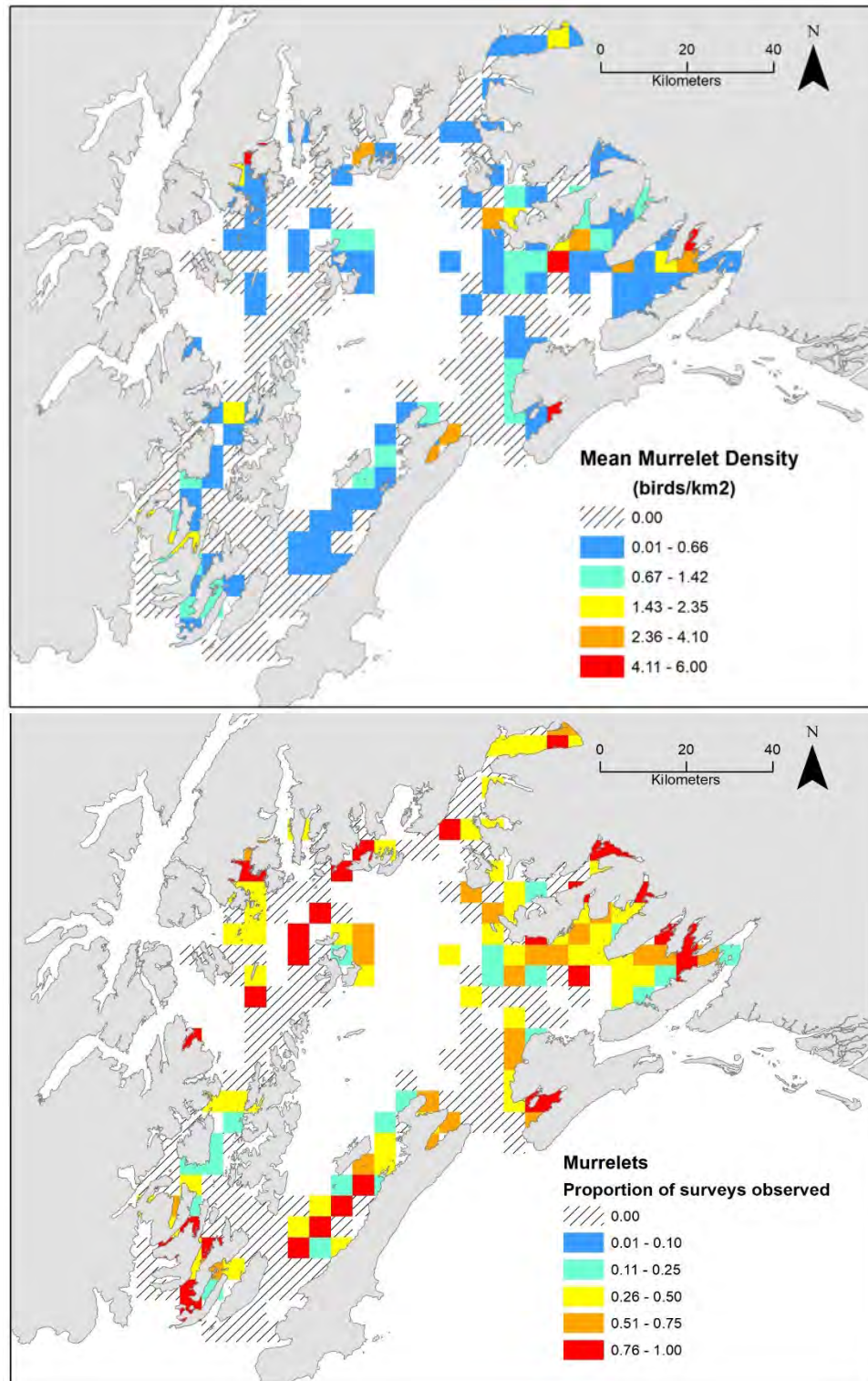


Figure A-11. Distribution of murrelets (marbled, unidentified) during March by density (birds/km<sup>2</sup>; top) and by proportion of surveys observed (bottom) within a 5 km x 5 km cell in PWS.



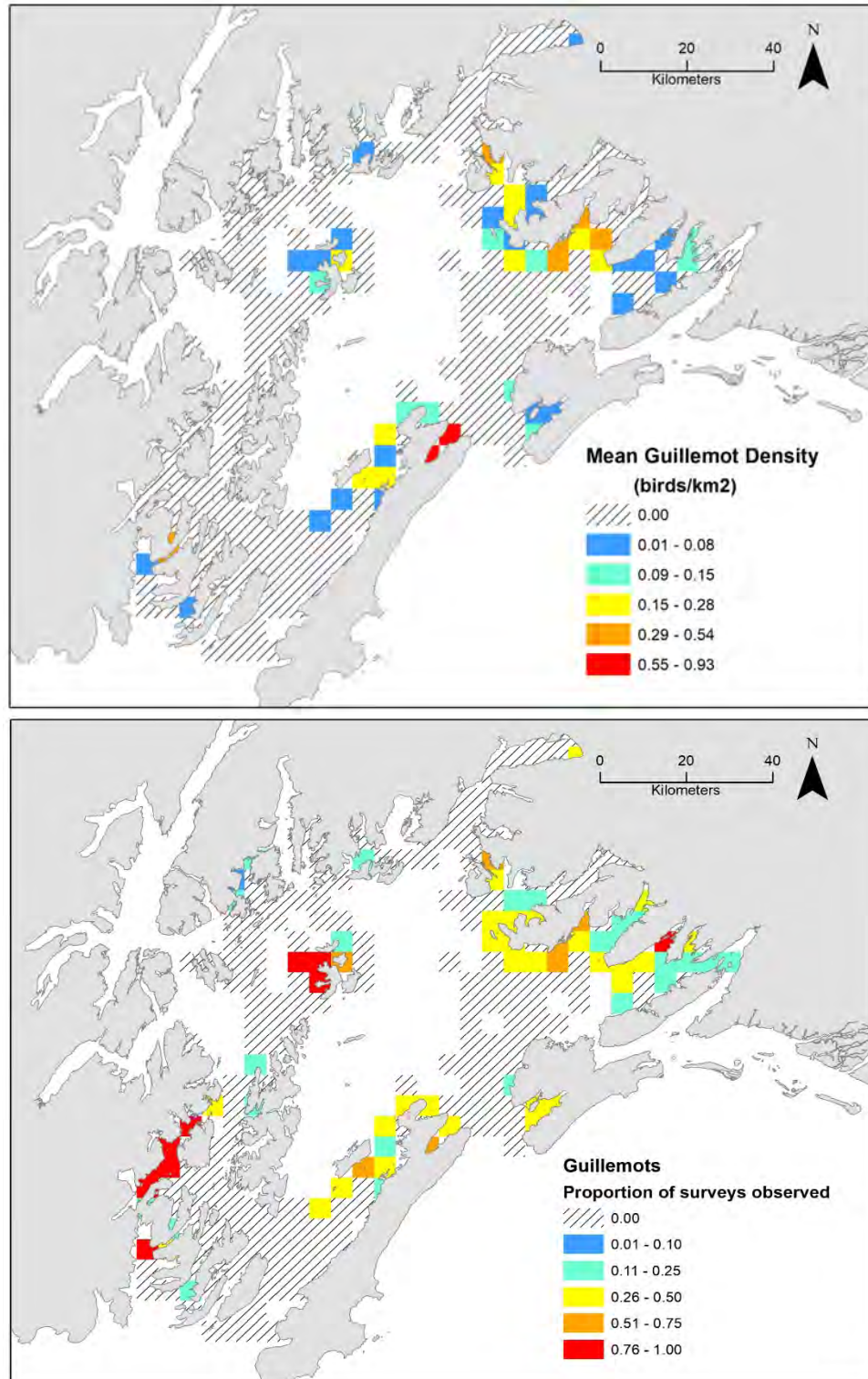


Figure A-12. Distribution of pigeon guillemots during March by density (birds/km<sup>2</sup>; top) and by proportion of surveys observed (bottom) within a 5 km x 5 km cell in PWS.

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## Briefing for PWSRCAC Board of Directors – September 2024

**ACTION ITEM**

**Sponsor:** Roy Robertson and the Oil Spill  
Prevention and Response Committee

**Project number and name or topic:** 6536 - Port Valdez Weather Buoy  
Data Analysis 2019 - 2023

1. **Description of agenda item:** PWSRCAC installed two weather buoys in Port Valdez in 2019, one in the vicinity of the Valdez Marine Terminal and the other near the Valdez Duck Flats. Dr. Robert Campbell with the Prince William Sound Science Center was contracted to analyze the data collected from the weather buoys from 2019-2023 and provide a report of his findings. This project is the fourth in a series of projects that analyzes the data collected to help to determine weather trends throughout the year and seasonally at the location of the buoys. The analyses include current and wind direction and speed information, wave direction and heights, and other pertinent information that can be obtained from the weather data. Dr. Robert Campbell will present on the findings of his latest analysis at this meeting and the Board will be asked to accept the report as final.

2. **Why is this item important to PWSRCAC:** In addition to providing real time weather information, the Port Valdez weather buoys websites also provide weather information for the prior five days. The data from these buoys is collected and stored, but without periodically analyzing the data much of the value from the buoys will not be realized. This project provides trend analysis of the weather and currents at the two buoy locations from the time the data started being produced to December 31, 2023. While this is a relatively short window of time for this fourth analysis, the analyses of future years will build on this analysis and provide better information on the Port Valdez weather and current trends.

3. **Previous actions taken by the Board on this item:**

<u>Meeting</u>	<u>Date</u>	<u>Action</u>
Board	9/16/21	Accepted the report titled "Port Valdez Weather Buoy Data Analysis 2019-2020" by Robert W. Campbell, Ph.D.
Board	1/26/23	Accepted the report titled "Port Valdez Weather Buoy Data Analysis 2019-2021" by Robert W. Campbell, Ph.D.
Board	9/21/23	Accepted the Port Valdez Weather Buoy Data Analysis 2019-2022 by Robert W. Campbell, Ph.D.

The OSPR Committee has approached these buoy data analyses as individual projects that will build upon each other. While this report does include data from the beginning of the first project, this report should be viewed as a separate project and report.

4. **Summary of policy, issues, support, or opposition:** This project allows PWSRCAC to provide support for several of our mandates as part of OPA 90 and the Alyeska contract. Over time, the weather and current trend analyses gathered by this project and future

## Report Acceptance: Port Valdez Weather Buoy Data Analysis 2019-2023 4-2

projects will allow PWSRCAC to provide information to support environmental monitoring, oil spill contingency and response planning, trajectory modeling, and information to support the safe transportation of oil in Port Valdez.

5. **Committee Recommendation:** A presentation on this report was provided to the Oil Spill Prevention and Response Committee at their July 24, 2024 meeting and they recommend Board acceptance.
6. **Relationship to LRP and Budget:** Work associated with this project was included in the FY2024 budget under contract 6536.24.01 in an amount not to exceed \$14,515.
7. **Action Requested of the Board of Directors:** Accept the report titled “Port Valdez Weather Buoy Data Analysis 2019-2023” by Robert W. Campbell, Ph.D. of the Prince William Sound Science Center as meeting the terms and conditions of the contract number 6536.24.01, and for distribution to the public.
8. **Alternatives:** None recommended.
9. **Attachments:** Draft report titled “Port Valdez Weather Buoy Analysis 2019–2023” by Dr. Robert W. Campbell, Ph.D.



# Port Valdez Weather Buoy Analysis 2019 - 2023

Final report submitted by:

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The opinions expressed in this PWSRCAC-commissioned report are not necessarily those of PWSRCAC.

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## List of acronyms

CO-OPS	Center for Operational Oceanographic Products and Services (NOAA)
FAA	Federal Aviation Administration
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
PWS	Prince William Sound
PWSRCAC	Prince William Sound Regional Citizens' Advisory Council
PVD	Progressive Vector Diagram
QA/QC	Quality Assurance / Quality Control
SST	Sea Surface Temperature
VDZA2	NOAA Tide Station in Valdez Harbor
VMT	Valdez Marine Terminal
WMO	World Meteorological Organization

## Executive summary

This report summarizes four years of meteorological and oceanographic measurements made by two buoys deployed in Port Valdez, one adjacent to the Valdez Marine Terminal (VMT) and one near the Valdez Duck Flats. Time series at each of the buoys were analyzed for seasonal, intra-, and interannual patterns. Air and water temperatures, and solar radiation all showed a cyclical seasonal progression typical to subarctic regions, with minima in February and maxima in August. Relative humidity was high, as befits a coastal region with a large amount of annual precipitation, and tended to follow temperature trends. Air pressure, driven by large scale atmospheric circulations, was similar between the two sites. Winds were primarily from the east in autumn and winter, again driven by the large-scale atmospheric patterns that create a low-pressure system over the Gulf of Alaska during that time. In late spring and summer, daily westerly sea breezes were common. A 115-year-long temperature climatology was constructed for the Valdez region, which showed a steady and persistent warming trend. Over the time period that the buoys have been deployed, winters have been warmer than average, and summers cooler than average. Surface currents tend to be higher at the VMT than at the Duck Flats, given their locations (along the middle of the Port versus at the head). Visual representations of surface current vectors showed that summer sea breezes consistently influenced surface currents in all years, although the current directions were different between the two buoys. Tidal oscillations were more prevalent during calmer periods, and current directions were much more variable in autumn and winter, with less coherence from year to year.

## Introduction

The Prince William Sound Regional Citizens' Advisory Council (PWSRCAC) operates two weather buoys in Port Valdez, one offshore of the Valdez Marine Terminal (VMT) at Jackson Point that was deployed in May 2019, and one adjacent to the Valdez Duck Flats that was deployed in September 2019 (fig. 1). Both buoys have been uploading meteorological and

oceanographic observations on an hourly basis (with some interruptions due to hardware/software failures and service visits) since their deployment.

Standard equipment on each buoy includes an anemometer, relative humidity sensor, three temperature thermistors (one dedicated for air temperature, a secondary included in the relative humidity sensor, and one to measure sea surface temperature mounted ~1 meter (m) below the waterline), barometer, radiometer, Acoustic Doppler Current Meter (for surface currents), and a wave sensor (only on the VMT buoy at present). An onboard electric compass is used to measure the buoy heading to adjust direction measurements (wind, waves, and current) to true north. The measured parameters of interest, their units, and recording period are listed in table 1.

Table 1: Meteorological and oceanographic parameters collected by the buoys.

Parameter	Instrument Make/Model	Units	Recording Period
Wind speed	RM Young 05103-L	m/s	6 minutes
Wind gust speed	RM Young 05103-L	m/s	6 minutes
Wind direction	RM Young 05103-L	Deg. True	6 minutes
Air temperature	Campbell Scientific 109	°C	15 minutes
Relative humidity	Campbell Scientific HC2S	%	15 minutes
Barometric pressure	Setra CS100-QD	mbar	15 minutes
Solar radiation	Hukseflux LP02	W/m <sup>2</sup>	15 minutes
Current speed	Nortek Aquadopp 2 MHz	m/s	20 minutes
Current direction	Nortek Aquadopp 2 MHz	Deg. True	20 minutes
Significant wave height	Axys TriAXYS	m	Hourly
Maximum wave height	Axys TriAXYS	m	Hourly
Wave period	Axys TriAXYS	s	Hourly
Wave direction	Axys TriAXYS	Deg. True	Hourly

The high frequency of sampling by the buoys has already created a large archive of observations with slightly under 1.9 million primary observations at each buoy, plus a large amount of associated metadata and numerous derived parameters. The purpose of this report is to provide an analysis of some of the seasonal and higher frequency patterns found in the data.

This report is structured around the different data types produced by the buoys. Following discussion with PWSRCAC staff and committee members, the primary averaging period to be used was decided to be monthly. In some cases, higher frequencies have been used where appropriate to provide a higher level of detail. Given the very broad backgrounds of the many PWSRCAC stakeholders, technical jargon has been avoided where possible to provide a plain language interpretation for that large and diverse audience; where necessary,

definitions of technical terms are provided. Rather than the usual methods/results/discussion format featured in the scientific literature, a more narrative structure has been adopted, and explanations of methods, highlighting of the results, and discussion of them have been done all at the same time for the many different data collected. The metric units used by the buoys have also been mostly converted to imperial units. Graphical presentations of the data have been used as much as possible and a tabular compilation of monthly averages at both buoys has also been included in appendices.

### **Data operations, notes, and quality assurance/quality control (QA/QC)**

All data was downloaded directly from the buoy data server. Each time series was examined with automated and manual methods for anomalous spikes. Relative humidity values prior to January 2020 at the VMT were removed (the sensor was damaged) and occasional bad water temperature observations at the buoys ( $<28^{\circ}\text{F}$ ) were removed. On or about March 11, 2020, the VMT buoy had a power issue which tripped the main fuse from the battery, resulting in intermittent daytime-only data (when the solar panels produced enough voltage to power up the data logger) until the buoy was repaired on April 29, 2020. Those data are excluded from monthly averaging because they are biased towards sunny days.

### **A primer on the visualization of vector data**

Meteorological and oceanographic data are either scalar observations (magnitude only, e.g., temperature) or vector observations (magnitude and direction, e.g., winds). Scalar data may be visualized with a standard x-y plot that should be familiar to most. Vector data, having two components, is more complicated to visualize and average. A vector may be visualized as an arrow, with the direction indicated by the direction the arrow is pointed, and the magnitude indicated by the length of the arrow (fig. 2A). When doing mathematical operations on a vector, vectors are usually broken up into components that correspond to the dimensions of the vector. The red and blue arrows in figure 2A indicate those two components for the two-dimensional vector shown: there is a horizontal component and a vertical component. Those components are usually designated as 'u' and 'v' in the technical literature and in the context of meteorological data are referred to as the zonal (i.e., "east-west") and meridional (i.e., "north-south") components. In this context positive numbers mean one direction and negative numbers mean the opposite. For example, on the east-west axis in figure 2, a positive number is eastward and a negative number is westward. Figures showing vector components in this report have annotations and/or compass roses indicating the east/west and north/south directions to aid the reader.

Averaging of vector observations is usually done on the components and then may be visualized in a number of ways. The two methods used in this report are roses and quiver plots. A rose is a good way to summarize a large number of observations and may be thought of as something similar to a bar chart, but arranged in a circle to indicate directions. An example of a rose plot is shown in figure 2B, which represents all the wind observations made by the VMT buoy in the month of June 2020. The wind directions (the direction the wind is blowing from) are broken up into  $10^{\circ}$  "bins" that are shown by the bars. The length

of the bars is proportional to the frequency of winds blowing from that direction and the colors indicate bins of wind speeds, which are shown on the color scale to the right. Figure 2B shows us that most of the winds in June 2020 were primarily in the east-west direction. The median wind direction (i.e., the most frequent, shown by the longest bar) was just south of westerly. The four largest bars showing westerly to southwesterly winds can be summed up on the circular scale and shows that something like half (50%) of winds were in those westerly to southwesterly directions. The color scale shows that the strongest winds were westerlies, with a small proportion blowing 15-20 knots (green bars), slightly more blowing 10-15 knots (cyan bars) and more still blowing 5-10 knots (light blue bars). One can also see that easterly winds were generally weak, being mostly 0-5 knots (dark blue bars). In this report, rose plots are used only for the most recent year of data (2023), because showing multiple years results in very small roses or multi-page figures that become difficult to interpret.

Quiver plots allow examining finer scale patterns that would be impractical with rose plots and show a vector as an arrow or a line. An example quiver plot is shown in figure 2C, again using wind data from June 2020 at the VMT buoy, but with daily average wind speed and direction shown. Each arrow in the plot is the daily average wind velocity, with the angle of the stick showing the direction of the wind vector and the length of the stick indicating the wind speed. The axis is scaled such that the length of the stick is proportional to the ticks on the bottom axis. Because the winds, waves, and currents in Port Valdez are primarily oriented in the east-west direction, the plots were produced with time shown vertically. Arrowheads are shown in the example plot but are not shown in the rest of the plots in this report because they show a great deal more data and the arrowheads tend to add clutter and make the plots more difficult to read. Quiver plots are more data-dense, and the entire time series from each buoy is shown (instead of the most recent year) to give a sense of the entire time series collected so far.

Surface current observations at the buoys are the sum of several different components, including tides, winds, and the large-scale circulation in the Port driven by freshwater inputs and Coriolis forces; prior reports have tried to remove the influence of tides and examined how those components are correlated with current velocities (Campbell, 2021; Campbell 2022). The periodicity of the tides makes vector averaging methods such as roses and quiver plots uninformative (e.g., a current that runs at one knot to the east on a rising tide and one knot to the west on the falling tide will have an average velocity of zero) and the volume of the data makes it difficult to display. One simple way of following a vector time series is the use of Progressive Vector Diagram (PVD). This is a plot where successive vectors are plotted on top of each other, with the tail of each vector plotted on to the head of the one preceding it. This produces a “track” this is some ways similar to the track produced by a surface drifter, if one assumes an isotropic (“the same in all directions”) flow field. In practice, Port Valdez does not have an isotropic flow field, so the paths shown in the PVDs in this report should be not considered as tracks, but as a way to look at how flow directions change over time.

An example of a PVD is shown in figure 3, which displays 12 hours of current observations made every 15 minutes at the VMT buoy. In that plot the first observation is denoted by a green dot and the last a red dot, and the first observation is placed at the origin (i.e., the zero point on both axes). The plot shows how the current vectors shift back and forth during a tidal cycle, along a more or less southwest to northeast axis, and also show an overall transport towards the west. In the plot the vectors have been scaled to represent the distance that the current would have travelled in the 15-minute observation, to give a sense of the magnitude of the current. In the example of figure 3 the net current (the difference between the green and red dots) was about 1.5 kilometers (km) to the west.

Meteorologists and oceanographers use different conventions when speaking of directions: meteorologists speak of the direction that winds are coming from (e.g., a northerly wind is coming from the north), while oceanographers speak of the direction water is traveling to (e.g., an eastward current is travelling to the east). This convention has been adhered to in this report for the rose plots, but has not been for the quiver plots, because the quiver plots are a direct representation of the vector in question (the average movement of the air or water). This is why the rose in figure 2B has bars pointing to the left ("winds from"), while the quiver plot in figure 2C has vectors pointing to the right ("direction air is moving to"). In the text of this report both "from" and "to" notation is used depending on the convention (meteorological versus oceanographic) to distinguish between the conventions. All figures are labelled either "from" or "to" to prevent confusion.

## Results and discussion

### *Air and sea surface temperature*

Monthly air and water temperatures at both buoys showed the typical sinusoidal seasonal cycle expected in a subarctic environment (figs. 4, 5), with maxima in August and minima in February and considerable day-to-day departures from monthly means. Air temperatures tended to be slightly higher at the VMT buoy (fig. 4) than at the Duck Flats buoy (fig. 5), which may indicate a slightly more terrestrial influence at the Duck Flats buoy (e.g., downsloping winds from the Valdez Glacier Valley, discussed in the winds section below). Water temperatures were also slightly cooler at the Duck Flats, likely reflecting potential source waters from the Lowe River and Valdez Glacier Stream which can be expected to be cooler than seawater given the presence of year-round ice in their watersheds.

### *Relative humidity*

Both of the relative humidity sensors failed in early 2022. Those sensors were the last of a supply that came with the buoys when they were donated to PWSRCAC and their performance has been underwhelming, with several other sections of the data record removed for quality reasons. Newer sensors that the supplier advertises as more robust were acquired in 2022, and installed on the buoys during the spring 2023 service, and those sensors appear to be more stable. Although no nearby weather stations in Port Valdez include relative humidity measurements, the correspondence between the two buoys appears to be better with the new sensors. Considering the time series as a whole, it can be



said that relative humidity was variable at both sites (figs. 4, 5). Much of the time relative humidity was quite high, greater than 70%, as expected in the coastal climate both buoys are measuring. Relative humidity was highest in August and lowest in March, following the temperature cycle.

#### *Barometric pressure*

Air pressure was very similar between both sites, as would be expected because air pressure is largely driven by large scale atmospheric circulations (figs. 4, 5). There was a weak seasonal cycle in air pressure, with some differences notable among years. Following a period of relatively low air pressures, air pressure in late summer 2019 was quite high and likely driven by a large-scale atmospheric ridge that set up over the north Gulf Coast that year (Amaya et al., 2020). A similar pattern set up in 2020. Air pressure during the summer months of 2021 through 2023 tended to be higher than in 2020 and appears to have been similar to 2019. Pressure was more variable in the autumn months, with the onset of so-called “Equinox weather” which tends to feature large cyclonic circulations driven by the Aleutian Low, which usually sets up in the Gulf of Alaska in autumn and winter and determines the storm tracks to the region (Rodionov et al., 2007). Most autumns featured episodic spikes of high pressure, presumably also related to atmospheric ridging events.

#### *Solar radiation*

As to be expected given the latitude of the sites, solar radiation was strongly seasonal, peaking in June and lowest during the winter months (figs. 4, 5). Both buoys are shaded by the mountains fringing Port Valdez during the late autumn and winter months, which has created some power issues (both buoys are powered by solar panels), particularly at the VMT location.

#### *Wind speed and direction, wind gusts*

Winds are summarized as monthly wind roses for 2023, in figures 6 and 7, and (again, following meteorological convention) are shown as the direction the wind is blowing from (i.e., an east wind blows from the east). The anemometers on the buoys are very sensitive and usually move slightly in all but the calmest conditions. They are also subject to freezing up after heavy snow and rain events followed by freezing temperatures. This manifests as a zero wind speed from exactly true north (vector multiplication on the 0 wind speed results in a direction of 0 as well) and can be seen on the wind roses as a spike in observations at the 0° band only. Those spikes may be used as an indicator of the frequency of calms during summer months and freeze-up events in winter. Freeze ups were quite frequent in January through March 2023, comprising ~20% of all observations at the Duck Flats, and 30-40% of all observations at the VMT. The anemometer on the VMT buoy was found to be exhibiting excessive friction (likely due to a failing bearing) during the spring 2023 service and was replaced. As well as freezeup events, several calm periods occurred in July through September at both buoys.



Both the roses and the quiver plots (figs. 6-9) show that most winds were easterly during autumn and winter, and transitioned to westerlies from May until August at both buoys. The strongest winds were easterlies, during the autumn and winter months, likely driven by outflow winds caused by the large-scale atmospheric features that set up in autumn/winter (the Aleutian Low offshore and high pressure over the interior). The summer westerlies are a daily sea breeze caused by localized heating and cooling that is familiar to mariners in the region (Lethcoe and Lethcoe, 2009). During the day, the sun heats the land faster than the ocean, creating upward convection and low air pressure over land; this draws air in from the ocean and creates a landward breeze (from the west in Port Valdez). At night, the land cools faster than the ocean, creating convection in the opposite direction. To illustrate this, hourly average winds in the east-west direction at the VMT buoy are depicted in figure 10. Westerly winds are depicted with a green color scale and easterly winds are depicted with a blue color scale. The figure shows that the “westerly season” in Port Valdez begins in late April or early May, and extends into August. During the westerly season, winds on most days were easterly from midnight until approximately 10 a.m., then switched to westerlies into the afternoon and evening. There were occasional short episodes where the westerlies were disrupted by summer storms with strong easterly winds (fig. 10).

Closer examination of figure 10 suggests that there are some apparent differences in sea breezes from year to year, now that there are almost five years of data to compare. 2023 in particular appears to have experienced weaker sea breezes than the other years (i.e., the green shading is not as strong). The obvious explanation would be that if there was less solar insolation in a particular year the sea breezes might be weaker (i.e., a less-sunny summer might have weaker sea breezes). However, an analysis of the relationship between solar radiation and westerly winds did not show a correlation. It is likely that the regional nature of the sea breeze phenomenon means that they may be driven by areas far afield of the Port of Valdez and the meteorology of those areas are not represented in the buoy time series.

The roses and quiver plots also show that wind directions were not completely symmetrical, as there was a northerly component as well, regardless of if the winds were primarily from the east or west. That slight northerly tendency may have been caused by topographic steering of the winds by the steep terrain of Port Valdez, with westerly winds blowing out of Shoup Bay to the northwest. The northeastern direction of easterly winds may indicate that winds from Valdez Glacier Valley tend to predominate over those of the Lowe River Valley at the Duck Flats location.

Following the World Meteorological Organization (WMO) standard, the buoys also recorded a running 3-second average wind speed and reported the maximum of that 3-second average in each 6-minute wind recording period as the wind gust speed. The wind gust time series at the buoys in 2023 (fig. 11) followed the same pattern as sustained winds, with maximums during the winter months and elevated gusts during the summer westerly season. Summer gust speeds were in the 10-knot range and 25-knot gusts occurred during autumn and winter storms.

### *Wave height and direction*

Wave observations have also been summarized as roses (fig. 12) and quiver plots (fig. 13) at the VMT buoy. No wave measurements have been made at the Duck Flats buoy since 2020. Wind makes waves, and the wave observations reflect the wind observations, with most waves, and the largest waves, from the east at the VMT buoy during the winter months and from the west in spring and summer.

The largest maximum wave height observed in the time series was an observation of just under 9 feet in December 2022 (fig. 14) and similar wave heights were recorded in early and late 2021; winter and autumn maximum heights in 2023 were more modest. Maximum summertime wave heights were between 1 and 3 feet and wave heights were slightly higher during winter storms, in the 4 to 6-foot range.

### **Sea surface temperature (SST) climatology**

To put the buoy observations into a climatological context it is possible to convert observations into anomalies (i.e., departures from the long-term average) using observations from nearby stations, with the assumption that they are reasonably similar. There is a National Oceanic and Atmospheric Administration Center for Operational Oceanographic Products and Services (NOAA CO-OPS) weather and water level station in Valdez harbor, named VDZA2, which has a record of water temperatures that goes back to 2008. An average annual temperature cycle based on weekly averages was created from the VDZA2 time series (fig. 15) to use as a long-term average.

Water temperatures at the buoy may then be averaged by each week and subtracted from the weekly averages at VDZA2 to produce an anomaly plot (fig. 16), which depicts the departure of observations from the long-term average seasonal cycle (only the VMT buoy is shown because patterns are essentially identical at the Duck Flats buoy). The anomaly plot shows that relative to the 2008-2023 average, surface waters were much warmer than average in the early summers of both 2019 and 2020 at the VMT buoy but tended to be cooler than average in autumn in both years. This matches with larger-scale oceanographic patterns seen elsewhere, including a Gulf of Alaska wide marine heat wave in 2019 (Amaya *et al.* 2020) and warm surface waters observed in Prince William Sound (PWS) in 2020 (Campbell, *unpubl. obs*). A La Niña event began in late 2020, and continued through 2022 (NOAA CPC 2022). La Niña events are usually correlated with cooler surface temperatures in the North Pacific (Papineau, 2001; Newman et al., 2016), but PWS tends to lag the Gulf of Alaska by about a year in terms of temperature responses (Campbell, 2018). Near surface water temperatures in Port Valdez tended towards cooler than average through much of 2021 and 2022 with some warm stanzas. Late winter/spring in 2023 was warmer than average, trending towards cooler the latter portion of the year.

### **Air temperature climatology**

Although the water temperature record is comparatively short, a longer climatology is available for monthly average air temperatures in Valdez that was compiled by the Berkeley Earth database (<http://berkeleyearth.org/>). The Berkeley Earth time series spans from 1908 to 2013, using data from several National Weather Service (NWS) and Federal Aviation Administration (FAA) weather stations that have existed in the Valdez area over the years. The Berkeley Earth time series overlaps the VDZA2 time series (2008 – 2013), which may be used to compare the two records to look for overlaps. Similarly, the buoy record from the VMT buoy runs from 2019 to present day concurrently with VDZA2, and the two records may also be compared for overlaps (fig. 17). Again, only the VMT buoy will be used for this analysis because the temperatures recorded at the VMT and Duck flats are very similar. Those comparisons show a very tight relationship between the time series, but with significant offsets and slopes. Although the two data sets showed the same pattern, there were slight differences in the temperatures that they estimated: The Berkeley Earth time series was cooler than the VDZA2 time series, while average temperatures at the VMT buoy tended to be slightly warmer than at VDZA2.

With the assumption that the offsets apply to the entire time series, they may be applied to correct the VDZA2 and Berkeley Earth air temperature time series to be consistent with the VMT time series, using the equations shown in figure 17. The complete time series of air temperature anomalies from 1908 to 2021 (fig. 18) shows a consistent warming trend of just under a half a degree Fahrenheit per decade over the last 115 years, an overall increase in average temperatures of ~5 degrees. This is consistent with trends observed elsewhere in the region (e.g., Campbell, 2018).

Beyond the overall trend, there is an interesting pattern in more recent years towards warmer than average winters and cooler than average summers that is apparent when looking at the 2019-2023 period of the VMT buoy record (fig. 19), but the pattern appears to go back to at least 2014 (fig. 18). Interestingly 2014 was the year of a basin-wide marine heat wave, colloquially known as “The Blob” (Bond et al., 2015) caused by changes in atmospheric patterns (an atmospheric ridge) that resulted in less winter mixing of heat out of the ocean. The pattern observed in Port Valdez may reflect a reverberation of those large-scale ocean-atmospheric patterns, with perhaps local effects mixed in. In general, the northern Gulf of Alaska is warming (Danielson et al., 2022), but the northern coast of the Gulf of Alaska is also losing ice mass at among the fastest rates in the world (Dolumbia et al., 2020), which has been observed to cause a near-surface cooling trend in northwestern Prince William Sound (Campbell, 2018). The warmer winters may represent that overall warming trend, while cooler summers may reflect a similar cooling caused by the meltwaters that predominate discharges in the summer months. Sea surface temperatures (fig. 16) showed a similar pattern, with some departures. The differences are likely due in part to differences in the length of the climatologies; the finer time scale of the SST climatology could also be expected to show more high frequency variability compared to the monthly averaging from the Berkeley Earth climatology.

## Surface currents

Surface currents at the VMT buoy were as high as 1.5 knots and considerably smaller at the Duck Flats buoy (fig. 19), which is not surprising given the different locations. The Duck Flats buoy is deployed in shallow water near the head of Port Valdez (where motions will be more vertical), while the VMT buoy is deployed in deeper water over a steeply-sloped bottom mid-Port, where tidal currents will be stronger as the tides slosh back and forth.

When examining the “tracks” of the PVD at the VMT (fig. 21) and Duck Flats (fig. 22) on the same scales (i.e., each plot in each figure has exactly the same scaling so are directly comparable), several patterns emerge. At the VMT in May, June, July, and part of August surface currents were predominantly to the northeast, with small year-to-year variations that can be attributed to occasional wind events due to storms. Those months are also the time of peak sea breezes (fig. 10), suggesting that wind-driven currents predominate at that time.

At the Duck Flats at the same time (excepting May, when currents were mostly easterly), surface currents were primarily northwesterly. Those patterns are likely because the Duck Flats buoy is very close inshore at the head of the Port (fig. 1) where currents will be constrained by the shoreline and topographically steered even during westerly winds. Those patterns would also be enhanced by the freshwater entering the head of the Port from the Lowe River and Valdez Glacier Stream (fig. 23), which ramps up in May is at its peak through the summer months and declines in September/October. Freshwater entering the ocean will tend to be deflected to the right under Coriolis forcing, which sets up a counterclockwise circulation in the Port (Gay, 2018) which would manifest as a northwesterly current at the site of the Duck Flats. The continued strong northwesterly transport into September at the Duck Flats (when discharge was still high) but not the VMT (“upstream” of the head of the Port) supports this idea.

To look more closely at the details that are difficult to discern in the equally scaled plots in figures 21 and 22, the PVD may be rescaled to allow the scaling of each plot to vary based on the data for just that month (i.e., “zooming” in to each month). At the VMT (fig. 24), one can see tidal oscillations that are occasionally disrupted by periods with more consistent directional transport and a great deal in variability from year to year. Those correspond to the equinox storms observed in the wind records (e.g., fig. 8). Months with relatively light winds (e.g., September) also showed more oscillations, indicating that tidal motions tended to predominate at those times.

At the Duck Flats (fig. 25), tidal oscillations were more pronounced in the winter (January – March) and show much more complex motions, which is perhaps due to a more complicated interaction between winds, tides, and discharge. Freshwater inputs at the head can also create eddies that can cause current directions to change considerably as they pass. Current directions essentially covered the entire compass rose in January – March and again in October – December (fig. 25). The weaker currents at the Duck Flats may also represent more

“noise” caused by slack in the mooring system: The Duck Flats mooring has a rather large scope. Part of the signal will be the buoy moving around on its mooring, and part of the signal will be from when the buoy is taut on its mooring and water is moving past it. By comparison the VMT buoy mooring has much less scope for movement and will tend to have less related variability. Note also that there were subtle differences in wind directions during those periods (fig. 9) that would also lead to variability in surface currents.

One year that appears to stand apart from the others was 2020, where surface currents at the Duck Flats during summer months appeared to be quite different, with the predominant current directions rotated towards the south, instead of the northwesterly tracks of other years. There is no indication in the wind time series that winds were different at that time (fig. 9) and a closer look at north-south and east-west components (not shown) did not show any obvious differences during those periods. The buoy service records do indicate that the compass was calibrated in December 2022, and different directions may therefore have been due to a spurious compass calibration when the buoy was first deployed.

The surface current vector plots shown here highlights the complexity of the surface currents in Port Valdez; the PVD plots show how winds, tidal variations, and discharge interact in complicated ways, and a simple visualization such as done here cannot tease apart the various influences easily. Surface currents in Prince William Sound often manifest as a “Spirograph” type pattern, where tidal ellipses are superimposed over mean flows (Okkonen and Belanger, 2008), and that appears to be the case in Port Valdez as well. A better description of current variability can be accomplished with a more dynamical approach where the various components are explicitly modelled (e.g., see Wang et al., 2012).

## Conclusions

The analysis done here shows the patterns one would expect of meteorological and oceanographic observations in a subarctic region with a large tidal range. The main observations may be summarized as follows:

- Air and water temperatures, and solar radiation followed a seasonal sinusoid with maxima in August and minima in February. Temperatures were slightly cooler at the Duck Flats buoy than at the VMT buoy.
- Relative humidity was high at both sites and followed the seasonal temperature pattern.
- Air pressure was similar between both sites and driven by large-scale atmospheric circulations.
- Winds were mostly from the east in autumn and winter, with maximum gusts exceeding 40 knots, and transitioned to weak easterly and stronger westerly sea breezes during the summer months.
- Wave directions tended to match wind directions. The highest waves were observed during autumn/winter storms and were of considerable size, just under 9 feet tall; spring/summer sea breeze generated waves were 1-3 feet.

- A temperature climatology was constructed that shows a persistent warming pattern over the past 114 years, with an overall increase of approximately 5°F.
- In recent years (2019 onward), winters have been warmer than average while summers have been cooler than average, which may be combination of the overall regional warming, with localized cooling due to ice melt.
- Surface currents in Port Valdez are complex and result from the interplay of winds, tides, and freshwater inputs. At the VMT, surface currents were northeasterly during summer sea breezes, and were northwesterly at the Duck flats. Tidal oscillations were visible during calmer periods, and surface current directions were very variable during autumn and winter.

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## Figures



Figure 1: Sentinel 2 satellite image of Port Valdez (taken June 22, 2022) showing the location of the two buoys and other geographic locations mentioned in the report.



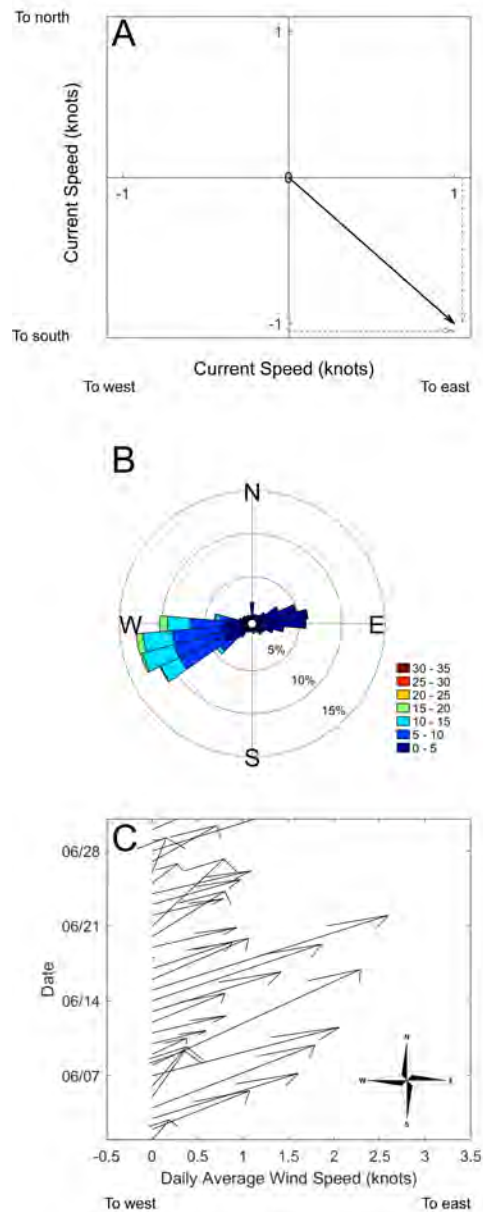


Figure 2: Examples of the visualization of vector data. Panel A: An example of a vector observation, for example a 1-knot current to the southeast. The vector may be broken up into two components, an east-west component (blue arrow) and a north-south component (red arrow). Panel B: An example wind rose summarizing wind observations made in June 2020. The bars indicate 10° bands of wind directions (direction from), the lengths of the bars indicate frequency (how often winds in each band were observed), and the color encodes wind speeds. Panel C: An example of a quiver plot, showing daily average wind vectors (direction in which the air is traveling) for June 2020. The angle of the arrow indicates the direction on the compass rose and the length of the arrow indicates average wind speed, scaled to match the bottom axis.

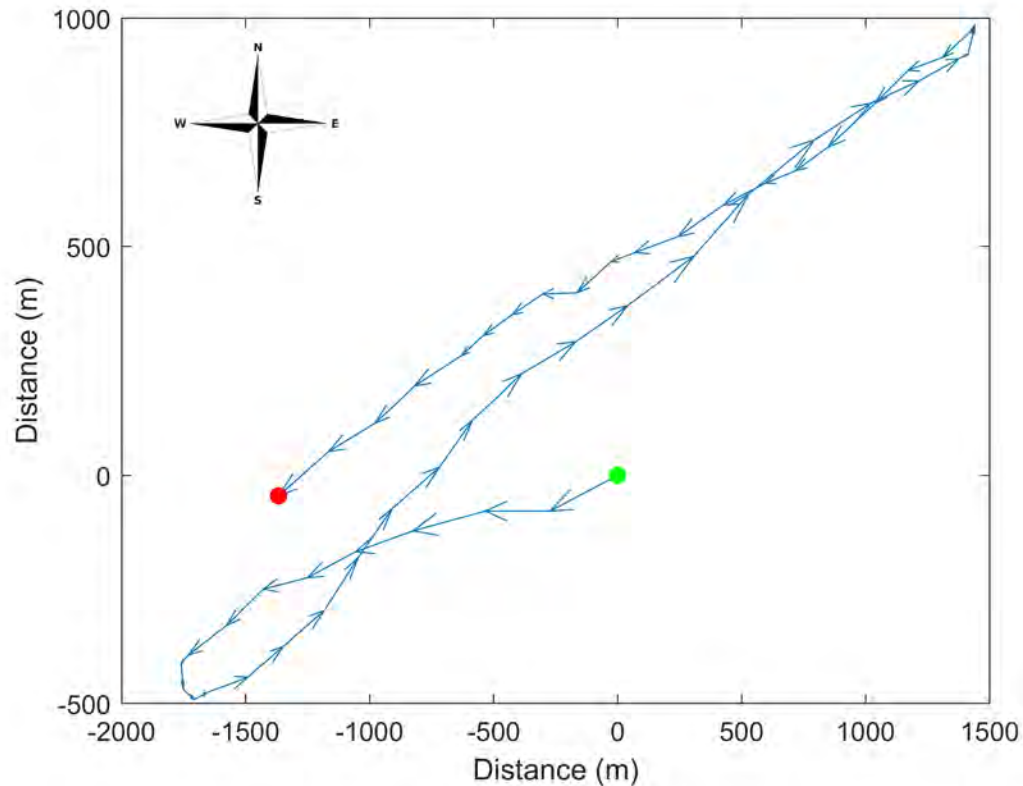


Figure 3: An example of a Progressive Vector Diagram, using 12 hours of surface current observations from the VMT buoy. The green dot indicates the start of the time series and the red dot indicates the end. The vector has been scaled to show the distance and direction travelled during each 15-minute period (assuming a constant current velocity). In this example the tide was ebbing at the start of the period, reached low tide, then changed direction as the tide began to flood. The direction of the currents changed again after high tide. The distance between the green start dot and the red end dot indicates the overall transport over the 12-hour period (~1500 meters to the west).

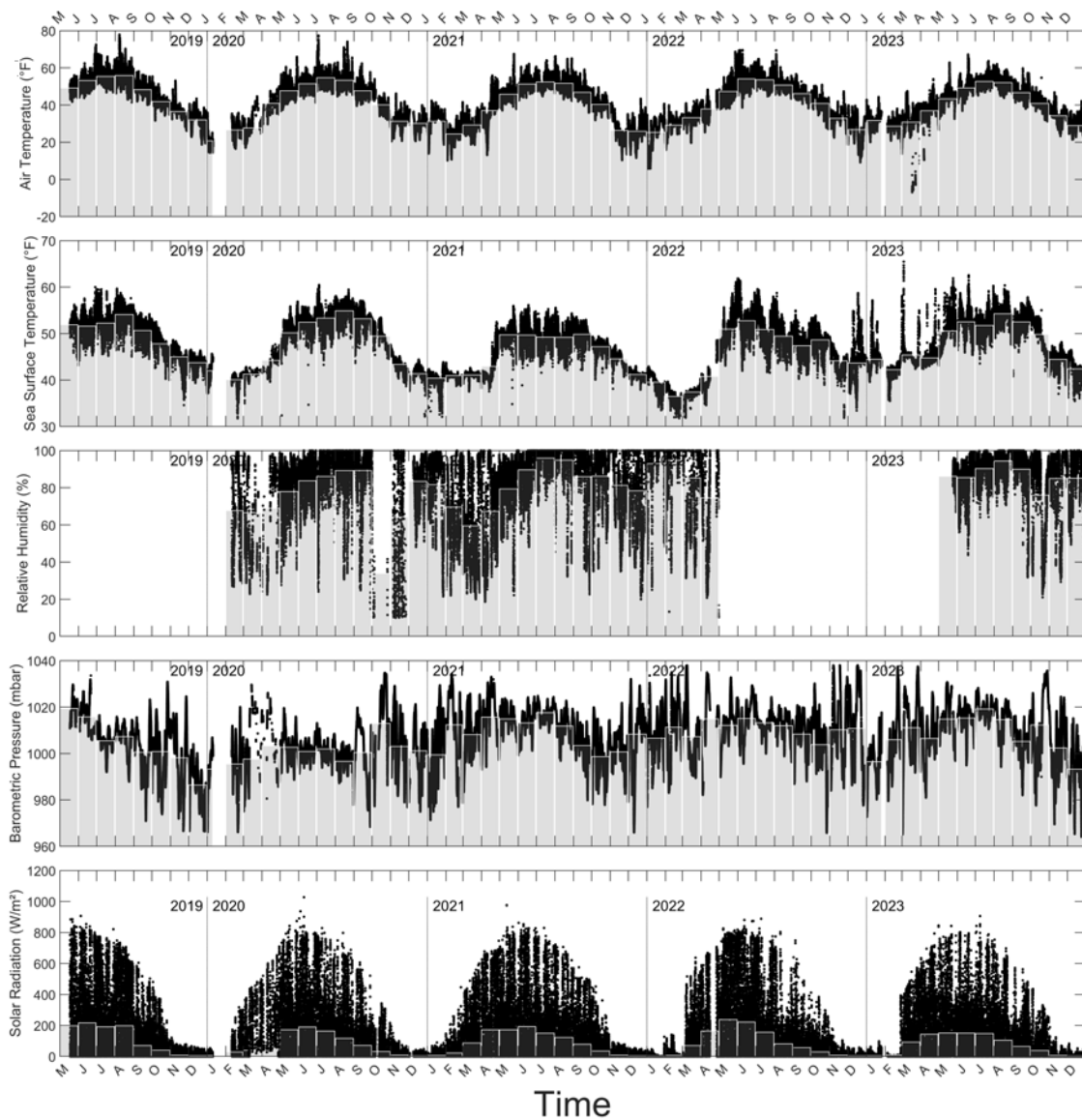


Figure 4: Scalar observations at the VMT buoy, including air (top panel) and water (2<sup>nd</sup> panel) temperatures, relative humidity (3<sup>rd</sup> panel), barometric pressure (4<sup>th</sup> panel), and solar radiation (bottom panel). Black dots are observations, bars indicate monthly averages.

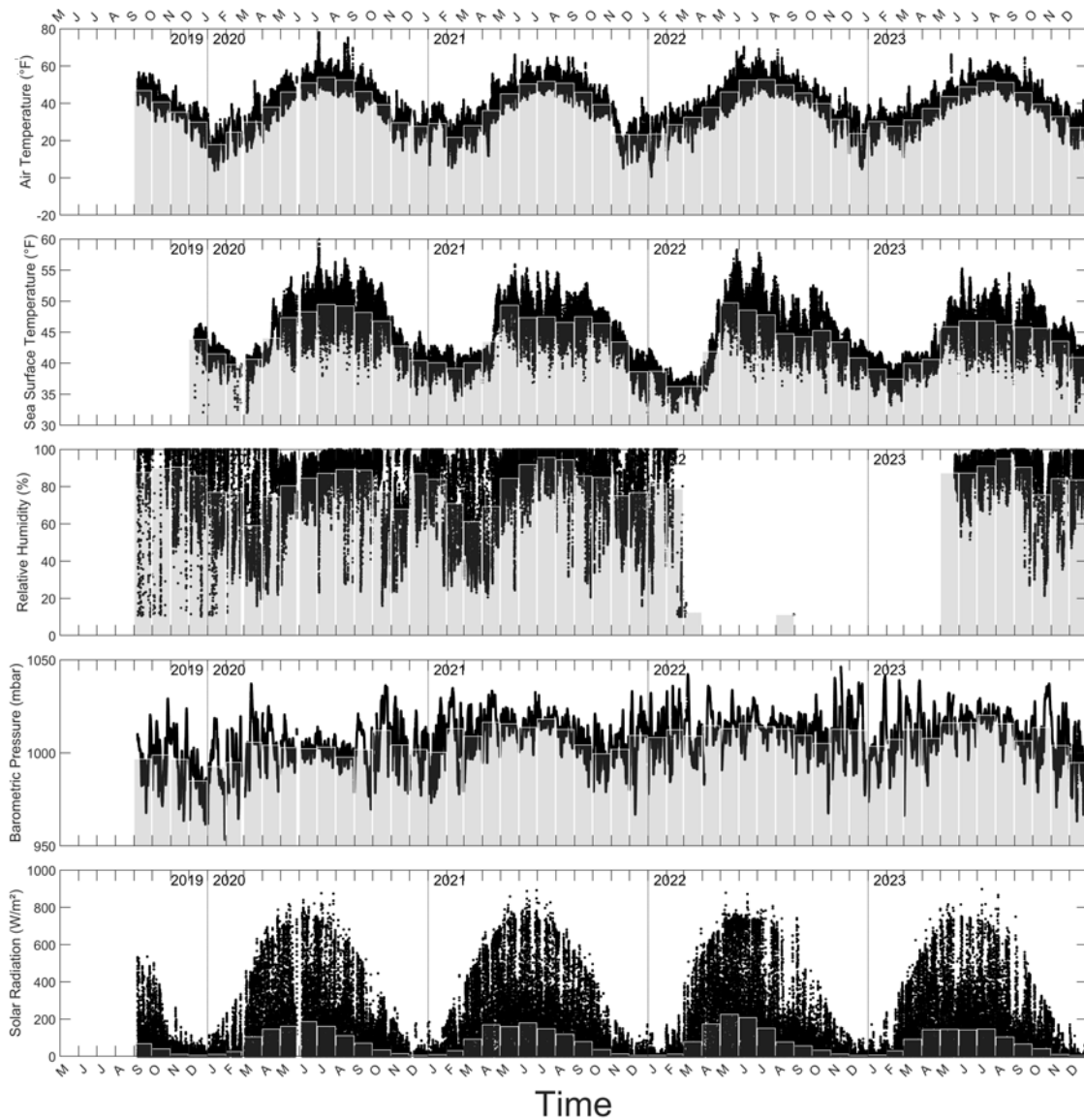


Figure 5: Scalar observations at the Duck Flats buoy, including air (top panel) and water (2<sup>nd</sup> panel) temperatures, relative humidity (3<sup>rd</sup> panel), barometric pressure (4<sup>th</sup> panel), and solar radiation (bottom panel). Black dots are observations, bars indicate monthly averages.

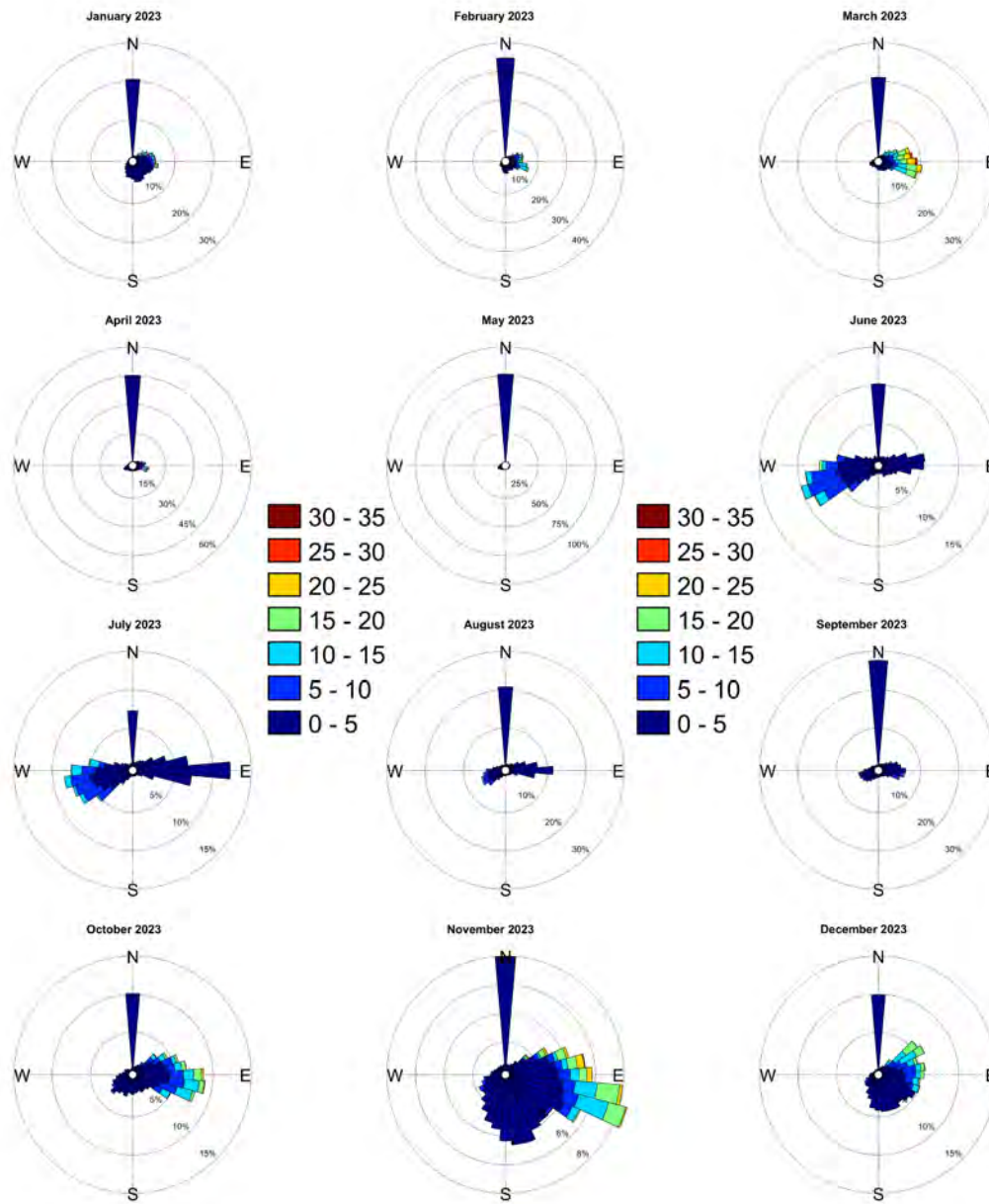


Figure 6: Monthly wind roses at the VMT buoy. Bars indicate the direction from and the color scale indicates wind velocities. Color scale is equivalent among the figures (i.e., all the figures are directly comparable). When the wind equals zero (caused by very calm periods or when the anemometer ices up), vector multiplication results in the direction also recording as zero (i.e., due north).



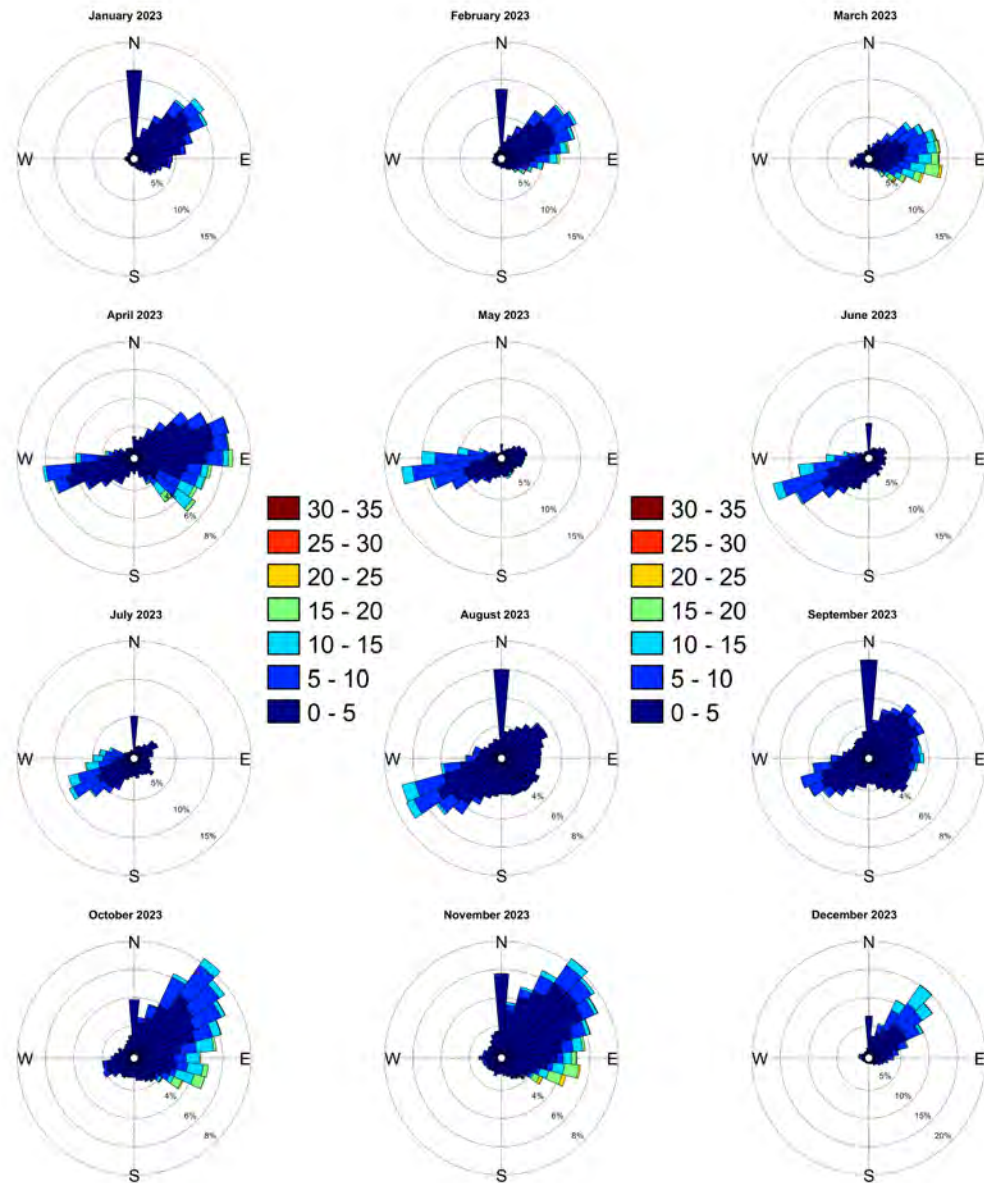
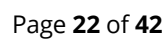


Figure 7: Monthly wind roses at the Duck Flats buoy. Bars indicate the direction from and the color scale indicates wind velocities. Color scale is equivalent among the figures (i.e., all the figures are directly comparable). When the wind equals zero (caused by very calm periods or when the anemometer ices up), vector multiplication results in the direction also recording as zero (i.e., due north).





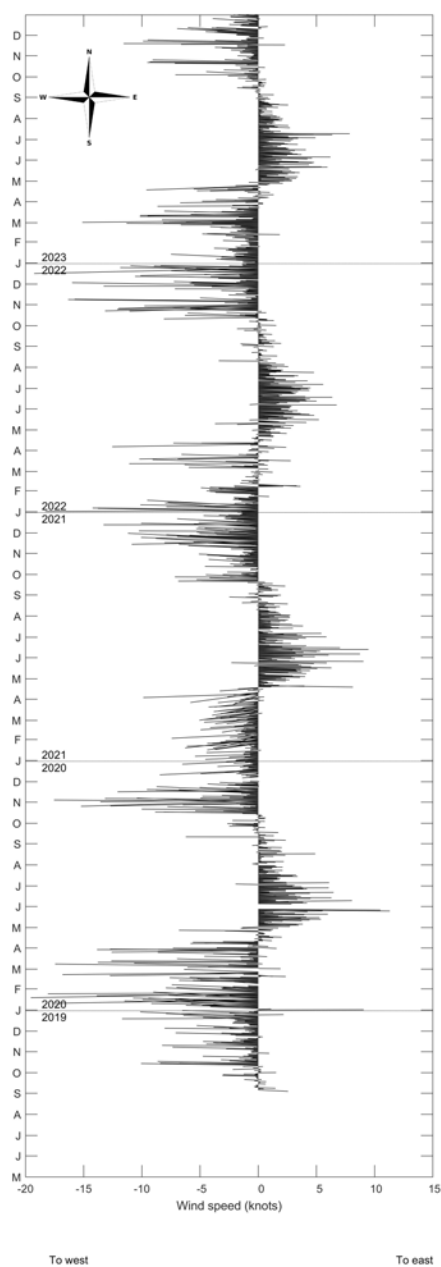


Figure 9: Quiver plot of average daily wind vectors at the Duck Flats buoy. The length of each stick indicates wind speed and the angle indicates the direction from.

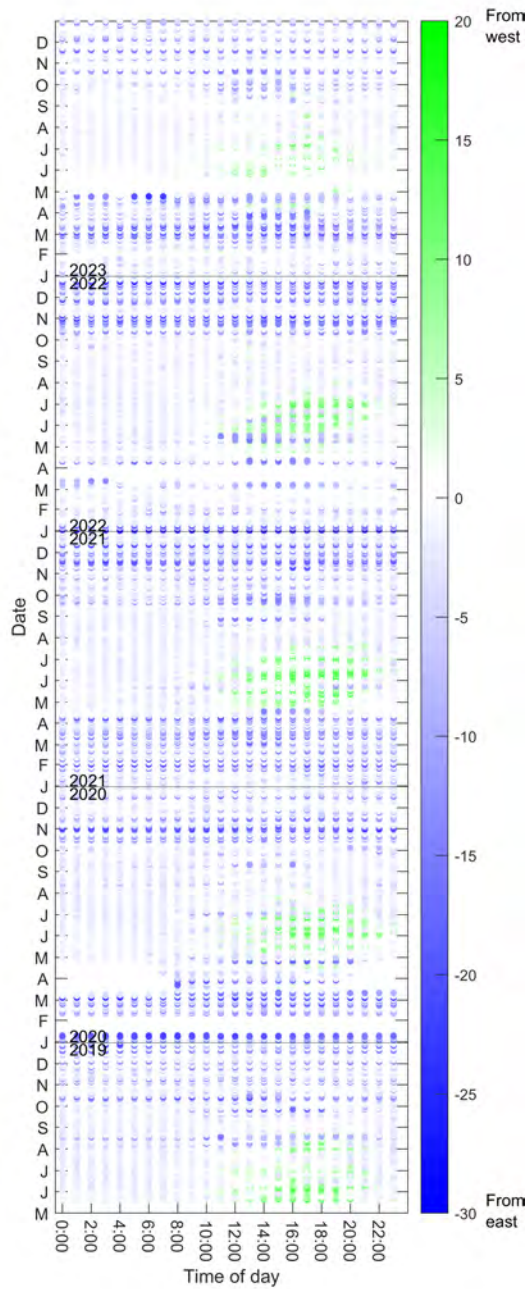


Figure 10: Daily east-west winds at the VMT buoy. Only the east-west component of the winds are shown, green colors scale with the strength of westerly winds, and blue colors scale with the strength of easterly winds.

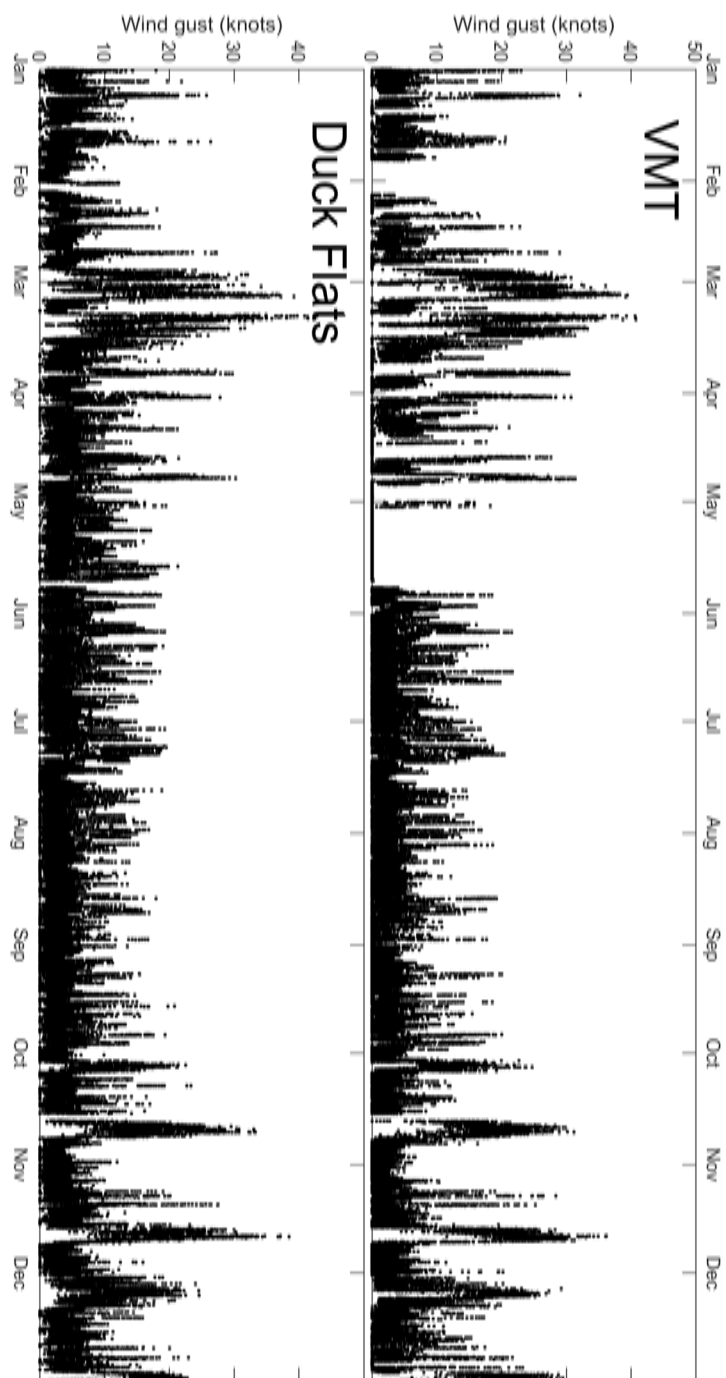


Figure 1: Wind gust time series at the VMT (top panel) and Duck Flats (bottom panel).

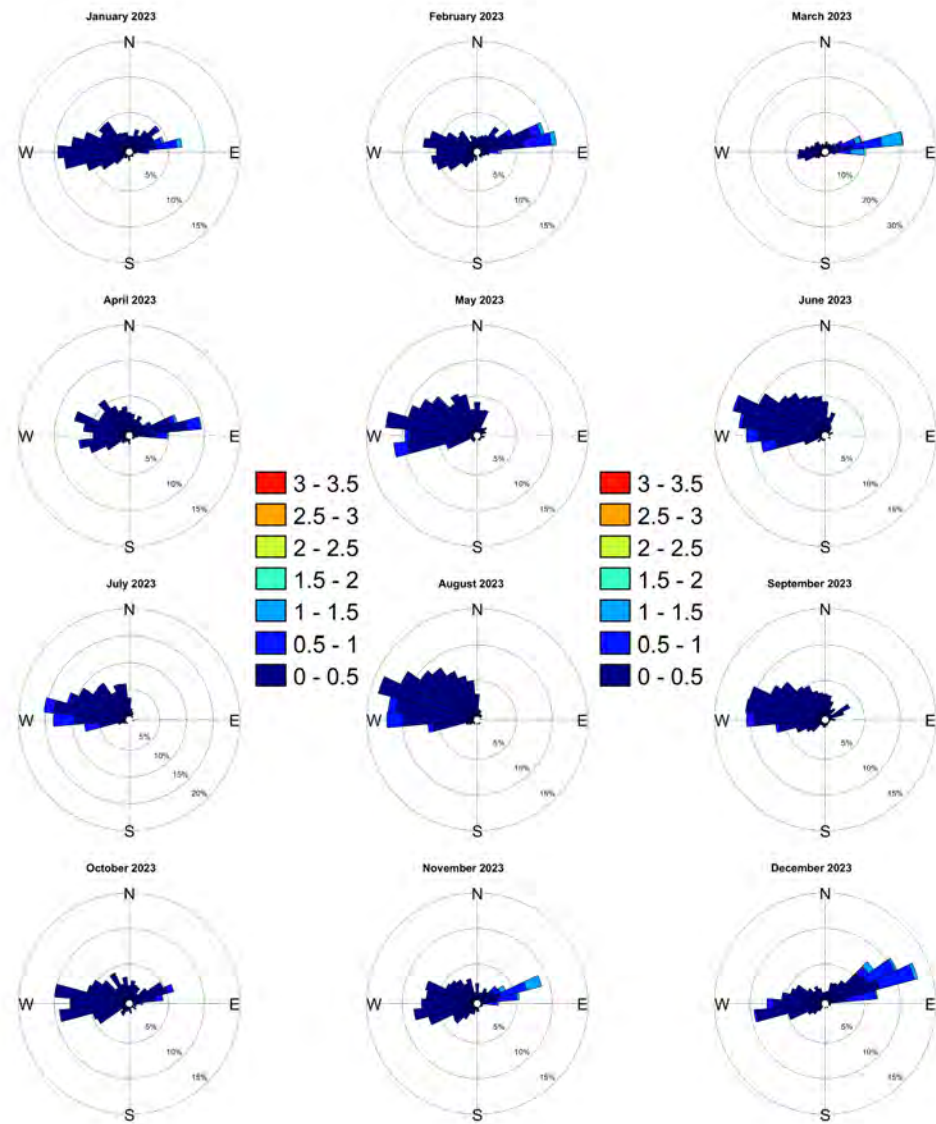


Figure 12: Monthly wave roses (feet) at the VMT buoy. Bars indicate the direction to and the color scale indicates significant wave heights. Color scale is equivalent among the figures (i.e., all the figures are directly comparable).

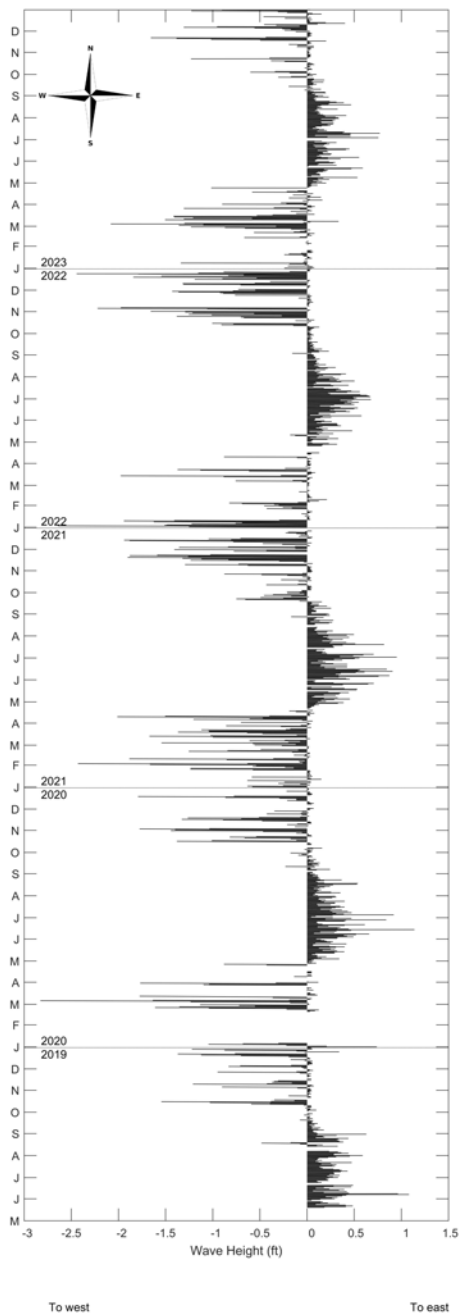


Figure 13: Quiver plot of average daily wave vectors (direction and height in feet) at the VMT buoy. The length of each stick indicates wave height and the angle indicates the direction the waves are travelling in.

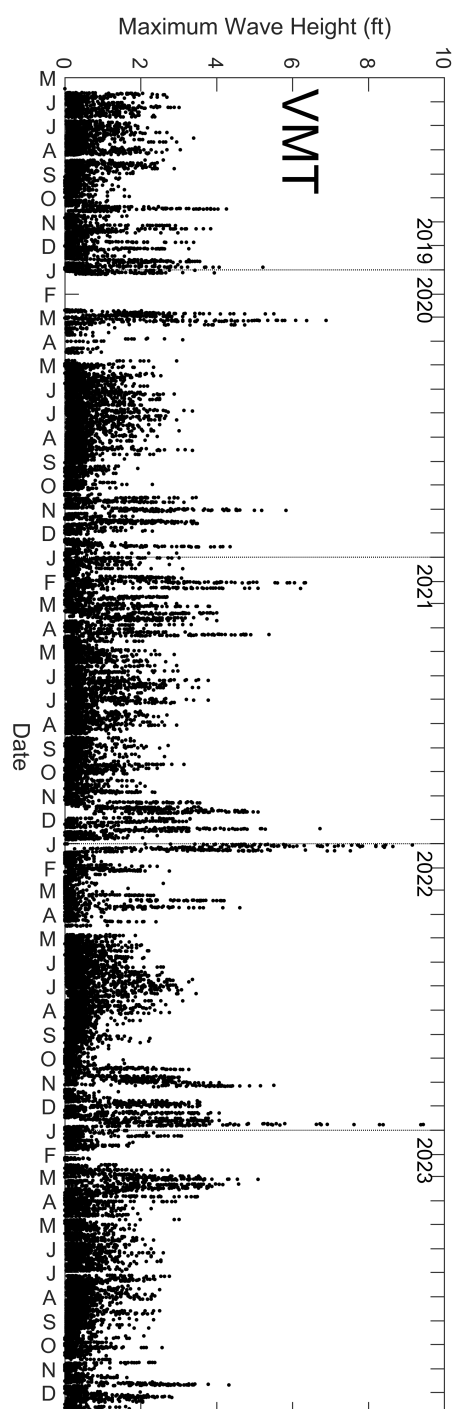


Figure 14: Time series of maximum wave heights observed at the VMT buoy.

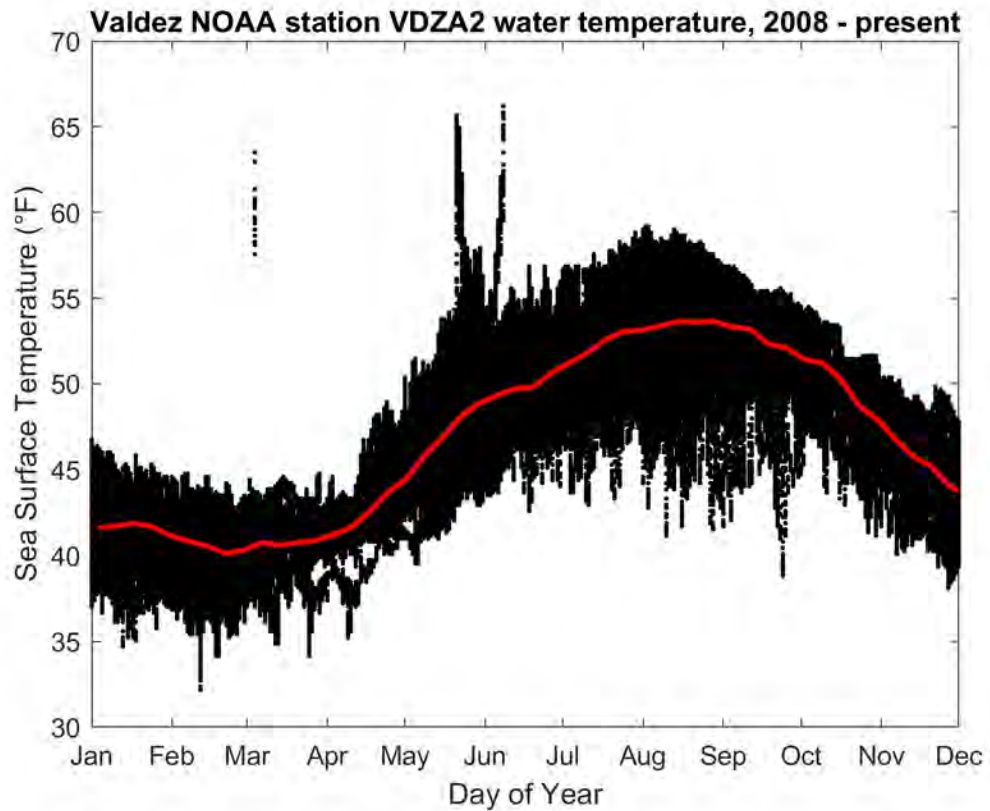


Figure 15: Annual average temperature cycle at the NOAA tide station VDZA2 in Valdez harbor. Air temperature data was overlaid from all years (2009-present) by day of year. Dots indicate observations and the red line indicates the weekly average.



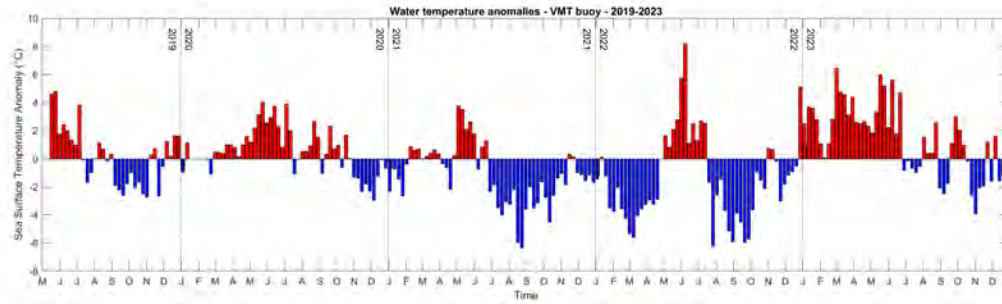


Figure 16: Weekly sea surface temperature anomalies at the VMT buoy. Anomalies are the departure of weekly average temperatures from the weekly average at the VDZA2 tide station.

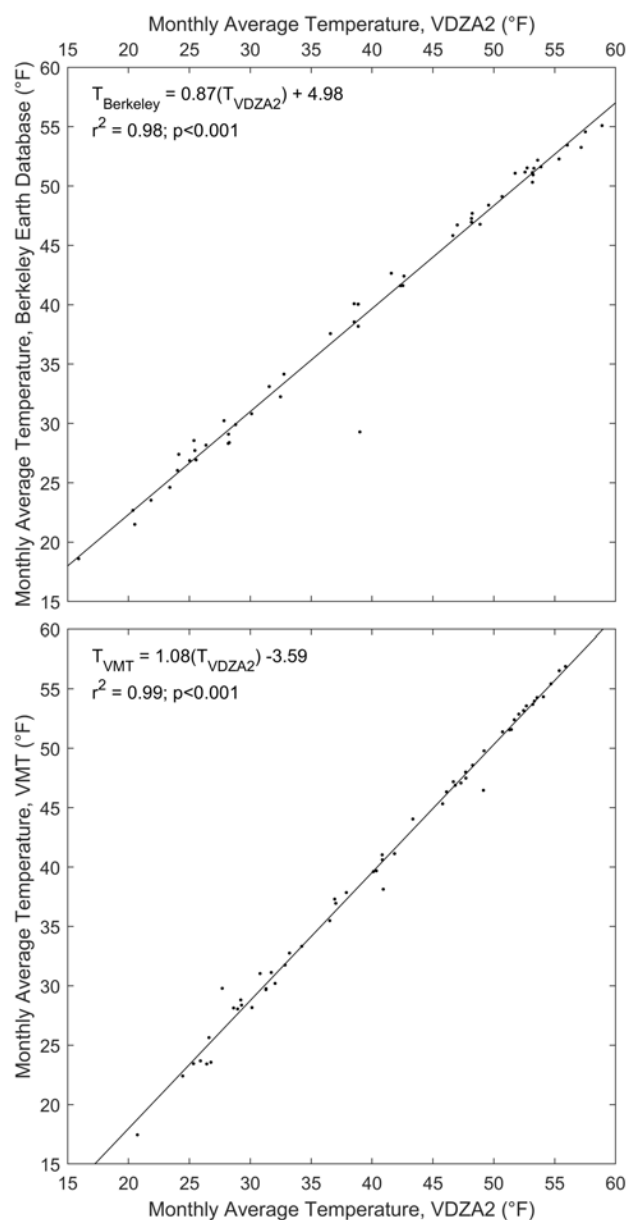


Figure 17: Top panel: Comparison of monthly average air temperature estimates from the Berkeley Earth database and monthly average temperatures calculated at the VDZA2 station at months where the two time series overlapped. Bottom panel: Comparison of average temperatures calculated at the VMT buoy and VDZA2 where the two time series overlapped. The regression lines were fit by least squares.

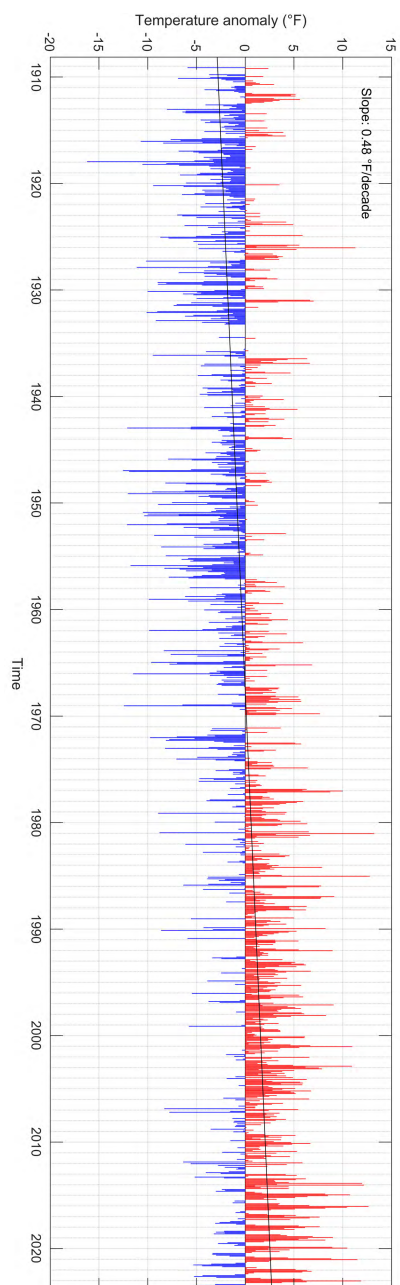


Figure 18: Air temperature anomalies from the combined Berkeley Earth database, VDZA2, and VMT monthly temperature estimates, 1908 - 2022.

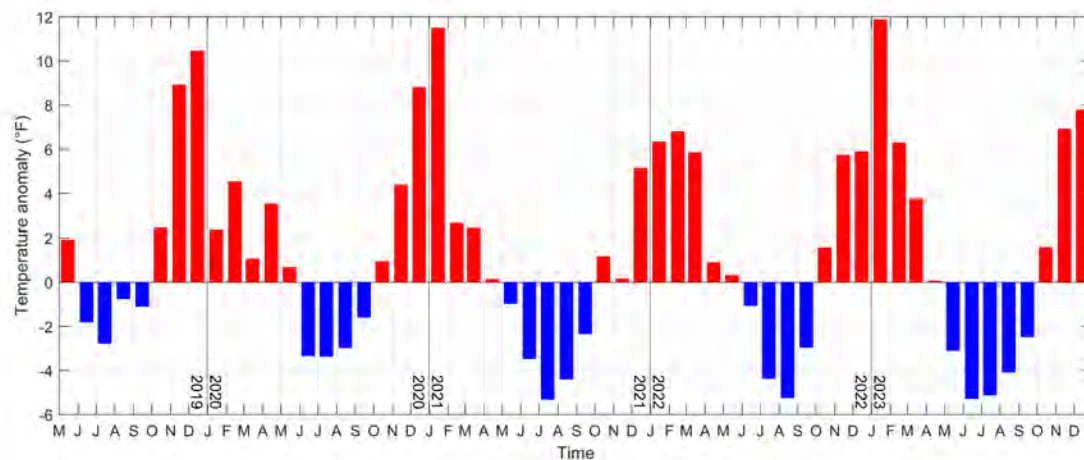


Figure 19: Monthly average air temperature anomalies at the VMT. This is the same data as in figure 18, but scaled to the time period the VMT buoy has been deployed.

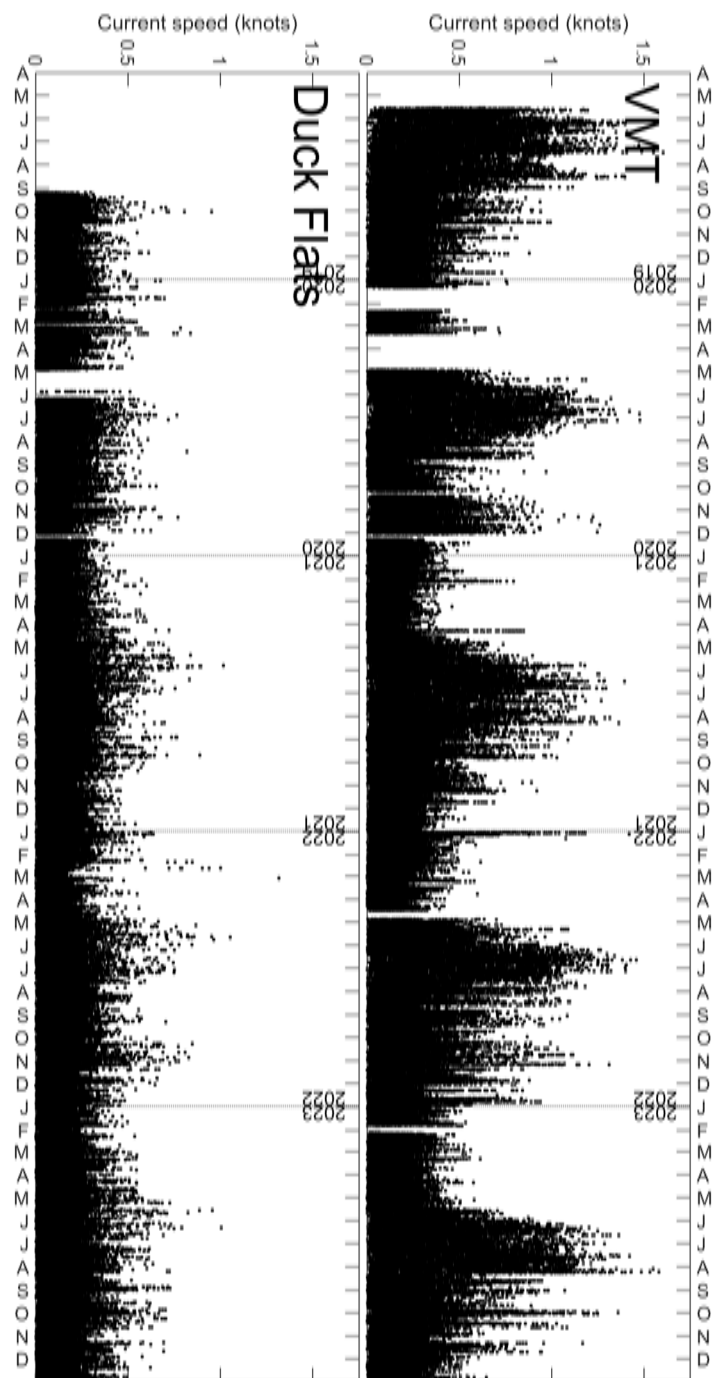


Figure 20: Current speed time series at the VMT (top panel) and Duck Flats (bottom panel).

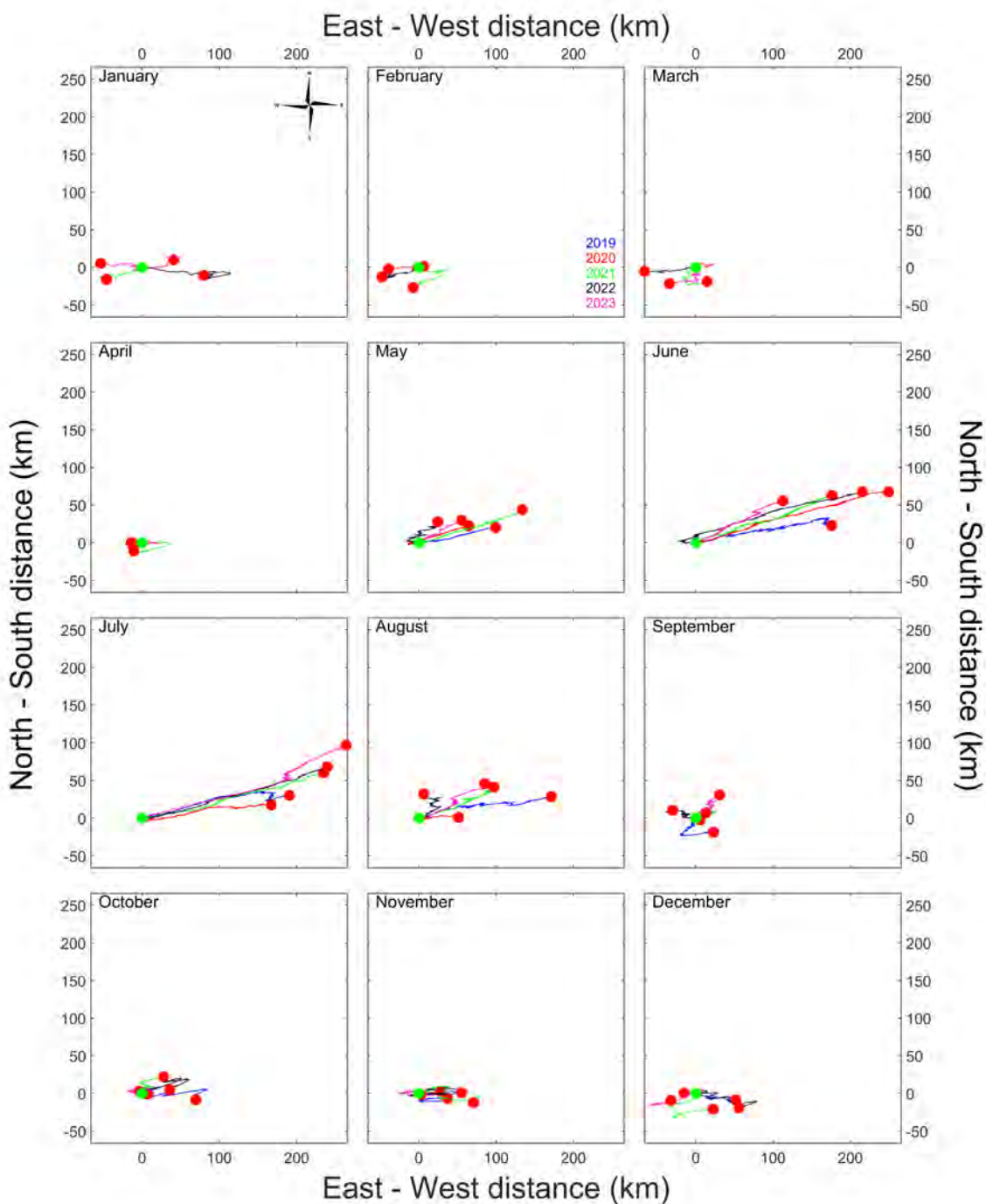


Figure 21: Monthly PVD of surface currents at the VMT buoy, 2019-2023. All axes are scaled to be the same to make each vector track comparable. The bottom axis indicates direction east-west, with westerly directions negative and easterly ones positive, the side axis indicates direction north-south, with southerly directions negative.

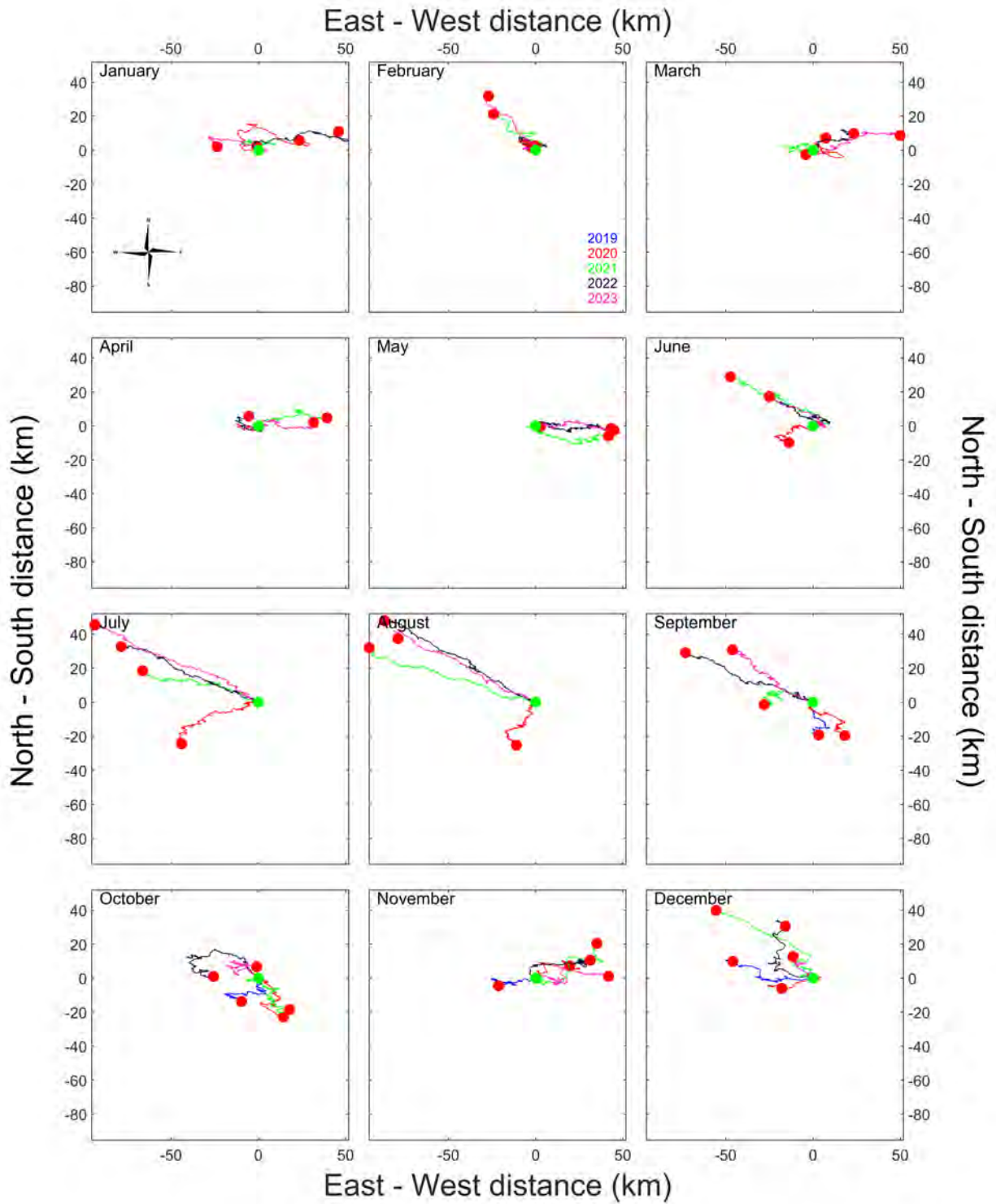


Figure 22: Monthly PVD of surface currents at the Duck Flats buoy, 2019-2023. All axes are scaled to be the same to make each vector track comparable and are equivalent to the axis scaling in figure 21.



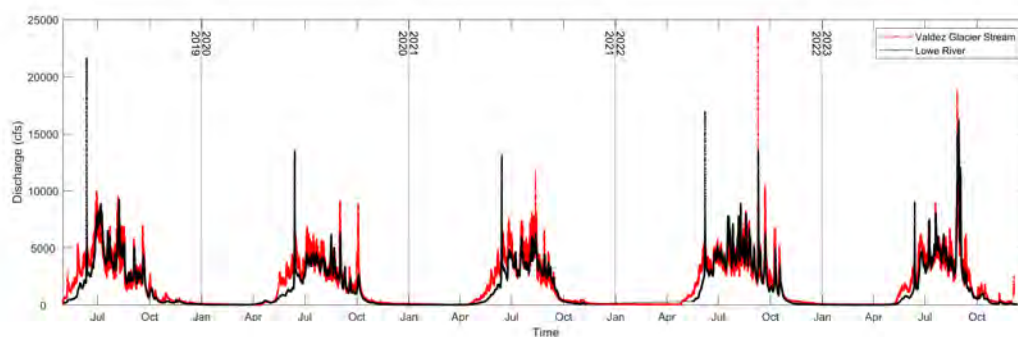


Figure 23: Hydrograph of discharge at the Lowe River (USGS station 15226620) and Valdez Glacier Stream (USGS station 15227090). Discharge data was downloaded from [waterdata.usgs.gov](https://waterdata.usgs.gov).

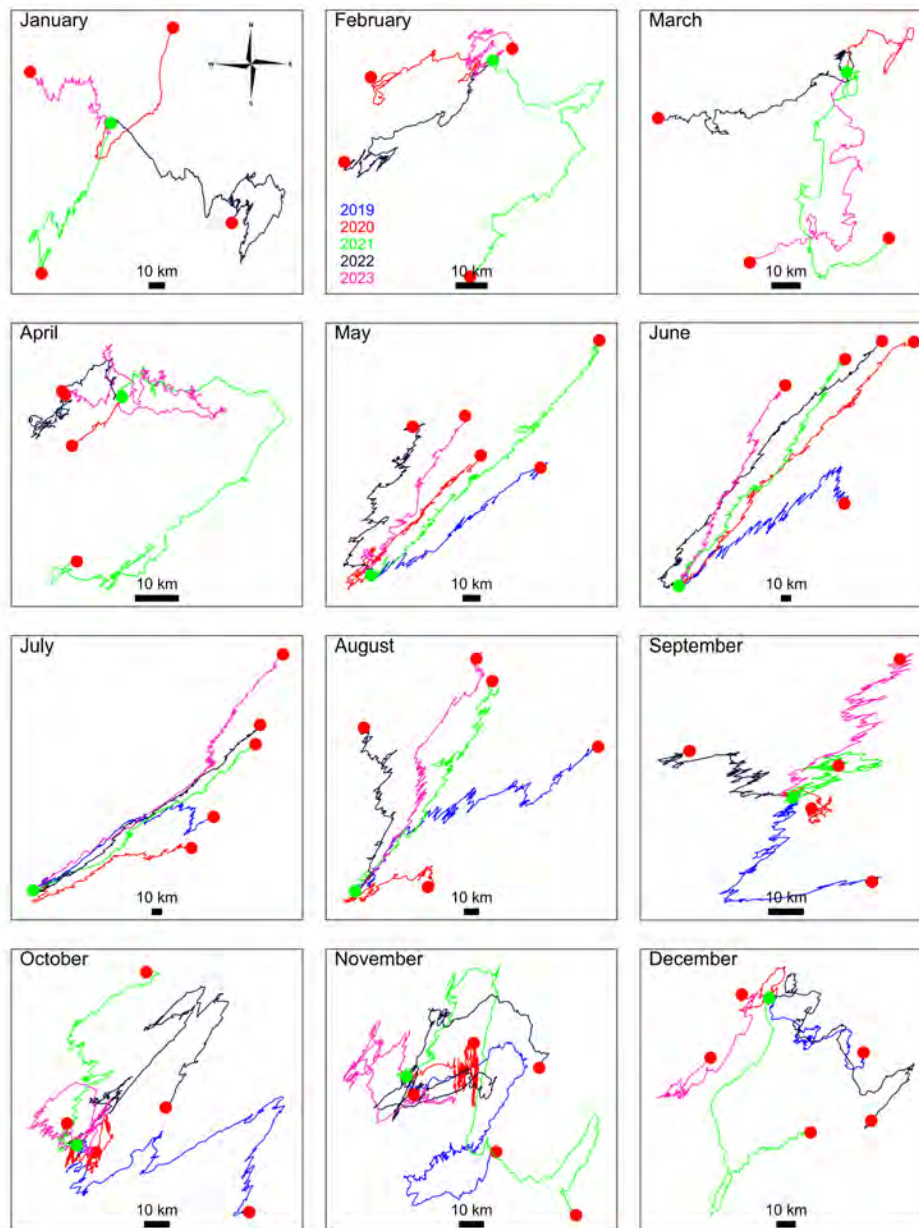


Figure 24: Monthly PVD of surface currents at the VMT buoy, 2019-2023. All plots are the same data as figure 21, but the axes have been rescaled for each month to the limits of the data for that month (i.e., “zoomed in” to that month’s data only). Each plot has been given a 10 km scale bar to give an impression of the scaling and varies by each month because the scaling of each panel is unique to that month.

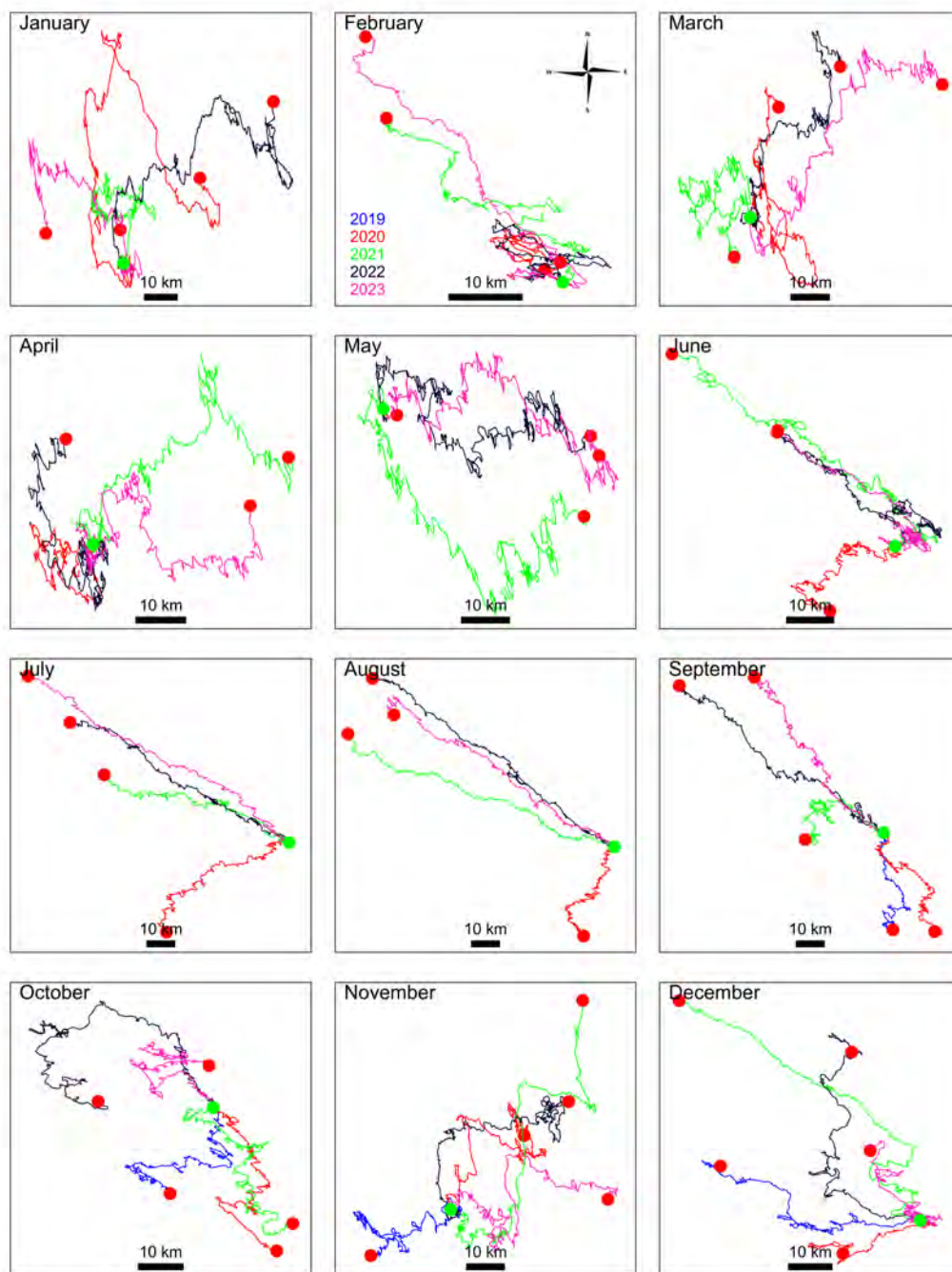


Figure 25: Monthly PVD of surface currents at the Duck Flats buoy, 2019-2023. Scaling has been done as described in figure 24.

**Appendix 1: Table of averages and minimum/maximum values at the VMT buoy, by month (2019-2023).**

Month	Air Temperature (°F)	Water Temperature (°F)	Relative Humidity (%)	Barometric Pressure (%)	Solar Radiation (W/m <sup>2</sup> )	Wind Speed (knots)	Wind Gust (knots)	Significant Wave Height (ft)	Max. Wave Height (ft)	Current Speed (knots)
January	28.79 5.77 - 44.85	41.53 31.95 - 57.13	83.81 20.86 - 100.00	1002.51 966.18 - 1033.57	4.48 0.00 - 146.88	4.90 0.00 - 31.49	6.73 0.00 - 50.09	0.40 0.00 - 3.87	0.76 0.00 - 9.15	0.17 0.00 - 1.95
February	27.25 10.24 - 41.53	39.90 31.75 - 54.97	78.56 13.28 - 100.00	1007.20 966.15 - 1037.45	12.49 0.00 - 446.49	4.55 0.00 - 34.77	3.77 0.00 - 30.79	0.38 0.00 - 3.58	0.69 0.00 - 6.34	0.14 0.00 - 0.80
March	30.65 -6.92 - 47.48	41.70 31.90 - 65.46	71.30 20.02 - 100.00	1007.32 965.13 - 1037.95	82.86 0.00 - 637.42	5.31 0.00 - 34.77	5.79 0.00 - 40.82	0.55 0.00 - 3.78	0.97 0.00 - 6.88	0.13 0.00 - 0.72
April	37.51 10.47 - 55.80	43.26 34.59 - 59.56	69.89 10.23 - 100.00	1011.10 980.56 - 1034.88	158.80 0.00 - 844.90	3.65 0.00 - 30.25	4.36 0.00 - 31.43	0.27 0.00 - 3.14	0.51 0.00 - 5.38	0.14 0.00 - 0.85
May	46.39 32.57 - 68.67	50.51 32.38 - 61.90	79.42 22.19 - 100.00	1011.94 988.68 - 1032.79	185.21 0.00 - 976.98	3.34 0.00 - 19.46	3.29 0.00 - 27.37	0.25 0.00 - 1.79	0.50 0.00 - 2.98	0.28 0.00 - 1.20
June	51.84 36.92 - 72.50	51.80 34.67 - 62.53	86.26 43.82 - 100.00	1012.04 991.38 - 1033.57	194.24 0.00 - 1027.90	4.32 0.00 - 19.98	5.36 0.00 - 25.33	0.34 0.00 - 2.18	0.65 0.03 - 3.78	0.46 0.00 - 1.49
July	53.74 44.69 - 77.36	51.48 41.57 - 60.44	91.05 24.08 - 100.00	1011.50 990.72 - 1028.23	161.66 0.00 - 906.27	3.43 0.00 - 21.23	4.68 0.00 - 25.52	0.33 0.00 - 2.21	0.62 0.03 - 3.78	0.39 0.00 - 1.61
August	52.73 41.47 - 77.86	52.35 42.14 - 60.37	92.85 30.71 - 100.00	1008.55 977.82 - 1023.56	124.66 0.00 - 803.72	2.87 0.00 - 22.66	3.28 0.00 - 28.38	0.24 0.00 - 2.08	0.47 0.00 - 3.36	0.29 0.00 - 1.58
September	47.11 35.94 - 62.37	50.71 40.26 - 57.79	88.39 14.78 - 100.00	1003.60 968.33 - 1023.27	68.29 0.00 - 748.44	2.56 0.00 - 22.98	3.84 0.00 - 36.70	0.14 0.00 - 1.76	0.28 0.00 - 3.14	0.21 0.00 - 1.36
October	40.82 27.09 - 55.35	48.53 38.99 - 55.80	80.82 10.22 - 100.00	1005.36 965.79 - 1035.70	34.92 0.00 - 480.61	4.56 0.00 - 28.59	6.71 0.00 - 37.46	0.26 0.00 - 2.59	0.48 0.00 - 4.51	0.23 0.00 - 1.25
November	32.34 10.38 - 53.08	44.30 31.87 - 49.28	80.57 10.01 - 100.00	1002.77 966.61 - 1037.97	8.14 0.00 - 192.75	5.92 0.00 - 33.98	9.26 0.00 - 42.80	0.47 0.00 - 3.23	0.83 0.00 - 5.82	0.23 0.00 - 1.31
December	28.71 9.14 - 43.48	42.52 32.16 - 58.69	82.20 19.97 - 100.00	999.93 964.12 - 1037.98	3.43 0.00 - 82.34	5.47 0.00 - 36.25	8.83 0.00 - 49.66	0.47 0.00 - 3.74	0.84 0.00 - 8.38	0.16 0.00 - 0.94

## Appendix 2: Table of averages and minimum/maximum values at the Duck Flats buoy, by month (2019-2023).

Month	Air Temperature (°F)	Water Temperature (°F)	Relative Humidity (%)	Barometric Pressure (%)	Solar Radiation (W/m <sup>2</sup> )	Wind Speed (knots)	Wind Gust (knots)	Significant Wave Height (ft)	Max. Wave Height (ft)	Current Speed (knots)
January	25.06 0.54 - 45.25	40.03 33.20 - 45.21	78.57 10.86 - 100.00	1002.59 953.29 - 1041.23	7.94 0.00 - 235.13	5.64 0.00 - 31.94	7.61 0.00 - 48.26	0.50 0.00 - 2.69	0.90 0.00 - 4.99	0.13 0.00 - 0.70
February	25.22 -2.78 - 41.92	37.94 32.01 - 42.88	75.15 10.12 - 100.00	1007.83 964.57 - 1039.02	23.55 0.00 - 436.39	4.17 0.00 - 28.61	5.03 0.00 - 33.47	0.29 0.00 - 2.14	0.52 0.00 - 3.71	0.12 0.00 - 1.00
March	30.33 13.73 - 51.96	39.21 32.02 - 43.13	60.01 10.14 - 100.00	1009.09 966.27 - 1042.24	91.35 0.00 - 684.60	5.46 0.00 - 31.10	6.96 0.00 - 42.86	0.22 0.00 - 1.73	0.41 0.00 - 3.07	0.12 0.00 - 1.32
April	37.24 11.71 - 55.80	42.49 35.60 - 52.63	71.96 20.59 - 100.00	1010.64 979.17 - 1036.05	157.66 0.00 - 792.11	4.09 0.00 - 28.38	5.59 0.00 - 32.33	0.09 0.00 - 1.06	0.18 0.00 - 1.70	0.12 0.00 - 0.72
May	45.17 31.73 - 67.64	48.14 38.33 - 58.28	83.18 24.36 - 100.00	1012.25 989.29 - 1033.70	173.66 0.00 - 878.27	4.54 0.00 - 23.97	5.78 0.00 - 27.31	0.37 0.03 - 1.34	0.68 0.06 - 2.18	0.15 0.00 - 1.06
June	50.62 39.04 - 70.29	47.72 36.88 - 56.30	88.05 51.56 - 100.00	1012.44 994.11 - 1032.61	178.64 0.00 - 891.69	4.43 0.00 - 23.83	5.63 0.00 - 25.85	N/A N/A - N/A	N/A N/A - N/A	0.15 0.00 - 1.01
July	52.60 43.08 - 78.12	47.87 37.58 - 59.95	91.27 23.19 - 100.00	1013.91 991.91 - 1030.98	151.48 0.00 - 897.88	3.59 0.00 - 22.12	4.88 0.00 - 22.04	N/A N/A - N/A	N/A N/A - N/A	0.15 0.00 - 0.75
August	51.06 38.17 - 75.22	46.66 36.40 - 56.84	92.89 11.13 - 100.00	1009.84 978.77 - 1024.63	102.28 0.00 - 866.56	2.64 0.00 - 25.42	3.72 0.00 - 26.47	N/A N/A - N/A	N/A N/A - N/A	0.15 0.00 - 0.82
September	46.02 31.99 - 64.44	46.42 36.72 - 55.45	88.20 10.09 - 100.00	1004.00 967.75 - 1021.83	67.84 0.00 - 749.70	2.73 0.00 - 21.67	4.30 0.00 - 32.33	0.06 0.00 - 0.51	0.11 0.00 - 1.15	0.14 0.00 - 0.89
October	39.73 24.68 - 55.20	46.03 35.24 - 52.92	80.42 10.84 - 100.00	1005.70 967.44 - 1037.20	36.60 0.00 - 500.47	4.07 0.00 - 25.31	6.48 0.00 - 37.90	0.11 0.00 - 1.47	0.20 0.00 - 2.56	0.13 0.00 - 0.95
November	30.56 5.05 - 49.33	43.28 34.40 - 47.50	79.47 13.65 - 100.00	1003.75 963.49 - 1046.23	11.90 0.00 - 260.51	5.23 0.00 - 30.98	8.29 0.00 - 46.53	0.07 0.00 - 0.86	0.14 0.00 - 1.73	0.13 0.00 - 0.78
December	26.19 4.62 - 42.92	40.71 32.07 - 46.49	83.02 10.22 - 100.00	1000.51 961.57 - 1037.75	4.15 0.00 - 176.74	4.77 0.00 - 29.25	7.87 0.00 - 45.27	0.13 0.00 - 1.66	0.25 0.00 - 3.10	0.12 0.00 - 0.65

## Briefing for PWSRCAC Board of Directors – September 2024

**INFORMATION ITEM**

**Sponsor:** Sadie Blancaflor and the Terminal Operations and Environmental Monitoring Committee

**Project number and name or topic:** 6512 - Maintaining the Secondary Containment Liner

1. **Description of agenda item:** This is an information item to provide the Board with an update on the West Tank Farm secondary containment liner pilot test using electrical leak location. PWSRCAC contractor Dr. Joe Scalia, Associate Professor of Civil and Environmental Engineering at Colorado State University who works with Dr. Craig Benson, will provide an update on the Electrical Leak Location (ELL) and Electrical Resistivity Tomography (ERT) pilot tests that Alyeska conducted in the decommissioned West Tank Farm July 22-30, 2024.

2. **Why is this item important to PWSRCAC:** Secondary containment systems are required by state and federal regulation to hold oil in the event of a spill from a tank or pipe until the spill can be detected and cleaned up. The Alyeska Pipeline Service Company's (Alyeska) Valdez Marine Terminal (VMT) utilizes 14 crude oil storage tanks located in their East Tank Farm to facilitate terminal operations. The VMT also has a West Tank Farm that is not currently in use and has four out-of-service crude oil storage tanks. All of the in-service and out-of-service crude oil tanks, as well as other storage tanks at the VMT, are within secondary containment systems.

One of the major components of the secondary containment systems at the VMT's East Tank Farm is a special subsurface liner, called a catalytically blown asphalt (CBA) liner. The CBA liner was installed around 1976, when the terminal was constructed. The CBA liner is located under about five feet of earthen fill throughout each of the seven secondary containment areas (also referred to as "dike cells") in the East Tank Farm. There are two crude oil storage tanks per dike cell. Holes or cracks through the East Tank Farm's CBA liner have consistently been found when it is exposed (about 19% of the time it is uncovered) indicating that the liner, and thereby the secondary containment system, may not hold spilled oil before it could be detected and cleaned up.

The area underlain by CBA liner is very large. The average containment area in each dike cell is about eight acres and the total containment area in the East Tank Farm is about 57 acres, the majority of which is underlain by CBA liner. CBA liner is installed underneath all the tanks as well as around the tank perimeters. Only a small percentage of the liner area has ever been uncovered and evaluated for damage.

For two decades PWSRCAC has voiced concern to Alyeska, and state and federal regulators, regarding the ability of the CBA liner to meet regulatory standards and the risks that a compromised liner poses in the event of a spill from the crude oil storage tanks at the VMT.



## Update on Review of Secondary Containment Liner Testing 4-3

The Council's years of concern recently culminated in a May 11, 2022, decision by the Alaska Department of Environmental Conservation (ADEC) requiring that Alyeska:

- Identify "preliminary" methods to evaluate the integrity of the CBA liner in the East Tank Farm by October 1, 2023
- Identify "final" proposed method by March 1, 2025

PWSRCAC contractor Dr. Joe Scalia, a subcontractor to Dr. Craig Benson, was tasked with observing the pilot test on July 22–30, 2024. The pilot test will be used to inform the final proposed method of testing for the East Tank Farm, which is due to ADEC on March 1, 2025.

### 3. **Previous actions taken by the Board on this item:**

<u>Meeting</u>	<u>Date</u>	<u>Action</u>
XCOM	4/28/22	Authorized the Executive Director to negotiate a FY2022 contract with Dr. Craig H. Benson for project 6512 - Secondary Containment Liner Work in an amount not-to-exceed \$50,000.
Board	1/26/23	Accepted the report titled "Methodologies for Evaluating Defects in the Catalytically Blown Asphalt Liner in the Secondary Containment System at the VMT" by Dr. Craig H. Benson dated November 29, 2022, with direction to staff to forward the report to Alyeska, and state and federal regulators; and authorized staff to negotiate a contract change order, for contract #6512.22.02, with Dr. Craig H. Benson, adding \$7,900 for compensation to attend meetings with the Council, Alyeska, and state/federal regulators promoting the findings and recommendations of his November 29, 2022 report and extending the term of the contract to June 30, 2023.
XCOM	7/18/24	Authorized an FY2025 contract with Dr. Craig Benson for deliverables associated with project 6512 Maintaining the Secondary Containment Liner, in an amount not to exceed \$38,000.

4. **Summary of policy, issues, support, or opposition:** For at least the past three VMT contingency plan (C-Plan) renewals (going back to the 2008 renewal), the Council has submitted comments to Alyeska and ADEC with recommendations pertaining to the CBA liner and secondary containment systems. The most recent 2019 C-Plan renewal was no different, except that the Council and Alyeska both filed "informal reviews" with ADEC regarding the secondary containment systems. The "informal reviews," which are a way of working out disagreements about the C-Plan without requesting an adjudicatory hearing, were resolved when ADEC issued the aforementioned May 11, 2022 decision requiring Alyeska to identify final CBA liner evaluation methods by March 2025.

5. **Committee Recommendation:** None.

6. **Relationship to LRP and Budget:** Project 6512 – Maintaining the Secondary Containment Systems at the Valdez Marine Terminal is in the approved FY2025 budget and annual work plan.

7. **Action Requested of the Board of Directors:** None, item is for information only.

8. **Attachments:** None.



**Briefing for PWSRCAC Board of Directors – September 2024**

**INFORMATION ITEM**

**Sponsor:** Linda Swiss and the Oil Spill Prevention and Response Committee

**Project number and name or topic:** 6510 - Contingency Plan Review – Prince William Sound Tanker Oil Discharge Prevention and Contingency Plan

1. **Description of agenda item:** This informational item is intended to brief the Board on a major amendment, submitted in September 2023, on the Prince William Sound Tanker Oil Discharge Prevention and Contingency Plan (Tanker C-Plan) and associated vessel response plans for Alaska Tanker Company, Andeavor LLC, Crowley Alaska Tankers, Hilcorp North Slope, and Polar Tankers. The amendment, submitted on September 11, 2023, and approved on June 21, 2024, addressed regulatory changes in 18 AAC 75 that became effective in February 2023.
2. **Why is this item important to PWSRCAC:** The Tanker C-Plan approval process includes important actions which could potentially impact every member organization. The Tanker C-Plan outlines prevention and response activities that planholders would be required to undertake to prevent a spill from occurring and to clean up oil in the event of a spill. Review of contingency plans is a major task for PWSRCAC as outlined in both the PWSRCAC/Alyeska contract and OPA 90.
3. **Previous actions taken by the Board on this item:** None.
4. **Committee Recommendation:** The Oil Spill Prevention and Response Committee (OSPR) has been briefed on the 2023 major amendment to the Tanker C-Plan.
5. **Summary of policy, issues, support, or opposition:** Not applicable.
6. **Relationship to LRP and Budget:** Project 6510 – Contingency Plan Review is in the approved FY2025 budget and annual workplan.
7. **Action Requested of the Board of Directors:** None, this is for information only.

## Update on Tanker Contingency Plan Amendment 4-4

9. **Attachments:** None. Historical documentation on this process, including the June 21, 2024 Basis of Decision information can be viewed [HERE](#).

**Briefing for PWSRCAC Board of Directors – September 2024****ACTION ITEM**

**Sponsor:** Danielle Verna and the Scientific Advisory Committee

**Project number and name or topic:** 9520 - Regional Evaluation of Non-Indigenous Marine Species in Prince William Sound

1. **Description of agenda item:** The Board is being asked to accept the report titled “Regional Evaluation of Non-indigenous Marine Species in Prince William Sound” by the Smithsonian Environmental Research Center dated August 5, 2024. This report describes a broadscale survey for non-indigenous (NIS) marine species across Prince William Sound conducted in summer 2023 using polyvinyl chloride (PVC) settlement panels. The panels passively collected organisms throughout the summer season, which were then analyzed with morphological and genetic methods to identify native and NIS species. Three NIS of benthic marine invertebrates were detected in this study, two of which appear to be new records in Prince William Sound, increasing the total number of documented NIS of benthic marine invertebrates in Prince William Sound to seven. Contractors will share a brief presentation with the Board summarizing the report’s results and recommendations and will be available to answer questions.

2. **Why is this item important to PWSRCAC:** The Oil Pollution Act of 1990 tasks the Council with monitoring “the environmental impacts of the operation of the terminal facilities and crude oil tankers.” NIS are a continuous threat to Prince William Sound because they can be introduced in the ballast water and on the hulls of tankers transiting to and from the Valdez Marine Terminal. The risk of NIS in Prince William Sound is considered high, and the Council has supported monitoring and detection projects for decades. This project builds on previous broadscale surveys for NIS conducted by the Smithsonian Environmental Research Center and supported by the Council. This project adds to the depth of knowledge of NIS across changes in onboard tanker management of ballast water and changes in environmental conditions that may increase the likelihood of successful invasion. Results can provide an indication of the effectiveness of management and biosecurity efforts in our region.

3. **Previous actions taken by the Board on this item:**

<u>Meeting</u>	<u>Date</u>	<u>Action</u>
Board	1/26/2023	The Board authorized a budget modification from the contingency fund to project 9520 - Marine Invasive Species in the amount of \$8,645 for FY2023 contract expenses; and authorized the Executive Director to enter into a sole source contract with the Smithsonian Environmental Research Center for the project Marine Invasive Species Broadscale Survey in Prince William Sound in an amount not to exceed \$60,254.
Board	5/4/2023	Authorization of a contract increase of \$156,629 to contract #9520.23.01 - Marine Invasive Species Broadscale Survey in Prince William Sound - with the

## Report Acceptance: Non-Indigenous Marine Species in PWS 4-5

Smithsonian Environmental Research Center for a new cumulative contract total of \$216,883. (Note: \$60,254 of the proposed contract was approved in FY2023.)

4. **Summary of policy, issues, support, or opposition:** None known.
5. **Committee Recommendation:** The Scientific Advisory Committee recommended the Board of Directors accept this report at its meeting on July 16, 2024.
6. **Relationship to LRP and Budget:** Work associated with this project was included in the FY2024 budget under contract 9520.23.01 in an amount not to exceed \$216,883.
7. **Action Requested of the Board of Directors:** Accept "Regional Evaluation of Non-indigenous Marine Species in Prince William Sound" by the Smithsonian Environmental Research Center dated August 5, 2024, as meeting the terms and conditions of contract number 9520.23.01, and for distribution to the public.
8. **Alternatives:** None recommended.
9. **Attachments:** Draft report titled "Regional Evaluation of Non-indigenous Marine Species in Prince William Sound" by the Smithsonian Environmental Research Center dated August 5, 2024.

# **Regional Evaluation of Non-indigenous Marine Species in Prince William Sound**

Smithsonian Environmental Research Center

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P. Fofonoff, J. Geller, R. DiMaria, M. Arena, & K. Pagenkopp Lohan

Final Report to:

Prince William Sound Regional Citizens' Advisory Council (PWSRCAC)

Contract 9520.23.01

August 5, 2024

The opinions expressed in this PWSRCAC-commissioned report are not necessarily those of  
PWSRCAC.

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## Acronyms and Abbreviations

ASVs	Amplicon Sequence Variants
CM	Centimeter
LCL	Lower Confidence Limit
KM	Kilometer
M	Meter
N	North
NEMESIS	National Estuarine and Marine Exotic Species Information System (SERC)
NIS	Non-Indigenous Species
PCR	Polymerase Chain Reaction
PWS	Prince William Sound
PWSRCAC	Prince William Sound Regional Citizens' Advisory Council
SC	Sample Coverage
SD	Standard Deviation
SE	Standard Error
SERC	Smithsonian Environmental Research Center
SI/HPC	Smithsonian Institution High Performance Computing
UCL	Upper Confidence Limit
W	West



## Overview and Rationale

Prince William Sound (PWS) is at considerable risk for novel invasions due to the combined result of several key drivers. Specifically, a large number of non-indigenous species (NIS) are established already in coastal bays and estuaries along the Pacific coast of North America, with over 300 NIS known in California alone (Ruiz et al. 2015; Fofonoff et al. 2018). NIS are spreading northward as a result of coastwise transfers by human activities including especially vessels (ballast water and hull biofouling) and live trade (e.g., aquaculture, bait, fisheries).

Risk of new NIS invasions to PWS results from: (a) a relatively large number of vessel arrivals directly from California (and elsewhere), as well as other vectors that are known to transfer NIS; (b) the progressive northward spread of NIS, with several new species arriving to southeast Alaska in recent years; and (c) climate change that increases the environmental match (especially for temperature) for NIS to establish new populations from lower latitudes along the Pacific coast.

It has been many years since a broadscale survey of PWS to evaluate whether, and the extent to which, new NIS have colonized. While we have helped establish detection and monitoring programs for some selected species (e.g., PlateWatch, Green crab surveys), these are focused on an important but still narrow range of target species. Importantly, such efforts would not detect a very large spectrum of potential NIS in PWS that we know are present to the south, including some now present in southeast Alaska, including areas surrounding Ketchikan and Sitka.

A recent project by Pagenkopp Lohan et al. (2022) focused on analysis of zooplankton communities near Valdez to evaluate/detect the presence of NIS using genetic methods (meta-barcoding), which builds on previous work and methods by Geller and Ruiz. This was conceived as a first step to a broader analysis of PWS, especially including benthic communities, where most NIS along the Pacific coast occur (Ruiz and Hewitt 2009; Fofonoff et al. 2018).

Here, we report on an extensive broadscale survey and analysis of benthic marine communities in PWS, to detect new NIS and evaluate the current status of invasions in PWS. It has been over a decade since our last extensive analysis of invasions across PWS.

Our overall goal was to evaluate NIS present in PWS, using standardized measures, which allow direct comparison to previous surveys of PWS (2000, 2011). In addition, this approach allows quantitative comparisons with identical surveys at other sites along the Pacific coast (California to Alaska). This work aims both to advance invasion science and inform management and policy in this area.

Our specific objectives were to:

- Conduct a standardized survey of benthic marine invertebrate communities in PWS to detect NIS.

- Evaluate temporal change in marine NIS occurrence in PWS, based on our surveys and literature-based analyses, and update baseline regional measures.
- Characterize the northward progression of NIS and proximity to PWS, based on our ongoing literature and field-based measures.
- Estimate the environmental suitability of PWS for colonization by NIS, focusing on those which have been detected in Alaska waters, based on the current survey and synthesis of multiple other data sources.

Here, we report the results from the PWS surveys, which were conducted in 2023, along with occurrence records from our ongoing surveys and the literature to evaluate: (a) new NIS records to PWS; (b) proximity and progression of NIS toward PWS; and (c) model habitat suitability using statistical environmental niche models.

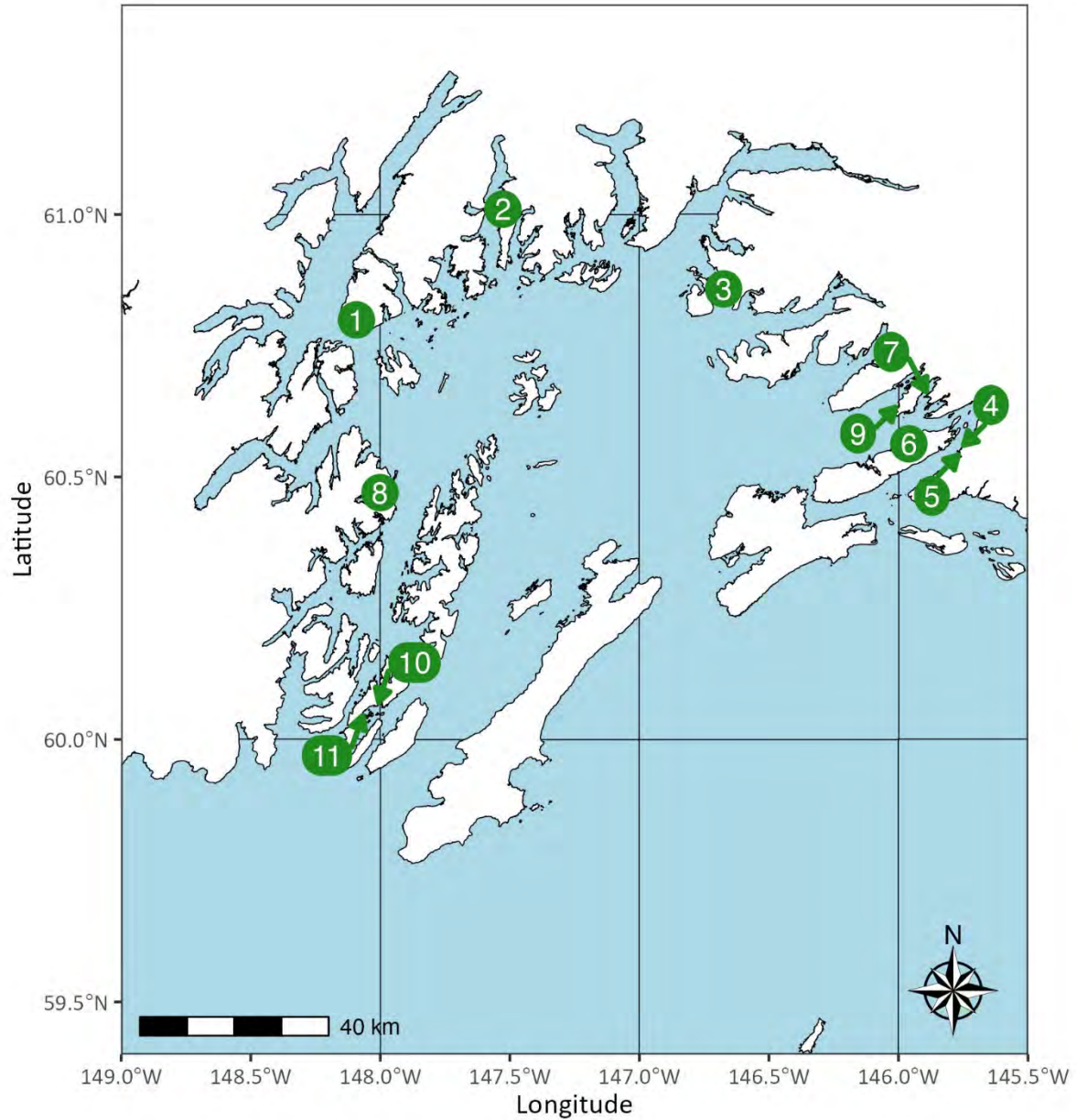
Overall, we detected 3 NIS of benthic marine invertebrates during the PWS surveys in this study. Two of these species appear to be new records to PWS. In a broader synthesis of NIS for PWS, we document 7 NIS of benthic marine invertebrates, including 3 species with the first detection for PWS in 2023. Of these 7 NIS detected in PWS to date, 2 are considered established, whereas it is not known whether the other 5 species are established. Vessels are a likely mechanism (vector) of introduction for all of these species, and local environmental conditions appear suitable for colonization of PWS by these species as well as many other NIS that are spreading northward along the Pacific coast of North America. We recommend sustained and targeted surveillance in PWS using several approaches to evaluate the performance of ongoing management actions to reduce invasion risk, including (1) expanded PlateWatch surveys with local communities, (2) focused surveys at key vessel hubs, and (3) a decadal detection survey at 5-10 year intervals.

## Methods

We used surveyed PWS hard substrate communities, using standard protocols that we have developed over the past 25 years and which we have now applied for repeated measures as “NIS sentinel site surveys” in San Francisco Bay CA, Chesapeake Bay VA, Tampa Bay FL, and other coastal bays. In 2022, we also conducted an identical survey in Ketchikan, AK, funded by U.S. Coast Guard. Using the same approach here allows for direct comparisons, especially across latitude on the Pacific coast.

We sampled 11 sites throughout PWS using a stratified random sampling design to collect 10 replicate community samples per site, using settling panels (similar to those used in Platewatch; see also Marraffini et al. 2017; Chang et al. 2018). Specific locations and dates are indicated in Figure 1 and Table 1. These are 14x14cm gray PVC panels that serve as standard habitats and passive collectors for benthic invertebrate communities. Each panel is suspended 1m below the water surface (Mean Lower Low Water, or low tide level), left for 3 months to allow for invertebrate recruitment and growth, and retrieved for analysis.

The summer/warm season is targeted, as the warm temperatures, greater light, and higher food quality coincide with the timing of reproduction and greatest recruitment and growth for many invertebrates. Panels were deployed in June 2023 and retrieved for analysis in September 2023.



*Figure 1: Map of hard substrate community sampling locations in PWS (2023).*

Table 1: Hard substrate community sampling locations in PWS (2023).

Site No.	Site Name	Latitude (N)	Longitude (W)
1	Wally Noerenberg Hatchery	60.799	-148.092
2	Cannery Creek	61.010	-147.527
3	Tatitlek Ferry Dock	60.858	-146.675
4	Cordova Ferry Terminal	60.557	-145.756
5	Cordova Small Boat Harbor	60.545	-145.763
6	Windy Bay Kelp Farm	60.563	-145.960
7	Simpson Bay Oyster Farm	60.658	-145.888
8	Eshamy	60.470	-148.001
9	Sheep Bay	60.636	-146.004
10	Chenega Bay Marina	60.066	-148.009
11	AFK Hatchery	60.050	-148.065

For these 110 panels, we evaluated community composition using standardized morphological and genetic methods that we developed to detect NIS. Our approach also leverages a genetic barcode library that we have developed with collaborators Jonathan Geller (Moss Landing Marine Laboratories) and Katrina Pagenkopp Lohan (Smithsonian Environmental Research Center, or SERC) for NIS in California.

## A. Morphological Analyses

For each panel, we identified all marine invertebrate species present using our standardized morphological and genetic methods. Upon retrieval of the panels, all sessile macroinvertebrates were processed live under a dissecting microscope to generate morphological vouchers for species-level identification on each plate. These “field vouchers” were later identified to species (or lowest taxonomic unit) based upon morphological characteristics using published taxonomic literature. A subset of these identifications was verified through additional consultation with outside taxonomic experts. In specific cases, results from morphological analyses were compared to results from genetic analyses using DNA barcoding to confirm taxonomic identification and test for the presence of cryptic species.

The morphological identifications of specimens produced a list of taxa identified to the lowest possible taxonomic level for each sample. For each taxon, we classified the invasion status in the bay where it was found as of the year of sampling, based upon previous analyses, the literature, and using a synthesis of information in the SERC National Estuarine and Marine Exotic Species Information System (NEMESIS) database (Fofonoff et al. 2018). Four categories were used for this classification: NIS, native, cryptogenic (of uncertain status, *sensu* Carlton (1996)), and unresolved (where species-level identification could not be made because specimens were juveniles or in poor condition). Putative records of new species were examined closely and compared to available databases and literature in consultation with taxonomic experts to evaluate their invasion status.

From these data, we compiled the number of NIS, native, cryptogenic, and unresolved taxa detected at each site and for the entire bay. We then constructed accumulation curves and calculated species richness estimators.

We conducted a standard series of statistical analyses to assess the completeness of our sampling efforts and estimate the number of NIS present. We used rarefaction to estimate the completeness of sampling for our level of sampling effort. This approach is combined with richness estimators calculated from our observations, to estimate the true (asymptotic) NIS richness detected using each method in each habitat, and to generate confidence intervals for detection. To estimate the number of NIS captured by our sampling methods, we used a relatively recently developed approach to species richness estimation that builds on traditional methods of rarefaction by combining rarefaction and extrapolation to make asymptotic estimates of richness along with quantifiable measures of sample completeness (Colwell et al. 2012; Chao et al. 2020).

Sample completeness, or sample coverage (SC), is a key determinant of how close the estimated number of species is to the true number of species present (observed + undetected) in a sampled assemblage. The more complete a set of samples is estimated to be, the more likely it is that all species actually present have been detected (Chao et al. 2014, 2020, 2021).

Statistical analyses were carried out using R 4.2.3 (R Core Team 2023) and the R packages vegan 2.6-4 (Oksanen et al. 2022), and iNEXT.3D 1.0.1 (Hu and Chao 2023).

## **B. Genetic Analyses**

In addition to morphological analyses, we also sampled the entire community using genetic methods (DNA metabarcoding) to detect sequences present and identify NIS based on the COI gene. A brief summary of methods are outlined below with additional detail provided in Appendix A.

### **Sequencing Methods**

Genomic DNA was extracted from a subsample (n=55) of blended biological material from fouling panels. Specific DNA tags were added to the beginning and end of the Polymerase Chain Reaction (PCR) products as indices to later identify the source sample for each DNA sequence. The sequences were then purified to remove small and spurious fragments. The concentration of DNA per sample was then quantified. Based on those calculations, DNA from each sample was then pooled based on equimolar concentrations into three libraries for sequencing, with the intent of having the same concentration of DNA lead to a similar number of sequences per sample. The final pooled libraries were sequenced using a MiSeq v3 600 Reagent Kit on an Illumina MiSeq platform at the Laboratories of Analytical Biology at the Smithsonian National Museum of Natural History. Additional details on DNA extraction, PCR amplification, and sequencing can be found in Appendix A.

## **Bioinformatic Pipeline and Taxonomic Assignment**

Bioinformatic analyses were run on the Smithsonian Institution High Performance Computing Cluster (SI/HPC, 2024). Data curation, taxonomic assignment, and data analysis were done with the R (R Core Team, 2024) software. Before processing, we removed primer sequences using cutadapt (Martin, 2011; version 4.7). We used the dada2 package (Callahan et al., 2016) in R to trim, filter, assess, and correct sequencing errors, merge reads and remove chimeras (an artifact where partial PCR products from different species can be joined), and generate unique amplicon sequence variants (ASVs). ASVs summary tables were cropped to the desired target amplicon size (keeping sequences between 301 and 319 base pairs (bp)).

To assign taxonomic ranks to ASVs, we ran the blastn algorithm from the BLAST software (Altschul et al., 1990; version 2.15) against two reference databases:

- 1) MIDORI2 (Leray et al., 2022; Machida et al., 2017). We used version MIDORI2\_UNIQ\_NUC\_SP\_GB259\_CO1\_BLAST downloaded from <http://www.reference-midori.info/download.php#>.
- 2) MLML reference database. This is a local database compiled by Jon Geller up to December 2023, that includes 310 sequences targeting marine invertebrates, many of them known NIS in California and the Pacific coast of North America.

BLAST results were filtered for quality, keeping only matches with percent coverage >95%, alignment length higher than 250 bp, and an e-value under 0.01. We used customized R functions to add higher taxonomic levels and select the best match from each database. When there were multiple "best" matches with identical similarity metrics, we assigned only the taxonomic level for which the reference sequences agreed on the classification (e.g., a match to *Balanus glandula* and *Balanus amphitrite* would be assigned only to *Balanus*). When there was only one best match, we kept the full taxonomy as provided. We then selected one final best match comparing both databases. To compare across databases, if only one match had a percent identity of 98% or more, we kept that one. If both matches were of 98% identity or more, we kept the one belonging to our local MLML database. If only one database returned a match, we kept that one. If both matches were lower than 98% percent identity, we kept the one with higher percent identity. We removed non-target taxa (e.g., terrestrial insects), and narrowed our analysis to marine and brackish metazoan species. The negative controls had only a low amount of reads and 7 ASVs. After close inspection of taxa names, we did not identify any true contaminant (e.g., human DNA) so only negative controls were removed before the analyses.

## **Data Analysis**

ASVs were clustered based on unique taxa names using the aggregate taxa() function from the microbiome (Lahti & Shetty, 2012) R package. We then calculated species richness per location using the phyloseq (McMurdie & Holmes 2013) and vegan (Okasanen *et al.* 2014)



packages in R. We estimated rarefaction and extrapolation curves using the iNEXT approach described in the morphology chapter and the R package iNEXT.3D (Chao, A et al., 2021).

To evaluate NIS status for each unique taxa identified to species level, we compiled information from the following sources (in order of relevance):

- NEMESIS (Fofonoff et al. 2018), as downloaded on May 9, 2024.
- Surveys and reports produced by SERC on fouling plates, including both morphological and metagenetic analyses, of biota in California coastal waters.
- Simon et al (2022) detailed compilation of species in the Salish Sea. This publication list dozens of species most of them native to the area, but also highlights some introduced and cryptogenic species. We considered species native in the Salish Sea area would likely be native in PWS, if there was no other source of information available for the species.
- MarINVaders (Verones et al., 2023) list of alien species in the Cold Temperate North Pacific Province downloaded on Mar 14, 2024.
- Occurrence data from GBIF and OBIS, downloaded on Jun 13, 2024, using R packages rgbif (Chamberlain et al., 2024; Chamberlain & Boettiger, 2017) and robis (Provoost & Bosch, 2022). For taxa identified to species level and without occurrences reported in Alaska, we did an additional literature search and used phylogenetic trees to evaluate support for the name based on all available sequences for that genus.

Based on the information from all sources, we classified species as Introduced, Cryptogenic, Native, and Unknown. For taxa not identified to species level, we classified invasion status as Unknown, since we lacked sufficient resolution for further evaluation.

### **C. Range Expansion & Environmental Suitability of PWS**

Over the past 25 years, SERC has conducted multiple surveys of marine communities along the Pacific coast, from Panama to Alaska, to detect NIS and evaluate invasion dynamics, focusing particular attention on detection of new NIS and geographic spread from California northward into Alaska. In addition to standard surveys and analyses by our team, we have implemented several collaborative participatory science programs to detect particular NIS, especially in Alaska (e.g., PlateWatch, Green Crab trapping, Bioblitz campaigns). The SERC team also has continued to synthesize new records of marine NIS in North America (as reported in publications, reports, and ongoing research) to track new detections and changes in distribution across time, creating the NEMESIS (Fofonoff et al. 2018), which is a web-based and searchable database available to the public.

In this report, we use NEMESIS to evaluate new detections of NIS over time in Alaska and PWS, noting the date of first record, reported occurrences, and what is known about the current population status of each species, evaluating specifically whether each is known to



have established (self-sustaining populations), or is only known from one or few records (creating uncertainty about establishment).

### **Modeling NIS Species Distributions in Alaska**

In addition, in this report, we evaluate the potential of those NIS detected in Alaska to colonize and spread further along the coastline, including the potential for colonization of PWS. This is based on environmental modelling to consider both environmental suitability and habitat suitability.

In our previous work, led by Christina Simkanin (2019, unpublished report), we conducted species distribution modelling and range infilling analysis for 97 NIS on the U.S. Pacific coast, including marine invertebrates and algae across seven phyla, to examine the northern range distribution. Specifically, we aimed to predict: (a) northern range limit of each species based on environmental modelling of species distributions; (b) adjust or limit potential range to consider both environmental suitability and habitat suitability; (c) evaluate the percent of the range currently occupied, as a measure of range saturation (infilling) or potential for future spread; and (d) mapping current versus potential range along the Pacific coast of North America, which highlights potential for colonization of Alaska (including PWS).

Our earlier analyses found that 86 (or 89%) of the 97 species investigated had successfully spread and established populations beyond the bay or harbor of their first introduction. Critically, results from MaxEnt models showed that unoccupied environmentally suitable areas exist for nearly all 97 species – indicating that >95% of the species investigated have potential to continue expanding their non-native ranges northward along the Pacific coast.

A majority of the species investigated have filled only a limited proportion of their predicted range, indicating that they have high potential for future spread (Figure 2). Most of the 97 NIS have predicted distributions that extend throughout Alaska, indicating the potential for northward spread to this region. In this previous analysis, only 13 of the non-native species we investigated were known to occur as far north as Ketchikan (55°N) – but an additional 65 species had areas of predicted environmental suitability north of 55°N latitude under current climate conditions.

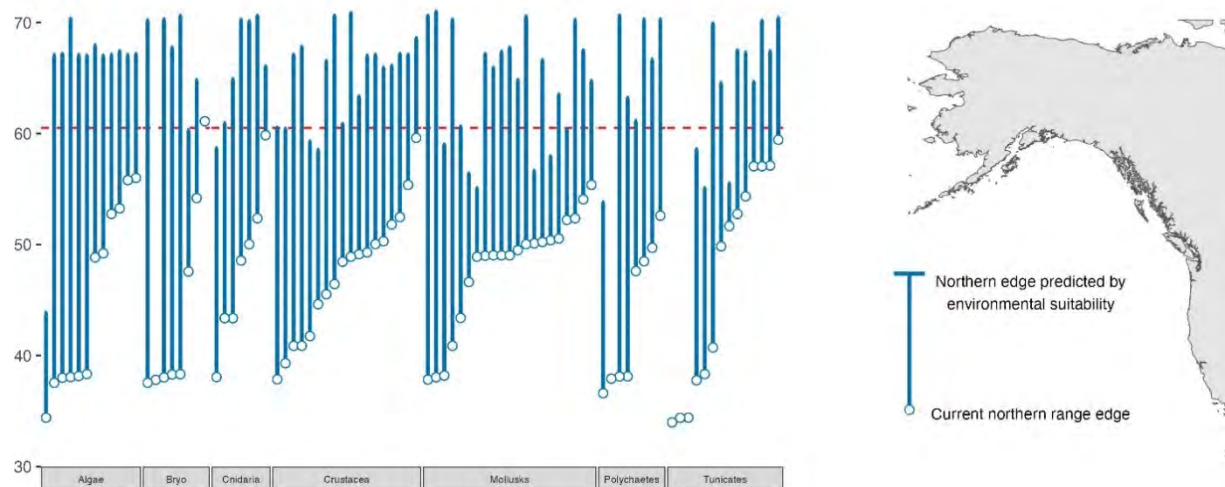


Figure 2: The potential for northward spread of non-native species based on species distribution modelling. Open circles represent the currently known northern range edge of a species distribution on the Pacific coast; blue bars represent the distance between the current most northern occurrence and the predicted most northern occurrence from MaxEnt models ('environmental suitability'). [Figure modified from Simkanin et al. 2019.]

In this report, we highlight the predicted range for the subset of NIS that have been reported to date in Alaska waters. We used output from our previous models along with updated distribution records, to provide a higher resolution snapshot of current and predicted NIS in Alaska as well as their proximity to PWS.

## Results and Discussion

### 1. Environmental Setting of Survey

Average temperatures during the three-month (June to September 2023) period of the survey varied from 10.9°C to 14.0°C, with considerable variation among and within sites (Figure 3, Table 2). The warmest site was Tatitlek Ferry Dock and the coldest was Cannery Creek; interestingly, these two sites also had the least variation of all sites. Tatitlek also had the highest average salinity and Eshamy had the lowest (Table 2).

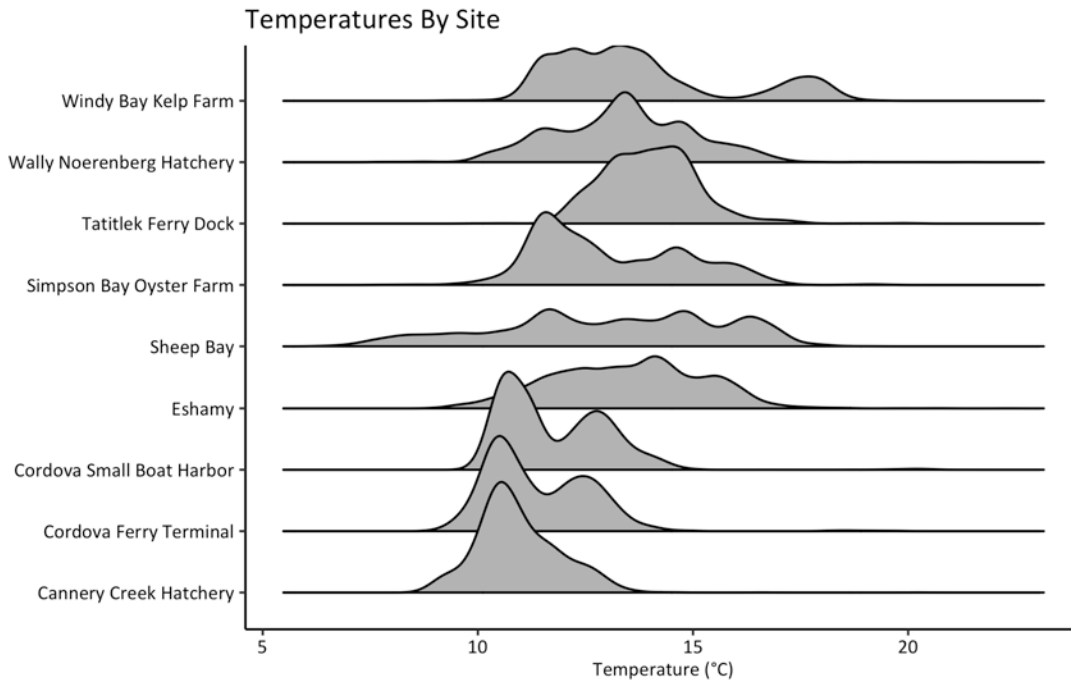


Figure 3: Distribution of temperatures at each site at 1m depth during the survey period in PWS in 2023. Temperature information was not available for Chenega Bay Marina.

Table 2: Environmental conditions at 1m depth at survey sites at PWS in 2023. Temperatures (mean and standard deviation (SD)) are summarized from loggers recording at 1-hour intervals during the settlement panel deployment period, while salinity values are averaged from spot samples at 1m depth taken at panel deployment and again upon retrieval.

Site	Mean Salinity (PSU)	Mean Temperature (°C)	SD Temperature
Wally Noerenberg Hatchery	21.9	13.4	1.6
Cannery Creek Hatchery	24.1	10.9	1.0
Tatitlek Ferry Dock	25.1	14.0	1.1
Cordova Ferry Terminal	26.3	11.4	1.2
Cordova Small Boat Harbor	25.5	11.8	1.3
Windy Bay Kelp Farm	25.9	13.7	2.1
Simpson Bay Oyster Farm	23.0	13.1	1.7
Eshamy	19.4	13.5	1.7
Sheep Bay	26.2	13.0	2.6

## 2. NIS Detected in PWS Survey: Morphological Analyses

### **Sampling Performance and Detection of Invasions**

Our analyses indicate that our sampling program performed well in detecting and characterizing identifiable NIS in the PWS hard substrate community. This is shown below in a series of figures depicting the detection of NIS using species accumulation curves and richness estimators.

Species accumulation curves show the rate at which new species are found in a given area with additional sampling, and these are used to assess the completeness of sampling. An asymptote is reached nearly immediately for NIS, indicating complete sampling of the NIS community (Figure 4). Species richness estimators are reported here along with their respective standard errors (SE) for each type of organism (sessile, mobile, or total) and invasion status. The estimators generally agreed with the asymptote in NIS richness in Figure 5, further indicating that this result is robust (Table 6).

We detected a total of three NIS (one sessile taxon and two mobile taxa) in our hard substrate surveys in 2023.

SC estimators indicate that NIS were completely sampled for both sessile and mobile taxa (estimators table), with 100% SC. Overall survey performance was excellent, with 95% SC, indicating both that (1) there were likely few hard substrate species present that were not detected by the survey, and that (2) those species that did escape detection were most likely native or unresolved. In addition, most unresolved taxa are juveniles or specimens in poor condition that lack the features necessary for identification.

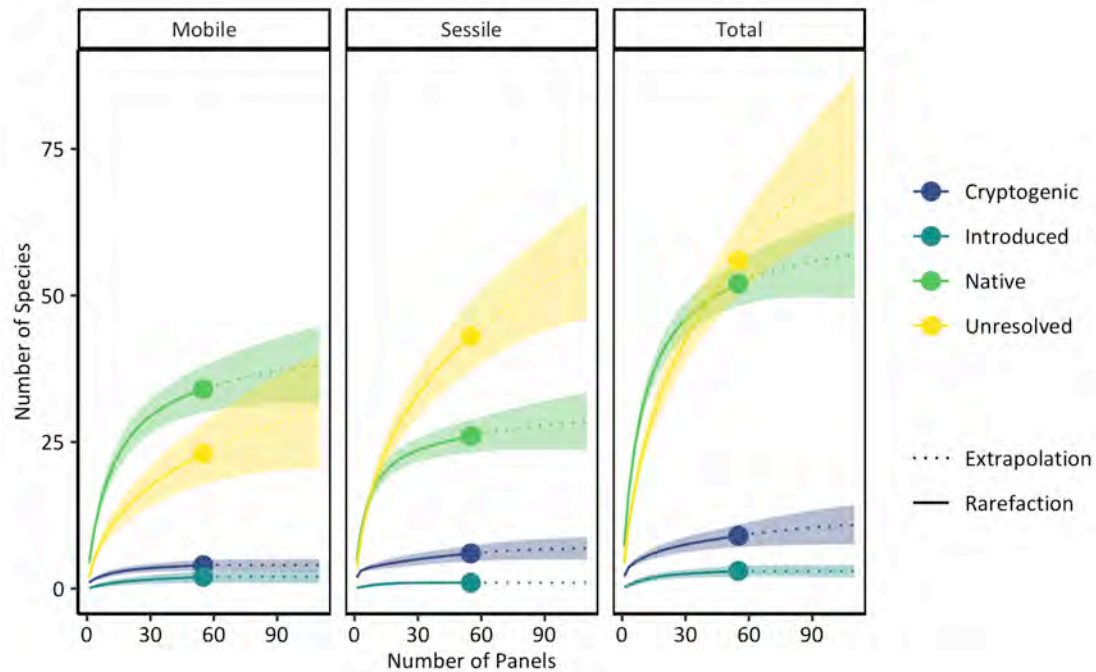
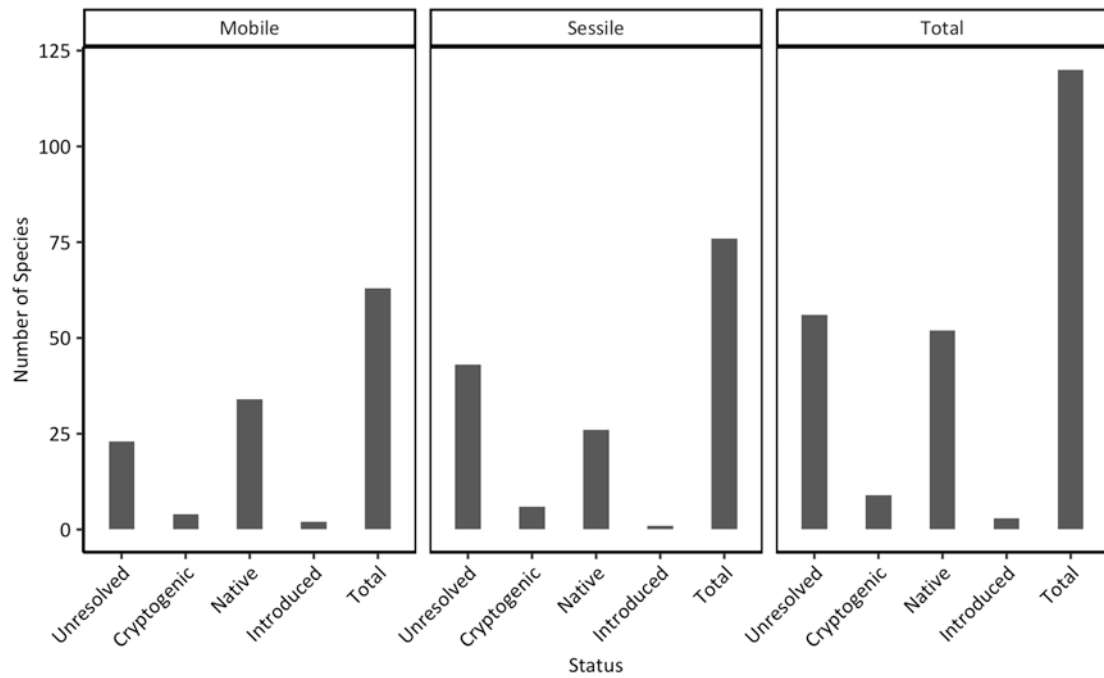


Figure 4: Species accumulation curves by invasion status for marine macroinvertebrates in PWS hard substrate communities in 2023. Number of species detected as a function of panels for each invasion status. Invasion status is assigned based on literature and the SERC NEMESIS database (Fofonoff et al., 2018). Here, a sample represents one settlement plate; up to 5 plates were analyzed from each of 11 sites in PWS in 2023. Shading around each line represents  $\pm 1$  SE. Rarefied estimates (solid line) up to the number of observed samples (dot), beyond which estimates are extrapolated (dashed line) up to twice the size of the reference (observed) samples.

*Table 3: Species richness and SC estimators by invasion status for richness of marine macroinvertebrates in PWS hard substrate communities (2023). Invasion status is designated based on literature and SERC NEMESIS database (Fofonoff et al. 2018). The SC estimator, observed number of species (Observed), richness estimator (Estimator), standard error of the estimator (SE), 95% lower confidence limit (LCL), and 95% upper confidence limit (UCL) are given.*

Type	Status	Observed	Estimator	SE	LCL	UCL	SC
Mobile	Cryptogenic	4	4.00	0.62	4.00	5.21	100.00
Mobile	Introduced	2	2.00	0.45	2.00	2.89	100.00
Mobile	Native	34	40.01	9.42	34.00	58.47	97.10
Mobile	Unresolved	23	39.36	15.67	23.00	70.09	90.30
Mobile	Total	63	88.32	13.80	63.00	115.36	95.29
Sessile	Cryptogenic	6	6.98	0.93	6.00	8.80	98.15
Sessile	Introduced	1	1.00	0.00	1.00	1.00	100.00
Sessile	Native	26	29.93	7.63	26.00	44.89	98.50
Sessile	Unresolved	43	69.51	18.69	43.00	106.14	90.79
Sessile	Total	76	111.35	11.05	89.69	133.00	95.79
Total	Cryptogenic	9	11.95	2.56	9.00	16.95	97.44
Total	Introduced	3	3.00	0.61	3.00	4.20	100.00
Total	Native	52	58.63	7.80	52.00	73.91	97.77
Total	Unresolved	56	99.83	23.69	56.00	146.26	89.33
Total	Total	120	174.53	20.78	133.80	215.25	95.01



*Figure 5: Number of unique species detected in PWS hard substrate communities in 2023 by invasion status. Status was assigned based on literature and SERC NEMESIS database.*



NIS make up a very small percentage of the hard substrate community in PWS (Figure 5). This is even more evident in the low observed mean NIS richness per plate of  $0.2 \pm 0.65$  (mean  $\pm 1$  SD), with three NIS recorded, and only at one location (Tatitlek Ferry Dock).

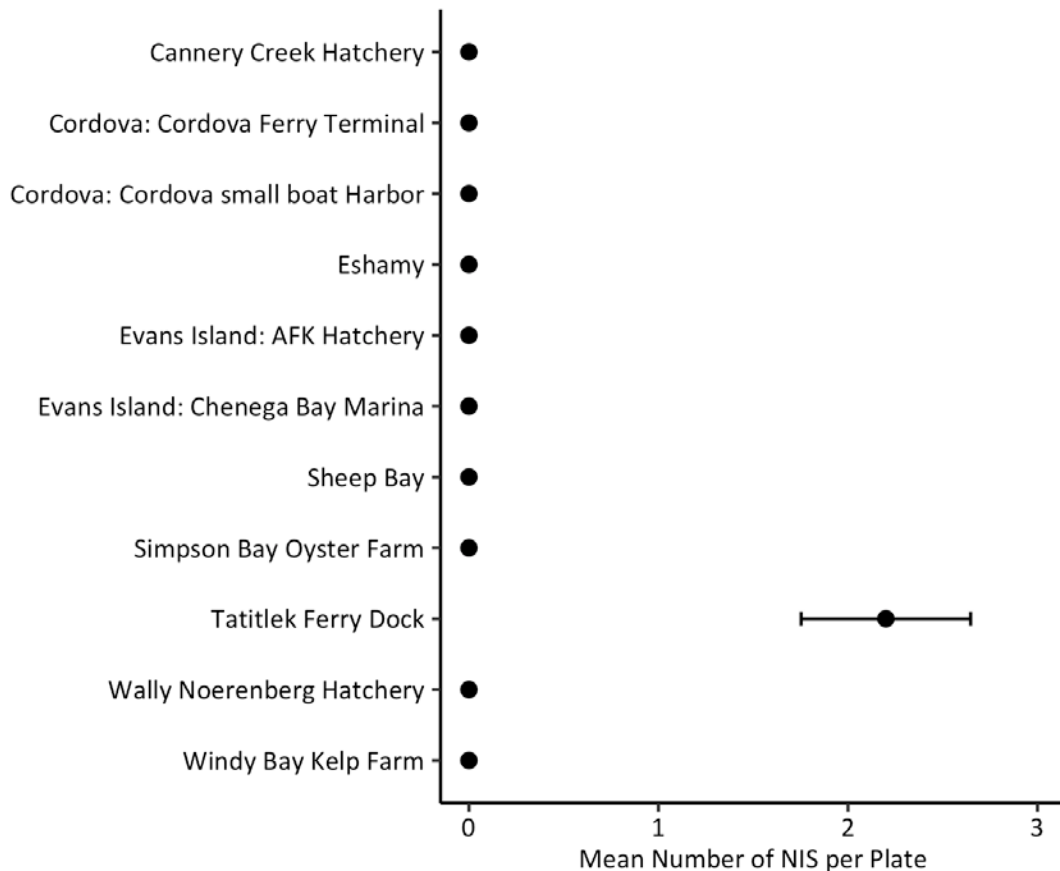


Figure 6: Mean number of NIS detected per plate averaged within sites in PWS in 2023. Error bars equal  $\pm 1$  SD.

### **Introduced Species Detected by Morphological Analyses**

Three introduced taxa were identified in our survey of PWS, two of which had previously been detected from the region (Table 4; Table 6; Figure 4). All three NIS were detected only at the Tatitlek Ferry Dock (Figure 6), which also was the warmest site on average as well as one of the higher salinity locations (Table 2). Two species were previously known from the region, the broadly distributed temperate bryozoan *Schizoporella japonica* and the caprellid amphipod *Caprella mutica*. Although *C. mutica* has been detected previously in many regions of Alaska, including nearby Kachemak Bay (Ashton et al. 2008; Fofonoff et al. 2018), its detection in this study may be the first confirmed report within PWS.

Table 4: Introduced species detected in the 2023 PWS hard substrate surveys. The number of panels per site with each species is presented.

Group	Taxon	Number of Panels
Amphipoda	<i>Monocorophium acherusicum</i>	1
Bryozoa	<i>Schizoporella japonica</i>	5
Caprellidae	<i>Caprella mutica</i>	5

The gammarid amphipod *Monocorophium acherusicum*, which was detected on one plate at Tatitlek Ferry Dock, is a new record for both PWS and the broader region. The previous northernmost record of this species on the North American Pacific coast - and the only other record of this species in Alaska - is from our 2022 survey of Ketchikan, over 1000 km to the south. It was not found in our 2003 survey of PWS.

A species that dwells in tubes constructed on hard surfaces and firmer sediment, *M. acherusicum* is likely a native of the northern Atlantic Ocean and was originally described from Europe (Costa 1851). Broadly dispersed by shipping and oyster transplants, *M. acherusicum* has a nearly global distribution in tropical and temperate waters today, and it is considered to be introduced the northeastern Pacific, including Alaska (Fofonoff et al. 2018). Likely vectors include both vessel hull fouling as well as ballast water (Fofonoff et al. 2018).

The broad geographic range and environmental tolerances of *Monocorophium acherusicum*, including tolerance for ice-covered winter conditions and temperatures as high as 30°C (Lee et al. 2005) and salinities as low as 6 (Takashi 1966), indicated significant potential for further spread. Corophiid amphipods like *M. acherusicum* are generally thought to graze on detritus and benthic microalgae, and are in turn eaten by fishes (Fofonoff et al. 2018).

### 3. NIS Detected in PWS Survey: Genetic Analyses

#### **Synthesis of Sampling Performance and Taxonomic Detection**

We found a total of 7,169 ASVs from 55 samples in the filtered reads. After removing non-target taxa, we ended up with 3,453 metazoan ASVs. Of these, we reviewed 550 ASVs that had a scientific name assigned and at least 95% identity; these ASVs included 73 unique taxa (Table A2). Taxa were identified to the lowest taxonomic level possible, usually to species. To be more conservative, we focused our analysis on ASVs identified to at least 98% identity (515 ASVs corresponding to 68 unique taxa, with 51 of those identified to species level).

Species accumulation curves (Figure 7) show that for unique marine invertebrates identified to a binomial species name, both morphological and genetic analysis reached a similar estimated species richness. On the other hand, for analysis of unique taxa identified at any taxonomic level, the morphological analysis of plates yielded a higher number of unique taxa, and of estimated total species richness than the genetic approach, likely due to the conservative threshold used for species level identification based on genetics.

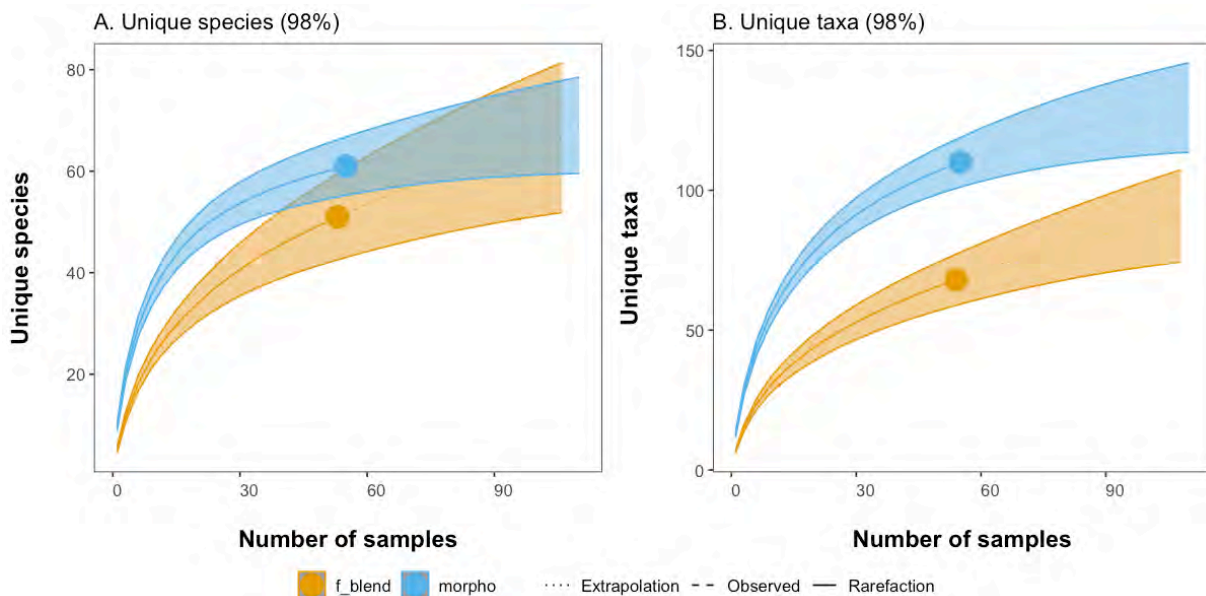


Figure 7: Species accumulation by sampling type comparing marine macroinvertebrates in PWS from hard substrate community surveys (in blue) and metagenetic analysis of the settlement panels (in orange) in 2023. A) Number of species and B) Number of unique taxa detected as a function of panels for each type of method, using a 98% identity criteria for the genetic results. Here, a sample represents one settlement plate. Shading around each line represents  $\pm 1$  SE. Rarefied estimates (solid line) up to the number of observed samples (dot), beyond which estimates are extrapolated (dashed line) up to twice the size of the reference (observed) samples.

We present the observed species richness with each method and sample estimators in Table 5. As expected by both methods, estimated species richness is higher than observed, indicating that additional taxa remain undetected in the survey. This is not surprising, especially given the spatial scale and environmental variation among sample sites. The SC for the genetic methods was fairly high (93%) but slightly lower than the morphology approach (95%).

*Table 5: Species richness and SC estimators by sampling method for richness of marine macroinvertebrates in PWS (2023) metagenetic samples from settlement panels (blend) and community samples from hard substrate. We present data for unique taxa and unique species identified with 98% identity. The SC estimator, observed number of species (Observed), richness estimator (Estimator), standard error of the estimator (SE), 95% lower confidence limit (LCL), and 95% upper confidence limit (UCL) are given.*

	Type	Observed	Estimator	SE	LCL	UCL	SC
Unique taxa	Blend	66	117.11	50.35	18.42	215.79	92.55
	Morphology	110	141.45	19.61	103.01	179.90	95.64
	Total	156	226.51	22.02	183.35	269.66	95.12
Unique species	Blend	51	90.25	25.98	39.32	141.17	92.61
	Morphology	61	75.14	9.01	57.47	92.80	97.75
	Total	94	135.86	13.31	109.77	161.95	96.74

Overall, there were fewer sequences in genetic analyses than expected and the relatively low reads per sample (see Appendix A) could directly impact richness assessments. Thus, it is possible that greater sequencing depth could improve the performance of the genetic approach. We note that there were samples containing only a small amount of tissue and primarily sediment, and samples for which DNA quantification was low and had low amplification success. This outcome may reflect relatively lower biomass in 2023, compared to our previous surveys (personal observation), possibly due to interannual variation in temperature and other environmental conditions. In addition, further modifying field protocols in the future to reduce sediment load (from glacial silt) and additional optimization of genetic methods may also yield higher reads per sample, and therefore species richness.

When looking at the identity of the species found with each method (Figure 8), using 98% identity for genetics, only 18 species were shared by both methods, and different species were found by the genetic and morphological approach. This complementarity is expected and consistent with results of our surveys (using these same methods) in other locations, when comparing morphological and genetic analyses. Each method has limitations. While

genetic methods have the potential to detect many taxa, including immature stages and damaged specimens which simply cannot be identified morphologically (due to lack of key characters), we currently can only assign a species name for those sequences which have been paired or linked to a valid morphological identification, using available bar code libraries. Unfortunately, many if not most sequences detected lack a known species identity, because bar code libraries remain very incomplete for marine invertebrates; although, we point out that these sequences (from past samples) can be identified in the future, as the bar code libraries mature. In contrast, for many of the larger marine invertebrates, especially in the biofouling community, taxonomy is relatively well developed, allowing us to detect many species for which genetic sequences are not yet available or adequately resolved.

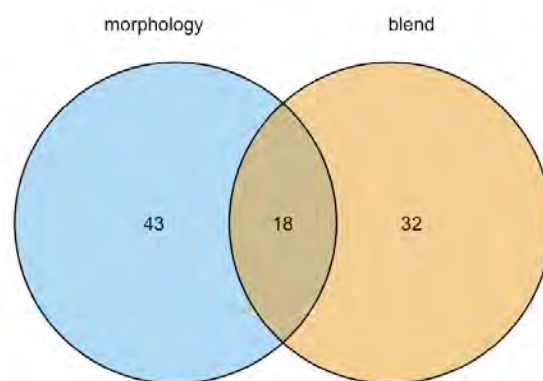


Figure 8: Venn diagram showing the number of shared or unique species (with 98% identity) found using genetic methods (blend) and the morphological surveys (morphology).

### **Introduced Species Detected by Genetic Analyses**

Most species identified by genetic analyses at the 98% identity threshold were native (Figure 9), followed by unresolved and cryptogenic species. We identified 2 introduced species, *Caprella mutica* and *Schizoporella japonica*, using genetic analyses. These species were found in low abundances and only in the Tatitlek Ferry Dock location. *Caprella mutica* was represented by two ASVs from 37 reads; *Schizoporella japonica* was represented by three ASVs from 281 reads. Both of these taxa were also detected by morphological analyses.

We also detected the polychaete *Polydora onagwaensis* at the AFK Hatchery on a single panel in western PWS and this was only detected with genetic methods (Appendix C). We currently have classified this species as cryptogenic, pending further evaluation. We consider this to possibly be introduced and a species of potential concern. *Polydora onagwaensis* was recently described from Onagawa Bay, Miyagi Province, Japan, from cultured oysters (*Magallana gigas*) and scallops (*Mizuhopecten yessoensis*), and has also been reported from the Bohai Sea and Yellow Sea in China (Sato-Okoshi et al. 2023). This

appears to be a species native to the western Pacific, and it also has been reported in European waters, including Normandy and the Contentin Peninsula of France (Sato-Okoshi et al. 2023). It also has been reported by morphological and genetic analyses in the northeastern U.S., where it associated with mud-blisters on shells of cultured oysters (Silverbrand 2019; Silverbrand et al. 2021; Rodewald et al. 2021).

Unlike *C. mutica* and *S. japonica*, which have been reported in many other locations for Alaska in recent years and are considered established, this appears to be the first record of *P. onagwaensis* in PWS. We also detected the same sequence in Ketchikan in 2022, during our recent surveys (Ruiz et al., unpublished data). In both cases, detected only by genetic methods to date, the sequence matches a reported bar code for the species, and we are now examining this in greater depth to evaluate its known biogeography. It is unknown whether a population of this organism is established in Alaska.

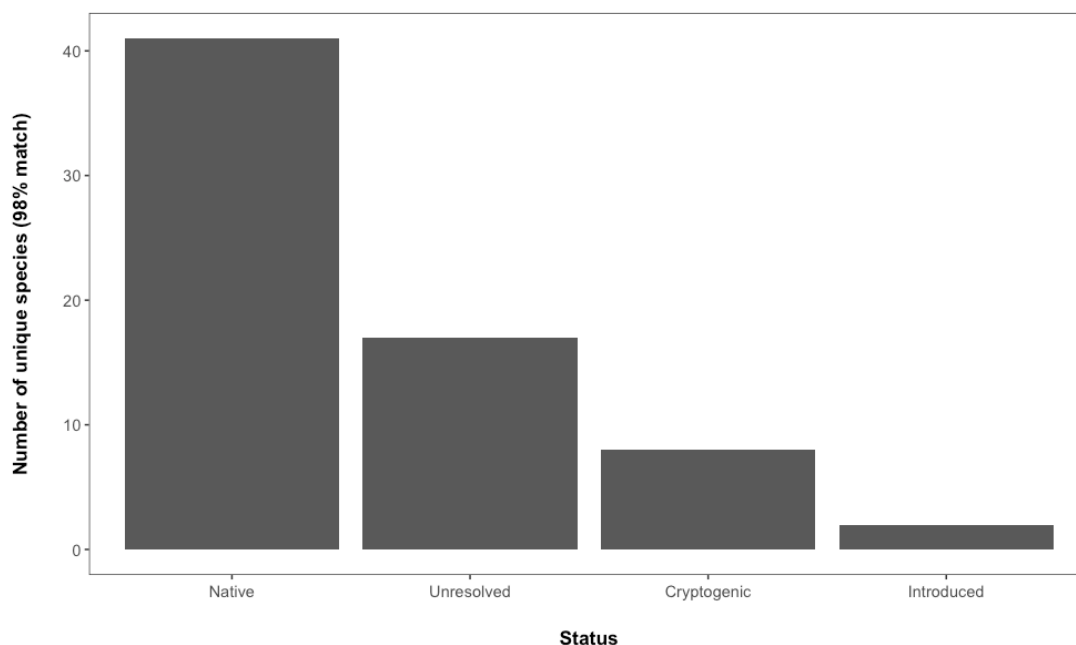


Figure 9: Number of unique species detected in PWS using metagenetic analysis of settlement panels with a 98% percent identity threshold. Status was assigned based on the literature, SERC NEMESIS database, and SERC previous status assignments in other projects. Source details were provided in Methods.

#### 4. NIS Detected in Alaska and PWS

Combining results from the current survey with those of our past surveys and literature synthesis for benthic marine invertebrates, we can identify 21 NIS that have been reported in Alaska based on confirmation of morphological specimens. This excludes plants, vertebrates, and algae. Of these 21 NIS, 12 species are considered to have an established population in at least one location in Alaska (Table 6; Fofonoff et al. 2018). One additional species, the Asian oyster *Magallana gigas*, is cultured in Alaska waters but is not currently

known to have an established, self-sustaining population in the wild. The population status of the remaining 8 NIS is unknown, as to whether each is established or not.

*Table 6: Benthic marine invertebrate NIS detected morphologically in Alaska by region and population status. Population status is shown as either established or unknown (Estab and Unk, respectively). Unknown status is highlighted in grey; taxa highlighted in grey are not known to be established in any region of Alaska. PWS is shown separately from Central Alaska in this table.*

Taxa Group	Taxon	Aleutians	Kodiak	Central Alaska (Cook Inlet)	Prince William Sound	Southeast Alaska
Brozoan	<i>Bugula neritina</i>					Unk
Bryozoans	<i>Cryptosula pallasiana</i>					Unk
Bryozoans	<i>Schizoporella japonica</i>				Estab	Estab
Bryozoans	<i>Watersipora subatra</i>					Unk
Cnidarians-Anthozoans	<i>Diadumene lineata</i>					Unk
Cnidarians-Hydrozoans	<i>Ectopleura crocea</i>					Estab
Crustaceans-Amphipods	<i>Ampithoe valida</i>					Estab
Crustaceans-Amphipods	<i>Caprella mutica</i>	Estab		Estab	Unk	Estab
Crustaceans-Amphipods	<i>Monocorophium acherusicum</i>				Unk	
Crustaceans-Amphipods	<i>Monocorophium insidiosum</i>					Unk
Crustaceans-Barnacles	<i>Amphibalanus improvisus</i>				Unk	
Crustaceans-Crabs	<i>Carcinus maenas</i>					Estab
Crustaceans-Isopods	<i>Orthione griffenis</i>					Estab
Mollusks-Bivalves	<i>Magallana gigas</i>					Stock
Mollusks-Bivalves	<i>Mya arenaria</i>				Estab	
Tunicates	<i>Botrylloides violaceus</i>				Unk	Estab
Tunicates	<i>Botryllus schlosseri</i>					Estab
Tunicates	<i>Ciona savignyi</i>				Unk	Unk
Tunicates	<i>Didemnum vexillum</i>					Estab
Tunicates	<i>Molgula citrina</i>			Estab		

Of the 21 introduced taxa known from morphological specimens collected in Alaska, 17 are likely to be detected with the survey methods used in the current study, as they are sessile or small mobile invertebrates associated with hard surfaces; we have detected all 17 of these species using this methodology in California and elsewhere.

This total number of NIS reported in Alaska to date contrasts sharply with approximately 300 NIS known to be established on the Pacific coast of North America, of which most occur in California, and the total number decline with latitude (Ruiz et al. 2015; Fofonoff et al. 2018). It is also noteworthy that (1) most NIS in Alaska were detected in the past 25 years, occurring first in the continental U.S. and spreading northward and (2) the number of NIS detected within Alaska also declines from southeast Alaska northward (Figure 10).



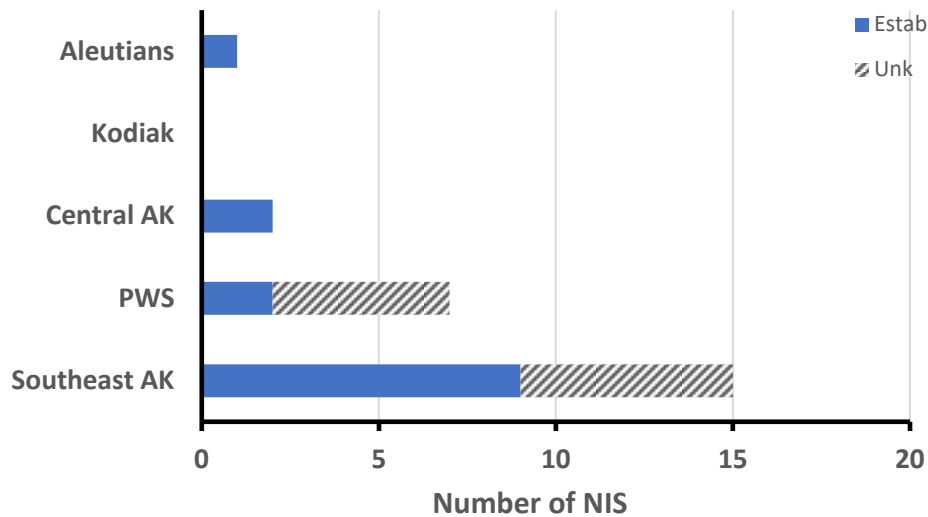


Figure 10: Number of benthic marine invertebrate NIS reported with confirmed morphological specimens in regional coastal waters of Alaska, shown as distance from the southern border. Shown are the number of with established populations (solid) and those with uncertain population status (hatch). PWS is shown separately from Central Alaska in this figure.

To date, in PWS, we have documented records of 7 NIS for benthic marine invertebrates, of which 2 are now considered established, whereas the population status of the other 5 remains unknown. Two of the latter were new records in 2023, including the tunicate *Ciona savignyi* and the amphipod *Monocorophium acherusicum*. The amphipod was detected in the current study. The tunicate was detected as part of our PlateWatch participatory science program (<https://platewatch.nisbase.org>) at the same time our staff were conducting this study and we confirmed the identification based on our subsequent morphological analysis.

As indicated in Table 6, the solitary tunicate *Ciona savignyi* has been reported in both southeast Alaska and PWS. Two specimens were found in Ketchikan in 2016 (Jurgens et al. 2018), and one specimen was found in PWS during our 2023 work. Prior to these records, there was a single specimen detected in 1903 in Ketchikan, as noted in Jurgens et al. 2018. Given the paucity of historical records and the conspicuous nature of this species, along with the well-known invasion history and spread along the Pacific U.S. coast (Fofonoff et al. 2018), we consider this to be an introduced species to Alaska waters and it is unknown whether a population is established in Alaska.

We exclude from these totals the polychaete *Polydora onagwaensis*, which is currently classified as cryptogenic, pending further analyses (as noted in section 3, above).

## 5. Environmental Suitability for NIS Colonization of PWS

Of the 21 NIS for benthic marine invertebrates reported in Alaska, including populations with both established and unknown status shown in Table 6, we have sufficient data (from their distributions and associated environmental conditions) to model the potential distribution in Alaska by latitude for 14 of these invertebrate species. We also have done this for two of five marine macroalgal NIS that have been reported in Alaska water to date.

In Figure 11, we show the current northern (established) range edge as well as the potential range for these, as predicated by MaxEnt models based on current environmental conditions. Among these taxa, only the bryozoan *Schizoporella japonica* is known to be established in PWS or further north, although several other species are considered established to the west of PWS (Table 6). Our models predict suitable environment exists in PWS and further north for all 16 of these taxa, including the five with unknown population status in Table 6. We also surmise that suitable habitat exists for all of these taxa, most of which colonize hard substrate and artificial structure (such as docks and marinas).

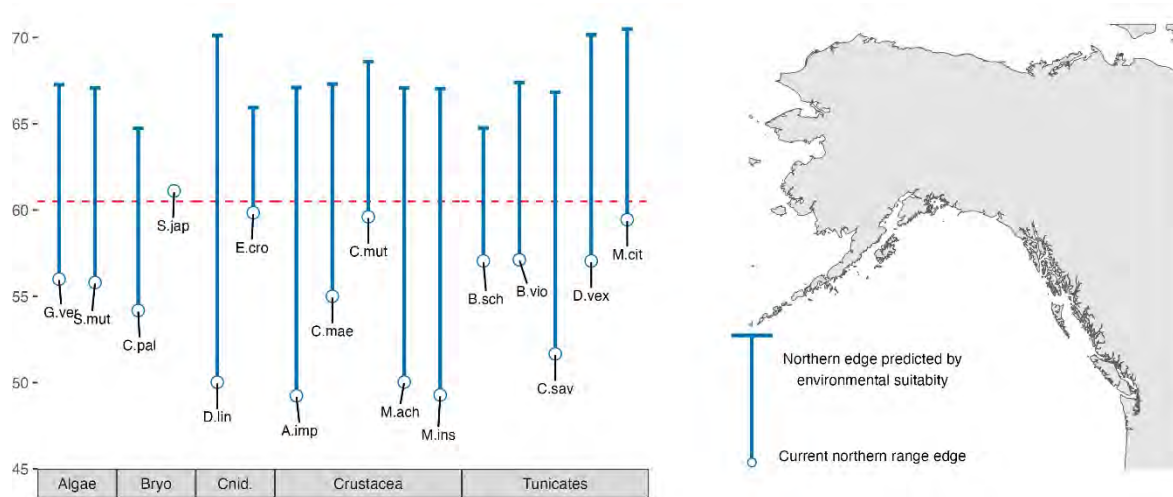


Figure 11: Potential for northward spread to PWS of 16 non-native species reported in Alaska, including some not known to be established. Open circles represent the currently known northern range edge of a species distribution on the Pacific Coast; blue bars represent the distance between the current most northern occurrence and the predicted most northern occurrence from MaxEnt models ('environmental suitability'). Abbreviated species names are indicated with each line within taxonomic group (see Table 6 for full names of invertebrates). Dashed horizontal line in red indicates latitude for PWS. [Figure modified from Simkanin et al. 2019.]

While our models predict that suitable environmental conditions already exist for colonization of PWS by many NIS, the probability of establishment is likely to increase with warming temperature for NIS that arrive here from further south along the Pacific coast. Historically, the seasonal window for reproduction and recruitment of marine invertebrates in PWS was more limited for many taxa, compared to bays at lower latitudes such as in California, and we expect this would have served to reduce the likelihood of colonization if

and when introductions occurred. Recent and ongoing warming in Alaska is likely widening the temporal window for such species to successfully reproduce, establish, and spread. Thus, while some biosecurity steps, such as ballast water treatment in recent years, have reduced the number of organisms delivered to PWS and Alaska, there may also be a per capita increase in the chance of colonization for those organisms that do arrive. The quantitative relationship between propagule release and colonization success remains poorly resolved (National Research Council 2011), making it difficult to assess the isolated or compensatory effects of temperature (climate change) on invasion outcomes.

## Conclusions and Recommendations

Our survey and analyses confirmed the presence of 3 NIS for PWS in 2023. We also confirmed the identity of a fourth NIS, which was collected by our PlateWatch Program in 2023 for PWS. Two of these species appear to be new morphological records for PWS and the broader region, including the amphipod *Monocorophium acherusicum* and the tunicate *Ciona savignyi*. Two of these four species were also detected by genetic methods, along with the polychaete *Polydora onagwaensis*, which also appears to be a new record to the region; we are now conducting a more formal analysis of this polychaete to evaluate whether it may also be introduced.

In a broader synthesis of NIS records for marine invertebrate NIS detected in PWS, we identified 7 species with confirmed morphological records, of which 2 are considered to have established populations and 5 are not known to be established. It appears that 3 (43%) of these 7 first morphological records occurred in 2023.

Vessels are a possible mechanism (vectors) of introduction for all of these species, based on known life-histories and habitat distributions, although several vectors are possible for most (Fofonoff et al. 2018). Specifically, all of these species can be transferred by hull biofouling associated with commercial and other vessel types. Ship's ballast water is considered a possible mechanism for at least two of these species, including the amphipod *Monocorophium acherusicum* and the barnacle *Amphibalanus improvisus*. Most of these species are also associated with oysters and mussels as well, although this seems a less likely mechanism than vessels due to current management practices.

Overall, our analyses indicate that new NIS are being detected in PWS. We surmise that several of these are likely very recent arrivals, although we cannot determine the actual date of introduction or whether most have established populations. We hypothesize that these new records result from continuing transfers by vessels, including especially via hull biofouling. Further, our modelling indicates PWS currently has environmental conditions suitable for all of these species to establish self-sustaining populations. It is also likely that the opportunity for local establishment is improving, due to climate change.

To date, NIS arriving to Alaska and PWS have resulted primarily by human-mediated transfers from lower latitudes along the Pacific coast of North America (Ruiz et al. 2015).

Our current results suggest that new invasions to Alaska have occurred in recent years (especially in southeast Alaska) and that this pattern is likely to continue, since vessel biofouling contributes strongly to this northward spread, biofouling management is not required for vessels arriving to Alaska, and environmental conditions in PWS are suitable for colonization for most species. In addition, warming climates, sea ice declines, and the projected long-term opening of the Arctic Northwest Passage, along with planned construction of a deep draft port at Nome, may also enhance vessel traffic to multiple regions of Alaska, which could increase the likelihood of NIS transport and novel introductions (Miller and Ruiz 2014) from other global regions to Alaska, unless adequate biosecurity is in place.

Importantly, such northward spread and invasions to Alaska are not inevitable. Many of the NIS detected are not likely to arrive in Alaska without human transfers, due to their limited ability for natural dispersal. Thus, understanding invasion dynamics in Alaska provide critical information on whether management actions are working and sufficient to reduce invasion risks, or whether pathways for invasion remain open (National Resource Council 2011; Ruiz & Carlton 2003).

From this perspective, to evaluate the ongoing performance of biosecurity to reduce invasion risk in PWS, including especially those associated with vessel operations, we recommend several steps for sustained surveillance that also consider efficiency in cost and effort. We outline these briefly below:

**Expanded PlateWatch Surveys.** PlateWatch provides an efficient approach to detection of NIS and also engages local communities. To date, several NIS have been detected by PlateWatch, which has focused primarily on morphological detection of large, conspicuous organisms (such as tunicates). While we recommend sustaining this program, it is also feasible to include a genetic component and this could enable detection of many additional species, including those that are challenging to identify morphological. We recommend a training workshop in PWS for PlateWatch participants, to incorporate genetic sampling into the detection program, following new protocols SERC has developed for detecting DNA by soaking panels. This methodology is now being used in our broader research program and can be applied readily in PlateWatch.

**Valdez Marine Terminal and Tatitlek Ferry Dock Repeated Measures.** We recommend repeated measures at both Valdez Marine Terminal and Tatitlek (near the ferry dock), using panels, for both morphological and genetic analyses. We have detected all known marine invertebrate NIS for PWS at these two locations, including the four species not known to be established. In essence these two sites appear to be hotspots for detection, likely due to marine transportation and possibly environmental conditions. Moreover, the Valdez terminal could allow sampling across salinities, since there is a salinity gradient with depth. Frequent sampling at these two sites could serve as sentries for new NIS as well as evaluate whether the four recent

NIS (of unknown population status) are established. Moreover, including short (3-month) and long (>6-month) duration panels may increase the total number of species detected at these sites.

**Decadal Survey of PWS.** We recommend repeating the current survey and analyses every 5-10 years for PWS, to evaluate long-term changes. The panel surveys aim to detect NIS and also provide an assessment of community composition, including native, non-native and cryptogenic species. Thus, these data serve to evaluate invasion dynamics, while also assessing broader community-level changes, which may be expected in response to climate change or other pulse disturbance events. SERC has established sentinel sites for repeated measures, using panels and zooplankton sampling (analyzed by both morphology and genetics) in San Diego, Long Beach, San Francisco Bay, Humboldt Bay, and Ketchikan. These sentinel site surveys are repeated at least every 3-5 years and serve as part of a decadal survey along the Pacific coast, including 12 locations from San Diego to Homer, to evaluate northward spread of NIS. Including PWS every 5-10 years would leverage the extensive data being collected across latitude to evaluate northward spread and changing risk of invasions in Alaska waters.

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## Appendix A: Sequencing and Bioinformatics Details

### DNA Extraction, PCR Amplification, and Sequencing

Genomic DNA was extracted from 0.25g of blended biological material from fouling panels. Negative extraction controls were included to identify potential contaminants in the library preparation. A portion of the mitochondrial COI gene was amplified using primers fbLCOF1 (J. Geller, unpublished) and jgHCO2198 (Geller et al. 2013). This COI gene fragment is a genetic marker, or “DNA barcode,” commonly used to identify animals and so is well represented in public databases to aid taxonomic assignment of DNA sequences. All PCR reactions were generated in triplicate to mitigate potential variation across replicates in PCR. To increase sequence diversity, additional base pairs (0, 1, 2 and 3 bp) were added to each forward and reverse primer in an equal-volume mix. All PCRs were generated in triplicate. PCR reagents consisted of 1 x GeneAmp 10 x PCR Gold Buffer (150 mM Tris-HCL, pH 8.0; 500 mM KCl; Applied Biosystems, Carlsbad, CA), 2.0 mM MgCl<sub>2</sub>, 0.2 mM each nucleotide, 0.4 µM each primer, 0.2 mg mL<sup>-1</sup> bovine serum albumin (BSA; New England Biolabs), and 0.025 units µL<sup>-1</sup> of AmpliTaq Gold with water to a final volume of 20 µL. Thermal cycling was carried out using a S1000 Thermal Cycler (Bio-Rad, Hercules, CA) with an initial denaturation of 95°C for 10 min, 35 cycles of 95°C for 60 s, 50°C for 90 s, 72°C for 60 s and a final elongation of 72°C for 5 min. For screening the assays, an aliquot of PCR product (5 µL) was electrophoresed on agarose gel (2% w/v) stained with GelRed (Phenix Research) and visualized under UV light. Triplicate PCR amplicons were pooled for each sample based on gel band intensity.

We used dual-indexing with Nextera adapters with a unique combination to each sample. PCR reagents consisted of 12.5 µL KAPA Ready Mix, 1 µL each index (i7 or i5), 1 µL amplicon (pooled product), and 9.5 µL water for a final reaction volume of 25 µL. Thermal cycling was carried out with an initial denaturation of 95°C for 5 min, followed by 12 cycles of 98°C for 20 s, 60°C for 45 s, and 72°C for 45 s, and a final extension of 72°C for 5 min. To verify that indexing was successful, an aliquot of indexed product and unindexed product were both electrophoresed on agarose gel (2% w/v) stained with GelRed and visualized under UV light. The indexed product was purified with AMPure XP Beads (Beckman-Coulter, USA) by following the manufacturer’s instructions for 10 µL sample reaction volume and 1.5X ratio.

The bead-cleaned samples were quantified using Qubit dsDNA HS Assay Kit (Thermo Fisher Scientific) with a Qubit 2.0 Fluorometer using manufacturer instructions. Samples were equally divided and pooled based on equimolar concentrations into three separate libraries, which were independently sequenced on three runs. The final pooled libraries were sequenced using a MiSeq v3 600 Reagent Kit (Illumina) on an Illumina MiSeq platform at the Laboratories of Analytical Biology at the Smithsonian National Museum of Natural History.

## **Numbers of Reads at Each Stage of the Dada2 Pipeline**

sample_names	input	filtered	denoisedF	denoisedR	merged	nochim
control-EC-20240401-PWS-2023-fb	136	78	48	52	48	48
control-EC-20240402-PWS-2023-fb	41	27	27	27	27	27
control-EC-20240404-PWS-2023-fb	45	30	27	27	27	27
control-EC-20240405-PWS-2023-fb	16	1	1	1	0	0
control-EC-20240408-PWS-2023-fb	2	2	1	1	0	0
f-blend-22324-1-PWS-2023-fb	100424	83144	80914	81141	77817	70368
f-blend-22328B-1-PWS-2023-fb	76391	65092	64527	64815	63302	61588
f-blend-22334-1-PWS-2023-fb	63474	54721	54433	54364	53918	53903
f-blend-22334B-1-PWS-2023-fb	62138	52160	50303	50582	48674	44533
f-blend-22335-1-PWS-2023-fb	20353	16662	16077	16075	15715	15300
f-blend-22336-1-PWS-2023-fb	195871	159977	158008	158169	152933	141068
f-blend-22339-1-PWS-2023-fb	2975	2397	2324	2329	2306	2306
f-blend-22341-1-PWS-2023-fb	28309	22610	21644	21631	20914	19942
f-blend-22342-1-PWS-2023-fb	145938	120319	116328	116910	111633	106861
f-blend-22346-1-PWS-2023-fb	59399	49537	49232	49237	48670	47390
f-blend-22349-1-PWS-2023-fb	15968	8642	8583	8568	8545	8545
f-blend-22350-1-PWS-2023-fb	33474	25333	25101	25101	24579	24579
f-blend-22351-1-PWS-2023-fb	5663	2924	2702	2765	2583	2583
f-blend-22352-1-PWS-2023-fb	197	126	90	105	20	20
f-blend-22358-1-PWS-2023-fb	56087	46778	45570	45551	44106	42290
f-blend-22360-1-PWS-2023-fb	69501	60624	59738	59783	58179	50999
f-blend-22367-1-PWS-2023-fb	102902	84855	82464	82964	79355	71604
f-blend-22369-1-PWS-2023-fb	74996	64206	63898	63811	63514	62958
f-blend-22370-1-PWS-2023-fb	261606	218278	214082	214722	206966	170945
f-blend-22371-1-PWS-2023-fb	40138	32209	30940	30964	29639	29366
f-blend-22377-1-PWS-2023-fb	35698	30931	30315	30386	29572	27294
f-blend-22383-1-PWS-2023-fb	42238	36325	35292	35280	34473	31391
f-blend-22387-1-PWS-2023-fb	109749	82777	81097	81243	78266	74309
f-blend-22388-1-PWS-2023-fb	64390	56241	55901	55952	55319	53872
f-blend-22392-1-PWS-2023-fb	45576	39006	38219	38141	37568	37096

f-blend-22398-1-PWS-2023-fb	5537	4287	3749	3775	3443	3396
f-blend-22399-1-PWS-2023-fb	120056	97775	96626	96687	94406	81449
f-blend-22527-1-PWS-2023-fb	53684	46032	45595	45652	44500	39859
f-blend-22528-1-PWS-2023-fb	79513	68403	67753	67883	66140	55169
f-blend-22535-1-PWS-2023-fb	4610	3838	3766	3761	3728	3728
f-blend-22538-1-PWS-2023-fb	49055	43640	43267	43243	43024	43000
f-blend-22539-1-PWS-2023-fb	5461	682	644	646	639	639
f-blend-22540-1-PWS-2023-fb	29804	23940	23197	23242	22645	22595
f-blend-22541-1-PWS-2023-fb	13524	11150	10494	10492	10003	10003
f-blend-22545-1-PWS-2023-fb	1707	1323	1081	1063	1029	1029
f-blend-22551-1-PWS-2023-fb	54577	47649	46506	46450	45723	42466
f-blend-22557-1-PWS-2023-fb	12112	9542	9040	9007	8514	8507
f-blend-22558-1-PWS-2023-fb	89	56	45	43	43	43
f-blend-22559-1-PWS-2023-fb	106545	88834	87595	87993	85244	76718
f-blend-22561-1-PWS-2023-fb	49316	39537	38722	38629	37535	37424
f-blend-22562-1-PWS-2023-fb	737	457	443	446	440	440
f-blend-22566-1-PWS-2023-fb	104336	83369	81539	81619	78162	74946
f-blend-22568-1-PWS-2023-fb	2697	2060	1974	1966	1841	1779
f-blend-22571-1-PWS-2023-fb	85765	72342	71202	71401	69632	62541
f-blend-22573-1-PWS-2023-fb	58127	51366	50921	50937	50702	49997
f-blend-22575-1-PWS-2023-fb	169065	139435	135206	135977	127348	118649
f-blend-22577-1-PWS-2023-fb	141003	118299	116302	116256	112436	98123
f-blend-22753-1-PWS-2023-fb	78460	62001	61567	61476	60807	59280
f-blend-22762-1-PWS-2023-fb	26623	21983	20890	21018	20105	19753
f-blend-22783-1-PWS-2023-fb	3035	2391	2091	2079	1853	1847
f-blend-22784-1-PWS-2023-fb	84175	72640	72243	72242	72143	72131
f-blend-22785-1-PWS-2023-fb	61890	51327	50748	50896	49454	45200
f-blend-22787-1-PWS-2023-fb	39976	32037	30794	30799	29653	29264
f-blend-22788-1-PWS-2023-fb	156899	129428	125031	126235	119821	111807
f-blend-22789-1-PWS-2023-fb	86224	62460	59588	60007	56819	56320

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## Appendix B: Taxa Identified in Survey by Morphological Analyses

Table B1: Species detected by morphological analyses in the 2023 PWS hard substrate survey. The number of plates per site with each species is shown, along with the total across all sites. Invasion status is shown for each species as Introduced (I), Native (N), Cryptogenic (C), or Unresolved (U).

Taxon	Invasion Status	AFK Hatchery	Cannery Creek Hatchery	Chenega Bay Marina	Cordova Ferry Terminal	Cordova Small Boat Harbor	Eshamy	Sheep Bay	Simpson Bay Oyster Farm	Tatitlek Ferry Dock	Wally Noerenberg Island	Windy Bay Kelp Farm	Total
<b>Phylum: Annelida</b>													
<b>Group: Serpulidae</b>													
<i>Pseudochitinopoma occidentalis</i>	N	1	0	0	2	1	0	4	0	5	0	5	18
Serpulidae	U	0	0	0	0	1	0	1	0	0	0	0	2
<b>Group: Spionidae</b>													
<i>Polydora websteri</i>	C	2	0	0	0	0	0	0	1	0	0	0	3
<i>Prionospio cirrifera</i>	C	0	0	0	0	0	0	0	1	0	0	0	1
<i>Spio</i> sp.	U	1	0	0	0	0	0	0	0	0	0	0	1
<b>Group: Spirorbidae</b>													
<i>Bushiella</i> sp.	U	0	0	3	1	0	0	0	0	0	0	0	4
<i>Circeis armoricana</i>	N	0	0	1	2	1	1	0	0	0	0	0	5
<i>Circeis</i> sp.	U	0	0	0	1	0	0	0	0	0	0	0	1
<i>Circeis spirillum</i>	C	4	2	3	2	5	1	0	0	4	0	4	25
<i>Paradexiospira vitrea</i>	N	0	0	4	0	0	0	0	0	0	0	0	4
Spirorbidae	U	1	0	0	0	0	1	0	0	0	0	1	3
<b>Phylum: Arthropoda</b>													
<b>Group: Amphipoda</b>													
<i>Allorchestes</i> sp.	U	0	0	0	1	0	0	0	0	0	0	0	1
<i>Americorophium brevis</i>	N	0	1	0	0	0	0	0	0	0	0	0	1
<i>Ampithoe dalli</i>	N	0	2	0	0	0	3	0	0	0	0	0	5
<i>Ampithoe</i> sp.	U	1	0	0	0	0	0	0	0	0	0	0	1
Anisogammaridae	U	0	1	0	0	0	0	0	0	0	0	0	1

Taxon	Invasion Status	AFK Hatchery	Cannery Creek Hatchery	Chenega Bay Marina	Cordova Ferry Terminal	Cordova Small Boat Harbor	Eshamy	Sheep Bay	Simpson Bay Oyster Farm	Tatitlek Ferry Dock	Wally Noerenberg Island	Windy Bay Kelp Farm	Total
<i>Anisogammarus pugettensis</i>	N	0	0	0	1	0	0	0	0	0	2	0	3
<i>Aoroides columbiae</i>	N	0	0	0	2	0	0	0	0	0	0	0	2
<i>Aoroides</i> sp.	U	0	0	1	0	0	0	0	0	0	0	0	1
Corophiidae	U	0	0	1	0	0	0	0	0	0	0	0	1
<i>Eogammarus confervicolus</i>	N	0	4	0	0	0	0	0	1	0	5	0	10
<i>Gnathopleustes pachychaetus</i>	N	5	5	3	1	0	4	0	0	0	1	0	19
<i>Ischyrocerus anguipes</i>	C	0	0	1	1	1	1	0	0	0	0	0	4
<i>Ischyrocerus</i> sp.	U	1	0	0	1	0	0	0	0	0	0	1	3
<i>Jassa staudei</i>	N	1	0	1	0	0	0	0	4	0	0	0	6
<i>Monocorophium acherusicum</i>	I	0	0	0	0	0	0	0	0	1	0	0	1
<i>Pontogeneia inermis</i>	N	0	0	0	0	0	0	0	0	0	1	0	1
<i>Pontogeneia rostrata</i>	N	0	0	0	0	0	1	0	0	0	0	0	1
<b>Group: Caprellidae</b>													
<i>Caprella alaskana</i>	N	0	1	0	0	0	0	0	0	1	0	0	2
<i>Caprella gracilior</i>	N	0	0	0	0	0	0	1	0	0	0	2	3
<i>Caprella irregularis</i>	N	0	0	0	2	1	0	0	0	0	0	0	3
<i>Caprella laeviuscula</i>	N	0	1	1	0	0	1	0	0	0	0	0	3
<i>Caprella mutica</i>	I	0	0	0	0	0	0	0	0	5	0	0	5
<i>Caprella</i> sp.	U	1	0	0	1	1	2	1	0	0	0	3	9
<i>Deutella californica</i>	N	0	0	0	5	2	0	0	0	0	0	0	7
<i>Metacaprella kennerlyi</i>	N	0	1	0	0	0	0	0	4	2	0	0	7
<b>Group: Cirripedia</b>													
Balanidae	U	0	0	0	0	0	0	0	0	0	0	1	1
<i>Balanus crenatus</i>	N	4	0	0	5	5	4	0	1	2	2	3	26
<i>Balanus glandula</i>	N	0	1	0	2	1	3	2	0	0	2	2	13

Taxon	Invasion Status	AFK Hatchery	Cannery Creek Hatchery	Chenega Bay Marina	Cordova Ferry Terminal	Cordova Small Boat Harbor	Eshamy	Sheep Bay	Simpson Bay Oyster Farm	Tatitlek Ferry Dock	Wally Noerenberg	Windy Bay Kelp Farm	Total
<i>Balanus</i> sp.	N	0	0	1	0	0	0	2	0	0	1	0	4
Cirripedia	U	1	0	0	0	0	0	0	0	0	0	0	1
<b>Group: Decapoda</b>													
Caridea	U	0	0	0	0	0	0	0	0	0	0	1	1
<i>Glebocarcinus oregonensis</i>	N	0	0	1	0	0	0	0	0	0	0	0	1
<i>Heptacarpus brevirostris</i>	N	0	0	0	3	0	1	0	0	0	0	0	4
<b>Group: Isopoda</b>													
<i>Gnorimosphaeroma oregonense</i>	N	0	0	0	0	0	0	0	0	0	2	0	2
<i>Munna stephenseni</i>	N	0	0	1	2	0	0	0	0	0	0	1	4
<i>Pentidotea schmitti</i>	N	0	1	0	0	0	1	0	0	0	0	0	2
<b>Phylum: Bryozoa</b>													
<i>Alcyonidium</i> sp.	U	0	0	0	1	1	1	0	1	4	0	1	9
<i>Amathia</i> sp. <i>Bowerbankia</i>	U	0	0	0	0	3	0	0	0	1	0	0	4
<i>Callopora craticula</i>	N	3	0	2	1	0	0	0	0	1	0	1	8
<i>Celleporella hyalina</i>	C	5	1	5	5	4	5	0	4	2	0	0	31
<i>Crisia</i> sp.	U	0	0	1	0	0	0	0	0	0	0	0	1
Crisiidae	U	0	0	1	0	0	0	0	0	0	0	0	1
<i>Crisularia pacifica</i>	N	1	0	3	2	5	0	0	0	0	0	0	11
<i>Dendrobeania lichenoides</i>	N	0	0	0	0	0	1	0	0	0	0	0	1
<i>Fenestrulina delicia</i>	C	0	0	1	0	0	0	0	0	0	0	0	1
<i>Fenestrulina</i> sp.	U	0	0	3	0	0	0	0	0	1	0	0	4
<i>Filicrisia franciscana</i>	N	2	0	0	0	0	0	0	0	0	0	0	2
<i>Filicrisia</i> sp.	U	3	0	2	0	0	0	0	0	0	0	0	5
<i>Juxtacribrilina corbicula</i>	N	3	0	3	1	4	3	0	0	5	0	0	19
<i>Juxtacribrilina</i> sp.	N	0	0	2	1	1	2	1	0	0	0	1	8



Taxon	Invasion Status	AFK Hatchery	Cannery Creek Hatchery	Chenega Bay Marina	Cordova Ferry Terminal	Cordova Small Boat Harbor	Eshamy	Sheep Bay	Simpson Bay Oyster Farm	Tatitlek Ferry Dock	Wally Noerenberg Island	Windy Bay Kelp Farm	Total
Lichenoporidae	U	0	0	1	0	0	0	0	0	0	0	0	1
<i>Membranipora villosa</i>	N	0	0	2	0	0	0	3	0	3	0	3	11
<i>Patinella verrucaria</i>	N	5	0	0	0	0	0	0	0	0	0	0	5
<i>Schizoporella japonica</i>	I	0	0	0	0	0	0	0	0	5	0	0	5
<i>Tegella aquilirostris</i>	N	2	0	0	4	0	0	0	0	0	0	0	6
<i>Tubulipora</i> sp.	U	0	0	1	0	0	0	0	0	0	0	1	2
<b>Phylum: Chlorophyta</b>													
Chlorophyta	U	0	1	0	1	3	1	0	5	0	5	1	17
<b>Phylum: Chordata</b>													
<b>Group: Tunicata</b>													
Aplousobranchia	U	0	0	0	3	2	0	0	0	0	0	0	5
<i>Corella inflata</i>	N	2	0	5	2	5	0	0	0	0	0	0	14
<i>Distaplia occidentalis</i>	N	0	0	0	0	1	0	0	0	0	0	0	1
<i>Distaplia</i> sp.	N	0	0	0	1	1	0	0	0	0	0	0	2
Stolidobranchia	U	0	0	0	0	3	0	0	0	1	0	0	4
<i>Styela</i> sp.	U	0	0	0	2	0	0	0	0	0	0	0	2
<b>Phylum: Cnidaria</b>													
<b>Group: Anthozoa</b>													
Actiniaria	U	0	0	1	0	0	1	0	0	0	0	0	2
Unidentified Anthozoa	U	0	0	0	0	1	0	0	0	0	0	0	1
<i>Metridium</i> sp.	U	0	0	0	1	0	0	0	0	0	0	0	1
<b>Group: Hydrozoa</b>													
Athecata	U	0	1	0	0	0	0	0	0	0	0	0	1
Campanulariidae	U	0	5	0	5	2	5	1	1	1	5	2	27
Campanulinidae	U	0	1	0	0	0	0	0	0	0	0	0	1

Taxon	Invasion Status	AFK Hatchery	Cannery Creek Hatchery	Chenega Bay Marina	Cordova Ferry Terminal	Cordova Small Boat Harbor	Eshamy	Sheep Bay	Simpson Bay Oyster Farm	Tatitlek Ferry Dock	Wally Noerenberg Station	Windy Bay Kelp Farm	Total
Hydrozoa	U	0	0	1	0	0	0	0	0	0	0	0	1
Thecata	U	0	0	0	0	1	0	2	0	0	0	0	3
<b>Phylum: Echinodermata</b>													
<b>Group: Asteroidea</b>													
Asteroidea	U	0	0	0	0	0	1	4	3	2	1	1	12
<b>Group: Echinoidea</b>													
Echinoidea	U	0	0	0	0	0	0	0	0	0	0	1	1
<b>Phylum: Mollusca</b>													
<b>Group: Bivalvia</b>													
<i>Hiatella arctica</i>	N	5	5	5	5	5	5	5	5	5	5	4	54
<i>Modiolus modiolus</i>	N	1	1	2	4	4	0	1	0	5	0	5	23
<i>Mya truncata</i>	N	0	0	0	0	0	1	0	0	0	0	0	1
<i>Mytilus galloprovincialis/trossulus</i> complex	C	5	4	4	3	2	5	5	5	2	5	3	43
<i>Pododesmus macrochisma</i>	N	0	0	0	0	0	0	1	0	4	0	4	9
<i>Vilasina vernicosa</i>	N	0	1	0	0	0	0	0	0	0	0	0	1
<b>Group: Gastropoda</b>													
<i>Alvania compacta</i>	N	1	0	1	0	0	1	0	0	0	0	2	5
Calyptraeidae	U	0	0	0	0	0	0	0	0	1	0	1	2
Columbellidae	U	0	0	0	0	0	2	0	0	0	0	1	3
<i>Crepidatella lingulata</i>	N	0	0	0	1	0	0	0	0	1	0	3	5
<i>Crepidatella</i> sp.	U	0	0	1	0	0	0	0	0	0	0	0	1
Unidentified Gastropoda	U	0	0	1	0	0	0	0	0	0	0	0	1
<i>Lacuna</i> sp.	U	0	0	0	0	0	0	0	0	1	0	1	2
<i>Lacuna vincta</i>	U	1	2	1	4	0	4	2	0	0	5	2	21

Taxon	Invasion Status	AFK Hatchery	Cannery Creek Hatchery	Chenega Bay Marina	Cordova Ferry Terminal	Cordova Small Boat Harbor	Eshamy	Sheep Bay	Simpson Bay Oyster Farm	Tatitlek Ferry Dock	Wally Noerenberg Island	Windy Bay Kelp Farm	Total
Unidentified Limpet	U	0	0	0	0	0	0	0	0	1	0	0	1
<i>Margarites pupillus</i>	N	1	1	0	0	1	0	2	0	0	0	0	5
<i>Odostomia</i> sp.	U	0	0	0	0	0	1	5	3	1	0	2	12
<b>Group: Nudibranchia</b>													
Aeolidioidea	U	0	0	0	1	1	0	0	0	0	0	0	2
<i>Coryphella verrucosa</i>	N	0	2	0	2	1	0	0	0	0	0	0	5
<i>Eubbranchus olivaceus</i>	C	0	4	0	0	0	2	0	0	0	0	0	6
<i>Eubbranchus rupium</i>	C	0	0	0	0	0	0	0	0	0	1	0	1
<i>Eubbranchus rustyus</i>	N	0	0	0	0	0	0	0	0	0	1	0	1
<i>Eubbranchus</i> sp.	U	0	0	0	0	0	2	0	0	0	1	0	3
<i>Hermisenda crassicornis</i>	N	1	2	2	1	0	0	4	4	3	0	4	21
<i>Onchidoris bilamellata</i>	N	2	0	0	0	0	1	0	0	0	1	1	5
<i>Onchidoris muricata</i>	N	3	0	0	1	0	1	2	1	4	0	0	12
<i>Onchidoris</i> sp.	U	1	0	0	0	0	1	0	0	0	0	1	3
<i>Trinchesia albocrusta</i>	N	0	0	0	0	0	0	1	0	1	0	1	3
<b>Phylum: Phaeophyceae</b>													
Phaeophyceae	U	0	0	0	0	0	0	0	1	0	0	0	1
<b>Phylum: Porifera</b>													
<i>Porifera</i> sp. A	U	0	0	0	1	5	0	0	0	0	0	0	6
<i>Porifera</i> sp. B	U	0	0	0	0	1	0	0	0	0	0	0	1
<i>Porifera</i> sp. C	U	0	0	0	3	4	0	0	0	0	0	0	7
<b>Phylum: Protozoa</b>													
<i>Protista</i> sp. C	U	0	0	0	0	0	0	0	0	4	0	0	4

Taxon	Invasion Status	AFK Hatchery	Cannery Creek Hatchery	Chenega Bay Marina	Cordova Ferry Terminal	Cordova Small Boat Dock	Eshamy	Sheep Bay	Simpson Bay Oyster Farm	Tatitlek Ferry Dock	Wally Noerenberg Island	Windy Bay Kelp Farm	Total
<i>Protista</i> sp. D	U	1	0	2	2	4	1	1	0	5	0	0	16
<b>Phylum: Rhodophyta</b>													
Rhodophyta	U	0	1	0	1	4	1	0	1	0	0	1	9

## Appendix C: Taxa Identified in Survey by Site

Table C1: Species detected by genetic analyses in the 2023 PWS hard substrate survey by site. The number of plates per site with each species is shown, along with the total across all sites; genetic match indicates  $\geq 98\%$  to indicated taxon (yes) or 95-98% (no). Invasion status is shown for each species as Introduced (I), Native (N), Cryptogenic (C), or Unresolved (U).

Class	Taxon	Invasion Status	98% sequence match	AFK Hatchery	Cannery Creek Hatchery	Chenega Bay Marina	Cordova Ferry Terminal	Cordova Small Boat Harbor	Eshamy	Sheep Bay	Simpson Bay Oyster Farm	Tatitlek Ferry Dock	Wally Noerenberg Hatchery	Windy Bay Kelp Farm	Total
Phylum Annelida															
Clitellata	Enchytraeidae	U	yes	1	0	0	0	0	0	0	0	0	0	0	1
Polychaeta	<i>Paleanotus bellis</i>	N	yes	0	0	0	0	0	0	0	2	0	0	0	2
Polychaeta	<i>Nereis vexillosa</i>	N	yes	3	2	4	3	0	1	0	3	0	0	0	16
Polychaeta	<i>Platynereis bicanaliculata</i>	N	yes	0	0	0	1	0	2	0	0	0	0	0	3
Polychaeta	<i>Halosydna brevisetosa</i>	N	yes	1	0	1	0	0	1	0	0	0	0	0	3
Polychaeta	<i>Harmothoe</i>	U	yes	0	0	0	0	0	0	0	0	0	0	1	1
Polychaeta	Syllidae	U	yes	5	0	0	2	2	0	0	0	2	3	1	15
Polychaeta	<i>Polydora onagawaensis</i>	C	yes	1	0	0	0	0	0	0	0	0	0	0	1
Polychaeta	<i>Terebellides stroemii</i>	N	yes	0	0	0	0	0	0	0	0	0	0	1	1
Polychaeta	<i>Capitella capitata</i>	C	no	0	1	0	0	2	0	0	0	0	0	0	3
Phylum Arthropoda															
Hexanauplia	<i>Paracalanus</i>	U	yes	0	0	0	0	0	0	1	0	0	0	0	1
Hexanauplia	<i>Euryte</i>	U	no	1	0	1	0	0	0	0	0	0	0	0	2
Hexanauplia	<i>Oithona similis</i>	N	no	0	1	0	2	1	0	0	0	1	0	0	5
Hexanauplia	<i>Ameira longipes</i>	C	yes	0	0	0	1	0	0	0	1	0	0	0	2
Hexanauplia	<i>Paradactylopodia</i>	U	yes	4	0	0	2	2	0	0	0	0	0	0	8
Hexanauplia	<i>Ectinosoma melaniceps</i>	C	yes	0	0	0	0	0	0	0	0	0	0	1	1
Hexanauplia	<i>Harpacticus</i>	U	yes	0	0	0	0	0	0	0	0	0	0	1	1
Hexanauplia	Laophontidae	U	yes	0	0	1	0	0	1	0	0	0	1	0	3
Hexanauplia	<i>Amonardia normani</i>	C	yes	4	0	0	5	1	0	0	0	0	0	0	10

Class	Taxon	Invasion Status	98% sequence match	AFK Hatchery	Cannery Creek Hatchery	Chenega Bay Marina	Cordova Ferry Terminal	Cordova Small Boat Harbor	Eshamy	Sheep Bay	Simpson Bay Oyster Farm	Tatitlek Ferry Dock	Wally Noerenberg Hatchery	Windy Bay Kelp Farm	Total
Hexanauplia	<i>Tisbe</i>	U	yes	0	0	0	0	0	0	0	0	1	0	0	1
Malacostraca	<i>Eogammarus confervicolus</i>	N	yes	0	0	0	0	0	0	0	0	0	1	0	1
Malacostraca	<i>Aoroides columbiae</i>	N	yes	0	0	0	1	0	0	0	0	0	0	0	1
Malacostraca	<i>Caprella laeviuscula</i>	N	no	0	1	0	0	0	0	0	0	0	0	0	1
Malacostraca	<i>Caprella mutica</i>	I	yes	0	0	0	0	0	0	0	0	2	0	0	2
Malacostraca	<i>Metacaprella kennerlyi</i>	N	yes	1	1	0	0	0	0	0	2	0	0	1	5
Malacostraca	<i>Jassa staudei</i>	N	yes	0	0	0	0	0	0	0	3	0	0	0	3
Malacostraca	<i>Microjassa</i>	U	yes	0	0	0	2	0	0	0	0	0	0	0	2
Malacostraca	<i>Gnathopleustes pachychaetus</i>	N	yes	3	5	0	0	0	4	0	0	0	0	0	12
Ostracoda	Podocopida	U	no	0	0	0	1	0	0	0	0	0	0	0	1
Ostracoda	Podocopida	U	yes	0	0	0	0	1	0	0	1	2	0	0	4
Thecostraca	<i>Balanus crenatus</i>	N	yes	1	0	0	4	5	4	0	0	0	0	1	15
Thecostraca	<i>Balanus glandula</i>	N	yes	0	2	0	1	2	2	0	0	0	2	0	9

## Phylum Bryozoa

Gymnolaemata	<i>Crisularia pacifica</i>	N	yes	1	0	4	1	5	0	0	0	0	0	0	11
Gymnolaemata	<i>Celleporella hyalina</i>	C	no	4	0	2	4	4	5	0	2	0	0	0	21
Gymnolaemata	<i>Celleporella hyalina</i>	C	yes	3	0	1	2	2	5	1	2	0	0	0	16
Gymnolaemata	<i>Membranipora serrilamella</i>	N	yes	0	0	0	0	0	0	0	0	1	0	0	1
Gymnolaemata	<i>Membranipora villosa</i>	N	yes	0	0	0	0	0	0	1	0	0	0	0	1
Gymnolaemata	<i>Schizoporella japonica</i>	I	yes	0	0	0	0	0	0	0	0	3	0	0	3
Gymnolaemata	<i>Alcyonidium</i>	U	yes	2	0	0	3	0	1	0	2	3	0	2	13

## Phylum Cnidaria

Anthozoa	<i>Metridium senile</i>	N	yes	0	0	0	1	0	0	0	0	0	0	0	1
Hydrozoa	<i>Bougainvillia superciliaris</i>	N	no	0	0	0	0	1	0	0	0	0	0	0	1
Hydrozoa	<i>Bougainvillia superciliaris</i>	N	yes	0	0	0	0	0	0	1	0	0	0	0	1

Class	Taxon	Invasion Status	98% sequence match	AFK Hatchery	Cannery Creek Hatchery	Chenega Bay Marina	Cordova Ferry Terminal	Cordova Small Boat Harbor	Eshamy	Sheep Bay	Simpson Bay Oyster Farm	Tatitlek Ferry Dock	Wally Noerenberg Hatchery	Windy Bay Kelp Farm	Total
Hydrozoa	<i>Gonothyrea loveni</i>	C	no	0	0	0	0	0	2	0	0	0	0	0	2
Hydrozoa	<i>Clytia gregaria</i>	N	yes	3	5	0	3	2	0	0	1	1	0	0	15
Hydrozoa	<i>Melicerium octocostatum</i>	N	yes	0	0	0	0	1	0	0	0	0	0	0	1
Hydrozoa	<i>Obelia dichotoma</i>	C	yes	0	4	1	3	1	5	0	0	0	1	1	16
Hydrozoa	<i>Tiaropsis multicirrata</i>	N	no	0	0	0	0	1	2	0	0	0	0	0	3
Scyphozoa	<i>Aurelia labiata</i>	N	yes	0	0	0	0	1	0	0	1	0	0	1	3

## Phylum Mollusca

Asteroidea	<i>Evasterias troschelii</i>	N	yes	0	0	0	0	0	1	2	3	3	0	0	9
Echinoidea	<i>Strongylocentrotus droebachiensis</i>	N	yes	0	0	0	0	0	0	0	0	0	0	1	1
Bivalvia	<i>Hiatella</i>	U	yes	4	5	4	3	5	5	3	2	2	3	1	37
Bivalvia	<i>Mytilus edulis</i>	N	yes	0	0	0	0	0	0	0	1	0	0	0	1
Bivalvia	<i>Mytilus trossulus</i>	N	yes	5	5	4	4	5	5	5	5	2	4	4	48
Bivalvia	<i>Ostrea lurida</i>	N	yes	0	0	0	1	0	0	0	0	0	0	0	1
Bivalvia	<i>Pododesmus macrochisma</i>	N	yes	0	0	0	0	0	0	0	0	0	0	1	1
Bivalvia	<i>Saxidomus gigantea</i>	N	yes	0	0	0	1	0	0	0	0	0	0	0	1
Gastropoda	<i>Crepidula lingulata</i>	N	yes	1	0	0	2	0	0	0	0	0	0	4	7
Gastropoda	<i>Fusitriton</i>	U	yes	0	0	1	0	0	0	0	0	0	0	0	1
Gastropoda	<i>Coryphella trophina</i>	N	yes	0	2	0	2	0	0	0	0	0	0	0	4
Gastropoda	<i>Dendronotus</i>	U	yes	0	0	1	0	0	0	0	0	0	0	0	1
Gastropoda	<i>Eubranthus</i>	U	yes	0	2	0	0	0	0	0	0	0	0	0	2
Gastropoda	<i>Hermisenda crassicornis</i>	N	yes	1	0	0	0	0	0	2	1	1	0	0	5
Gastropoda	<i>Knoutsodonta jannae</i>	N	no	0	0	0	0	0	0	0	0	2	0	0	2
Gastropoda	<i>Onchidoris bilamellata</i>	N	yes	3	0	0	1	0	4	0	0	1	0	0	9
Gastropoda	<i>Onchidoris muricata</i>	N	yes	0	0	0	0	0	0	0	0	1	0	0	1
Gastropoda	<i>Trinchesia albocrusta</i>	N	yes	1	0	0	0	0	0	0	0	0	0	0	1



Class	Taxon	Invasion Status	98% sequence match	AFK Hatchery	Cannery Creek Hatchery	Chenega Bay Marina	Cordova Ferry Terminal	Cordova Small Boat Harbor	Eshamy	Sheep Bay	Simpson Bay Oyster Farm	Tatitlek Ferry Dock	Wally Noerenberg Hatchery	Windy Bay Kelp Farm	Total
Gastropoda	<i>Zelentia ninel</i>	C	yes	2	0	0	0	1	0	0	0	0	0	0	3
Gastropoda	<i>Calliostoma ligatum</i>	N	yes	0	0	1	0	0	0	0	0	0	0	0	1
Gastropoda	<i>Odostomia tenuisculpta</i>	N	yes	1	0	0	0	0	0	0	1	0	0	0	2
Gastropoda	<i>Odostomia tenuisculpta</i>	N	no	0	0	0	0	0	0	0	1	0	0	0	1
Polyplacophora	<i>Mopalia hindsii</i>	N	yes	1	0	0	0	0	0	0	0	0	0	0	1
Phylum Platyhelminthes															
Enopla	<i>Emplectonema viride</i>	N	yes	1	0	0	0	0	1	0	0	0	1	0	3
Enopla	<i>Paranemertes californica</i>	N	yes	0	0	0	0	0	0	0	0	0	3	0	3
Pilidiophora	<i>Maculaura cerebrosa</i>	N	yes	0	0	0	0	0	0	0	2	0	0	0	2
Rhabditophora	<i>Kaburakia excelsa</i>	N	yes	0	0	0	0	0	0	1	0	0	0	0	1
Rhabditophora	<i>Astrotrorhynchus hakaiensis</i>	C	yes	1	1	0	2	0	0	0	0	0	0	0	4
Phylum Porifera															
Demospongiae	<i>Halichondria panicea</i>	N	yes	0	0	0	0	3	0	0	0	0	0	0	3

**Briefing for PWSRCAC Board of Directors – September 2024****INFORMATION ITEM**

**Sponsor:** John Guthrie and the Port Operations  
Vessel Traffic Systems Committee

**Project number and name or topic:** 8520 – Miscommunication in Maritime  
Contexts

1. **Description of agenda item:** Dr. Nicole Ziegler, Ph.D., will provide the Board with an update on the first two phases of project 8250 – Miscommunication in Maritime Contexts. The final report for phase 2 will be brought to the Board at a later date for approval, once it is available and has been reviewed by the Port Operations and Vessel Traffic Systems Committee.

Dr. Nicole Ziegler is Associate Professor of Second Language Studies at the University of Hawaii at Manoa in Honolulu, Hawaii. Her research focuses on how people learn second languages, and how technology and task-supported approaches can facilitate language development. She is also interested in the role of language in the commercial shipping industry, focusing specifically on the development of authentic task-based materials based on the linguistic, communicative, and pragmatic needs of this unique context.

2. **Why is this item important to PWSRCAC:** Seeking to identify and address various causes of miscommunication, this project will provide a comprehensive perspective by collecting information on the linguistic, cultural, and pragmatic needs and practices of native and non-native English-speaking mariners in Prince William Sound.

Both linguistic and pragmatic failures have frequently led to miscommunication during highly stressful, technical maneuvers, in which there is often very little time or space to correct initial misunderstandings, such as in the Cosco Busan allision with the San Francisco Bay Bridge. In these situations, confusion or misinterpretation of instructions or warnings is likely to intensify problems and difficulties, thus contributing to the occurrence of an accident. In recognition of the need for improved communication, a simplified and highly technical version of English was developed to serve as the “lingua franca” for mariners of varying linguistic backgrounds and proficiencies; however, communication problems persist.

3. **Previous actions taken by the Board on this item:**

<u>Meeting</u>	<u>Date</u>	<u>Action</u>
Board	1/27/22	Approval of project to begin in FY2023.
Board	9/22/22	Authorization of a sole source contract with Dr. Ziegler through Sky Island Language Learning Research in an amount not to exceed \$55,000 for Project 8520 – Miscommunication in Maritime Contexts.
Board	3/27/24	Acceptance of Phase 1 white paper titled “Miscommunication in Maritime Contexts” by Dr. Nicole Ziegler.

## Miscommunication in Maritime Contexts 4-6

4. **Summary of policy, issues, support, or opposition:** A better understanding of maritime English between ship crews and native English speakers is an area of interest to the Council in terms of better addressing the human factors that contribute to accidents.
5. **Committee Recommendation:** None at this time. The POVTS Committee endorsed, and the Board has accepted the Phase 1 report for this project.
6. **Relationship to LRP and Budget:** The work associated with this project (phases 1 and 2) was included in the FY2024 budget under contract 8520.23.01 in an amount not to exceed \$50,000. Approval of a budget modification to move \$25,000 of the committed FY2024 funds to FY2025 to complete phase 2 is on the consent agenda. The FY2025 budget includes an additional \$60,000 for phase 3 of this project.
7. **Action Requested of the Board of Directors:** None, item is for information only.
8. **Attachments:** None.

## Briefing for PWSRCAC Board of Directors – September 2024

**ACTION ITEM**

**Sponsor:** Hans Odegard, Donna Schantz, and the Long Range Planning Committee

**Project number and name or topic:** 2100 - Long Range Planning

1. **Description of agenda item:** Staff and the Long Range Planning Committee are requesting the Board review and approve a list of proposed protected projects for the upcoming Long Range Planning cycle. The proposed protected project list for FY2026 will be provided prior to the meeting and will be included as Attachment A to this briefing sheet.

The definition of a protected project as found in the currently approved Long Range Plan and reads:

*However, some projects—such as the Observer and the annual report—do not have clear starting and ending dates but instead are presumed to be permanent, ongoing parts of the Council's operations. Any such projects determined to be permanent and ongoing or mandatory obligations based on OPA 90 or our contract with Alyeska are to be classified as protected projects. The Board will annually review and approve any recommendations for protected projects. Protected projects are not subject to the project scoring and ranking as outlined later in the Plan.*

Protected projects have been a part of the Long Range Planning process since 2012. For many years, protected projects were reviewed by the full Board in January, after the December project scoring process had already taken place. Since 2018, the Board has been asked to review and approve the proposed list of protected projects at the September meeting, to allow any projects the Board would like removed from protected status to be scored and ranked during the upcoming planning cycle. Changing the Board's review of protected projects from January to September aligns better with the overall project scoring process.

Through this agenda item, the full Board is also asked to participate in the current Long Range Planning effort. To help foster Board enthusiasm and participation, the Long Range Plan Guidance Memo and associated documents are included as Attachment B. Also included is the Project Briefing Sheet as Attachment C.

2. **Why is this item important to PWSRCAC?** The Board adopted the current PWSRCAC Five-Year Long Range Plan and has committed to the use of the plan and the Long Range Planning process to develop annual work plans and budgets, as well as continually revising and improving the Long Range Plan itself. The Board has directed its members and staff to work together to follow the Long Range Planning process that is now focused on preparing a draft FY2026-FY2030 work plan for consideration and adoption by the Board.

3. **Previous actions taken by the Board on this item:** A Long Range Plan for the upcoming five fiscal years has been annually approved by the Board since approximately 2001. Please contact staff for a complete and extensive list of all Long Range Planning actions.

4. **Committee Recommendation:** A recommendation from the Long Range Planning Committee will be delivered to the Board at the meeting.

Current Long Range Planning Committee members are Board members Robert Archibald, Amanda Bauer, Jim Herbert (also OSPR Chair), Aimee Williams, and Elijah Jackson; the PWSRCAC technical committee chairs consisting of Steve Lewis (POVTS Chair), Sarah Allan (SAC Chair), Mikkel Foltmar (TOEM Chair), Trent Dodson (IEC Chair); and IEC member Cathy Hart who serves as chair.

5. **Action Requested of the Board of Directors:** Approve the protected project list for the upcoming Long Range Planning process as presented in Attachment A to this briefing sheet.

Each Director is also asked to take individual action over the next several months by participating in the Long Range Planning process.

6. **Attachments:**

A: Proposed List of Protected Projects for FY26

B: Guidance Memo

- Projects ranked for FY2025
- Projects proposed for FY2025 that were not funded
- Projects proposed for out-years FY2026-FY2030
- Proposed FY2026 budget template
- One-page strategic plan
- OPA 90 & Alyeska contract requirements

7. New Project Briefing Sheet.

## Proposed Protected Projects For Long Range Planning

Below is a list of proposed protected projects for FY26. Definitions of these projects are presented on the following pages, along with the current Board approved funding amounts. The Board is asked to review and approve these protected projects.

### OPA90 Mandated Projects

Project #	Project Name	Justification	Committee
6510	State Contingency Plan Reviews	OPA90 Mandate	OSPR
9510	LTEMP	OPA90 Mandate	SAC

### Permanent/Ongoing Projects

Project #	Project Name	Justification	Committee
3200	Observer Newsletter	Permanent/ongoing	IEC
3300	Annual Report	Permanent/ongoing	IEC
3610	Web Presence BAT	Permanent/ongoing	IEC
6530	Weather Data & Sea Currents	Permanent/ongoing	OSPR/POVTS
6531	Port Valdez Weather Buoys	Permanent/ongoing	OSPR/POVTS

### What is a Protected Project?

The definition of a protected project can be found the Board-approved Long Range Plan, and states:

*However, some projects—such as the Observer and the annual report—do not have clear starting and ending dates but instead are presumed to be permanent, ongoing parts of the Council's operations. Any such projects determined to be permanent and ongoing or mandatory obligations based on OPA90 or our contract with Alyeska are to be classified as protected projects. The Board will annually review and approve any recommendations for protected projects. Protected projects are not subject to the project scoring as outlined later in this plan.*

## **Proposed Protected Projects:**

### **6510 State Contingency Plan Reviews (FY2025 budget \$80,000):**

The purpose of this project is to monitor, review, and comment on state and federal oil discharge prevention and contingency plans (c-plans) for the Valdez Marine Terminal (VMT), the Trans-Alaska Pipeline System (TAPS) tankers that transit Prince William Sound, the Alaska Federal/State Preparedness Plan and associated Subarea Plans. As these c-plans outline prevention and response activities that would be undertaken to clean up spilled oil in the Prince William Sound region, review of these plans is a major task for PWSRCAC as outlined in both the PWSRCAC/Alyeska contract and OPA 90. Providing input and comments on prevention and response in Prince William Sound directly supports PWSRCAC's mission.

### **9510 Long Term Environmental Monitoring Program (FY2025 budget \$150,460):**

PWSRCAC initiated the Long Term Environmental Monitoring Program (LTEMP) in 1993 to satisfy the OPA 90 mandate "to devise and manage a comprehensive program of monitoring the environmental impact of the operations of terminal facilities and crude oil tankers while operating in Prince William Sound." LTEMP's normal scope of work involves collecting and analyzing blue mussel tissue, marine sediments, and passive sampling devices for hydrocarbon pollution. That monitoring takes place annually in Port Valdez at three sampling locations. Historically every five years since LTEMP's inception, more extensive mussel and passive sampling device monitoring is conducted at a total of 11 sites in Prince William Sound and the Gulf of Alaska, including the three Port Valdez sites. This project supports the PWSRCAC mission by monitoring the environment and providing the organization with the best scientific knowledge to help make informed decisions and comments pertaining to the operation and maintenance of the terminal and tankers.

### **3200 Observer Newsletter (FY2025 budget \$7,500):**

The goal of this project is to publish three Observer newsletters per year on PWSRCAC's work and issues. Both e-mail and print versions of the newsletter are produced. This project supports the Council's mission by informing the general public as well as our members and our industry and agency associates, on our issues, concerns, activities, programs, and projects.

### **3300 Annual Report (FY2025 budget \$8,000):**

The goal of this project is to prepare and publish PWSRCAC's Annual Report each year. This project supports the Council's mission by informing the general public, our member entities and our industry and agency associates of our issues, concerns and activities, programs and projects.



**3610 Web Presence BAT (FY2025 budget \$7,140):**

This project funds Best Available Technology for the Council's public websites, committee extranet, and online presence through regular maintenance, upgrades, and new features. Every three years, a major review and technology upgrade will be conducted. The Council's web presence serves as a public communications tool and educational resource to increase public awareness of the Council, the history of the Council and citizen oversight of the oil industry, and the environmental impacts of the transportation of oil through Prince William Sound. The website is intended to foster dialog and engagement between the Council, our constituents, and the online community.

**6530 Weather Data and Sea Currents\*\* (FY2025 budget \$18,500):**

This project studies wind, water current and other environmental factors near the Valdez Marine Terminal, in Prince William Sound and the Gulf of Alaska that may aid navigation or affect the ability to prevent, respond to, contain, and clean up an oil spill. Much of this information is collected via the PWS Weather Station Network developed and maintained by the PWS Science Center. PWSRCAC has been a co-funding supporter of the network for over ten years.

**6531 Port Valdez Weather Buoys\*\* (FY2025 budget \$63,200):**

This project is to assemble, deploy and maintain two buoys capable of measuring ocean currents and common weather parameters. The first buoy is installed near Jackson Point in Port Valdez [61.0910°N 146.3811°W]. The second buoy is installed at the Valdez Duck Flats [61.1201°N | 146.2914°W]. The Prince William Sound Science Center (PWSSC) will be partnering with the Council to facilitate this project. A website showing the buoy data can be found at <http://www.pwswx.pwssc.org/MOB1.html>.

**\*\* Note for weather-related projects:** One of the responsibilities the Council is charged with under the Oil Pollution Act of 1990 is to "Study wind and water currents and other environmental factors in the vicinity of the terminal facilities which may affect the ability to prevent, respond to, contain, and clean up an oil spill."

## **PWSRCAC Long Range Planning Guidance Memo & Supporting Documents**

This packet is intended to provide Committees with useful information and guidance to help identify projects for fiscal years 2026-2030. The approved schedule for this year's LRP process is as follows:

- **September 1, 2024:** External project idea deadline
- **September - October 11, 2024:** Technical committees meet to develop project ideas for FY26-FY30
- **October 23, 2024:** FY26 project budget sheets due
- **November 8, 2024:** Internal management review of FY26 budget sheets due
- **November 15, 2024:** Committee prioritization of FY26 projects due
- **December 6, 2024:** Volunteer workshop to review proposed projects
- **December 9, 2024:** Board and staff ranking of projects due (COB Monday after workshop)
- **Early January 2025:** LRP Committee approves draft LRP for Board approval
- **January 22, 2025:** Board LRP workshop
- **January 23-24, 2025:** Board meeting to approve LRP
- **March 7, 2025:** Edits to budget briefing sheets due
- **Week of March 10, 2025:** Manager review of briefing sheets
- **Week of March 17, 2025:** All staff "Rat killing" meeting
- **Early April 2025:** Finance Committee meeting to review proposed budget
- **April 14, 2025:** Mail budget books to Board members
- **April 30, 2025:** Budget workshop in Valdez

The information contained in this packet includes:

- 1) Projects previously ranked for FY2025
- 2) Projects proposed for FY2025 that were not funded
- 3) Projects proposed for out-years FY2026-FY2029
- 4) FY26 project budget template. Please note that some of the projects that were not included in this year's budget may need additional planning before they are brought back again for future years.
- 5) Board-approved One-Page Strategic Plan
- 6) List of OPA 90 and Alyeska Contractual Requirements to help in identifying what OPA 90 or Alyeska Contract requirements each project addresses.

Committees are asked to look at projects previously proposed for the current fiscal year but were ultimately not included in the budget. If they are still relevant, please review the goals and objectives and submit an updated budget briefing sheet before proposing the project again.

In addition to reviewing deferred FY25 projects, committees are also asked to develop any new projects for fiscal years 2026-2030. Committees are asked to identify priority goals

and objectives, and outline how proposed projects fulfill these goals. When considering potential projects, some questions that should be answered include:

- How does the project support PWSRCAC's mission?
- What OPA 90 or Alyeska Contract requirements does this project address? (See attached list)
- Which projects most directly support the high-priority goals of PWSRCAC?
- What is the rationale for continuing current projects? What will be solved or accomplished by continuing an existing project into the coming fiscal year?
- Do the projects have clear and definitive goals? Are any of the committee's projects likely to continue for multiple years? Please provide a clearly defined end point for each project or indicate how long the project is expected to take to complete.
- Are there any projects that would benefit from multi-committee involvement (i.e., done in partnership with one or more committees)?
- How will information and/or results from the project be used to promote PWSRCAC's mission? Objectives should be clear, specific, and measurable.

Please also think about the following:

- Would your committee like assistance from the Information and Education Committee (IEC) in promoting and/or educating the public on your project? IEC stands ready to help if any projects are identified and brought to them.
- If your project has a scientific component, would it benefit from Scientific Advisory Committee (SAC) review and input? SAC stands ready to help if any projects are identified and brought to them.
- Is this project likely to be supported or opposed by regulators and/or industry?
- Will this project complement other work done by regulators and/or industry?

### Project Scoring Matrix - Proposed FY2025 Projects, Ranked and Sorted

Sort Index	Staff	Lead Comm	Lead Comm Rank		FY2025 Projects	Projected FY2025 Budget	Assigned by Staff	Assigned by Board	Assigned By All
							Points	Points	Points
1	SB	TOEM	1	6512	Maintaining the Secondary Containment Systems at VMT	\$38,000	69	69	138
2	SB	TOEM	2	5XXX	Title V Air Quality Permit Review	\$25,000	69	50	119
3	MDR	IEC	1	3530	Youth Involvement	\$50,750	63	55	118
4	BT	IEC	3	3810	Illustrated Prevention & Response Outreach	\$6,800	60	56	116
5	SB	TOEM	3	5XXX	Finalization of Full PWSRCAC Air Quality History Report	\$10,000	55	59	114
6	RR	OSPR	1	6536	Analysis of Port Valdez Wx Buoy Data 2024	\$17,000	60	51	111
7	AS	POVTS	1	8520	Miscommunication in Maritime Contexts (Phase 3)	\$50,000	57	53	110
8	DV	SAC	1	6560	Peer Listening Manual Distribution	\$35,000	59	47	106
9	MDR	IEC	4	3410	Fishing Vessel Pgm Community Outreach	\$19,000	58	46	104
10	RR	OSPR	3	5640	ANS Crude Oil Properties Analysis	\$30,500	57	44	101
11	DV	SAC	2	952X	Marine Invasive Species - Internships	\$6,500	58	39	97
12	SB	TOEM	4	5XXX	Review of VMT CP System Protocols	\$34,000	45	47	92
13	JR	OSPR	2	6540	Copper River Delta & Flats GRS Workgroup	\$25,000	46	44	90
14	LS	OSPR	5	6511	History of VMT C-Planning	\$10,000	48	40	88
15	AS	OSPR	4	65XX	Comparison of Windy App & Seal Rocks Wx Buoy Wind/Wave Data	\$35,000	37	49	86
16	DV	SAC	3	9110	PWS Marine Bird & Mammal Winter Survey	\$78,928	45	35	80
17	AS	POVTS	2	8XXX	Assessing Non-Indigenous Species Biofouling on Vessel Arrivals	\$5,750	41	36	77
18	SB	TOEM	5	5XXX	Timeline of Tank Repairs from 1976 to Present	\$15,000	29	46	75
19	SB	TOEM	6	5081	Storage Tank Maintenance Review	\$30,000	34	35	69
20	SB	TOEM	7	5591	Crude Oil Piping Maintenance Review	\$51,744	26	41	67
21	DV	SAC	6	9550	Dispersants	\$10,000	23	39	62
22	DV	SAC	5	9XXX	Social Science Workshop	\$30,000	41	20	61
23	MDR	IEC	5	3903	Internship	\$4,000	21	40	61
24	DV	SAC	4	9XXX	Transcriptomics Monitoring Plan	\$109,703	22	38	60
25	AS	POVTS	3	80XX	Maritime Autonomous Surface Ships (MASS) Technology Review	\$40,000	23	30	53
26	JR	OSPR	6	7060	Vessel Decon Best Practices	\$20,000	22	27	49
27	MDR	IEC	2	3XXX	Public Engagment Toolbox	\$10,000	19	30	49
28	SB	TOEM	8	5XXX	Review of VMT's Oracle System for Reliability-Centered Maintenance	\$50,000	13	34	47

### Protected Projects - Not Ranked

Staff	Lead Cte	Lead Cte Rank		FY25 Projects	Budget
AJ	IEC	Protected	3200	<a href="#">Observer Newsletter</a>	\$7,500
BT	IEC	Protected	3300	<a href="#">Annual Report</a>	\$8,000
AJ	IEC	Protected	3610	<a href="#">Web BAT</a>	\$7,140
LS	OSPR	Protected	6510	<a href="#">State Contingency Plan Reviews</a>	\$80,000
AS	OSPR	Protected	6530	<a href="#">Weather Data &amp; Sea Currents</a>	\$18,500
AS	OSPR	Protected	6531	<a href="#">Port Valdez Weather Buoys</a>	\$46,500
AL	SAC	Protected	9510	<a href="#">LTEMP</a>	\$145,860

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**Prince William Sound Regional Citizens' Advisory Council  
Projects Not Included FY2025**

3750	Public Engagement Toolbox	Maia Draper-Reich	IEC	\$10,000
	Project deferred based on long range plan ranking and lack of funds. Project may be brought back mid-year if funding allows.			
3903	Internship	Maia Draper-Reich	IEC	\$4,000
	Project deferred based on long range plan ranking and lack of funds. Project may be brought back mid-year if funding allows.			
5XXX	Finalization of report "VMT Air Quality Chronology"	Sadie Blancaflor	TOEM	\$10,000
	A suitable contractor has not been identified to complete the finalization of this report, and the work may need to be done in-house. Project may be brought back mid-year if funding allows.			
5082	Timeline of VMT Tank Repairs and Inspection Intervals	Sadie Blancaflor	TOEM	\$15,000
	Project deferred based on long range plan ranking and lack of funds, and to explore the possibility of completing in-house. Project may be brought back mid-year if funding allows.			
5656	Review of the VMT's Oracle System	Sadie Blancaflor	TOEM	\$50,000
	Project deferred based on long range plan ranking and lack of funds, which will allow additional attention to scope, partnership with Alyeska for information access, and identification of a suitable contractor. Project may be brought back mid-year if funding allows.			
6511	History of Contingency Planning	Linda Swiss	OSPR	\$10,000
	Project was deferred due to lack of funds. which will allow additional attention to scope, and to organize documents in our system in preparation for this work. Project may be brought back mid-year if funding allows.			
7060	Vessel Decon Best Practices	Jeremy Robida	OSPR	\$20,000
	This project was deferred due to a low priority ranking by the Board and lack of funds. The project was proposed in FY2024 where it placed 21 out of 23 projects. It was again put forward by OSPR in FY2025 and ranked 26 out of 28 projects. Staff believe this an important topic and will attempt to research and complete elements of the anticipated project with staff time alone. Project may be brought back mid-year if funding allows.			
8055	MASS Technology Review	Joe Lally	POVT	\$40,000
	Project deferred based on long range plan ranking and lack of funds and may be brought back mid-year if funding allows.			

9550	Dispersants	Danielle Verna	SAC	\$10,000
Project deferred based on long range plan ranking and lack of funds and may be brought back mid-year if funding allows.				
9850	Transcriptomic Monitoring	Danielle Verna	SAC	\$109,863
Project deferred based on long range plan ranking and lack of funds and may be brought back mid-year if funding allows.				

Programs and Projects	Current Approved Budget FY2025	Proposed FY2026	Proposed FY2027	Proposed FY2028	Proposed FY2029
<b>INFORMATION &amp; EDUCATION</b>					
3110--Oral History (reprint of The Spill book)					
3200--Observer Newsletter	\$7,500	\$7,800	\$8,100	\$8,400	\$8,700
3300--Annual Report	\$8,000	\$8,400	\$8,800	\$9,200	\$9,600
3410--Fishing Vessel Program Community Outreach	\$19,000	\$19,570	\$20,157	\$20,762	\$21,385
3530--Youth Involvement	\$90,750	\$93,473	\$96,277	\$99,165	\$102,140
3562--Then & Now				\$5,000	\$4,000
3610--Website Presence BAT	\$7,140	\$8,000	\$8,500	\$9,000	\$9,500
3810--Illustrated Prevention & Response System Outreach	\$35,720				
3903--Internship		\$4,000	\$4,000	\$4,000	\$4,000
3XXX--EVOS 40th Anniversary Commemoration Planning				\$15,000	
<b>Subtotal</b>	\$168,110	\$141,243	\$145,834	\$170,527	\$159,325
<b>TERMINAL OPERATIONS &amp; ENVIRONMENTAL MONITORING</b>					
5051--Water Quality Permit Review	\$30,000				
5053--Addressing Risks & Safety Culture at VMT	\$25,000				
5057--Title V Air Quality Permit Review	\$25,000				\$30,000
5081--Storage Tank Maintenance Review	\$30,000				
5591--Crude Oil Piping Maintenance Review	\$51,744				
5595--Review of VMT Cathodic Protection System Testing Protocols	\$34,000				
6512--Maintaining the Secondary Containment Systems at the VMT	\$38,000				
5XXX--Review of JPO Regulatory Oversight of the VMT		\$50,000			
5XXX--PFAS Mitigation		\$35,000			



5XXX--Shore Power for Tankers at the VMT			\$40,000		
<b>Subtotal</b>	\$233,744	\$85,000	\$40,000	\$0	\$30,000
<b>OIL SPILL PREVENTION &amp; RESPONSE</b>					
5640--ANS Crude Oil Properties	\$30,500				
6510--State Contingency Plan Reviews	\$80,000	\$87,000	\$94,700	\$97,541	\$100,467
6530--Weather Data/Sea Currents	\$18,500	\$18,500	\$18,500	\$18,500	\$18,500
6531--Port Valdez Weather Buoys	\$63,200	\$46,500	\$46,500	\$46,500	\$46,500
6536--Analysis of Weather Buoy Data	\$22,806	\$23,490	\$24,195	\$24,921	\$25,668
653X--Comparison of Windy App & Seal Rocks Buoy	\$35,000				
6540--Copper River Delta/Flats GRS Workgroup	\$25,000				
706X--Review of Decanting Technology		\$25,000			
7XXX--Tethered Drones/UAVs		\$15,000			
7XXX--Review Decanting Tech		\$20,000			
7XXX--ESI App		\$20,000			
<b>Subtotal</b>	\$275,006	\$255,490	\$183,895	\$187,462	\$191,136
<b>PORT OPERATIONS &amp; VESSEL TRAFFIC SYSTEMS</b>					
8250--Assessing Non-Indigenous Species Biofouling on Vessel Arrivals	\$5,750				
8300--Sustainable Shipping		\$35,000		\$35,000	
8520--Miscommunication in Maritime Contexts	\$60,000	\$55,000			
8XXX--PWS Tanker Reference Guide		\$30,500			
8XXX--Alternative Fuels/Hybrid Tugs			\$85,000		
<b>Subtotal</b>	\$65,750	\$120,500	\$85,000	\$35,000	\$0
<b>SCIENTIFIC ADVISORY</b>					
6560--Peer Listener Training	\$35,000				
9110--PWS Marine Bird & Mammal Winter Survey	\$95,598	\$80,060	\$81,224	\$100,535	

9510--Long Term Environmental Monitoring Program	\$150,460	\$154,974	\$159,623	\$164,412	\$169,344
9520--Marine Invasive Species	\$55,000				
9521--Marine Invasive Species Internships	\$6,500	\$6,500	\$6,500	\$6,500	\$6,500
9700--Social Science Workshop	\$30,000				
9XXX--Continuous In-Line Measurements of HOPs at the VMT BWTF		\$37,736			
9XXX--Toxicity of HOPs to Early Life-Stage Fish		\$90,160			
<b>Subtotal</b>	\$372,558	\$241,534	\$247,347	\$271,447	\$175,844
<b>Committee Subtotals</b>	\$1,115,168	\$843,766	\$702,076	\$664,435	\$556,304
<b>PROGRAMS</b>					
3100--Public Information	\$7,897	\$8,134	\$8,378	\$8,629	\$8,888
3500--Community Outreach	\$60,060	\$61,862	\$63,718	\$65,629	\$67,598
3600--Public Communications Program	\$4,599	\$4,737	\$4,879	\$5,025	\$5,176
4000--Program and Project Support	\$1,868,210	\$1,924,256	\$1,981,984	\$2,041,444	\$2,102,687
4010--Digital Collections Program	\$2,500	\$2,575	\$2,652	\$2,732	\$2,814
5000--Terminal Operations Program	\$29,000	\$29,870	\$30,001	\$30,901	\$30,002
6000--Spill Response Program	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000
7000--Oil Spill Response Operations Program	\$4,250	\$4,900	\$5,150	\$5,305	\$5,464
7520--Preparedness Monitoring	\$42,300	\$48,400	\$50,400	\$51,912	\$53,469
8000--Maritime Operations Program	\$17,000	\$22,000	\$22,000	\$22,000	\$22,000
9000--Environmental Monitoring Program	\$18,700	\$18,100	\$18,100	\$18,100	\$18,100
<b>Subtotal</b>	\$2,058,516	\$2,128,834	\$2,191,262	\$2,255,677	\$2,320,198
<b>LEGISLATIVE AFFAIRS</b>					
4400--Federal Government Affairs	\$109,100	\$112,373	\$115,744	\$119,217	\$122,793
4410--State Government Affairs	\$41,800	\$43,054	\$44,346	\$45,676	\$47,046
<b>Subtotal</b>	\$150,900	\$155,427	\$160,090	\$164,893	\$169,839
<b>BOARD OF DIRECTORS</b>					

1350--Information Technology	\$500	\$515	\$530	\$546	\$563
2100--Board Administration	\$139,653	\$143,843	\$148,158	\$152,603	\$157,181
2150--Board Meetings	\$180,600	\$186,018	\$191,599	\$197,346	\$203,267
2200--Executive Committee	\$3,000	\$3,090	\$3,183	\$3,278	\$3,377
2220--Governance Committee	\$0	\$0	\$0	\$0	\$0
2222--Finance Committee	\$3,500	\$3,605	\$3,713	\$3,825	\$3,939
2700--Legislative Affairs Committee	\$18,675	\$19,235	\$19,812	\$20,407	\$21,019
<b>Subtotal</b>	\$345,928	\$356,306	\$366,995	\$378,005	\$389,345
<b>COMMITTEES &amp; COMMITTEE SUPPORT</b>					
2250--Committee Support	\$214,867	\$221,313	\$227,952	\$234,791	\$241,835
2300--Oil Spill Prevention & Response	\$15,000	\$15,450	\$15,914	\$16,391	\$16,883
2400--Port Operations & Vessel Traffic System	\$8,000	\$7,500	\$8,000	\$8,500	\$9,000
2500--Scientific Advisory Committee	\$15,000	\$15,450	\$15,914	\$16,391	\$16,883
2600--Terminal Operations & Environmental Monitoring	\$11,500	\$7,500	\$8,000	\$8,500	\$9,000
2800--Information and Education Committee	\$11,000	\$11,330	\$11,670	\$12,020	\$12,381
<b>Subtotal</b>	\$275,367	\$278,543	\$287,449	\$296,593	\$305,981
<b>GENERAL &amp; ADMINISTRATIVE</b>					
1000--General and Administrative	\$494,003	\$508,823	\$524,088	\$539,810	\$556,005
1050--General and Administrative--Anchorage	\$219,806	\$226,400	\$233,192	\$240,188	\$247,394
1100--General and Administrative--Valdez	\$182,768	\$188,251	\$193,899	\$199,716	\$205,707
1300--Information Technology	\$134,220	\$138,247	\$142,394	\$146,666	\$151,066
<b>Subtotal</b>	\$1,030,797	\$1,061,721	\$1,093,573	\$1,126,380	\$1,160,171
<b>Subtotals</b>	\$4,976,676	\$4,824,597	\$4,801,444	\$4,885,982	\$4,901,838
<b>Contingency (Current Year Budget)</b>	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000
<b>Total Expenses</b>	\$5,026,676	\$4,874,597	\$4,851,444	\$4,935,982	\$4,951,838

**Prince William Sound Regional Citizens' Advisory Council**  
**Budget Briefing Sheets FY2026**

**DIRECTIONS:**

1. Complete all categories and questions listed. Do not delete/alter any questions.
2. Ensure all content noted in red direction text is included in answers.
3. After entering all answers above red direction text, delete red text.

Type:

- ☐ Capital project (Note: separate Capital Projects checklist required)
- ☐ Program      ☐ Protected
- ☐ Project      ☐ Protected
- ☐ Program/Project Support

**Project Number:**

**Project Title:**

**Lead Staff:**

**Project Team Members:**

Include all staff directly supporting the project/program and the associated committee. If it's an ongoing project with a determined project team, ensure all participants are listed.

**Cross Committee Interest:**

List other committees that have been informed about the project/program and have shown interest in updates/participation if the project is funded.

**1. Overview**

- Provide a brief description of the program/project, aiming to keep it within 150-250 words.
  - Save more specific details about the work to be done for section 3a objectives.
- Explain why this program/project is necessary.
- Describe the needs or information gaps that this program/project addresses.

**2. Goals, mission, and strategic plan**

**a. Goals**

- Describe how this program/project supports PWSRCAC's mission.
- Explain the specific goals and outcomes of the program/project, and what it is intended to achieve (ensure goals state clear, specific, measurable, and achievable outcomes).

**b. How the information or results will be used**

- List the end products of this program/project.
- Identify the target audiences.
- Describe how the end products will be distributed/shared with the target audiences.

c. **How the program/project success will be measured**

- Explain how someone would know the goals are accomplished.
- List the measurable results to be achieved, as per the goals under 2a.

d. **Strategic goal(s)/strategy(s), OPA 90 and Alyeska contract requirements**

See all applicable checked items on the attached pages (last two pages of this document).

**3. Project objectives/implementation**

a. **How the program/project will be accomplished**

- Define the project/program objectives, outlining measurable actions that will be done to achieve the goals in 2a.
- Explain how the objectives contribute to achieving the goals in 2a.
- Specify whether the work will be done in-house or by an outside contractor.
  - If a contractor is used, indicate whether it will be selected through RFP or sole source.
  - If sole source, briefly describe the chosen contractor and the reason for not using an RFP process.

b. **Cooperation required from Alyeska, shippers, or others**

Is cooperation required from external groups?

If no, state: None required.

If yes, include:

- Names of groups cooperation is needed from.
- Information on what is needed from each group.
- Any known or anticipated barriers that could prevent participation.
- If delays or other timing considerations for obtaining required information are anticipated, ensure those considerations are factored in and note them here.

c. **Ongoing or short-term program/project**

If this is a long-term or ongoing program/project, state: This is an ongoing [program/project].

If this is a one-year or short-term ongoing project, be specific about start and end dates, and fiscal years covered. Examples:

- This is an ongoing project that began in FY20XX and is proposed to be completed in FY20XX.
- This project is new and anticipated to continue over two fiscal years (FY20XX-FY20XX).
- This project is intended to be completed by the end of the fiscal year.

- This is anticipated to be a one-year project, but may need carryover to the next fiscal year to complete the contracted work.

d. **Required/potential partnerships or cost sharing with other organizations**

Are there any potential partnerships or cost-sharing opportunities?

If no, state: None.

If yes, provide details on potential partnerships and/or cost sharing, including organization names, possible contribution amounts and/or services, etc.

**4. Budget**

a. **Description of each line item covered by FY2026 budget table below**

Provide the account number, title, and amount for each FY2026 budget line item, along with a brief description of the work/deliverables covered by each item.

For example:

5XXXX – [Account Title] = \$XXXX

[brief description of what the budget item will cover]

6XXXX – [Account Title] = \$XXXX

[brief description of what the budget item will cover]

b. **Potential carryover from the current fiscal year (FY2025)**

Is there a potential carryover from the current fiscal year to FY2026?

If none, state: None.

If you do not know the exact amount, provide a conservative estimate (i.e., the maximum amount that might need to be carried over). Include the account number, title, and amount to be carried over from the current fiscal year, as well as a brief description of why the carryover is occurring (e.g., work delayed for X reason; X activities under the contract could not take place due to X).

For example:

5XXXX – [Account Title] = \$XXXX

[brief description of why the carryover is occurring]

6XXXX – [Account Title] = \$XXXX

[brief description of why the carryover is occurring]

Note: If funds are not committed by a contract or other agreement, they cannot be carried over. You will need to request new funds during next LRP/budgeting process.

c. **How much was previously spent on this program/project**

This information may be obtained from the Director of Finance

- If it is a new project, indicate that no previous budget has been spent.

- If this a short-term ongoing project, include total amount already spent on the project and the fiscal years over which those expenses took place (e.g., \$10,000 between FY2022-FY2025)
- If this is a long-term, ongoing program/project, state: This is an [ongoing program or ongoing protected project].

d. **Projected costs for future fiscal years**

Are there any known or anticipated future costs for the project in FY2027 and/or beyond?

- If this is a one-year project, state: This is a one-year project with no costs anticipated beyond FY2026.
- If this is a one-year project with carryover anticipated, state: This is a one-year project with some carryover to the next fiscal year anticipated (see 4.b.).
- If this is a long-term, ongoing program/project, state: This is an [ongoing program or ongoing protected project].
- If this is a short-term, multi-year project or will otherwise have future expenses associated with it, provide a brief description of future costs known or anticipated and in what fiscal years those costs would potentially need to be budgeted.

e. **Total cost of the program/project over its life**

What are the known/anticipated total costs of the project from start to finish (i.e., what is the total of 4a-4d)?

If this is a long-term, ongoing program/project, state: This is an [ongoing program or ongoing project].

**Budget**

<b>Acct #</b>	<b>Account Title</b>	<b>Notes</b>	<b>FY2026</b>	<b>FY2027</b>	<b>FY2028</b>
50000	Salaries and Wages				
50100	Employer Payroll Taxes				
50400	Group Health Insurance				
50500	Rents				
50600	Utilities—Telephone & Data				
50700	Supplies (consumable)				
50800	Equipment Leases				
50850	Software & Software Subscriptions	Included only in 1300 budget			
50900	Internet & E Mail Access	Included only in 1300 budget			
51000	Equipment Purchases (Non-capitalized < \$5,000)	Generally, anything \$5,000 or more is depreciated over the asset's useful life			
51100	Dues and Subscriptions	Magazine and other subscriptions			
51200	Accounting	Included only in 1000 budget			
51300	Legal Fees				
51450	Professional Fees -- Other				
51600	Advertising				
51700	Education	Tuition and other training expenses, excluding travel			
51800	Printing & Reproduction				
51900	Postage, Delivery & Shipping				
52300	Conference & Conventions	Conference registration fees and other conference costs, excluding travel			
52400	Equipment Maintenance				
53000	Insurance	Excluding group health insurance			
54000	Library & Reference Materials				
55100	Recruiting Expenses				
57000	Research Contributions				
58000	Depreciation & Amortization				
59000	Miscellaneous				
59100	Stipends				
59500	Contracts				
60000	Travel	Describe who is traveling, where they are going, and for what purpose			
61000	Business Meals				
62000	Meeting Expenses	Meeting room rental and catering expenses			
	Total				



## Prince William Sound Regional Citizens' Advisory Council Strategic Plan

**Vision:** Establish PWSRCAC as a premier advisory group, such that governments and industries solicit and value citizen input at all levels and stages of oil transportation decisions that potentially impact the environment

**Mission:** Citizens promoting the environmentally safe operation of the Alyeska terminal and associated tankers

### Core Values

- **Advocacy:** Provide a voice for citizens in the region impacted by the Exxon Valdez oil spill.
- **Stewardship:** Promote and protect the people, environment, and communities of our region
- **Partnership:** Collaborate with partners, volunteers, and stakeholders; facilitate open communications; and respectfully invite diverse perspectives
- **Accountability:** To seek and verify information, promote scientific integrity, and encourage transparency
- **People:** Recognize volunteers and staff as the most important assets of our organization
- **Excellence:** Demonstrate organizational excellence and commit to continuous improvement

### Core Functions, Goals, and Strategies

Maintain Compliance with OPA 90 and Alyeska Contractual Requirements

- ☐ <sup>(1)</sup> Obtain annual recertification and funding
- ☐ <sup>(2)</sup> Maintain regional balance
- ☐ <sup>(3)</sup> Link projects and programs to OPA90 and Alyeska contract

Prevent Oil Spills, Reduce Risks, Promote Response Readiness, and Facilitate Research

- ☐ <sup>(4)</sup> Combat complacency and reduce risk by means of observing, monitoring, informing, and advising
- ☐ <sup>(5)</sup> Monitor and advise on the condition and operation of the terminal, tankers, and spill prevention and response system
- ☐ <sup>(6)</sup> Monitor and advise on environmental indicators and reportable incidents
- ☐ <sup>(7)</sup> Monitor and advise on the development of, and compliance with, applicable laws and regulations
- ☐ <sup>(8)</sup> Advocate for funding and staffing of regulatory agencies to provide comprehensive oversight
- ☐ <sup>(9)</sup> Advocate for interagency coordination, and public transparency and participation within the regulatory framework
- ☐ <sup>(10)</sup> Advocate for continuous improvement to the environmental safety of marine terminal operations and oil transportation
- ☐ <sup>(11)</sup> Promote and facilitate effective research for scientific, operational, and technical excellence
- ☐ <sup>(12)</sup> Promote risk reduction measures, best available technologies, and best practices for oil spill prevention and response

Develop and Maintain Effective External and Internal Communication

- ☐ <sup>(13)</sup> Maintain and improve relationships and information sharing with key partners
- ☐ <sup>(14)</sup> Engage and educate the public, partners, and member entities
- ☐ <sup>(15)</sup> Advocate for timely and responsive information from Alyeska
- ☐ <sup>(16)</sup> Ensure availability of PWSRCAC information
- ☐ <sup>(17)</sup> Foster public awareness, responsibility, and citizen participation in our work

Achieve Organizational Excellence

- ☐ <sup>(18)</sup> Recruit and develop knowledgeable and committed volunteers and staff
- ☐ <sup>(19)</sup> Improve efficiency of internal processes, including introducing new technology
- ☐ <sup>(20)</sup> Improve systems that preserve documentation and institutional knowledge
- ☐ <sup>(21)</sup> Be a model for citizen oversight
- ☐ <sup>(22)</sup> Assess and improve the Long Range Planning process
- ☐ <sup>(23)</sup> Demonstrate fiscal responsibility

[Link to full FY2025-FY2029 Long Range Plan](#)

## OPA 90 and Alyeska Contractual Requirements

PWSRCAC's structure and responsibilities stem from the Oil Pollution Act of 1990 (OPA 90) and our contract with Alyeska Pipeline Service Company (Alyeska). These documents guide our organization. It is important to review the following requirements, and if possible the source documents, when developing proposed projects for Board consideration and approval. The following are abbreviated summaries of some of the major requirements from both documents.

[Link to full text of OPA 90 Sec 5002: Terminal and Tanker Oversight and Monitoring, August 18, 1990](#)

[Link to full text of contract between PWSRCAC and Alyeska, February, 1990](#)

### OPA 90 Contractual Requirements

- ☐ <sup>(1)</sup> Regional balance, broadly representative of communities and interests in the region.
- ☐ <sup>(2)</sup> Provide advice to regulators on the federal and state levels.
- ☐ <sup>(3)</sup> Provide advice and recommendations on policies, permits, and site-specific regulations relating to the operation and maintenance of terminal facilities and crude oil tankers.
- ☐ <sup>(4)</sup> Monitor the environmental impacts of the operation of terminal facilities and crude oil tankers, as well as operations and maintenance that affect or may affect the environment in the vicinity of the terminal facilities.
- ☐ <sup>(5)</sup> Review the adequacy of oil spill prevention and contingency plans for the terminal facilities and crude oil tankers operating in Prince William Sound, and review the plans considering new technological developments and changed circumstances.
- ☐ <sup>(6)</sup> Provide advice and recommendations on port operations, policies, and practices.
- ☐ <sup>(7)</sup> Conduct scientific research and review scientific work undertaken by or on behalf of the terminal or oil tanker operators or government entities.
- ☐ <sup>(8)</sup> Devise and manage a comprehensive program of monitoring the environmental impacts of the operations of the terminal facility and crude oil tankers.
- ☐ <sup>(9)</sup> Monitor periodic drills and testing of oil spill contingency plans.
- ☐ <sup>(10)</sup> Study wind and water currents and other environmental factors in the vicinity of the terminal that may affect the ability to prevent, respond to, contain, and clean up an oil spill.
- ☐ <sup>(11)</sup> Identify highly sensitive areas that may require specific protective measures.
- ☐ <sup>(12)</sup> Monitor developments in oil spill prevention, containment, response, and cleanup technology.
- ☐ <sup>(13)</sup> Periodically review port organizations, operations, incidents, and the adequacy and maintenance of vessel traffic service systems designed to ensure safe transit of crude oil tankers pertinent to terminal operations.
- ☐ <sup>(14)</sup> Periodically review the standards for tankers bound for, loading at, exiting from, or otherwise using the terminal facilities.
- ☐ <sup>(15)</sup> Foster partnerships among industry, government, and local citizens.

### Alyeska Contractual Requirements

- ☐ <sup>(1)</sup> Provide local and regional input, review and monitoring of Alyeska's oil spill response and prevention plans and capabilities, environmental protections capabilities, and the actual and potential environmental impacts of the terminal and tanker operations.
- ☐ <sup>(2)</sup> Increase public awareness of subjects listed above.
- ☐ <sup>(3)</sup> Provide input into monitoring and assessing the environmental, social, and economic consequences of oil related accidents and actual or potential impacts in or near Prince William Sound.
- ☐ <sup>(4)</sup> Provide local and regional input into the design of appropriate mitigation measures for potential consequences likely to occur because of oil or environmental related accidents or impacts of terminal and tanker operations.
- ☐ <sup>(5)</sup> Provide recommendations and participate in the continuing development of the spill prevention and response plan, annual plan review, and periodic review of operations under the plan including training and exercises.
- ☐ <sup>(6)</sup> Other concerns: comment on and participate in selection of research and development projects.
- ☐ <sup>(7)</sup> Review other important issues related to marine oil spill prevention and response concerns that were not obvious when the contract was signed.
- ☐ <sup>(8)</sup> Review other concerns agreed upon by the Council regarding actual or potential impacts of terminal or tanker operations.



## PRINCE WILLIAM SOUND REGIONAL CITIZENS' ADVISORY COUNCIL

September 2024  
Status Report  
As of August 8, 2024

### Exxon Valdez Oil Spill – 35th Anniversary

Project Manager Amanda Johnson, Outreach Coordinator Maia Draper-Reich, and Director of Communications Brooke Taylor coordinated efforts (online, in print, and in-person) to honor the 35<sup>th</sup> anniversary of the Exxon Valdez oil spill. No official project was funded; however, staff used the opportunity to showcase the Council's mission in a variety of ways. A summary of these activities was shared at a recent IEC meeting, and is available online here: <https://tinyurl.com/EVOSupdate35th>. Note that list was current as of late February. Please contact Amanda Johnson for a final list.

### 3100 – Public Information Program

**Objectives:** Inform members of the general public, member entities, and agency and industry partners of PWSRCAC projects. Support legal requirements for ongoing updates to the public.

**Accomplishments since last report:** Staff continues to inform the general public and others about PWSRCAC's projects and mission through publications and online presence.

### 3110 – Oral History

**Objectives:** To update the PWSRCAC logo and other small corrections in The Spill book and place an order of 1,000 print copies for outreach uses.

**Accomplishments since last report:** An order of 1,000 copies of The Spill book was received in May 2024. The book was produced under this project in 2008/2009. The order includes small updates to the book including our new logo. We are also in the process of creating an eBook version created.

We consistently provide these books to partners, educators, and the public at no cost and prior to this order had less than ~150 copies left from our previous order in 2016. This order was completed and paid for as expected before the end of FY2024.

### 3200 – The Observer

**The Observer:** The Council's newsletter, "The Observer," is produced three times per year in both print and email format. Individual articles are posted to the Council's website. The article archive is available here: [www.tinyurl.com/ObserverArchive](http://www.tinyurl.com/ObserverArchive).

The March special edition highlighted the changes in the spill prevention and response system in Prince William Sound since 1989, including improvements and remaining concerns:  
<https://tinyurl.com/EVOS-35YearsLater>

Summer 2024 edition: <https://www.pwsrcac.org/document/the-observer-summer-2024/>

Full Observer archive: [www.tinyurl.com/ObserverArchive](http://www.tinyurl.com/ObserverArchive)

### 3300 – Annual Report

**Objectives:** Prepare and publish PWSRCAC's Annual Report each year to:

1. Inform the general public, member entities, and agency and industry partners of PWSRCAC projects and activities; and
2. Support legal requirements for ongoing updates to the public.

**Accomplishments since last report:** A new contract with the annual report graphic designer is in place. Initial coordination with the graphic designer and drafting of content with Council staff for the 2023-2024 annual report has begun.

### 3410 – Fishing Vessel Program Community Outreach

**Objectives:** For bringing the realities of oil spill response tactics, equipment, and planning to life for citizens within the Exxon Valdez oil spill region communities, the fishing vessel community outreach program is a perfect venue. Each fall and spring SERVS holds its contracted fishing vessel program training in the following communities: Cordova, Valdez, Whittier, Seward, Homer, and Kodiak. The on-water portion of the training, viewed by the public during this outreach tour in partnership with Alyeska/SERVS, shows real-time capabilities of oil spill prevention and response equipment and tactics. This project contracts a local tour boat that will allow interested students, members of the public, and media to observe and learn about oil spill prevention and response.

**Accomplishments since last report:** Planning is underway to host the FY2025 educational tour in Whittier on Monday, September 30<sup>th</sup> in alignment with the fall SERVS fishing vessel program training dates.

Additionally, during FY2025, staff and IEC will work to develop an alternative format for this outreach in Kodiak as there is not an appropriate passenger vessel option to host the tour in the typical way in that community.

### 3500 – Community Outreach Program

**Objectives:** Increase awareness of PWSRCAC and increase communications with member organizations and communities in the Exxon Valdez oil spill region.

**Accomplishments since last report:**

- **April 30** – Youth Involvement PWS College 2<sup>nd</sup> Annual Environmental Sciences Symposium, Valdez, AK
  - PWS College students shared about their independent research projects in a poster session including short talks and fielding questions.
- **May 1** – Youth Involvement Bligh Reef Expedition, Valdez, AK
  - High school and college students from Valdez and Glennallen participated in a marine science educational boat tour including oil spill topics.
  - PWSRCAC staff and volunteers, as well as local industry partners, attended and participated by instructing learning stations and co-learning with the students. The project was led by IEC member Kate Morse via contractor Copper River Watershed Project.
- **May 10** – Peksulineq Festival, Tatitlek Cultural Heritage Week, Tatitlek, AK
  - Council staff Sadie Blancaflor and Nelli Vanderburg attended the annual *Peksulineq* festival which celebrates the culture of the Chugach Region with youth and adults

participating from all over Prince William Sound and the state. [Peksulineq](#) (a name which signifies new beginnings) was started in 1993 in order to help teach Native youth traditional cultural practices, including beading, drum making, dancing, woodworking, and more. It culminates in a banquet festival that includes traditional dishes, a dance demonstration, and an auction.

- Crowley Alaska Tankers included us on their chartered Stan Stephens vessel which transports attendees from Valdez.
- **May 13-16** - International Oil Spill Conference (IOSC), New Orleans, LA
  - The Council hosted an exhibitor booth with Cook Inlet RCAC interacting with attendees from around the world and across the U.S.
  - SAC Chair Dr. Davin Holen and staff member Dr. Danielle Verna did a presentation titled "Building Collaborative Social Science Research Models to Understand the Social, Cultural, and Economic Impacts of Spills," which garnered thoughtful questions from audience members about the Council and our social science projects.
  - PWSRCAC attendance at IOSC also included OSPR member Matt Melton, SAC member Dr. Sarah Allan (via her NOAA role), and staff members Roy Robertson, Jeremy Robida, and Maia Draper-Reich.
- **May 13-14** – Prince William Sound Natural History Symposium, Whittier, AK
  - Dr. Morgan Bender presented on behalf of the Council about our Long-Term Environmental Monitoring project and the 30 year data set.
  - Videos of all presentations are available on the [PWSSF website](#).
  - Staff member Jaina Willahan traveled to host the Council's booth.
  - The Council paid a small sponsorship as we have previously and Maia is on the planning committee for this event.
- **May 29** – Valdez Guides Training, Valdez, AK
  - Staff member Jeremy Robida, Nelli Vanderburg, and other Valdez-based staff hosted the Council's annual training event to share with employees in the Valdez tourism industry about the Exxon Valdez oil spill, the Council, the VMT, the tanker ships, and local response assets.
- **June 3 or 4** – Alaska Geographic Kenai Fjords National Park Teacher Course Orientation, Seward, AK
  - Staff member Maia Draper-Reich presented online on EVOS, PWSRCAC, and our resources for teachers, as well as gave out copies of The Spill book and other Council publications (sent down ahead of time).
- **June 5** - Alaska Geographic PWS Teacher Course Orientation, Anchorage, AK
  - Maia presented on EVOS, PWSRCAC, and our resources for teachers, as well as gave out copies of The Spill book and other Council publications.
- **June 9** – Copper River Nouveau, Cordova, AK
  - Staff members Donna Schantz, Joe Lally, Brooke Taylor, and Linda Swiss attended the annual gala event on behalf of the Council.
  - While in Cordova, staff connected with former Board member Patience Anderson Faulkner and toured the new PWS Science Center facility.
- **July 17** – Presentation to T3 students at PWS College, Valdez, AK

- Maia presented online about EVOS, the terminal and tankers, and PWSRCAC, then staff member Danielle Vera spoke in person about the Council's science and environmental monitoring projects and conducted marine science field activities with the students in the Valdez harbor.
- **July 19-20** – Salmon Jam, Cordova, AK
  - Maia traveled to host a PWSRCAC booth and facilitate an educational activity for families and youth with help from Board member Robert Beedle, IEC member/Salmon Jam organizer Kate Morse, and Cordova invasive species intern Samaya Faber.

### 3530 – Youth Involvement

**Objectives:** Select proposals for youth activities, in collaboration with partner agencies and organizations throughout the Exxon Valdez oil spill region. Coordinate activities to facilitate hands-on learning about topics related to the Council's mission. Where appropriate and feasible, participate in mission-relevant youth activities.

**Accomplishments since last report:** The Information and Education Committee accepted four proposals on the latest RFP for programs taking place during the 2024/2025 school year. These projects are in the contracting process with work beginning in September and concluding in June 2025. Five projects are underway for the 2024 summer and will conclude by September 30, 2024:

- Alaska Geographic – *Prince William Sound Teacher Course* for \$5,000
- Alaska Geographic – *Blackstone Bay Marine Stewardship Youth Expedition* for \$5,000
- Copper River Watershed Project – *2024 Bligh Reef Expedition* for \$4,999
- Kenai Mountains – Turnagain Arm National Heritage Area - *Expanding Access to Equitable Outdoor Youth Education* for \$2,500
- Wrangell Center for Science and Environment – *Roots to Branches: Copper River Stewardship Program* for \$4,999

### 3600 – Public Communications Program

**Objectives:** This program disseminates information and increases awareness through the Observer newsletter and the Council's online presence. This program helps publicize information generated from the Council's technical committee projects. Project results and information are disseminated in a format that is easily understood by the general public.

**Accomplishments since last report:** Project Manager Amanda Johnson attended two virtual WordPress conferences, [DeCode 2024](#) in March (coordinated by the Council's new website host, WPENGINE) and [WordSesh](#). Session topics included best practices for WordPress and related topics.

### 3610 – Web Best Available Technology

**Objectives:** This project helps ensure the Council's websites and web presence using the best and most up-to-date technology available by funding new features, repairs, and upgrades to the Council's websites. This includes regular maintenance and technical upgrades as well as upgrades to such aspects as user experience and branding.

**Website data:** Website usage for [www.pwsrcac.org](http://www.pwsrcac.org) is tracked through Google Analytics for information such as numbers of visitors, location of visitors, how visitors found the site, which pages are visited

most often, how much time is spent on particular pages, whether visitors were engaged enough to visit more than one page and much more. Contact project manager Amanda Johnson for access to data reports.

### 3810 – Illustrated Prevention & Response System Outreach

**Objectives:** Work with artist and author Tom Crestodina to develop artwork for a book and other materials showcasing the oil spill prevention and response system in Prince William Sound.

1. Educate stakeholders and the general public about the importance of spill prevention and response, why the PWS prevention/response system is one of the best in the world, and how it can be kept that way.
2. Create new work partnerships with industry and regulators, similar to how groups collaborate during the fishing vessel training community outreach tours.

**Accomplishments since last report:** Crestodina provided draft materials, as far as he was able to develop them, before he departed for the fishing season (as was planned between him and Council staff). While not a complete rough draft, the materials include most of the illustrations and draft text. Staff is now working to have the project team and industry review the draft materials, to provide feedback to Crestodina in the fall, when he returns from fishing.

### 5000 – Terminal Operations Program

**Objectives:** The goal of the Terminal Operations and Environmental Monitoring (TOEM) Program is to prevent hazardous liquid spills and minimize the actual and potential environmental impacts associated with the operation and maintenance of the Valdez Marine Terminal.

#### **Accomplishments since last report:**

**Tank Bottom Processing Fire:** On August 30, 2023, Alyeska notified the Council about a fire at the VMT in an active dike cell, which was related to tank bottom processing. Over the past year, PWSRCAC has transmitted three formal letters to obtain additional information on the fire and better understand who has regulatory oversight over this process. The letters were sent to the State Fire Marshal's Office (letter dated May 7, 2023), Alyeska (letter dated February 29, 2024), and the Joint Pipeline Office (July 2024). Limited information was provided by the Fire Marshal's Office. None of the requested documentation has not been provided by Alyeska. A response was received from the Department of Natural Resources on July 11, 2024 that noted the agency has requested information from Alyeska in order to answer the question about who has regulatory oversight over the tank bottom processing process. PWSRCAC staff received an update from DNR reporting that meetings have been held with their agency, BLM, and the State Fire Marshal's Office to answer some of the questions posed in the letter we sent to the JPO in July. DNR reported that both BLM and the Fire Marshal's Office have requested documents from Alyeska that have not been received yet..

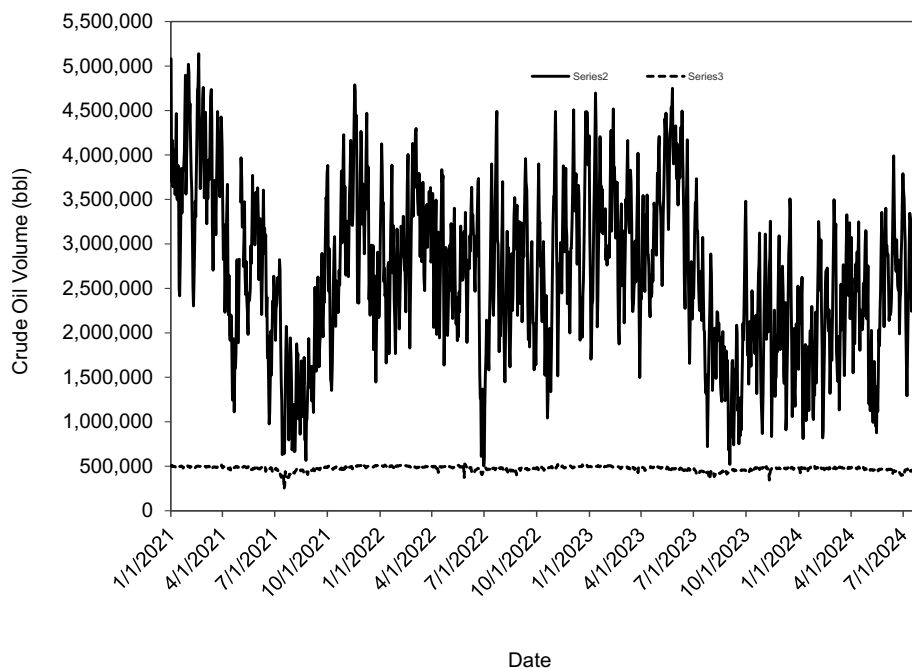
**Outstanding Alyeska responses to Council Recommendations and Information Requests:** The Council is waiting for responses from Alyeska regarding multiple information requests and recommendations related to a number of TOEM projects. The requested information is needed to make progress on current TOEM projects that are being delayed without the information.



**Attachments:** Graphs depicting a variety of data related to the operation and environmental impacts of the Valdez Marine Terminal.

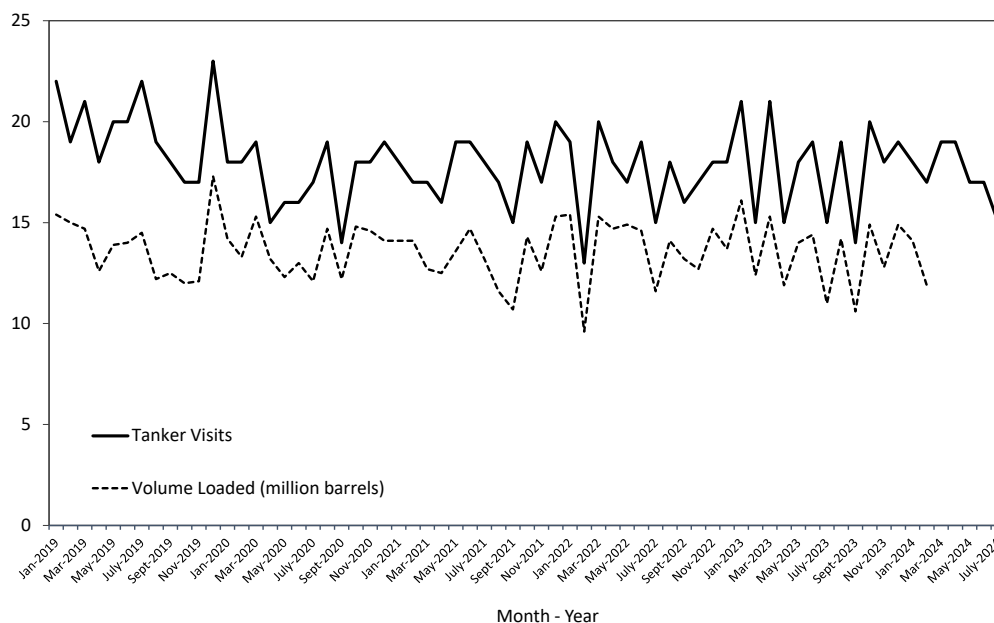
### Daily Oil Inventory at the Valdez Marine Terminal and Trans-Alaska Pipeline Throughput

(Source: Alaska Department of Revenue - Tax Division,  
<http://tax.alaska.gov/programs/oil/production.aspx>)



### Number of tanker visits and crude oil volume loaded onto ships from VMT

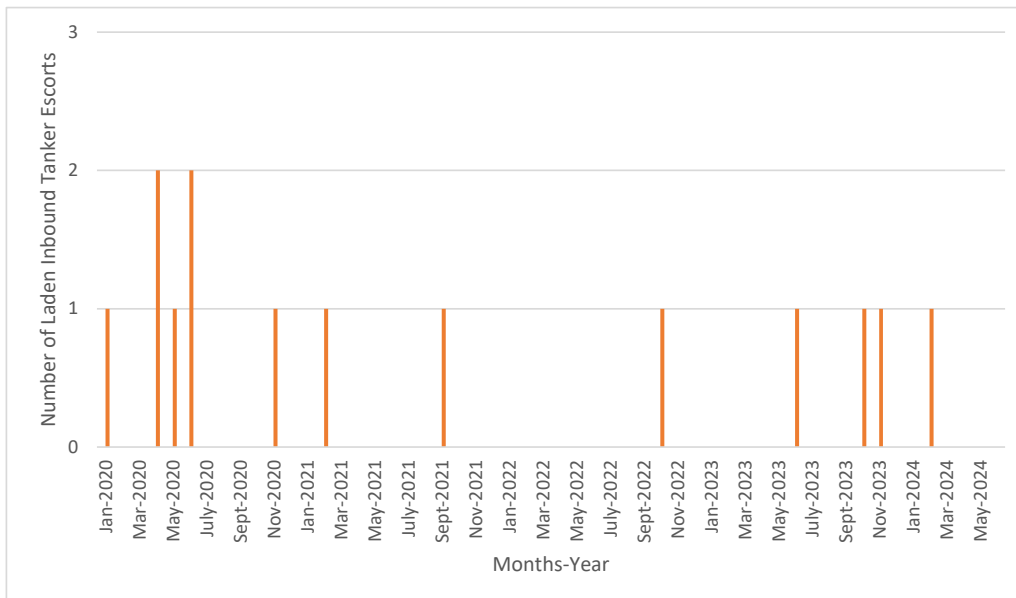
(Source: Alyeska Pipeline Service Company. Partitioned by VMT vessel arrival date).





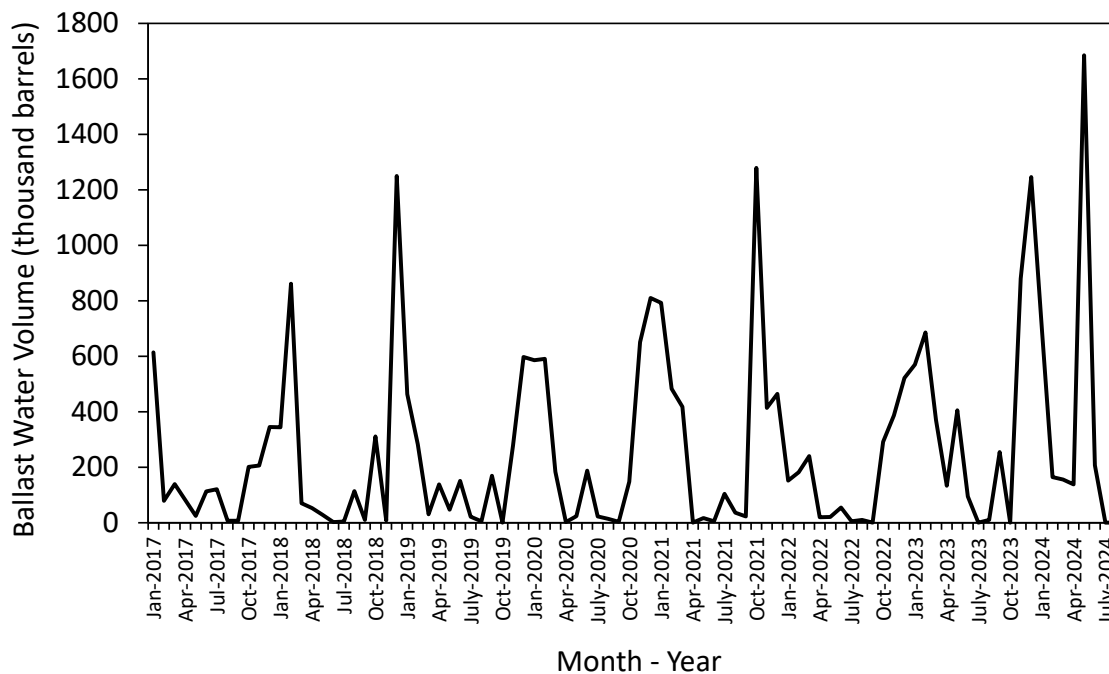
### Inbound laden tanker escorts to VMT

(Source: Alyeska Pipeline Service Company. Partitioned by VMT vessel arrival date)



### Monthly ballast water deliveries to Ballast Water Treatment Facility from tanker ships

(Source: Alyeska Pipeline Service Company. Partitioned by VMT vessel arrival date.)



#### 5051 – Water Quality Review of VMT

**Objectives:** This project entails a review of 2018-2023 water quality data. The goal of this project is to ensure the terms of the Valdez Marine Terminal's water quality permit minimize the environmental impact of wastewater effluent discharged from the facility.

**Accomplishments since last report:** The Valdez Marine Terminal's Alaska Pollutant Discharge Elimination System (APDES) Permit was submitted to ADEC on May 31, 2024. Dr. Morgan Bender with Fjord & Fish Sciences has been selected as a contractor to review and provide public comment for the permit, and she is in the process of reviewing the draft permit. PWSRCAC is currently waiting for ADEC's Water Quality Division to publish the APDES permit for the VMT and open the public comment period.

#### 5053 – Addressing Risks and Safety Culture at Alyeska's VMT

**Objectives:** This project will provide a retainer to Billie Garde to provide support to assist the Council in tracking and implementing recommendations identified in the Council-sponsored report, "Assessment of Risks and Safety Culture at Alyeska's Valdez Marine Terminal."

**Accomplishments since last report:** The Government Accountability Office (GAO) is working on the review of the federal and state oversight of TAPS and the Valdez Marine Terminal, and staff has been communicating with Billie Garde in preparation for the GAO interview on August 6. The GAO interviewed PWSRCAC Board members, committee volunteers, and current and former staff. Billie is also assisting staff on Process Safety Management information, Alaska Occupational Safety and Health (AKOSH) investigation, human factors in safety management, and developing a protocol on how to handle information received from employees.

#### 5057 – Air Quality Review of VMT

**Objectives:** This project ensures that Alyeska is mitigating and reducing sources of air pollution at the VMT which may pose adverse environmental and health impacts on residents of Valdez. The goal of this project is to provide actionable, clear, and specific recommendations to advance efforts to reduce sources of air pollution at the VMT.

**Accomplishments since last report:** PWSRCAC tasked contractor Dr. Ron Sahu to calculate emissions estimates from the tank vent damage incident in February/March 2024, and provided information received from public records requests dated July 27, 2023, and August 31, 2023. Dr. Sahu's work is ongoing.

#### 5081 – Crude Oil Tanks 7 and 2, and Ballast Water Tank 94 Maintenance Review

**Objectives:** This project would entail performing a technical review of the maintenance of crude oil storage Tank 7 and ballast water storage Tank 94 at the Valdez Marine Terminal. Both Tank 7 and Tank 94 underwent comprehensive internal inspections in 2021. The last time Tank 7 underwent a similar internal inspection was in 2008, and Tank 94's last internal inspection occurred in 2012. The 2021 internal inspections of both tanks will result in a large amount of new information pertaining to the past, current, and future maintenance of each storage tank. Additionally, since their last internal inspections were completed back in 2008 and 2012, Alyeska has gathered and maintained other information, such as cathodic protection system testing records and external inspection results pertinent to the maintenance of Tanks 7 and 94. The new information generated from the 2021 internal inspections and the other, older information must all be considered to continue to safely maintain each

of these tanks. This project is necessary to ensure that Alyeska is using industry best practices and considering all the pertinent information in the decisions they make to safely maintain both tanks, now and in the future.

**Accomplishments since last report:** On July 10, 2024, the TOEM Committee reviewed draft reports of Tanks 7 & 94 and Tank 2 Out-of-Service Inspections, prepared by Taku Engineering, and recommended the Board accept them as final. The TOEM Committee noted particular concern with the significant inconsistencies in tank corrosion rates between the regulatorily-required API 653 inspection reports and Alyeska's internally prepared engineering reports. The PWSRCAC Executive Committee reviewed the reports on July 18, 2024, and voted to accept them as final and distribute to regulatory agencies and Alyeska.

A contract for Storage Tank Maintenance review of Ballast Water Tank 93 has been drafted and Taku Engineering, LLC will be tasked with reviewing documentation related to the Ballast Water Tank 93 Out-of-Service Inspection Report.

#### **5595 – Review of VMT Cathodic Protection System Testing Protocols**

**Objectives:** This project funds a review of cathodic protection system testing protocols at the Valdez Marine Terminal (VMT). The goal of this project is to ensure cathodic protection data is being collected in a manner consistent with the Association for Materials Protection and Performance (AMPP) protocols to have an accurate assessment of current cathodic protection levels of steel structures at the VMT.

**Accomplishments since last report:** A Request for Proposals is currently being drafted for this project, and an appropriate contractor will be selected and tasked with reviewing Alyeska's Cathodic Protection System Protocols and implementation.

#### **5591 – Crude Oil Piping Maintenance Review**

**Objectives:** This project involves a technical review of the internal inspections of crude oil piping that occurred at the Valdez Marine Terminal (VMT) from 2016 through 2018, and a follow-on inspection of the buried crude oil relief piping that occurred in 2022. The goal of this project is to ensure that the crude oil piping at the VMT is maintained using industry best practices, such that the risks of a spill are minimized.

**Accomplishments since last report:** Information for this project was requested from Alyeska in June 2023 but has not been provided. Progress on this project has been delayed until receipt of this information.

#### **5640 – Alaska North Slope Crude Oil Properties**

**Objectives:** This project entails analyzing the physical and chemical properties of Alaska North Slope (ANS) crude oil and interpreting how those properties would impact the effectiveness of oil spill response measures including mechanical recovery, in-situ burning, and dispersants. A crude oil sample will be obtained then sent to a laboratory for physical and chemical analysis. That data will be reviewed by a spill response subject matter expert to interpret how the oil's chemical and physical properties would influence various spill response techniques.

**Accomplishments since last report:** On April 16, 2024, the Prince William Sound Response Planning Group shipped an ANS crude sample to Dr. Robert Faragher of Environment and Climate Change Canada (ECCC) to perform an analysis of the current properties of ANS crude oil. ECCC has agreed to perform this testing free of charge to PWSRCAC. Some testing has already taken place, but the completion of testing and resulting report is expected 6 to 9 months from the date that they received the sample.

#### 6000 – Oil Spill Response Program

**Objectives:** Through this program, PWSRCAC develops positions and recommendations on oil spill response technologies; reviews state and federal contingency plans (c-plans) and plan-related issues; promotes compliance, enforcement, and funding of existing environmental regulations; and promotes the incorporation of local knowledge of sensitive areas into contingency planning.

#### **Accomplishments since the last report:**

**Alaska Regional Response Team (ARRT):** General information on the ARRT can be found [HERE](#), and meeting summaries and presentations can be found [HERE](#). The next ARRT meeting is scheduled for September 12 in Anchorage.

The Regional Stakeholder Committee (RSC) Task Force completed their work on the job aids for members of the RSC and the RSC Liaison Officer.

PWSRCAC has offered to participate in the Cultural Resources Committee of the ARRT. This committee will be working on updates to the “Alaska Implementation Guidelines” for the 1997 National Programmatic Agreement.

**Prince William Sound Area Contingency Plan (PWS ACP):** The next PWS Area Committee meeting is scheduled for October 8 in Cordova, followed by a meeting of the Geographic Response Strategies (GRS) workgroup on October 9.

#### 6510 – Contingency Plan Review

**Objectives:** The purpose of this project is to monitor, review, and comment on state and federal contingency plans (c-plans) for the Valdez Marine Terminal (VMT) and the Trans Alaska Pipeline System (TAPS) tankers that transit Prince William Sound. Reviewing c-plans is a major task for PWSRCAC as outlined in both the PWSRCAC/Alyeska contract and OPA 90.

The Prince William Sound Tanker Oil Discharge Prevention and Contingency Plan (PWS Tanker C-Plan) and associated vessel response plans for Alaska Tanker Company, Andeavor (subsidiary of Marathon Petroleum), Crowley Alaska Tankers, Hilcorp North Slope, and Polar Tankers, was renewed on January 31, 2022, and will expire in 2027. Alyeska Pipeline Service Company (Alyeska) Valdez Marine Terminal Oil Discharge Prevention and Contingency Plan (VMT C-Plan) was renewed on November 15, 2019, and will expire in 2024.

#### **Accomplishments since last report:**

##### **PWS Tanker C-Plan:**

The major amendment submitted in September 2023 on the PWS Tanker C-Plan was approved by ADEC on June 21, 2024. The Basis of Decision document can be viewed [HERE](#). This major amendment covered replacement of the Mineral Creek barge with OSRB-5 that is used for lightering and nearshore response

storage. The amendment also aligns the plan with the contingency plan regulations that were changed in early 2023.

#### **VMT C-Plan:**

**VMT C-Plan Renewal:** The five-year renewal of the VMT C-Plan is currently under public review. The following is the timeline for this review:

Oct 2023	Alyeska submits application for five-year renewal of the VMT C-Plan
Dec 2023	PWSRCAC submits comments and requests for additional information
March 2024	ADEC issues first round of requests for additional information (RFIs)
April 2024	Alyeska responds to ADEC's first round of RFIs
July 2024	ADEC issues second round of RFIs
Aug 2024	Responses to second round of RFIs due
Nov 2024	Expiration of VMT C-Plan

PWSRCAC's comments and suggested requests for additional information on the five-year renewal of the VMT C-Plan submitted on December 15, 2023 are available [HERE](#). ADEC issued 84 RFIs to Alyeska in March 2024, and Alyeska responded in April 2024. ADEC's first round of RFIs and Alyeska's responses are available [HERE](#). Alyeska's redlines that correspond to the responses can be viewed [HERE](#).

**Secondary Containment:** In satisfaction of ADEC's Condition of Approval 2A dated May 11, 2022 for the VMT C-Plan (see below), Alyeska submitted a letter dated September 25, 2023 and method selected to evaluate the secondary containment liner in the East Tank Farm at the VMT. Alyeska's letter and memo are available [HERE](#).

Alyeska plans to conduct a pilot study in the West Tank Farm using Geoelectric Leak Location (GELL) to evaluate buried portions of the liner. This pilot test is scheduled for the week of July 23, 2024. Dr. Joe Scalia, a subcontractor to Dr. Craig Benson, will be attending the pilot test along with PWSRCAC staff and regulators.

#### **6512 - Maintaining the Secondary Containment Systems at the VMT**

**Objectives:** This project entails promoting methods Alyeska could use to verify the integrity of the secondary containment systems at the Valdez Marine Terminal's (VMT) East Tank Farm, otherwise known as the catalytically blown asphalt (CBA) liner. The goal of this project is to ensure that the buried CBA liner at the VMT will hold spilled oil long enough to be cleaned up prior to ground or surface water contamination.

**Accomplishments since last report:** Council contractor Dr. Joe Scalia visited the Valdez Marine Terminal (VMT) from July 22 – 26, 2024 to observe Alyeska Contractor WSP's pilot testing of the secondary containment liner in West Tank Farm. Two methods were utilized: electrical leak location (ELL) and electrical resistivity tomography (ERT). WSP is in the process of writing a report on their findings and the viability of ELL/ERT for testing of the secondary containment liner in the East Tank Farm, which will be reviewed by Dr. Scalia when made available.

#### **6530 - Weather Data / Sea Currents Project**

**Objectives:** This project studies wind, water current, and other environmental factors near the Valdez Marine Terminal, in Prince William Sound, and in the Gulf of Alaska. Weather conditions affect the safe

navigation of vessels and aids the ability to prevent, respond to, contain, and clean up an oil spill. Accurate weather data for the region supports research and decision making in areas like oil spill response, traffic management, vessel performance specification, and contingency planning.

**Accomplishments since last report:** The weather station at Cape St Elias is showing its age. Replacement components have been ordered and are on-site in Cordova. A purchase order has been issued for the PWSSC to assemble the weather station. The Council's two weather stations at Cape St Elias and Nuchek are operating normally and the camera at Nuchek is working correctly.

The weather station at Kokinhenik Bar on the Copper River Delta has been installed. There will be a site visit to the station sometime this year to tighten anchor bolts, readjust guy wires and troubleshoot the power system.

#### 6531 – Port Valdez Weather Buoys

**Objectives:** This project originally assembled and deployed, and continues to maintain, two buoys which measure ocean currents and common weather parameters in Port Valdez. The first buoy is installed near Jackson Point [61.0910°N 146.3811°W] in the vicinity of the Valdez Marine Terminal (VMT). The second buoy is installed at the Valdez Duck Flats [61.1201°N | 146.2914°W]. The Prince William Sound Science Center (PWSSC) partners with the Council to facilitate this project.

The Oil Pollution Act of 1990 requires the Council to study wind and water currents and other environmental factors in the vicinity of the terminal facilities which may affect the ability to prevent, respond to, contain, and clean up an oil spill.

The Council's Board of Directors has long advocated that robust weather monitoring systems be installed in the vicinity of the VMT. This includes proposals to install ultrasonic anemometers at the loading berths and a weather station at the VMT. On January 22, 2016, the Council's Board passed a resolution expressly requesting a weather station be employed at the terminal.

Weather is a significant factor in the management of safe crude oil transportation through Prince William Sound. Some of these concerns include marine safety, tanker escort operations, oil spill contingency planning, containment boom design, and safe loading of oil tankers.

**Accomplishments since last report:** The Board and Alyeska have agreed to continue the project for the next two years. Funds for the new anchoring system for the VMT buoy were donated by AOOS. Rob Campbell (PWSSC) and Alan Sorum recently serviced the VMT and Duck Flats buoys, including minor repairs to the hull of the VMT buoy. Both buoys were redeployed on August 6<sup>th</sup>, 2024. The VMT buoy is in place and operating normally for the first time since it broke free from its anchoring system in January 2024.

#### 6536 – Port Valdez Weather Buoy Data Analysis

**Objectives:** In 2019, PWSRCAC was able to install two weather buoys in Port Valdez, one in the vicinity of the Valdez Marine Terminal and the other near the Valdez Duck Flats. The buoys are expected to collect weather data for at least five years. This series of projects will take the data collected in each of the five years and perform an analysis to determine any weather trends throughout the year and seasonally. The analysis includes current and wind direction and speed information, wave direction and heights, and other pertinent information that can be obtained from the weather data.

**Accomplishments since last report:** Dr. Rob Campbell of the PWSSC has conducted an analysis of the year 2023 Port Valdez weather buoy data and that report has been reviewed by the project team. Dr. Campbell provided a presentation on the report and his findings at the July 24 OSPR meeting.

#### **6540 – Copper River Delta and Flats Geographic Response Strategy Workgroup**

**Objectives:** This project would fund a workgroup process and workshop day, to build ten new GRSs and/or update past GRS work in the Copper River Delta and Flats (CRDF) vicinity. The contractor will coordinate with PWS Area Committee leadership, local stakeholders, trustee agencies, and the regulatory community to ultimately deliver ten GIS-based GRSs, and provide these to ADEC for incorporation into the GRS database. GRS work done circa 1999 in this area was some of the first GRS work done in Alaska, and this material needs to be updated and/or new sites identified. Project funding would allow for this work to take place and ideally a site visit to selected sites.

**Accomplishments since last report:** Project Manager Robida has been discussing the project with ADEC and USCG area committee leadership to make sure that the scope of work and timing is understood. There is excitement about the project. A contract has yet to be signed, but staff anticipates that a contract should be in place in mid-September.

GRS work being completed by the Arctic and Western Alaska (AWA) Area Committee is also being tracked. The AWA is leading the statewide effort to digitize existing GRSs and work through how updates, post deployment, or site visits are incorporated. This project represents the next evolutionary step of building and incorporating new GRSs.

#### **6560 – Peer Listener Training**

**Objectives:** Update the Council's Peer Listener program, which was created and implemented shortly after the Exxon Valdez oil spill to promote community resiliency through a peer-to-peer support network. The update will include assessing the current program, reviewing similar programs nationwide, and revising the Peer Listener Training manual and delivery methods according to contemporary best practices.

**Accomplishments since last report:** The Peer Listener Project Team held a Phase 3 kick-off meeting to discuss plans and budget options for distributing the manual.

#### **6575 – Comparison of Windy Application and Seal Rocks Buoy Wind/Wave Data**

**Objectives:** The National Data Buoy Center hosts a weather buoy at Seal Rocks (46061) that is used to determine closure limits for laden tankers outbound from the Valdez Marine Terminal through Hinchinbrook Entrance. Closure occurs when wind speed exceeds 45 knots (sustained) or waves exceed 15 feet in height. Buoy 46061 has become inoperable several times in recent history and repairs have taken an inordinate amount of time to accomplish. In the past, during extended period of inoperability, the SERVS' Hinchinbrook Tug was required to make weather observations in the vicinity of Seal Rocks when the 46061 buoy was inoperable in order for the Coast Guard to make Hinchinbrook Entrance open/closure decisions. That is no longer the case.

This project proposes to do a comparison of data from the Windy mobile application (Windy), specific to wind and wave predictions, to data generated by Buoy 46061. The project would then evaluate which



forecast model used by Windy most closely matches historic data provided by Buoy 46061 and provide recommendations on the use and efficacy of the Windy application for this purpose.

**Accomplishments since last report:** Project Manager John Guthrie is working with the OSPR Committee and other staff to form a Project Team and develop a Request for Proposal for the project.

#### 7000 – Oil Spill Response Operations Program

**Objective:** This program encompasses monitoring and reporting on the activities related to the operational readiness of the oil spill response personnel, equipment, and organization of the TAPS shipping industry. The program also encompasses monitoring actual oil spill incidents within our region and evaluation of overall response readiness. Additionally, the program includes the planning and implementation of PWSRCAC's Incident Response Plan.

**Accomplishments since last report:** The **Regional Stakeholder Committee Task Force** work has been completed. The last task force meeting was held on April 16 and the group worked through the remaining edits to the two job aids, and consensus was reached on the finished products. The draft Liaison and RSC member job aids then moved forward to the ARRT Tri Chairs (USCG, ADEC, EPA), and it was reported by EPA that the Tri Chairs were satisfied with the work. The different State On-Scene Coordinators are now reviewing these documents. This material will see public review over the fall under the Arctic and Western AK Area Contingency Plan review. Marathon Petroleum will be initiating the RSC process in conjunction with the October shippers' exercise, and plan to use of the job aids developed by the RSC Task Force.

Several PWSRCAC staff and volunteers attended the **International Oil Spill Conference** in mid-May. The conference demonstration/exhibit floor and the presentations were easily accessible by the participants. Robida reported that there were a lot of high quality, valuable presentations that spurred potential project ideas for the coming fiscal year that he planned to discuss with the OSPR Committee at the upcoming Long Range Planning meeting.

The new-build **Allison Creek barge** is in service as of June 5. There was a demonstration exercise on May 14 for this piece of equipment, but unfortunately, PWSRCAC staff were at the International Oil Spill Conference in New Orleans and could not attend. There will be other training and exercises on this new equipment in the future, and staff is interested in seeing this equipment. With the addition of the new Allison Creek, the capability to offload mini barges was gained and is a positive change that adds flexibility to a response.

Robida was involved with several **outreach efforts** since the Board last met. Robida, along with staff members Sadie Blancaflor and Danielle Verna, spoke to local Valdez guides about the EVOS event and how that's shaped the modern prevention and response system, PWSRCAC science and social science work, and the basics of VMT operations. This event was well attended and there was good discussion amongst the group. Robida also attended a Sea Grant training that former staff member Leigh Lubin conducted in Valdez. Lubin, alongside a fellow Sea Grant affiliate, spoke about how to speak to and deliver cultural history of the area. How do you, as a guide, create stories and interactions for clients, that acknowledge and pull people into the cultural history of a given area? This was the first time this material was delivered, and Robida thought it was an interesting topic and workshop.

The PWSRCAC sponsored **Tsunami Workshop** event was held in Valdez on June 3 and 4. The first day was comprised of various lectures and panel discussions ranging from modeling these hazards and forecasting them, to the damage and destruction caused after the fact. Day two was a boat tour out to



Columbia glacier where different hazards were observed and discussed along the way, and the group worked through some “what if” scenarios while on the water.

Spring **fishing vessels training** finished in early May. Robertson attended training in Homer and Robida in Valdez. As usual, summer sees an uptick in drill and exercise activity, and staff is covered events as schedules allowed. There’s been a lot of activity related to the Valdez Duck Flats and Solomon Gulch Hatchery sensitive area protection GRSs. For example, multiple U/J open water deployments, and a recent wildlife exercise took place this summer. Planning is already underway for fall FV training in Whittier and Cordova; Robertson will cover Cordova, and Robida, Whittier. The PWSRCAC-sponsored Fishing Vessel Program Community Outreach boat tour is anticipated to take place in conjunction with the Whittier training event on Monday, September 30.

## **7520 – Preparedness Monitoring**

**Objectives:** PWSRCAC's Drill Monitoring Program falls under a broader program called Oil Spill Response Operations. Objectives for the Drill Monitoring Program are to promote oil spill response operational readiness within the EVOS region by observing, monitoring, and reporting on oil spill prevention and response drills, exercises, and training; to provide citizens, regulatory agencies, and responders (Alyeska and the shippers) with independent observations and recommendations to improve preparedness; and provide citizen oversight. Tasks to be completed include:

- Monitor and report on regular oil spill drills and training exercises at the VMT and throughout the Exxon Valdez oil spill region to citizens, the Board, industry, and regulatory agencies
- Provide quarterly recommendations to the PWSRCAC Board of Directors
- Keep PWSRCAC's standing committees (OSPR, TOEM, POVTS, IEC, and SAC) informed
- Produce an annual report on effectiveness and progress of the regularly monitored drills and exercises
- Continue developing and implementing staff training for drill monitoring

### **Recent Exercises**

#### **VMT Drainage 58 Deployment – July 12, 2024**

Alyeska deployed the containment and oil recovery tactic at Drainage 58, which is the site of the VMT’s worst case scenario. The site was boomed and the barge OSRB-1 was stationed by Berth 1 to deploy its two Crucial 100-disc skimmers into the containment area.

#### **Valdez Duck Flats SAP Training – June 26-27 and July 17-18, 2024**

SERVS has conducted a series of sensitive area protection (SAP) training for the Valdez Duck Flats for the TCC crews.

#### **Tug Contender U/J Deployment – June 14, 2024**

The tug Contender crew conducted their annual U/J skimmer and boom deployment in Port Valdez on June 14.

#### **Tug Champion U/J Deployment – May 31, 2024**

The tug Champion crew conducted their annual U/J skimmer and boom deployment in Port Valdez on May 31.

#### **Valdez Marine Terminal Annual Incident Management Team Exercise – May 8, 2024**

Alyeska held their annual Incident Management Team (IMT) and field deployment exercise on May 8. The scenario was a spin-off of an actual incident where the secondary containment for the loading arms overflowed.

**Polar Enterprise Emergency Towing Exercise – April 27, 2024**

SERVS and Polar Tankers conducted an emergency towing exercise in Prince William Sound south of the precautionary area with tanker Polar Enterprise and the tugs Contender, Courageous, and Challenger on April 27.

**OSRB-4 Port Valdez Open Water Deployment – April 22, 2024**

SERVS conducted an open water operational readiness exercise in Port Valdez on April 22 as part of the annual Valdez fishing vessel training.

**Polar Adventure Emergency Towing Exercise – February 27, 2024**

SERVS and Polar Tankers conducted an emergency towing exercise in Prince William Sound south of the precautionary area with tanker Polar Adventure and the tugs Contender and Challenger on February 27.

**Upcoming Drills and Exercises**

Marathon Annual Shipper's Exercise – October 15-17, 2024

**8000 – Maritime Operations Program**

**Objectives:** This program reviews port organization, operations, incidents, and the adequacy and maintenance of the Coast Guard Vessel Traffic System, and coordinates with the Port Operations and Vessel Traffic Systems (POVTS) Committee. Major program components include participation with the Valdez Marine Safety Committee (VMSC), monitoring changes to the tanker escort system, reviewing Best Available Technology documents for the tanker escort system and the Vessel Emergency Response Plan (VERP), participating in monthly SERVS/PWSRCAC and ADEC/PWSRCAC communication meetings, and supporting maintenance for the NOAA weather stations.

**Accomplishments since last report:** Working with the previous project manager, the transition into this position is complete. Alan Sorum remains available for support as needed.

Working with AOOS, we received an additional grant that paid for the VMT weather buoy anchoring system. Project Manager John Guthrie will continue to work with the OSPR Committee on weather-related projects.

**8025 – Vessel Operator Tsunami Hazards Guidance Workshop**

**Objectives:** The goal of this project is to convene a 2-day workshop, with participants representing a diversity of vessel operators, emergency management, and the scientific study of tsunami impacts. Work products generated by the event will include preliminary guidance for vessel operators facing the threat of a tsunami and a list of research topics that could improve future guidance. The proposed guidance will be designed to be applicable in Prince William Sound and similar areas that have complex steep shorelines, and which face the potential of landslide-generated tsunamis.

**Accomplishments since last report:** The project is complete, and the contractor has finished a summary of proceedings. Going forward, information developed in the workshop could be forwarded to appropriate entities and future projects considered.

### 8250 – Assessing Non-Indigenous Species Biofouling on Vessel Arrivals

**Objectives:** Two main mechanisms of non-indigenous species (NIS) introduction via commercial ship traffic are the intake and release of ballast water and biofouling on a vessel's submerged surface areas. This project will characterize the risk from NIS biofouling on vessel arrivals using vessel gross tonnage (GT) as a function of wetted surface area (WSA). Gross tonnage is a nonlinear measure of a ship's overall internal volume. Wetted area is the area of the watercraft's hull which is immersed in water. Each arrival within this temporal and spatial analysis will be analyzed for a vessel arrival profile to consider additional variables that affect the potential likelihood of NIS introduction for a given arrival. Additionally, this project proposal builds from the Master of Science in Environmental Science thesis project for a graduate student at Alaska Pacific University (APU) under the supervision of the Fisheries, Aquatic Sciences, and Technology (FAST) Lab, and advised by Dr. Danielle Verna, PWSRCAC's Environmental Monitoring Project Manager.

**Accomplishments since last report:** The Project Manager has contacted the project proposer and a purchase order will be set up at the end of August so the proposer can begin the work.

### 8520 – Miscommunication in Maritime Contexts

**Objectives:** Seeking to identify and address various causes of miscommunication, the proposed project will provide a comprehensive perspective by collecting information on the linguistic, cultural, and pragmatic needs and practices of native and non-native English-speaking mariners in Prince William Sound. The proposed project would entail the first two of four phases.

**Accomplishments since last report:** The Board accepted the contractor's Phase One white paper at its special meeting being held on March 27, 2024. Dr. Ziegler plans to seek professional publication of this white paper. Therefore, she requests the Council not release the paper publicly until it has been peer reviewed and accepted or rejected for publication.

We are anticipating the completion of the contract's Phase Two report at the end of August. Since this is not in time for the September Board meeting, the report will be approved at a later date. Dr. Ziegler will present the findings of Phase One and Two of the project at the Board's September meeting.

### 9000 – Environmental Monitoring Program

**Objectives:** Coordinate projects developed and overseen by the Scientific Advisory Committee and obtain scientific knowledge and technical information about issues related to the actual and potential environmental impacts of the Valdez Marine Terminal and associated crude oil tankers. The notable tasks to be accomplished under this program are as follows:

- Project manager to attend at least one technical scientific conference
- Plan and complete budgeted environmental monitoring and scientific research projects
- Conduct PWSRCAC Science Night

**Accomplishments since last report:** Projects managed under this program continue to be planned and executed successfully. Planning is underway for Science Night 2024, to be held December 6<sup>th</sup> in Anchorage.

### 9110 – Monitoring Spatial Variability of Marine Birds During Winter in PWS Tanker Escort Zone

**Objectives:** Provide up to date information on winter marine bird density and distribution throughout the Prince William Sound tanker transit zone, including under-surveyed areas such as the open waters and adjacent bays in and around Port Valdez, Valdez Arm, Tatitlek Narrows, Port Fidalgo, and Port Etches. The notable tasks to be accomplished under this project are as follows:

- Perform winter bird surveys in Prince William Sound for three consecutive years
- Analyze data obtained during winter bird surveys and report the results of the analysis
- Make winter bird survey maps readily available for use by spill response managers

**Accomplishments since last report:** Contractors from the Prince William Sound Science Center (PWSSC) carried out a hotspot analysis using 14 years of data collected during winter bird surveys in Prince William Sound, including Council funded surveys in and around the tanker lanes. The final report will be presented to the Board at this meeting.

In addition, funding and a contract has been approved for the PWSSC to conduct additional surveys in fall and early winter 2024 in and around the tanker lanes.

### 9510 – Long-Term Environmental Monitoring Project

**Objectives:** Comprehensively monitor the actual and potential environmental impacts related to the Valdez Marine Terminal and associated crude oil tankers and provide the Council with information about the presence and effects of hydrocarbons generated by the terminal facility and associated tankers. Here are the notable tasks to be accomplished under this project:

- Obtain environmental samples in Port Valdez: marine sediments, mussels, and passive sampling devices
- Analyze environmental samples
- Interpret and report results of sample analysis
- Present analytical findings to the PWSRCAC Board of Directors
- Maintain Environmental Monitoring Project plan

**Accomplishments since last report:** Samples were successfully collected this field season at sites in Port Valdez (adjacent to the Valdez Marine Terminal, Gold Creek, and Valdez small boat harbor) and sites on the northern Gulf of Alaska coast (Aialik Bay, Windy Bay, and Shuyak Harbor). Blue mussels were collected at all sampling sites, while sediments and passive sampling devices were collected in Port Valdez only. Data analysis and interpretation will occur this fall once results from sample analyses have been received from laboratories.

### 9520 – Marine Invasive Species

**Objectives:** Understand and minimize the environmental impacts of invasive species potentially arriving in the PWSRCAC region from tanker ballast water and hull fouling. Here are the notable tasks to be accomplished under this project:

- Obtain plankton samples in Port Valdez at three sites: the small boat harbor, Valdez Container Terminal, and Valdez Marine Terminal
- Perform metagenetic analysis on plankton samples to identify variability in the plankton community between locations and through time, and identify any nonindigenous species
- Interpret and report results of plankton metagenetic analysis
- Conduct monitoring of invasive crab and tunicate species in Valdez, Cordova, and Kodiak

**Accomplishments since last report:** Contractors from the Smithsonian Environmental Research Center completed the analysis and draft report following the broadscale survey in summer 2024, and presented this information to SAC. The final report will be presented to the Board at this meeting.

#### 9521 – Marine Invasive Species Internship

**Objectives:** Support local students to monitor for invasive species potentially arriving in the PWSRCAC region from tanker ballast water and biofouling. Target species include European green crab and tunicates in the communities of Valdez, Cordova, and Kodiak.

**Accomplishments since last report:** Student interns have been identified and onboarded in the communities of Cordova, Valdez, and Kodiak for 2024. They have each begun monitoring for invasive green crab in their communities.

#### 9700 – Social Science Workshop

**Objectives:** The goal of this project is to host a workshop with community members from our region to identify social science data needs and projects that fit within the PWSRCAC mission and could be supported by SAC. The workshop will be a 1–2 day event held in a spill-affected community. Representatives from spill-affected communities will gather for a facilitated event to share ideas, needs, and desires related to social science questions that affect the region and identify clear project ideas that are forward looking and benefit the region.

**Accomplishments since last report:** We are actively discussing options for holding this meeting in late winter or spring 2025, possibly in collaboration with other entities working in the region, such as the Chugach Regional Resources Commission and Alaska Sea Grant.