



Quiet Sound Leadership Committee Meeting Summary

January 24, 2023

Meeting notes v. 2/15/23

Action Items	Who	Status
NOAA write letter of support	Grace	Completed
PSP Leadership Council write letter of support	Todd	In progress
Update QS legislative one-pager with slowdown participation rates, project updates and send to LC members	QS staff	Completed
Double check wording of coalition letter and one-pager with Makah	QS staff	In progress
Confirm organizational endorsement of coalition letter	Patrick, Mike	Completed
Reach out to Evaluation & Adaptive Management Work Group to plan slowdown follow-up	QS staff	Completed
Share WRAS API data usage agreement with LC when ready	QS staff	In progress

Decisions

No major LC decisions at this meeting.

Acronyms: QS - Quiet Sound, WG - Work Group, LC - Leadership Committee, SRKW - Southern Resident Killer Whale

Agenda

Welcome/Introductions

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- Land and water acknowledgement
- Agenda overview and expectations

State budget engagement

- QS staff will continue to engage in legislator education over the next couple months with a potential "mini-lobby" day in the second half of March
- NOAA cannot sign a budget letter but can write a letter that generally supports Quiet Sound and NOAA's support of the program - Grace can produce the letter by mid-Feb
- Potentially reach out to Hannah Anderson from Wildlife Diversity division of WDFW, they are doing similar lobbying
 - WDFW may have similar constraints as PSP seeing as QS was not named in the Gov's budget
- PSP Leadership Council is interested in writing their support for QS, might need to be in adjacent letter similar to the NOAA letter - Todd will check with their legislative liaison
- Makah can sign on this letter or write their own, Councilman Bowechop will check in with the council - QS staff will follow up with Makah staff
 - Makah would like to review the wording and terminology in the QS legislative materials - reminder for inclusive wording in Quiet Sound documents that the Makah Tribe is not a part of the Coast Salish peoples and is not within the Salish Sea
- LC member organizations that can endorse the QS legislative coalition letter:
 - Maritime BLue
 - NRDC
 - Seattle Aquarium
 - Port of Seattle/Port of Tacoma/Seaport Alliance
 - PMSA? - Mike will run through internally
 - Marine Exchange? - Patrick will check in during annual board meeting
 - (typically not something NWIFC does because they'll have to get confirmation from all members)
 - QS staff check-in with Nora about getting logos from other NGOs
- LC member organizations that will write letters of support:
 - NOAA
 - PSP Leadership Council

2023-24 Quiet Sound budget

- Timing/process reminder - QS fiscal year July 1- June 30, LC will approve the QS budget in the April meeting, QS budget will then go on to the Maritime Blue Board of Directors for balancing with other MB programs and final approval
- QS is waiting to hear from NFWF and the Cruise Foundation on potential funding

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- QS is currently at a deficit of around 30k according to the original budget for FY 22-23. This be managed by a combination of: fundraising, dropping some previously budgeted expenses such as travel, and drawing on calendar year 2023 funds in the first half of the year if needed.
- QS staff will draft two budgets:
 - Same state level of funding as the first biennium
 - Increased state funding
- Mike reminded the LC that we should be continuously seeking sustainable funding
- Rachel and Caitlin described to the LC the staffing constraints they discovered during the prep and running of the first vessel slowdown (see below slide for details)

Quiet Sound staffing constraints

What Rachel & Caitlin do:

- **Fundraising** (federal, state, foundation/private)
- **Grant management** (6 current grants)
- **Contract management** (5 current contracts)
- **Project management** (high workload to low)
 - Trial slowdown (continuous)
 - WRAS improvements (continuous)
 - Navy Tech Challenge (ending)
 - Oceans Initiative (ending)
 - Port hydrophone study (?)
- **Leadership Committee/Work Group engagement**
- **External engagement** (external work group participation, presentations/conferences, stakeholder engagement, media, etc.)
- **Administrative duties** (budget management, media, event/meeting logistics, Maritime Blue responsibilities, etc.)

With additional staff we will:

- Have **consistent engagement with all Work Groups** to fully utilize their technical expertise
- Be able to **pursue project-dependent funding** sources (ex. META)
- Pursue/re-engage with **projects outside of the slowdown and WRAS**
 - Engage with tugs & fast ferries
 - Pursue vessel quieting tech innovation
 - Pursue whale sensing tech innovation (ex. UnCruise prototype, infrared cameras)

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Project Updates

Caitlin O'Morchoe gave updates on the major Quiet Sound projects currently underway.

- Project 1: Further Develop the Whale Report Alert System
 - Ocean Wise, Conserve.io, Acartia.io and Orca Network are continuing to work with Quiet Sound on developing an agreement on how to share data. We hit one bump when we realized not all parties shared the same understanding of who was going to push or pull data (the specific mechanics of the API).
 - Ocean Wise says their end of the technical connection should be done in February.
 - Ocean Wise is going to use the API as well to pilot acoustic data being added to WRAS.

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- We are halfway through our 6-mo contract with Orca Network. Orca Network has been entering SRKW, Biggs, and baleen sightings into Whale Alert and WhaleReport.
- Comments: Councilman Bowe chop noted that a clear understanding of how data is being collected and used is essential for the Makah Tribe. They have had challenging experiences with that before. Caitlin noted that QS can share the completed data usage agreement with the Leadership Committee.
- Project 2: Trial Voluntary Vessel Slowdown
 - The slowdown trial is over! We extended the trial to January 12 to allow for enough hydrophone data to be collected.
 - We are waiting on SMRU to crunch the data on the last two weeks of the slowdown.
 - Hydrophone is coming out of the water on February 14.
 - SMRU will begin hydrophone data analysis.
 - Quiet Sound's post-slowdown plan includes: calculating participation and recognizing participation, debrief conversations with individuals and work groups, writing a full report, recognizing participation by owner/operators.
 - Stats so far:
 - 76% of SRKW days in Puget Sound were during slowdown
 - SRKW were present in Puget Sound 43% of days of the slowdown
 - 53% participation in Weeks 1-12
 - Comments: Mike Moore suggested that we ask owner/operators about times they participated and times they did not, since most owner/operators had transits that did and did not participate.
 - Todd Hass: This is a great opportunity to bring in the adaptive management workgroup. Has Quiet Sound planned an adaptive management process? Caitlin: We're still developing that process, and I think it makes sense to run our debrief questions by that group before we gather that data. We hope to have more consistent meetings with our work groups in the future when Rachel and Caitlin have additional capacity. Todd: Note for other members of the Leadership Committee that PSP is overseeing a Quality Assurance Project Plan from Quiet Sound and SMRU.
- Project 3: Port of Seattle hydrophone gap analysis
 - No updates
- Project 4: Oceans Initiative hydrophone study
 - Language from Erin Ashe at Oceans Initiative:

"Thanks to generous support from Puget Sound Partnership and Quiet Sound, Oceans Initiative is carrying out a suite of activities to measure ocean noise in Puget Sound and, under PSP's leadership, help develop a framework for monitoring noise as a Vital Sign Indicator for Healthy Water Quality. Quiet Sound's funds were used to fill in a budget shortfall

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around calibrating an existing network of hydrophones within Puget Sound waters, namely the Orcasound cooperative hydrophone network.

Ocean noise is a particular concern in the context of conservation and recovery of the endangered southern resident killer whale. Orcasound has been recording sounds in several Puget Sound locations for years now, often with very little funding. Some hydrophones were never calibrated and other systems have drifted out of calibration through time, so they generate relative measurements. This makes it difficult for Orcasound scientists to compare how absolute noise levels vary spatially or temporally. The aim of this part of our study is to collect ambient recordings on a calibrated system immediately next to Orcasound's existing systems. With a calibration factor, Orcasound will have a correction factor for each node that they can use to convert their time-series recordings from relative to absolute noise levels. This will allow them to make spatial comparisons of average noise levels and, ideally, detect trends over time. It also holds the potential to provide ocean noise monitoring in future as noise mitigation measures are implemented. Once calibrated, Orcasound's cabled hydrophones can measure effectiveness of voluntary ship slow-downs and other management measures."

- Project 5: Navy NW Tech Bridge Challenge
 - Rachel shared that the end of this challenge has been stalled out due to one of the 3 winners disputing the Intellectual Property clause of accepting the award from the Navy. However, the other 2 winners have received funds and further update will be provided by Dave Boyce from UnCruise later in the meeting.

Updates on federal legislation and funding

- Maritime Administration and Authorization Act
 - Maritime Environment and Technical Assistance (META) Program received appropriated dollars to do underwater noise work
 - Might accept one-of proposals outside of an RFP process
 - Good time for Quiet Sound to re-engage with META
 - Center for Maritime Innovation is intended to be a guide for the META program (Maritime Blue is involved here)
 - The act requested a report on the status of vessel quieting technologies
- Coast Guard Authorization Act - passed but not with specific funding
 - Port grant program
 - Laird: A port grant program exists currently and is administered by the Coast Guard
 - Real-time whale monitoring program focusing on Northern Right whale monitoring
 - NOAA underwater soundscape work

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- Cetacean desk for Sector Puget Sound - no additional funding was appropriated for this initiative, Sector Puget Sound is waiting on legal guidance from USCG HQ
- Quiet Sound will check in w/ Sen Cantwell's office and Murray's office and ask about federal earmarks and engage LC as appropriate. We will talk to Cantwell first and get a sense of possibilities and devise a strategy for Murray's office.

Autonomous Whale Detection & Alert. Dave Boyce. UnCruise Adventures

Presentation slides are attached to the email. Below are questions LC members/QS staff asked of Dave during the presentation which he answered via email:

1. *How does the thermal imaging work with vibration due to fast speed 24+ knots and rough weather?*

Response:

[FLIR M400 Premium Multi-Sensor Marine Thermal Camera | Teledyne FLIR](#)

BUILT FOR HARSH CONDITIONS - Rugged, waterproof gimbal enclosure with automatic window heaters keeps image clear, while gyro-stabilization ensures steady viewing in heavy seas.

Shock: 15 g vertical, 9 g horizontal

Vibration: IEC 60945; MIL-STD-810E

Military high grade vibration certification

FLIR Response: "The cameras are tested to 100 knot winds. The stabilization is unaffected by high speeds, any vibration in the image that isn't taken out by the gyro is generally due to motor vibrate in the hull but I've never been in a situation where the image was unusable.", Andrew Cox – FLIR Field Engineer

2. *How does the system aid navigation when there is a whale detected? UnCruise can probably wait around and watch the whales but the fast ferries are on a schedule so they can't wait around for very long.*

Response: Each Whale position is injected into the NEMA network as an AIS event. The whale detection system can simultaneously detect multiple thermal signatures & will attempt to uniquely identify each signature when sending the position into the NEMA 0183 or NEMA 2K network as AIS data. From the vessel navigation systems the crew will be able to see all the whale AIS objects on the screen in addition to the other transmitting AIS objects to be able to determine an alternate route. The whale AIS data will include speed and direction to help identify patterns in movement. In the future, we are interested in feeding all the vessel AIS data including the active whale AIS data (along w/ any land based detection data) into an AI engine to investigate the ability of the AI engine to produce alternate routes

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3. *How does the thermal imaging perform in heavy fog or rain. Have to rely on spotters under these conditions.*

Response: UnCruise doesn't yet know the impact on the range of thermal detection related to fog/rain conditions, this is something we will be studying during the sea trials and will follow up with details. UnCruise is using the FLIR M400 w/ uncooled thermal on the Safari Quest but FLIR does have a M500 cooled thermal camera which does better in fog/haze conditions. Here is an article that talks about cooled vs uncooled thermal imaging from FLIR: [Unmatched Maritime Awareness with Cooled Thermal Imaging | Teledyne FLIR](#). We will look at installing the FLIR M500 in the future to get some data on how it performs compared the uncooled thermal in fog and haze.

FLIR Response: "The cameras aren't designed to work in fog as thermal energy doesn't penetrate water. We do pretty well in heavy rain, smoke, haze. The cooled (M500 camera) do better in fog.", Andrew Cox – FLIR Field Engineer

4. *Is UnCruise looking for funding related to this project?*

Response: UnCruise is dedicated to getting this working on the Safari Quest even though is over the \$50K award from the Navy. Ideally, we'd like to sell the solution to generate revenue but would be interested in talking about other funding options.

5. *What is the cost of hardware for the video and audio solutions and install time/cost?*

Response: Will follow up w/ more details on the cost of hardware and installation later in Feb after the shipyard meetings and installation. A majority of the installation will be performed by UnCruise designers & engineers but will include in the details estimated cost for either consulting UnCruise or PacFish shipyard engineers for installation.

6. *Who is the expert that you use for hydrophone consulting?*

Response:

Joe Olson, Cetacean Research Technology (Seattle Company) 1-206-650-8676, www.cetrestec.com

7. *How much night navigation will there be during the trial?*

Response: Safari Quest routes have limited night navigation but might need to perform more night navigation during weather windows. The vessel will be going up to Alaska and back during the summer months for cruises where the repositioning will involve some night navigation plus additional weather/wind/seas condition testing.

8. *Can the system detect whale blows – when a whale expresses water then dives again?*

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Response: Yes a thermal signature from a blow will heat the water and be detected for several seconds even when the whale is no longer visible. We'll be testing this during the trials to see detection distance for blows vs actual whales.

FLIR Response: "Whale blows are pretty easy to detect. As for warm water on top of the cold water, it would depend on your angle of incidence to the water. If you're right on top of the water looking down, you would be able to see the temperature difference. The further away you are, the more reflection you're going to see.", Andrew Cox – FLIR Field Engineer

9. *Can the system provide a data feed to land based whale detection systems?*

Response: Yes the video/audio processing server which we are already using to deliver the whale event data to the cloud can also deliver the data to other cloud frameworks or provide direct access from land based solutions. We are installing [Starlink Satellite](#) on all our vessels this year which will provide high speed connection that we can use for sending whale position data and video.

Updates from LC members

- Kevin: continuing to pursue funding for new ferry design, looking into vessel quieting as a part of the design process
- Kevin: House Bill 1154/Senate Bill 5371, ferries is working with legislators to add an amendment for state ferries, like it has for federal vessels, regarding the 1000 foot distance from SRKW

Attendees

- [Rachel Aronson](#), Quiet Sound Program Director, Washington Maritime Blue
- [Caitlin O'Morchoe](#), Quiet Sound Project Manager, Washington Maritime Blue
- [Patrick Gallagher](#), Executive Director of the Marine Exchange of Puget Sound
- [Kate Snider](#), Principal and Founder of Floyd|Snider environmental consulting firm
- [Todd Hass](#), Special Assistant to the Director, Puget Sound Partnership
- [Kevin Bartoy](#), Chief Sustainability Officer for WA State Ferries
- [Nora Nickum](#), Ocean Policy Senior Manager at Seattle Aquarium
- [Laird Hail](#), Director of Puget Sound Vessel Traffic Services, US Coast Guard
- [Kathleen Hurley, Sr.](#) Environmental Program Manager, Port of Seattle
- [Randy Lumper](#), Puget Sound Policy Analyst for the Northwest Indian Fisheries Commission
- [John Veentjer](#), Past Executive Director of the Marine Exchange of Puget Sound and current Chair of the Puget Sound Harbor Safety Committee
- [Councilman Chad Bovechop](#), Makah Tribe
- Carol Reamer, Makah Tribe