

# NORTHWEST AQUATIC AND MARINE EDUCATORS

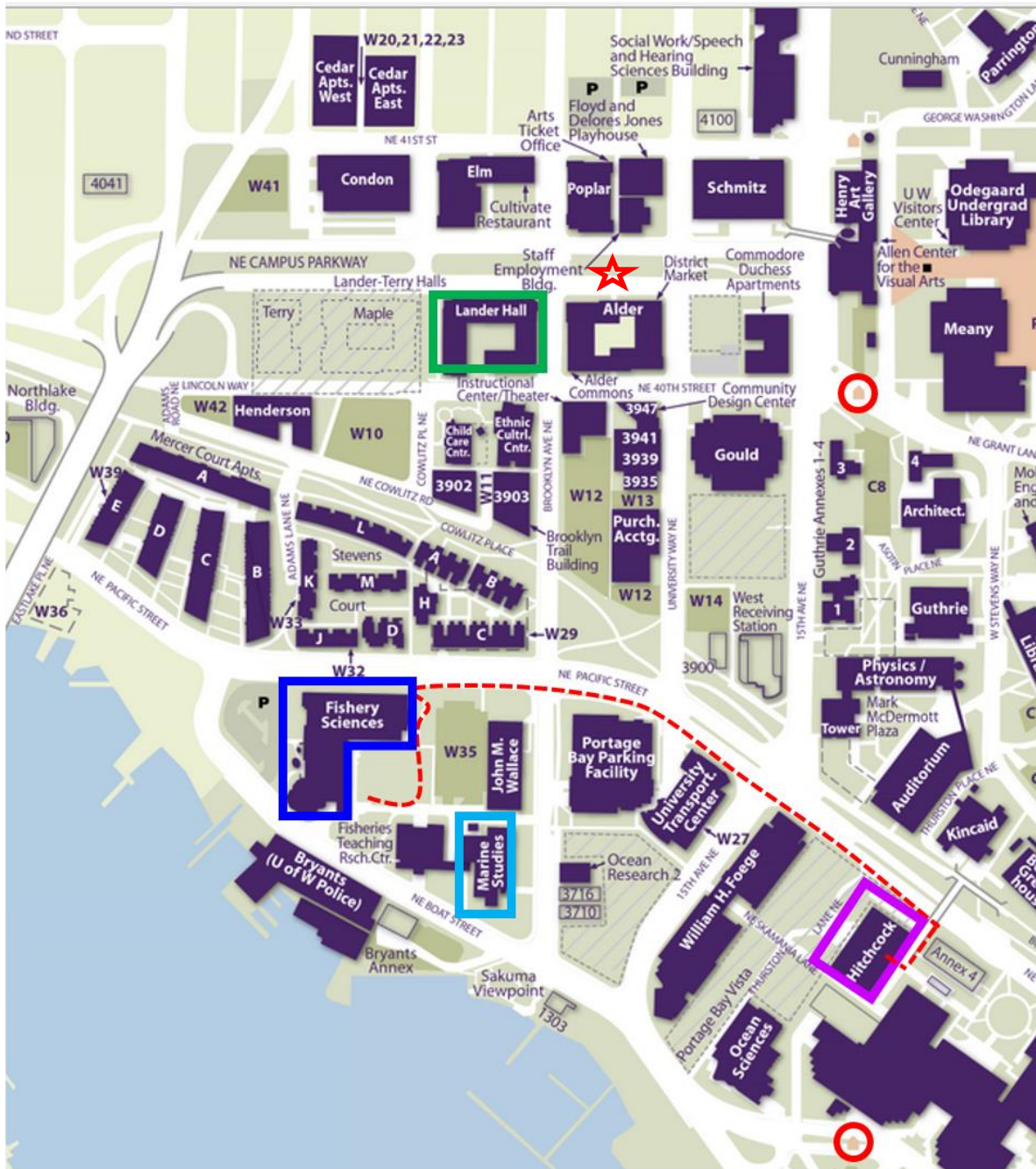
40<sup>th</sup> Annual Conference

*One Place, Many Voices*



*Celebrating Our Local Waters*

**July 20 - 24, 2015**  
**University of Washington**  
Seattle, Washington



- FSH **Fishery Sciences:** Registration, Coffee Breaks & Lunch, Concurrent Sessions (Tu, Th, Fr.), SeaFaire, Poster Session, Wed. Field Trips Meeting Spot, Th.'s Auditorium
- MAR **Marine Studies:** Tuesday Concurrent Sessions
- HCK **Hitchcock:** Tuesday's Auditorium for 9:00 am Conference Opening and Keynote
- LAH **Lander Hall:** Dorm registration
- - - **Path** to walk from FSH to HCK for Tuesday Opening and Keynote
- **Gatehouse:** drive up to buy UW Parking Passes
- ★ **Alder Hall:** Where to meet Monday Buses to/from Aquarium

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## CONFERENCE THEMES

### “ONE PLACE MANY VOICES, CELEBRATING OUR LOCAL WATERS

#### **Diversity / Connecting cultures and communities**

Do your programs reflect the diverse communities of your area? How do you address social justice and equity issues in aquatic and marine science programming? How do you make sure your class curriculum is culturally sensitive and relevant to the communities you serve? Share your tips, techniques and lessons learned for successfully connecting all learners with the aquatic world.

#### **Innovative Teaching, Research and Restoration**

Do you have a cool or new science lesson, restoration project, citizen science program, or community learning project to share? Are you incorporating the latest breaking research into your teaching or bringing specialists into your classroom? We are looking for teachers, informal educators, researchers or marine science loving citizens who want to share an innovative new idea or project they have been working on.

#### **Urban Watersheds**

Do you teach about freshwater environments or urban watersheds? How do you incorporate “calls to action” and solutions in discussions about human impacts on aquatic ecosystems? Share your knowledge and tips about freshwater programming in urban environments and how you make the connection to our one big ocean.

## NAME Conference Traditions

With forty conferences under our collective belt, we can't help but have a few traditions. If you are a first time NAME member or conference attendee (and even if you aren't), read on...

**NAME Board Meeting:** This is a gathering of NAME's leaders (at least, the elected and appointed ones). All NAME members are invited to witness leadership in action, come meet the core members of NAME, bring your suggestions, new ideas and constructive feedback.

**SeaFaire:** Consider it an idea and innovation garage sale, free of charge. Browse brochures, flyers, curriculum, and lots of free giveaways, found in FSH Room 213. The SeaFaire room will remain open for general perusing all day Tuesday, Thursday and Friday. Conference attendees and local organizations are welcome to reserve a table and show off during this event.

**Annual NAME Auction:** Always a conference highlight, the auction raises funds for NAME's mini-grant and scholarship programs. Auction items are varied and donated by members and local organizations, and you never know what will be on the table. There is both a silent and live auction. A wonderful evening of great music, food, and fun!

**Chapter Meetings:** These meetings give members of each province and state a chance to meet together and plan the upcoming year. Find out what great stuff is happening in your own backyard.

**NAME General Business Meeting:** U.S. non-profit law requires a general membership meeting once each year, and this is it. Don't miss this opportunity to learn about the latest NAME innovations, programs, and plans for the future. Be involved.

## General Conference Information

### NAME Registration/Information Desk:

Conference registration will begin at **2:00pm** on Monday, July 20th. The NAME Registration will be in the lobby of UW's Fishery Sciences Building (FSH) and will be open until 5:30pm. It will reopen on Tuesday morning at 8:00am and will remain open as needed throughout the rest of the week.

**If you are a presenter or exhibitor:** Please check in at the registration table and double check the media set up prior to speaking. Don't hesitate to ask for support if you need it.

**SeaFaire:** SeaFaire will be held in FSH Room 213. The SeaFaire room will remain open for general perusing all day Tuesday, Thursday and Friday. We encourage exhibitors to be near their tables during the Poster Session on Tuesday evening and during breaks and lunchtime Thursday so folks can ask you questions about your programs.


**Message Board:** There will be a message board at the registration/info table in the lobby of FSH if you want to coordinate rides or simply leave people messages.

**NAMEtags:** Wear'em! They are your tickets to events, food, and other cool stuff. Besides, it helps you hide the fact that you can't quite remember that person you met last year, and helps people you meet for the first time remember you next year. They are also your **free** ticket to the Aquarium through the week! NAME Conference registrants can use NAMEtags for free admission to the Seattle Aquarium July 20-July 25.

**Meals:** Coffee breaks and lunch will be provided each day of the conference. Monday's reception at the Seattle Aquarium, Tuesday's Poster Session and Wednesday's Lake Union Sunset Cruise will have appetizers and drinks available. There will be a cash bar at the Aquarium and on the Cruise. Thursday's banquet dinner is included for those registered for either the full conference or the Wed.-Fri portion of the conference. One-day registrants and guests can purchase tickets to Thursday's banquet at the registration table. For those lodging at UW, your package includes a "husky card" with a predetermined dollar amount to help cover the costs of additional meals and can be used in UW cafeterias and associated vendors (please see your lodging confirmation for more details). Food may also be purchased with cash or credit card in any of the UW dining facilities.

**Field Trips:** If you have signed up for a field trip, please confirm your slot when you check in at the registration table and check for departure time and carpool/transportation information.

**Beverage Cup/Water Bottle:** We are dedicated to the Green Conference philosophy. We have made the decision to avoid providing water bottles and only a few beverage cups for breaks and the like. Please, don't forget to **carry your own cup and water bottle with you.**

 **University of Washington:** UW NetID: event1000 Password: SWYA=BTEU=SFUA  
UW NetID: event0983 Password: 65mA;39cX;49sP



## Special Thanks to our Conference Planning Committee

The following people put in countless hours to coordinate everything that made this conference a success: speakers, field trips, presentations, lodging, food, the auction and dance, registration, and all the other details that often go unnoticed.

Amy Sprenger, NAME Washington Co-Director & Conference Co-Chair  
Maile Sullivan, NAME Washington Co-Director & Conference Co-Chair  
Giovannina Souers, NAME President, Sessions Coordinator  
Jennifer Magnusson, NAME Webmaster & Conference Registrar  
Casey Ralston, President-Elect, Sessions & Field Trip Coordinator  
Woody Moses, Social Committee Chair

Leihla Scharlau  
Orlay Johnson  
Cara Ianni  
Fawn Custer  
Jennifer Howell

Suzi Wong Swint  
Alan Rammer  
Susan Bullerdick  
Joy Tally  
Jennifer Magnusson

Peggy Foreman  
Julie Hahn  
Glen Alexander  
Bea Wilson  
Chelsea Kahn

## About Northwest Aquatic & Marine Educators

NAME was founded in 1976 and became a chapter of the **National Marine Educators Association** in 1980. In the early 1990s NAME expanded its mission and membership to include all aquatic environments, recognizing that marine and aquatic ecosystems, environments, and issues are linked together, and that educators working in both environments share common beliefs and strategies. NAME includes members from Alaska, British Columbia, Washington, and Oregon. Annual NAME conferences rotate through these states and provinces. In addition, each state or province offers local professional development opportunities for formal and non-formal educators.

### NAME is a “family” of educators who believe:

- Every human on earth should be water-literate
- Using the allure of water enriches and facilitates learning
- Sharing our knowledge and experience with others creates a community of informed stewards

NAME has an innovative and energetic Board of Directors guided by dedicated members from Alaska, British Columbia, Washington and Oregon to fulfill our mission and goals.

### Our Goals

- Encourage professional growth by offering quality workshops, conferences, field experiences, and in-service opportunities in the Pacific Northwest
- Share information and education materials focused on marine and aquatic environments and issues
- Support a growing network of NAME educators who reflect the diverse communities of the Pacific Northwest



# 2014-2015 Northwest Aquatic & Marine Educators Leadership

## Board of Directors

Giovannina Souers, President, WA  
Joy Tally, Past-President, OR  
Casey Ralston, President-elect, WA  
Amy Cole, Secretary, WA  
Rob Coats, Treasurer, OR  
Bill Hanshumaker, NMEA Rep, OR  
Marilyn Sigman, Alaska Director  
Sarah Board, British Columbia Co-director  
Claire Vial, British Columbia Co-director  
Jenna Kulluson, Oregon Director  
Amy Sprenger, Washington Co-Director  
Maile Sullivan, Washington Co-Director

## Committee Chairs

Gretchen Glaub, Membership Chair, WA  
Pat Willis, Awards Chair, OR  
Fawn Custer, Grants/Scholarships Chair, OR  
Orlay Johnson, Communications Co-chair, WA  
Joy Tally, Communications Co-chair, OR  
Jenna Kulluson, Flashmail Chair, OR  
Jennifer Magnusson, Webmaster, BC



## Major Sponsors



## Conference at a Glance

### Monday, July 20

8:00 am	Pre-Conference Workshop Registration Opens
8:30 am–3:00 pm	NAME Board Meeting
9:00 am–4:00 pm	Pre-Conference Workshop
6:30 –9:30 pm	Seattle Aquarium Welcome Reception

### Tuesday, July 21

8:00 am–8:45 am	Registration Opens (please allow time to walk to Hitchcock)
9:00 am	Welcome: <i>Giovannina Souers</i> : NAME President; <i>Maile Sullivan &amp; Amy Sprenger</i> : WA NAME co-Directors
9:30 am	Opening Speaker: <i>Julia Parrish</i> : School of Aquatic & Fishery Sciences, UW
11:00 –11:45 am	Concurrent Session A
12:00 pm	Lunch
1:00 –1:45 pm	Concurrent Session B
2:00 –2:45 pm	Concurrent Session C
3:00 –3:45 pm	Concurrent Session D
4:00 –6:00 pm	Poster Session and SeaFaire

### Wednesday, July 22

7:30 am	Registration Opens
7:45 am–4:00 pm	Field trips
6:00 –9:30 pm	Lake Union Sunset Cruise

### Thursday, July 23

8:00 am	Registration Opens
9:00 –10:30 am	Welcome and 40 Years of NAME Panel; NAME General Meeting
11:00 –11:45am	Speaker: <i>Jan Newton</i> , University of Washington Applied Physics Laboratory
12:00 –1:00 pm	Lunch and SeaFaire
1:00 –1:45 pm	Concurrent Session E
2:00 –2:45 pm	Concurrent Session F
3:00 –3:45 pm	Concurrent Session G
4:00 –4:30 pm	NAME Chapter Meetings
6:00 –10:30 pm	NAME Banquet and Auction

### Friday, July 24

8:30 am	Registration Opens
9:00 am	Welcome
9:30 –10:15 am	Concurrent Session H
10:30 –11:15 am	Concurrent Session I
11:30 –12:15 pm	Concurrent Session J
12:15 –1:00 pm	Lunch
1:00 –1:30 pm	Closing Ceremony
2:00 pm	Conference Tear Down




# Conference Details

## Monday, July 20

8:00 am	<p>NAME Board Meeting (FSH 213)</p> <p>The NAME Board of Directors will meet on the second floor of the Fishery Sciences Building (FSH). Board meetings are open to any NAME member who would like to sit in and hear what's happening in the organization at the grass-roots level!</p>	
9:00 am –4:00 pm	<p>Pre-Conference Workshop <b>Introductory National Network for Ocean and Climate Change (NNOCCI) Workshop</b></p>	
5:45 pm	<p>Buses to the Seattle Aquarium will pick up participants in front of Alder Hall, 1315 NE Campus Parkway</p>	
6:30 -9:30 pm	<p>Reception at the Seattle Aquarium</p>	

## Tuesday, July 21

8:00 am-8:45 am	<p>Registration Opens (FSH Lobby)</p> <ul style="list-style-type: none"><li>✦ Please bring in your Auction items to drop off</li><li>✦ Pick up map, program, field trip check-in, SeaFaire set up</li><li>✦ Message Board Available</li></ul>	
9:00 am–10:30 am	<p>Conference Opening/Welcome (Hitchcock Auditorium, HCK 132)</p> <ul style="list-style-type: none"><li>✦ <b>Hitchcock is a 10-minute walk from registration!</b></li></ul> <p>Opening Speaker: <b>Dr. Julia Parrish</b>, Professor/Associate Dean, Aquatic and Fishery Sciences, College of the Environment, University of Washington</p> <p><b>Coastal (Citizen) Science: Access, Agency, and Conservation Impact</b></p> <p>Julia K. Parrish is a Lowell A. and Frankie L. Wakefield Professor of Ocean Fishery Sciences at the University of Washington, where she also serves as Associate Dean for Academic Affairs in the College of the Environment. For more than 25 years, Julia has conducted field research on seabirds, focused on the natural and human-caused factors causing population decline. She is also the Executive Director of the Coastal Observation and Seabird Survey</p>	

Team (COASST), a citizen science program involving over 800 participants collecting monthly data on the identity and abundance of beach-cast birds, with the goal of creating the definitive baseline against which the impacts of any near-shore catastrophe could be measured, from an oil spill to an algal bloom. In 2013, Julia was recognized by The White House Office of Science Technology Policy as a Champion of Change for her work in STEM outreach, and particularly in citizen science.

10:30 am

Coffee Break (FSH Lobby) and SeaFaire Opens (FSH 213)

11:00 –11:45 am

### **Concurrent Session A**

★ **Reflective Storytelling as a Model for Environmental Education** (FSH 203)

*Kay Shoemaker*, University of Alaska Fairbanks

*Jennifer Howell*, University of Alaska Anchorage

★ **Beyond education... ACTIONS for Puget Sound** (MAR 168)

*Cara Ianni*, NAME member

*Suzi Wong Swint*, Snohomish County Surface Water Management

★ **Laaqudax, the Northern Fur Seal: an integrated curriculum for Alaska schools** (MAR 268)

*Lisa Hiruki-Raring*, NOAA Alaska Fisheries Science Center

*Pamela Goddard*, NOAA Alaska Fisheries Science Center

12:00 –12:45 pm

Lunch (FSH Lobby)

1:00 –1:45 pm

### **Concurrent Session B**

★ **So You Want Diversity?** (FSH 203)

*Kimberly Sirena Gonzalez*, Seattle Aquarium

*Michelle Piñon*, Puget Soundkeeper Alliance

*Sapna Sopori*, IslandWood

Moderator: *Ron Harris-White*, Antioch

★ **Storm Water Pathways** (MAR 168)

*Joy Tally*, South Slough NERR

*Jenna Kulluson*, Oregon Coast Education Program

★ **Don't Drip and Drive - A social marketing campaign for a big pollution topic!** (MAR 268)

*Heather Trim*, Futurewise

*Tiffany O'Dell*, Pierce County Public Works & Utilities

*Justine Ashombom*, Washington State Department of Ecology

*Mary Rouborn*, King County

1:45 pm

Coffee Break (FSH Lobby)

2:00 –2:45 pm

### **Concurrent Session C**

★ **Ocean Education for a Crowded World** (FSH 203)

*Lois Sherwood*, Port Townsend High School

- ★ **“I Want to Be A Marine Biologist When I Grow Up”–Prepare Your Students to Turn Childhood Dreams into College & Career Success** (MAR 168)  
*Christen Foehring, College of the Environment, University of Washington*  
*Joe Kobayashi, Marine Biology, University of Washington*

- ★ **Blending Sociology and Environmental Science at a Community College** (Mar 268)  
*Woody Moses, Highline College*  
*Dr. Darryl Brice, Highline College*

3:00 pm–3:45 pm

**Concurrent Session D**

- ★ **Open ROV Expeditions with the Environmental Science Center** (FSH 203)  
*Christine Froschl, Environmental Science Center*  
*Laura James, OpenROV Ambassador*  
*Tom Mickel, Environmental Science Center*

- ★ **Tours of UW Oceanography’s Seaglider Fabrication Center & ARGO Float Lab** (meet @ FSH Lobby)  
*Greg Brusseau, ARGO Float Group, UW Oceanography*  
*Fritz Stahr, Seaglider Fabrication Center, UW Oceanography*

- ★ **Understanding the Multicultural Communities Perspective of Marine/ Aquatic Resources When Sharing Critical Agency Messages** (MAR 168)  
*Alan Rammer*

4:00 pm–6:00 pm

**Poster Session and Reception** (FSH Lobby)

This year WA Sea Grant, NANOOS and NOAA are hosting a poster session as a way to share research, citizen science projects and resources that have a watershed, marine, ocean science or learning science focus. This session will provide an opportunity for conference attendees to learn more about current projects and to talk directly with researchers, citizen scientists and educators.

**Wednesday July 23**

7:30 am–10:00 am

Pick Up Sack Lunches (FSH Lobby)

7:45 am–4:00 pm

Field Trips

- ★ **IslandWood “School in the Woods” and Urban Programs**
- ★ **Hibulb Cultural Center: Blending Traditional Knowledge and Western Science**
- ★ **Kayak Tour of Duwamish River and Superfund Clean Up**
- ★ **University of Washington Lab Tour Adventure \***

*\* Could combine with Ballard Locks Trip*



★ **Ballard Locks Tour and Salmon Viewing \*\***

*\*\* Could combine with UW Fish Collection Tour*

6:00 –9:30 pm

**Lake Union Sunset Cruise**  
(Waterfront Activities Center)  
*Purchase extra tickets at  
Registration*

A relaxing sunset cruise through the waterways of Seattle and Lake Washington. Led by experienced guides, you'll learn about the cultural and natural history of this part of the Emerald City. Appetizers will be provided. Drinks available for purchase.



**Thursday, July 23**

8:00 -8:45 am

Registration Opens (FSH Lobby)

- ★ Please bring in your Auction items to drop off
- ★ Pick up map, program, field trip check-in, SeaFaire set up
- ★ Message Board Available

9:00 –10:30 am

Welcome and NAME General Meeting  
**40 Years of NAME Panel** (FSH 102)

This year marks the 40<sup>th</sup> Anniversary of NAME! A panel of NAMERs from over the years will share stories from NAME and reflect on where NAME can go in the future. Following the panel we will have our Annual General Meeting.

10:30 am

Coffee Break (FSH Lobby)

11:00 -11:45 am

Keynote Speaker: **Dr. Jan Newton**, Applied Physics Lab & College of the Environment, University of Washington

**Observing Ocean Acidification, from Local to Global**

Dr. Jan Newton is a Senior Principal Oceanographer with the Applied Physics Laboratory of the University of Washington and affiliate faculty with the UW School of Oceanography and the School of Marine and Environmental Affairs, both in the UW College of the Environment. She is the Executive Director of the Northwest Association of Networked Ocean Observing Systems (NANOOS), the US IOOS Regional Association for the Pacific Northwest. Jan is a biological oceanographer who has studied the physical, chemical, and biological dynamics of Puget Sound and coastal Washington, including understanding effects from climate and humans on water properties. Currently she has been working



with colleagues at UW and NOAA to assess the status of ocean acidification in our local waters.

12:00 –1:00 pm

Lunch and SeaFaire (FSH Lobby and FSH 213)

1:00–1:45 pm

### Concurrent Session E

- ✦ **Watershed to Whitecaps - An interactive field guide** (FSH 203)  
*John Williams, SEA-Media*
- ✦ **Seasonal Swings in Estuaries** (FSH 107)  
*Joy Tally, South Slough NERR (Classroom Building – Center)*
- ✦ **Student engagement in authentic, boat-based research at the Ocean Research College Academy** (FSH 108)  
*Ardi Kveven, Ocean Research College Academy*

2:00–2:45 pm

### Concurrent Session F

- ✦ **Science, safety, and our shared aquatic resources: a new socio-ecological education program from Oregon State Marine Board** (FSH 203)  
*Sara Shaw-Roberts, Oregon State Marine Board*
- ✦ **Why is communicating about aquatic science often so difficult? Some lessons learned, best practices and the future of communications** (FSH 107)  
*Orlay Johnson, NOAA-NWFSC and Seattle Aquarium*  
*Jim Wharton, Seattle Aquarium*  
*Janice Mathisen, Seattle Aquarium*  
*Heather Galindo, COMPASS*  
*Eric Scigliano, Washington Sea Grant*  
*Sally James, seattlesciencewriter.com*  
*Casey Ralston, NOAA-NWFSC*
- ✦ **Empowerment of Salishan Youth in Restoration of the First Creek Watershed** (FSH 108)  
*Joshua Christy, Junior Youth Empowerment Program*

2:45 pm

Coffee Break (FSH Lobby)

3:00–3:45 pm

### Concurrent Session G

- ✦ **Sea Lion CSI** (FSH108)  
*Julie Tennis, Place-Based Education Consultant, Julie Tennis LLC*
- ✦ **Can Music Be Considered an educational tool?** (FSH 203)  
*Douglas Palenhus, WA Dept. of Ecology*  
*Sharon Abreu, Irthlingz Arts-Based Environmental Education*

4:00-4:30 pm

NAME Chapter Meetings

- ✦ Alaska (FSH 106)                      British Columbia (FSH 109)
- ✦ Washington (FSH 203)              Oregon (FSH 107)



6:00 –10:30 pm

## **Banquet and Auction at Center for Urban Horticulture (CUH)**

*Northwest Horticultural Society Hall*

- ★ *CUH is a 30-45 minute walk past Husky Stadium and through Union Bay Natural Area from FSH. Free Parking is available at CUH.*

Join us! The **NAME Auction** is always a conference highlight; the silent and live auctions raise funds for NAME's mini-grant and scholarship programs. Auction items are varied and donated by members and local organizations - you never know what will be on the table! Join us for a lively dance with music and karaoke after the auction.



## **Friday, July 24**

8:30 am

Registration available (FSH Lobby)

9:00 –9:15 am

Welcome (FSH 102)

9:30 -10:15 am

### **Concurrent Session H**

- ★ **Aliens Amongst Us - Easy ways to interest kids in science, biology and evolution through the amazing life of Cephalopods.** (FSH 203)  
*Orlay Johnson, NOAA NW Fisheries Science Center (Retired) & Seattle Aquarium Beach Naturalist*  
*Followed by:*
- ★ **Nudibranchs of the MaST Center: A Snapshot of Opisthobranchs in Puget Sound** (FSH 203)  
*Eugene Disney, Marine Science and Technology (MaST) Center*
- ★ **Introduction to the National Network for Ocean and Climate Change Interpretation (NNOCCI)** (FSH 107)  
*Nicole Killebrew, Seattle Aquarium*  
*Katie Hart, Seattle Aquarium*
- ★ **In Pursuit Of Forage Fish: Little Fish With Big Impact** (FSH 108)  
*Leihla Scharlau, Mid Sound Fisheries Enhancement Group*

10:15 am

Coffee Break (FSH Lobby)

10:30–11:15 am

### **Concurrent Session I**

- ★ **How quiet is the ocean?** (FSH 107)  
*Dr. Bill Hanshumaker, Oregon Sea Grant, Oregon State University/Hatfield Marine Science Center*  
*Followed by:*

- ✦ **Nisqually Delta Restoration Puzzle (FSH 107)**  
*Lucia Harrison, Evergreen State College*
- ✦ **An Introduction to the River Mile (FSH 108)**  
*Janice Elvidge, NPS Lake Roosevelt National Recreation Area*
- ✦ **Simple ocean acidification demos you can do (almost) anywhere with (almost) no budget (FSH 203)**  
*Meg Chadsey, WA Sea Grant*

11:30-12:15

**Concurrent Session J**

- ✦ **Washington's Maritime Workforce Initiative: Challenges and Opportunities for Educators (FSH 107)**  
*Penny Dalton, WA Sea Grant*  
*Ann Avary, Center of Excellence for Marine Manufacturing and Technology*  
*Betsy Davis, Northwest School of Wooden Boat Building*  
*Debbie Granger, Working Waterfront Coalition of Whatcom County*
- ✦ **Bay CoastWatch-Volunteers of All Ages Involved in Citizen Science (FSH 108)**  
*Fawn Custer, Coastwatch - Oregon Shores*

12:15-1:00

Lunch

1:15-2:00

Conference Closing



## Pre-Conference Workshop

**Monday 9:00 am – 4:00 pm (FSH 203)**

### **Introductory National Network for Ocean and Climate Change (NNOCCI) Workshop**

*Nicole Killebrew and Katie Hart, Seattle Aquarium*

Global climate change and ocean acidification are among the primary environmental challenges of our time. The National Network for Ocean and Climate Change Interpretation (NNOCCI) is trying to address these challenges with a goal to change the national discourse around climate change to be productive, creative and solutions focused. We are using a capacity-building approach that draws on social sciences as well as climate and ocean sciences and the skills of professional educators from informal science education centers.

NNOCCI is led by New England Aquarium in partnership with the Association of Zoos and Aquariums, the Woods Hole Oceanographic Institution, FrameWorks Institute, National Aquarium, Monterey Bay Aquarium, New Knowledge Organization, Penn State University and the Center of Science and Industry. Our work is funded by the National Science Foundation. We think training professional interpreters to use strategic framing can create opportunities for meaningful learning about climate change through conversations with visitors, students and other public audiences. As effective messengers, we can tell a trusted and coherent story about global climate change and invite thinking about community and civic solutions that we can all participate in.

This one-day workshop will include a review of some core components of climate science including mechanisms of warming temperatures, sea level rise and ocean acidification, and changing weather patterns. The majority of the day will be used to explore strategic framing – a research based structure for communicating about complex issues. Strategic framing uses values to explain why the issue matters, carefully selected metaphors to explain how the problem works and points toward actionable solutions that convey a sense of hope and empowerment. Small group activities and individual exercises will provide opportunities for practice throughout the workshop. Finally, we will provide concrete examples of what this looks like in action with time for participants to try framing a conversation as a team.

The focus of the work with NNOCCI has been on oceans and climate change. The tested principles of strategic framing can help anyone who is grappling with teaching and interpreting complex and controversial subject matter. By reflecting with colleagues and sharing stories of success, we are able to sustain the emotional and mental fatigue that can come with communicating such challenging topics.

#### **Learning Objectives:**

- Introduce participants to elements of strategic framing – a research-based approach to communications that helps to engage audiences in thinking productively about how they can participate in creating or supporting solutions to important issues of our time.
- Explain how strategic framing elements, when put together, tell a story about climate change that can help communicators to engage audiences in positive ways, by overcoming traditional barriers and cuing people to think productively about solutions.
- Teach participants some framing tools using values, metaphors, solutions and causal chains and provide opportunities to practice applying ideas.



# Concurrent Sessions Abstracts

## Tuesday Session A (11:00 am – 11:45 am)

### 1 - Reflective Storytelling as a Model for Environmental Education

*Kay Shoemaker*, University of Alaska, Fairbanks

*Jennifer Howell*, University of Alaska, Anchorage

Get hands-on experience on how to create Reflective Storytelling programs with the author of "Exploring Ecology in Alaska: Reflective Storytelling as a Model of Environmental Education". This workshop will explore an activity that focuses on salmon ecology and watersheds. Each participant will enter into the story of the salmon's habitat, its life cycle, and the predators and human impact that challenges its survival. This environmental education model has had demonstrated success for over 50,000 outdoor school students and educators. Receive a lesson plan, story map, and other handouts on Reflective Storytelling and its ties to Traditional Ecological Knowledge. Come prepared to laugh, to learn, and to share in an adventure! (FSH 203)

### 2 - Beyond education... ACTIONS for Puget Sound

*Cara Ianni*, NAME member

*Suzi Wong Swint*, Snohomish County Surface Water Management

Join us for an around-the-Sound tour of three projects addressing behaviors that affect the health of aquatic ecosystems: planting riparian trees, reducing residential pesticide use and releasing undersized crabs (when crabbing). Each program has conducted research on their target audience to first determine the best methods and messages, and then use the results to create, implement and test an outreach plan. We will share highlights from each program, including results of their audience research, example outreach materials, and tips for designing YOUR outreach programs to best motivate behavior change. (This presentation is 60 min.) (MAR 168)

### 3 - Laaqu dax, the Northern Fur Seal: an integrated curriculum for Alaska schools

*Lisa Hiruki-Raring*, NOAA Alaska Fisheries Science Center

*Pamela Goddard*, NOAA Alaska Fisheries Science Center

The northern fur seal is critical to the culture and history of the Unangan/Unangas (Aleut people), as well as to the history of Alaska. This curriculum integrates northern fur seal natural history with the fur seal's role in Unangan culture and history, and includes recent and historical research and conservation efforts in NOAA's management of the fur seal population. The six-lesson elementary school unit (K-6) includes hands-on activities ranging across science, math, reading, writing, geography, technology, and art. The eight-lesson middle school/high school unit (7-12) includes topics covered in the K-6 unit, as well as additional lessons that cover population dynamics, history, and civics. NOAA and Thalassa Education developed the curriculum in partnership with the Pribilof School District, the Aleut Community of St. Paul Island-Tribal Government, and the Central Bering Sea Fishermen's Association. (MAR 268)



## Tuesday Session B (1:00 pm – 1:45 pm)

### 4 - Storm Water Pathways

*Joy Tally, South Slough NERR*

*Jenna Kulluson, Oregon Coast Education Program*

Follow the path of your Storm Water! Presented by the Oregon Coast Education Program (OCEP) this presentation will connect you with OCEP resources through the exploration of the Storm-water Pathways topic guide. We will show you how to investigate watersheds through place-based field experiences, connect activities to Next Generation Science Standards, and generate ideas for student led stewardship projects. (MAR 168)

### 5 - Don't Drip and Drive - A social marketing campaign for a big pollution topic!

*Heather Trim, Futurewise*

*Tiffany O'Dell, Pierce County Public Works & Utilities*

*Justine Ashombom, Washington State Department of Ecology*

*Mary Rouborn, King County*

Leaks of oil and other fluids from cars in the Puget Sound region run in stormwater into our waterways - and add up to the equivalent of an average of a tanker truck a day! How do you change the norm and motivate car owners to actually fix those leaks? The barriers are large – fixing leaks can be expensive, people are worried that auto shops might be trying to upsell them, and it is a hassle to get leaks fixed. Come find out how Don't Drip and Drive has tackled these thorny issues with creative messaging, financial incentives and cool new approaches. (MAR 268)

### 6 - So You Want Diversity?

*Kimberly Sirena Gonzalez, Seattle Aquarium*

*Michelle Piñon, Puget Soundkeeper Alliance*

*Sapna Sopori, IslandWood*

Moderator: *Ron Harris-White, Antioch*

Many organizations are beginning to realize the value of diversity in the workplace. Some express frustrations finding and retaining candidates. Meet four marine and aquatic educators of color, and hear about their personal struggles in the world of conservation education. How can you help shift your program's culture so that it reflects the world at large? Bring your questions; there will be an opportunity for dialogue. (FSH 203)

## Tuesday Session C (2:00 pm – 2:45 pm)

### 7 - Ocean Education for a Crowded World

*Lois Sherwood, Port Townsend High School*

Our world population of 7 billion and growing has affected our ocean ecosystems in many ways from overfishing and pollution to acidification and climate change. In this hands-on/minds-on workshop, engage in interdisciplinary activities to explore global population trends and human

interactions with our blue planet over the past 500 years and the future challenges for sustainable marine stewardship. Receive activity scripts and background reading on CD-ROM. (FSH 203)

## **8 - “I Want to Be A Marine Biologist When I Grow Up” – Prepare Your Students to Turn Childhood Dreams into College & Career Success**

*Christen Foehring*, College of the Environment, University of Washington

*Joe Kobayashi*, Marine Biology, University of Washington

"As the marine biology adviser at the University of Washington, my voicemail and email inbox filled daily with messages from eager students ages 5 to 75 asking the same question – how do I become a marine biologist when I grow up? In this session, we will share secrets for success from a college marine and environmental science advising perspective. We will address ways to support your students' interest in marine science and help them prepare to pursue a college degree in a related field.

Attendees will come away with an understanding of:

- Required and recommended preparation for high school students interested in pursuing a degree or career in marine science
- A “toolbox” of resources for helping your students explore marine science careers & opportunities (MAR 168)

## **9 - Blending Sociology and Environmental Science at a Community College**

*Woody Moses*, Highline College

*Dr. Darryl Brice*, Highline College

In this class Dr. Darryl Brice and Woody Moses co-teach a coordinated study combining Sociology and Environmental Science 101. The course explores the foundations and intricacies of the everyday world, forcing students to confront their preconceptions and deal with uncomfortable and controversial issues. (MAR 268)

## **Tuesday Session D (3:00 pm – 3:45 pm)**

### **10 - Open ROV Expeditions with the Environmental Science Center**

*Christine Froschl*, Environmental Science Center

*Laura James*, OpenROV Ambassador

*Tom Mickel*, Environmental Science Center

Seahurst Park is home to the largest shoreline restoration project in Puget Sound. It is the ESC's vision to see this significant achievement serve as a catalyst for future projects involving the local community. ESC is collaborating with Laura James and AVID students from Highline High School to build and utilize an OpenROV. This underwater robot will serve as a tool to monitor the amazing changes that occur to the nearshore environment when shoreline is restored. Engaging and empowering young minds in the Burien community will create future leaders in environmental stewardship. (FSH 203)



## **11 - Tours of UW Oceanography's Seaglider Fabrication Center & ARGO Float Lab**

*Greg Brusseau, ARGO Float Group, UW Oceanography*

*Fritz Stahr, Seaglider Fabrication Center, UW Oceanography*

Oceanographers are able to gather continuous data about the ocean's temperature, salinity, and other characteristics at a variety of depths and locations around the world all without leaving the warm, dry comforts of their labs in Seattle! Despite what we might think, these scientists are not magical entities with superpowers that allow them to be in many places at once. In fact, they just have really cool toys! The Seaglider & ARGO Float teams at UW's School of Oceanography have built and deployed a fleet of high tech autonomous underwater vehicles (AUV's) which can collect ocean data from a vast range and then transmit the data via satellite back to eager researchers and students on land! Join us for a tour of the lab where these amazing Seagliders & ARGO Floats come to "life". Dive into an exploration of the intersection of engineering, technology, and ocean science! Learn how these tools are built, how they work, and what they teach us about (meet at FSH Lobby)

## **12 - Understanding the Multicultural Communities Perspective of Marine/Aquatic Resources When Sharing Critical Agency Messages**

*Alan Rammer*

In the late 80's, a new wave of immigrants from the Asian-Pacific Island (API) countries began arriving in the Pacific NW. At about the same time reports began coming into natural resource agency enforcement divisions about an increasing number of citations being given to members of these communities as well as increasing numbers of marine-related illnesses being reported from hospitals surrounding these same communities. In 1996, I began reaching out to 27 agencies serving these communities in the greater Puget Sound region to try and establish why this was happening. Only two agencies however were willing to work with me. Thus began a very difficult and extremely heart-warming journey over the next 13 years as I not only enlightened and empowered the six API communities I was serving but I also learned and became embraced by the communities I was partnering with in order to develop the award winning program that became known and recognized nationally as "Marine Resources For Future Generations". (MAR 268)

## **Thursday Session E (1:00 pm - 1:45pm)**

### **13 - Watershed to Whitecaps - An interactive field guide**

*John Williams, SEA-Media*

Come try out a prototype of a cutting edge field guide on mobile devices (smart phones and tablets) that you can use when you (or your students) go to the beach, or are in their boat, SCUBA diving, or whatever. It will incorporate things that books and laminated sheets can't do, like show behavior (via movies), show interactions within the ecosystem, connect to social media and citizen science projects, and link to a plethora of cultural interpretations such as tribal stories, art, poetry, etc. And, drumroll...., when you're on the beach looking at stuff and you want to know

more, you don't have to be glued to your phone to read about it, it can read to you while you're looking at the real thing! (FSH 203)

#### **14 - Seasonal Swings in Estuaries**

*Joy Tally, South Slough NERR*

Learn about the Estuaries 101 curriculum from the National Estuarine Research Reserve System. Designed for middle and high school students and teachers to explore both local and national estuaries, this interactive, online curriculum brings the estuary to your classroom. This session will focus on the use of water quality to understand seasonal swings in the estuary and the importance of water quality to the organisms of the estuary. (FSH 107)

#### **15 - Student engagement in authentic, boat-based research at the Ocean Research College Academy**

*Ardi Kveven, Ocean Research College Academy*

The Ocean Research College Academy is a magnet, running start program at Everett Community College utilizing high impact educational practices which include cohorts of students working collaboratively on capstone research projects. The cornerstone project we established is called the State of Possession Sound (SOPS), which involves 50 students annually monitoring the health of an estuary 30 miles north of Seattle. Students collect bio-geo-chemical data and then analyze and interpret this data. What started as a plan to integrate introduction to oceanography content with statistics coursework has evolved into a massive multi-year project, generating sharable data on topics including counts and distribution of marine mammals and seabirds, water-chemistry metrics, water-quality data, nutrient concentrations, levels and distribution of sediment and heavy metals, and river flow and tide interactions coupled with plankton sampling. The success of the SOPS project is evident through student evaluations as well as resulting publications, two direct National Science Foundation (NSF) grants, and a partnership NSF grant from the Community College Undergraduate Research Initiative (CCURI). (FSH 108)

### **Thursday Session F (2:00 pm – 2:45 pm)**

#### **16 - Science, safety, and our shared aquatic resources: a new socio-ecological education program from Oregon State Marine Board**

*Sara Shaw-Roberts, Oregon State Marine Board*

What do educators, scientists, boaters, and students have in common? We all need healthy and usable waterways. A new K-12 curriculum integrates STEM concepts, Common Core and Next Generation Science Standards, and transdisciplinary learning to enrich student aquatic literacy. Concepts of boating and water safety are related to physics, math, engineering, ecology, and social studies for a broader understanding of how students can help improve water quality and responsibly enjoy their aquatic resources. Learn how you can implement these free lesson plans in your classroom, and try a few of them yourself! Participants will have the opportunity to test three hands-on activities suitable for multiple age groups: buoyancy and the physics of life jackets;



engineering clean-up solutions for a simulated oil spill; and a “town hall meeting” between stakeholders to tackle a challenging river management issue. (FSH 203)

### **17 - Why is communicating about aquatic science often so difficult? Some lessons learned, best practices and the future of communications**

*Orlay Johnson*, NOAA-NWFSC and Seattle Aquarium

*Jim Wharton*, Seattle Aquarium

*Janice Mathisen*, Seattle Aquarium

*Heather Galindo*, COMPASS - University of Washington

*Eric Scigliano*, Washington Sea Grant

*Sally James*, [seattlesciencewriter.com](http://seattlesciencewriter.com)

*Casey Ralston*, NOAA-NWFSC

How do the many voices of NAME (teachers, scientists, journalists, interpreters - all of us) effectively communicate scientific info about the aquatic world? It should be easy, we have a vast array of communications tools from scientific journals to the latest online apps, yet often our message falls horribly flat or is just rejected. The answer to effective communications does not seem to be a simple one: A scientist sharing a new paper on Twitter can increase exposure among research colleagues, but does it ensure the data and conclusions end up in the hands of a classroom educators or students? How can a teacher effectively pass that information on to students if they don't get the information or it is poorly transmitted? This session will bring together speakers from education, academia, aquariums, marine centers, journalism, and government to discuss communication strategies that work and don't work, and how to measure whether these strategies are successful. Orlay and Casey will moderate this session with 6 panel speakers discussing communication techniques. (This session is 90 min.) (FSH 107)

### **18 - Empowerment of Salishan Youth in Restoration of the First Creek Watershed**

*Joshua Christy*, Junior Youth Empowerment Program

The First Creek Watershed In Tacoma, Washington has been a focus of restoration efforts by local organizations, NGO's, and the city of Tacoma. The watershed is located next to a diverse, mixed income neighborhood known as Salishan. While there have been some efforts to engage this population in the restoration projects, results have been minimal. The potential for greater participation from this diverse population is clear. This poster describes a camp organized by the Junior Youth Spiritual Empowerment Program which was able to engage a diverse group of middle-school and high-school aged youth in caring for the watershed. (FSH 108)

## **Thursday Session G (3:00 pm – 3:45 pm)**

### **19 - Sea Lion CSI**

*Julie Tennis*, Place-Based Education Consultant, Julie Tennis LLC

"Sea Lion CSI" is a hands-on program highlighting the investigative aspect of the Marine Mammal Stranding Network. In this workshop, participants will work in small groups performing

mock necropsies on 1/8-size sea lion models. Groups record their findings on data sheets and use that data to construct an explanation for their animal's cause of death. Each group presents their findings then uses a key to determine the most likely cause of death of each model. While actual necropsies are rarely so cut and dried, this Three-Dimensional Learning activity helps students understand some of the challenges faced by marine mammals in a coastal environment. (FSH 108)

## **20 - Can music be considered an educational tool?**

*Douglas Palenshus*, WA Dept. of Ecology

*Sharon Abreu*, Irthlingz Arts-Based Environmental Education

How lyrical content can become a key element to songs for environmental use. Presenters will demonstrate some examples of how the music in a song can support the lyric's ability to penetrate the conscious (and subconscious) mind. Short snippet-examples will be shared of songs that have important lyrical content. Participants will be asked to spend 10 min. penning a couple of verses of non-pedantic, potential lyrics/poetic verse, ideally aimed at the affective (vs. cognitive) side of our comprehension. Afterwards, volunteers will be asked to offer a freewill sharing of their workshop products. The session will end with each of the two professional artists playing one tune selected from the snippet examples. (FSH 203)

## **Friday Session H (9:30 am – 10:15 am)**

### **21a - Aliens Amongst Us - Easy ways to interest kids in science, biology and evolution through the amazing life of Cephalopods.**

*Orlay Johnson*, NOAA NW Fisheries Science Center (Retired) & Seattle Aquarium Beach Naturalist

Ideas will be presented on way to introduce young hominids to an alien phylum who arrived on the scene about 400 million years ago and dominated the seas for the next 200 million years. Why did they never venture onto the land? We will provide info appropriate for teaching a wide range of age groups about squids, octopuses, cuttlefish, nautili and prehistoric forms of the phylum. One way to introduce these aliens is by dissection of a market or Humboldt squid. What makes this particularly attractive is that these creatures are cheaply available at Asian markets, the dissection tools can be blunt, clean-up is easy, and it truly is an alien species whose evolution is both vastly different and remarkably similar to humans. (joint with Eugene D.) (FSH 203)

### **21b - Nudibranchs of the MaST Center: A Snapshot of Opisthobranchs in Puget Sound**

*Eugene Disney*, Marine Science and Technology (MaST) Center

Come and learn about one of the most charismatic niches of sea slugs that are found in great abundance all over the Sound. We at the Marine Science and Technology (MaST) Center have been following our internal species since October of 2013 and have been seeing some very interesting trends. This presentation will not only cover what a nudibranch is and why they are important, but also how one can use citizen science to acquire more data than you ever could alone. (FSH 203)



## **22 - Introduction to the National Network for Ocean and Climate Change Interpretation (NNOCCI)**

*Nicole Killebrew, Seattle Aquarium*

*Katie Hart, Seattle Aquarium*

A great challenge of our time is to raise hope among formal and informal science educators addressing complex topics like climate change and ocean acidification. We will introduce participants to strategic framing, a set of science-based tools to help educators initiate and facilitate conversations for understanding, hope and engagement around these local and global scale issues. (FSH 107)

## **23 - In Pursuit Of Forage Fish: Little Fish With Big Impact**

*Leihla Scharlau, Mid Sound Fisheries Enhancement Group*

Mid Sound Fisheries Enhancement Group has been conducting monthly forage fish spawning surveys at Carkeek Park in Seattle, WA under a grant from the American Fisheries Society WA-BC Chapter Small Projects grant program. Special Projects Coordinator, Leihla Scharlau, and a small group of volunteers that graduated from the recent Citizen Action Training School program have been surveying the beach once a month searching for sandlance, surf smelt, and herring eggs using a new tidal elevation protocol developed by WA Department of Fish & Wildlife (WDFW). Come learn about this new protocol, what it takes to partner with WDFW to collect real data that is admissible in court, and how you can get involved surveying a beach of your own! There will be a hands on example of the sampling protocol with ideas of how it could be modified to teach students scientific data collection techniques from the real world. (FSH 108)

## **Friday Session I (10:30 am – 11:15 am)**

### **24a - How quiet is the ocean?**

*Dr. Bill Hanshumaker, Oregon Sea Grant, Oregon State University/Hatfield Marine Science Center*

Ocean noise comes from many natural and manmade sources: wind, wave, ice, earthquakes, whales, ship props, oil exploration and military testing are some examples. But how quiet is the deep ocean? Last winter we deployed a hydrophone in the Marianas Trench to the depth of 10,904 meters. Join us to "hear" the results of this and previous hydrophone deployments. (20 min., joint with Lucia Harrison) (FSH 107)

### **24b - Nisqually Delta Restoration Puzzle**

*Lucia Harrison, Evergreen State College*

Artist Lucia Harrison will share the Nisqually Delta Restoration Puzzle she created to visualize the removal of agricultural dikes to restore a healthy productive estuary. The project is innovative because it combines art and science. (20 min., joint with Bill H.) (FSH 107)



## **25 - An Introduction to the River Mile**

*Janice Elvidge, NPS Lake Roosevelt National Recreation Area*

The River Mile is a participant driven approach to learning, researching and exploring the watershed health of the Columbia River. "This session is an introduction "The River Mile" which is a network of K-12th grade educators, students, resource managers, scientists and environmental educators in the Columbia River Watershed sharing what they know and learn about the Columbia River Watershed and share best practices, lessons learned, examples of participation, links to resources and collect real world scientific data. Students and teachers become intimately familiar with their mile by spending time in the field inventorying, monitoring, and investigating site discoveries. The River Mile will be open to the entire watershed by 2016 for the National Park Service Centennial. Professional development will be offered between now and then for people to join the network. <http://www.nps.gov/laro/forteachers/laro-river-mile.htm> (FSH 108)

## **26 - Simple ocean acidification demos you can do (almost) anywhere with (almost) no budget**

*Meg Chadsey, WA Sea Grant*

When speaking to general audiences about ocean acidification (OA), demonstrations, activities and metaphors can really help you get your take-home points across. In this presentation, Meg Chadsey, Washington Sea Grant's Ocean Acidification Specialist and liaison to NOAA Pacific Marine Environmental Laboratory, will lead us through her interactive 'OA 101' presentation, pausing throughout to explain how the activities she uses illustrate key points about the chemistry, oceanography and biological impacts of ocean acidification. The best thing about Meg's activities is that they don't require a lab bench or fancy equipment, and you can source almost all of the materials from your own kitchen. After this webinar, you'll be ready to take your own OA show on the road! (FSH 203)

## **Friday Session J (11:30 am – 12:15 pm)**

### **27 - Washington's Maritime Workforce Initiative: Challenges and Opportunities for Educators**

*Penny Dalton, WA Sea Grant*

*Ann Avary, Center of Excellence for Marine Manufacturing and Technology*

*Betsy Davis, Northwest School of Wooden Boat Building*

*Debbie Granger, Working Waterfront Coalition of Whatcom County*

Washington's maritime sector is healthy and growing, offering almost 60,000 high paying jobs in a range of occupations from boat building to fishing to military service. Because a well-trained workforce is critical to Washington's future, educators and industry leaders have established an initiative to collaboratively explore innovative, relevant programs for meeting future employment needs. Among the issues are – increasing awareness of maritime occupations and job opportunities; strengthening career pathways to those occupations; developing needed curricula and programs including teacher training; and building connections between educators



and marine industries. The panel will discuss challenges, initiatives and success stories to prepare for changing workforce needs. (FSH 107)

## **28 - CoastWatch-Volunteers of All Ages Involved in Citizen Science**

*Fawn Custer, Coastwatch - Oregon Shores*

Help your students earn their service hours and learn to be good stewards of our ocean. Give your volunteers the opportunity to get more involved with valuable research while visiting their favorite beach. These opportunities are not just for Oregonians. In this session, participants will learn of the numerous opportunities for stewardship and citizen science throughout the northwest. (FSH 108)

# Poster Session

**Tuesday 4:00 pm-6:00 pm, FSH Lobby**

**1 - Beached Marine Critters**

*Danielle Asson*

**2 - Pacific Marine National Monuments: Dynamic systems for educating the next generation of stewards.**

*Laura Nelson (WA Sea Grant)*

**3 - Community Waters**

*Brad Street & Celina Steiger (IslandWood)*

**4 - Building Connections to Local Natural Areas through Watershed Exploration and Stewardship.**

*Tonya McLean & McKenzie Miller (Lower Columbia Estuary Partnership)*

**5 - How can we use the Native Pacific Lamprey as a way to learn the significance of traditional knowledge on food systems and environmental health?**

*Kayla-Maria Martin (OR Sea Grant) & Kayla Scheafer (4-H Extension Clackamas County)*

**6 - Engaging Students in Marine Debris Efforts Utilizing a Comprehensive Integrated Science, Technology, Engineering, Arts, Mathematics, and Social Studies curriculum.**

*Tracy Crews, Cait Goodwin, & Dr. William Hanschumaker (OR Sea Grant)*

**7 - Stewardship Schools Program Makes a Splash at Myrtle Crest Elementary**

*Joy Tally (South Slough National Estuarine Research Reserve)*

**8 - Salmon Connectivity Mural**

*Esteban Camacho Steffensen*

**9 - Welcoming LGBTQ Communities into the Marine Science World.**

*Kimberly Gonzalez (Seattle Aquarium)*

**10 - Real-world education: Using NOAA data for high school curricula in Alaska.**

*Pam Goddard (Thalassa) & Lisa Hiruki-Raring, (NOAA)*

**11 - The Pribilof Island Seabird Youth Network**

*Pam Goddard (Thalassa)*

**12 - Engaging middle school students in STEM learning through real science narratives and NGSS practices.**

*Justine Berk (Seattle Aquarium)*

**13 - Monitoring the health of local beaches with high school citizen scientists**

*Nicole Ivey (Seattle Aquarium)*

**14 - Shell Dissolution of the Pteropod *L. helicina* in the Puget Sound**

*Jessamyn Johnson (Washington Ocean Acidification Center, University of WA)*



**15 - Masters of Science in Science for Teachers Program**

*Tansy Clay Burns (University of WA)*

**16 - NANOOS education and outreach program: engaging educators and students in ocean observing**

*Rachel Vander Giessen and Amy Sprenger (NANOOS, Applied Physics Lab, University of WA)*

**17 - Observing Buoys by Students (OBS): An Authentic STEM Field Investigation**

*Amy Sprenger (NANOOS, Applied Physics Lab, University of WA)*

**18 - The effect of social capital on under-represented minority students in graduate level marine science programs at the University of Washington.**

*Brian Tracey (School of Marine and Environmental Affairs, University of WA)*

**19 - The Toxics Project**

*Susan Bullerdick (Port Townsend Marine Science Center)*

## Field Trips

Wednesday 7:30 am-4:00 pm, FSH Lobby

### IslandWood “School in the Woods” and Urban Programs

**Cost: \$40**

**Transportation: Included- IW van  
Departing SAFS 7:45 AM. (Meet 7:30 to  
pack lunch.)**

**Will return to SAFS at 4 pm.**



Start the day with a relaxing ferry ride from downtown Seattle to Bainbridge Island. During a walkabout of IslandWood’s 255-acre “School in the Woods” campus, you’ll visit a bog, a cattail marsh, a pond, and enjoy a birds-eye view of the ravine and forest from the suspension bridge. Learn about the sustainable elements of campus buildings, the scope of IslandWood’s education programming, and their Diversity and Inclusion Initiative. After lunch, its back to Seattle to learn about IslandWood’s Urban Programs and you’ll be the student in the Land & Water program at Thornton Creek. (Notes: The morning walk is moderate with possible mud, steep hills, and gravel. Wear comfortable walking shoes and weather appropriate clothing as most of this trip will be outdoors.)

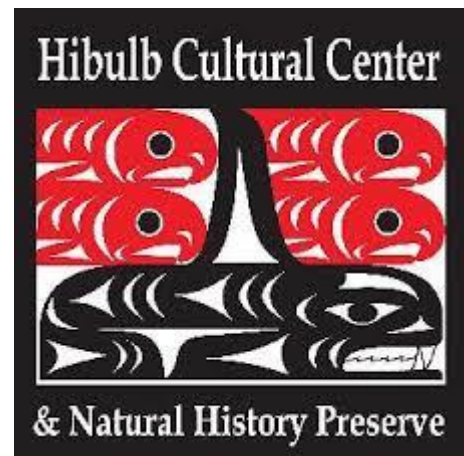
### Hibulb Cultural Center- Blending Traditional Knowledge and Western Science

**Cost: \$40**

**Transportation: Included- Avis Van + carpools  
Departing SAFS 9:15 am (Meet 9 am to pack lunch)**

**Will return around 2 pm.**

The Hibulb Cultural Center and Natural History Preserve will introduce you to the legacy of the Tulalip people. After a guided tour, you’ll have time to explore their new exhibit Roots of Wisdom. From restoring ecosystems to rediscovering traditional foods and crafts, the exhibit invites guests to understand the important issues facing indigenous communities, discover innovative ways native peoples are overcoming obstacles, and take part in the growing movement towards sustainability and the reclamation of age-old practices.



### Kayak Tour of Duwamish River and Superfund Clean Up Site

**Cost: \$45**

**Transportation: Included-Green Van + Carpool  
Departing SAFS 9:15 am (Meet 9 am to pack lunch)**

**Will return 1:30-2 pm.**

Kayaking is a great way to see and experience Seattle’s industrial river up close. Join staff from the Duwamish



River Clean Up Coalition on a two hour paddle where you'll learn about the natural and human history of the river, the Superfund site, environmental health and (in)justice, and community activism. You'll be able to see amazing views of Mt. Rainier (weather permitting), habitat restoration sites, important archaeological sites, watchable wildlife (including summer nesting ospreys, seals, sea lions, river otters and shore birds).

## University of Washington Lab Tour Adventure

**Cost: Free**

**Transportation: n/sa**

**Departs SAFS on foot at 9 am. (Meet 8:45 to pack lunch) Will return to SAFS at 12:30 pm so many can go on to Ballard Locks)**

Discover some of the best kept secrets of the School of Aquatic & Fishery Sciences and the School of Oceanography during this half-day excursion of behind-the-scenes UW lab tours. Explore the largest fish collection this side of the Mississippi, learn what seabirds can tell us about the health of our oceans, and take a hands-on approach to understanding estuarine water circulation in this series of mini tours. We will visit the Coastal Observation and Seabird Survey Team (COASST) Lab, the UW Fish Collection, and the Puget Sound Model.

\*\* [Could combine with Ballard Locks Trip](#)

## Ballard Locks Tour and Salmon Viewing

**Cost: Free**

**Transportation: Carpool, Bike or City bus (TBD)**

**Guided Tour Starts at 2pm.**

**Departs SAFS at 1pm. (would need to pack lunches before 10 am). Will return to SAFS by 4pm.**

Join us for a guided tour of the Lake Washington Ship Canal and Hiram M. Chittenden Locks which were built in 1917 by the U.S. Army Corps of Engineers to connect the waters of Lake Washington, Lake Union, and Salmon Bay to the tidal waters of Puget Sound. The canal and locks allow recreational and commercial vessels to travel to the docks and warehouses of Seattle's busy fresh water harbor. It's also prime time for salmon-viewing in the fish ladder.



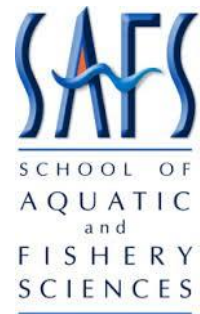
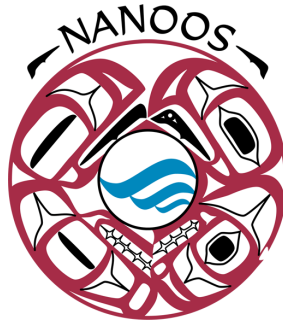
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