

JANUARY 21-25, 2013

Alaska Marine Science Symposium

HOTEL CAPTAIN COOK & EGAN CENTER • ANCHORAGE, ALASKA



Bill Rome



Glenn Aronmits



Kira Hansen



Ross McElwee

SHOWCASING OCEAN RESEARCH IN THE
ARCTIC OCEAN, BERING SEA, AND GULF OF ALASKA

Schedule

	MONDAY, JANUARY 21	TUESDAY, JANUARY 22
<p>Morning Plenary Session 8:00am-11:30am</p>	<p>Workshop, 8:00am-11:45am Communicating Ocean Sciences <i>Fore Deck, Discovery Ballroom</i> <i>(no host lunch for attendees at NPRB conference room, 1007 W 3rd Ave., Suite 100)</i></p> <p>Registration Opens, 10:00am</p>	<p>Continental Breakfast 7:30am-8:00am</p> <p>Registration Opens, 8:00am</p> <p>Arctic Plenary</p>
<p>Lunch 11:30am-1:00pm</p>	<p>Lunch on your own</p>	<p>Lunch provided <i>in the Discovery Ballroom</i></p> <p>Workshop, 12:00pm-1:00pm Career Tracks at the Alaska Department of Fish and Game <i>Voyager Room</i></p>
<p>Afternoon Plenary Session 1:00pm-5:00pm</p>	<p>Symposium Begins</p> <p>Opening Remarks, 1:30pm-2:00pm US Senator Mark Begich US Senator Lisa Murkowski</p> <p>Keynote, 2:00pm-2:40pm Jeremy Mathis, NOAA PMEL</p> <p>Keynote, 2:40pm-3:20pm Jessica Miller, Oregon State University</p> <p>BREAK, 3:20pm-3:40pm</p> <p>Keynote, 3:40pm-4:20pm Edward Farley, NOAA Fisheries</p> <p>Keynote, 4:20pm-5:00pm Judith Connor, MBARI</p>	<p>Arctic Plenary</p>
<p>Evening 5:00pm-9:00pm</p>	<p>Exhibits and Poster Reception 5:45pm-9:00pm Arctic & Bering Sea/Aleutians • Wave 1 – 5:45pm-7:15pm • Wave 2 – 7:30pm-9:00pm <i>Explorers Hall, Egan Center</i></p> <p>Appetizers & No-Host Bar</p>	<p>Workshop, 5:15pm-6:30pm Arctic Observing Town Hall <i>Quarter Deck</i></p> <p>Exhibits and Poster Reception 5:45pm-9:00pm Bering Sea/Aleutians & Gulf of Alaska • Wave 1 – 5:45pm-7:15pm • Wave 2 – 7:30pm-9:00pm <i>Explorers Hall, Egan Center</i></p> <p>Appetizers & No-Host Bar</p>

Posters/Exhibits & Receptions

Egan Center
555 W 5th Ave.
Shuttle Service between Egan Center and Hotel Captain Cook provided at 15 minute intervals, 5:15pm-9:00pm

All Other Events

Hotel Captain Cook
939 W. 5th Ave
Keynote, Plenary, and provided lunches in Discovery Ballroom

WEDNESDAY, JANUARY 23	THURSDAY, JANUARY 24	FRIDAY, JANUARY 25
<p>Continental Breakfast 7:30am-8:00am</p> <p>Registration Opens, 8:00am</p> <p>Bering Sea and Aleutian Islands Plenary</p>	<p>Continental Breakfast 7:30am-8:00am</p> <p>Gulf of Alaska Plenary</p>	<p>Workshop, 8:00am-12pm PCCRC – Annual Meeting and Presentation of Research Results (Continued) <i>Adventure Room</i></p> <p>Workshop, 8:00am-12pm Arctic Ecosystem Integrated Survey <i>Easter Island Room</i></p>
<p>Lunch on your own</p>	<p>Lunch provided <i>in the Discovery Ballroom</i></p>	<p>Meeting, 8:00am-12pm Beaufort/Chukchi Meteorology <i>Whitby Room</i></p>
<p>Workshop, 11:30am-1:00pm Acoustic Modeling and Measurements for Marine Mammal Mitigation: Challenges and Potential Innovations <i>Adventure Room</i></p> <p>Workshop, 11:30am-1:00pm A Vision for Stewardship in the Arctic: Integrating the Twin Goals of Enhancing Ecological Resilience and Human Well-Being <i>Endeavor Room</i></p>	<p>Workshop, 11:30pm-1:00pm North Pacific LCC – Implementing the Strategy for Science and Traditional Ecological Knowledge <i>Easter Island Room</i></p> <p>Workshop, 12:00pm-5:00pm PCCRC – Annual Meeting and Presentation of Research Results <i>Adventure Room</i></p>	<p>Meeting, 8:00am-12pm Arctic Cod – Spawning Workshop <i>NPRB Conference Room</i> <i>(1007 W 3rd Ave, Suite 100)</i></p> <p>Meeting, 8:00am-12pm Introduction to Metadata Workshop <i>Quadrant Room</i></p> <p>Meeting, 8:00am-12pm Aleutian and Bering Sea Islands LCC – Strategic Science Plan <i>Endeavor Room</i></p>
<p>Bering Sea and Aleutian Islands Plenary</p> <p>Student Poster Presentation Award Announcements, 5:00pm-5:15pm</p>	<p>Gulf of Alaska Plenary</p> <p>Student Oral Presentation Award Announcements and Closing Remarks, 4:45pm-5:15pm</p>	<p>Meeting, 9:30am-12pm Alaska Coastal Hazards Response – NOAA Office of Response and Restoration <i>Quarter Deck</i></p> <p>Workshop, 10:00am-12pm Collaborative Research Approaches: Case Studies and Lessons Learned <i>Club Room 1</i></p> <p>Workshop, 1:30pm-5:30pm Yup’ik Environmental Knowledge: The Natural and Cultural History of the Bering Sea Coast <i>Club Room 2</i></p>
<p>Workshop, 5:30pm-7:00pm VEMCO <i>Voyager Room</i></p> <p>Workshop, 5:30pm-7:30pm Mapping Alaska’s Coastal Communities <i>Quadrant Room</i></p> <p>Workshop, 5:30pm-7:00pm North Pacific Research Board Town Hall Meeting <i>Fore Deck, Discovery Ballroom</i></p> <p>Workshop, 5:30pm-7:00pm Interdisciplinary Research in the Gulf of Alaska – What’s all the rumpus <i>Adventure Room</i></p> <p>Workshop, 7:00pm-9:00pm Arctic Research Planning <i>Quarter Deck</i></p>	<p>Workshop, 5:30pm-7:00pm Shorezone – Fly the Coast Online! <i>Quarter Deck</i></p> <p>Workshop, 7:00pm-9:00pm Tsunami Debris – Information and Actions <i>Endeavor Room</i></p>	

Keynote Speakers

Monday, January 21

2:00pm-2:40pm

JEREMY MATHIS, NOAA – PACIFIC MARINE ENVIRONMENTAL LAB

Preparing for the Challenges of Ocean Acidification In Alaska



New data from ship-based and moored observations, species manipulation experiments and model outputs continue to show that ocean acidification is an imminent and potentially disruptive threat for the coastal waters of Alaska. Precipitous reductions in pH as well as the suppression of important carbonate mineral concentrations are being observed from the waterways of southeastern Alaska to the rapidly changing coastline of the Beaufort Sea. In the last two and a half centuries, but mainly in the past fifty years, the pH of the ocean has been reduced due to the intrusion of anthropogenic CO₂ produced mainly from fossil fuel burning and changes in land use practices. This reduction in pH could have far-reaching and

detrimental consequences for a number of marine species, particularly those that produce carbonate shells. With a multi-billion dollar fishing industry and a large subsistence population that relies heavily on ocean resources for the majority of their dietary protein, Alaska is particularly vulnerable to the impacts of ocean acidification. Here, newly synthesized economic data that provides the first assessment of the potential financial consequences of ocean acidification will be presented along with strategies for combating and adapting to changes brought on by a reduction in pH. These new strategies include the construction of a multi-million dollar network of moorings that will be capable of providing early warning data to stakeholders and policymakers throughout Alaska and the rest of the country. This project provides an ideal framework for future efforts because it harnesses resources from the state government, federal and private funding agencies and non-governmental organizations. Ocean acidification is a complex problem that will require a multilateral approach to solve, but with a concerted, well-coordinated effort we can sustain Alaska's fisheries.

2:40pm-3:20pm

JESSICA MILLER, OREGON STATE UNIVERSITY,
DEPARTMENT OF FISHERIES & WILDLIFE

Testing the Invasion Process: Survival, Dispersal, Genetic Characterization, and Attenuation of Marine Biota on the 2011 Japanese Tsunami Marine Debris Field



The tsunami that was generated as a result of a magnitude 9.0 earthquake off the coast of Japan on 11 March 2011 resulted in devastating loss of human life and extensive damage to infrastructure. This natural disaster interacted with a seascape of infrastructure in a highly urbanized and industrialized setting. This potentially unique interaction delivered a field of debris that contains an unknown number of docks, vessels, buoys and aquaculture facilities potentially covered by animal and plant communities to the Pacific Ocean. A striking example of this debris field is the large floating dock from Misawa, Japan that arrived on a beach in central Oregon in early June 2012 with a diverse community of marine life

(>100 species overall). The community included species commonly observed on oceanic floating debris, such as pelagic barnacles (*Lepas* sp.) but there were also other intertidal and subtidal species not currently present in Oregon. At least 12 species known to be invasive in other regions of the world have been identified, including the European blue mussel (*Mytilus galloprovincialis*), the Asian brown seaweed (*Undaria pinnatifida*), the Asian shore crab (*Hemigrapsus sanguineus*), the Japanese seastar (*Asterias amurensis*), the Asian pink barnacle (*Megabalanus rosa*), and a small tubeworm, (*Hydroides ezoensis*). We also collected many other species of mollusks, small crustaceans, worms, and an urchin. To our knowledge, no such rafted community of coastal organisms has been previously documented surviving an ocean voyage of >10,000 kilometers, nor has rafting of Asian species from the Western to the Eastern Pacific Ocean been previously observed. It is very difficult to predict the magnitude or the impact of biota arriving with the tsunami debris but a narrow opportunity exists to test critical questions in invasion theory and ecology by quantitatively, chemically and genetically documenting biota associated with the debris to evaluate both transoceanic dispersal and the potential impact of non-native Asian species. The current phenomenon provides an opportunity to advance our understanding of invasion biology by documenting key parameters, such as propagule pressure and species traits, with empirical data that we will use to quantify spatial and temporal variation in species diversity, condition and attrition.

3:40pm-4:20pm

EDWARD FARLEY, NOAA/NMFS/ALASKA FISHERIES SCIENCE CENTER, AUKE BAY LABORATORIES

Chinook Salmon and the Marine Environment



Chinook salmon are an important cultural, commercial, and sport salmon species to the people of Alaska. Recent sharp declines in Chinook salmon returns to Alaska's rivers have led to disaster declarations by the State of Alaska and Federal Government for some communities. The question is: "where have all the salmon gone?" Chinook salmon are anadromous, meaning their life cycle is dependent on environmental conditions in both freshwater and marine environments. Understanding the potential impacts of climate change on Chinook is complicated by the wide disparity between the effects of climate change on freshwater habitats, where long term temperatures are sharply increasing, and on the marine environment where warming occurs only very slowly, if at all. Mortality can be high and variable in both of these environments, but scientists believe the recent synchronous decline in Alaska's Chinook salmon returns is largely due to factors impacting their survival in the marine environment. We provide data on climate, distribution, migration, and diet of Chinook salmon in order to describe their marine ecology and understand effects of climate on the timing of the life cycle (phenology). The following hypotheses explaining the decline in Alaska's Chinook populations will also be discussed: 1) match – mismatch hypothesis: early marine mortality operating for all Alaskan Chinook salmon is the mismatch between timing of the life cycle in freshwater and the annual cycle of productivity in the marine environment, which is caused by the differential effects of climate change in the continental spawning and rearing areas and the nearshore marine environment; 2) critical size and period hypothesis: where climate change is affecting growth and energetic status during the first year at sea impacting marine survival over winter; 3) reduced size at age hypothesis: harvest on larger Chinook salmon has reduced fecundity in adult spawning populations leading to lower productivity.

4:20pm-5:00pm

JUDITH CONNOR, MONTEREY BAY AQUARIUM RESEARCH INSTITUTE

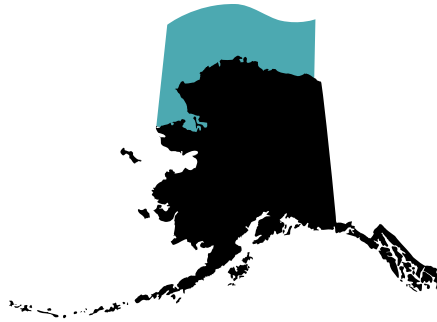
Technologies for Ocean Studies



When David Packard founded the Monterey Bay Aquarium Research Institute (MBARI) 25 years ago, he challenged us to develop new methods and systems to address important ocean science questions, with a goal of sharing the results with the broader science community and the public. MBARI's approach is built on teamwork of researchers and engineers and takes advantage of our ready access to the sea. Early engineering efforts focused on developing tools and techniques for the use of remotely operated vehicles for ocean exploration. The resulting high-resolution video images and data are managed as an archive of biological, chemical, geological, and physical information for research and education. The software system, the Video Annotation and Reference System developed for annotation and access to those data, is available as open-source software.

Collaborative research projects with external groups broaden the use of other MBARI technologies—from a deep-sea observatory deployed in the Sargasso Sea to the high-resolution multibeam system in an autonomous underwater vehicle mapping the Canadian Arctic seafloor. Formal business partners have commercialized instrumentation such as the In Situ Ultraviolet Spectrophotometer and the Environmental Sample Processor to help get technological innovations into other research labs. We further extend our reach with intern and postdoctoral programs, and with images, lesson plans, data, and other information available on the internet to enhance interest and understanding in the ocean. These efforts have the potential to improve research access to new technology and to inspire public understanding of the ocean processes that give life to our planet.

Arctic Plenary Session



Tuesday, January 22

7:30-8:00 CONTINENTAL BREAKFAST

ECOSYSTEM PERSPECTIVES

- 8:00-8:30 **Bruce Richmond** A Half Century of Coastal Change Along the North Coast of Alaska
- 8:30-8:45 **Kenneth Dunton** An Integrated Ecosystem Field Study of Hanna Shoal, Northern Chukchi Sea, Alaska
- 8:45-9:00 **Jeffrey Napp** An Integrated Ocean Observing Approach to Understanding the Effects of Climate Variability in the NE Chukchi Sea

HUMANS

- 9:00-9:15 **Robin Dublin** Broader Impacts on Scientists: Results from Alaska Marine Ecosystem Workshops and the National COSEE Scientist Survey
- 9:15-9:45 **Steven Braund** Thirty Years of Sociocultural Research on the North Slope of Alaska
- 9:45-10:15 COFFEE BREAK

CLIMATE & OCEANOGRAPHY

- 10:15-10:30 **James Overland** Climate Impacts of the Loss of Summer Sea ice in the Beaufort Sea Since 2007
- 10:30-10:45 **Muyin Wang** A Sea Ice Free Summer Arctic Within 30 years: An Update from CMIP5 Models
- 10:45-11:00 **Seth Danielson** Modeling Ice and Circulation in the Chukchi and Beaufort Seas
- 11:00-11:15 **Xiangdong Zhang** The Chukchi-Beaufort Seas Mesoscale Meteorological Modeling Project: An Overview of High-Resolution Atmospheric Reanalysis (CBHAR)
- 11:15-11:30 **Andrew Mahoney** Leads and Landfast Ice in the Beaufort and Chukchi Seas
- 11:30-1:00 LUNCH PROVIDED
- 1:00 -1:15 **Peter Winsor** High-Resolution Observations of Hydrography and Circulation of the Chukchi Sea

*Student Presentation

LOWER TROPHIC LEVEL

- 1:15-1:30 **Samuel Laney** Using Imaging Flow Cytometry to Examine Phytoplankton Assemblage Structure in the Bering and Chukchi Seas
- 1:30-1:45 **Carin Ashjian** Zooplankton of the Chukchi and Northern Bering Sea in Early Winter – Results from the 2011 November-December Cruise on USCGC Healy
- 1:45-2:00 ***Kelly McFarlin** Indigenous Arctic Microorganisms Degrade Oil in Arctic Seawater

FISH & FISH HABITAT

- 2:00-2:15 **Franz Mueter** The Arctic Ecosystem Integrated Survey (Arctic EIS)
- 2:15-2:30 **Andrew Seitz** Dispersal of Adult Dolly Varden from the Wulik River, Alaska, Evaluated Using Satellite Telemetry
- 2:30-3:00 COFFEE BREAK

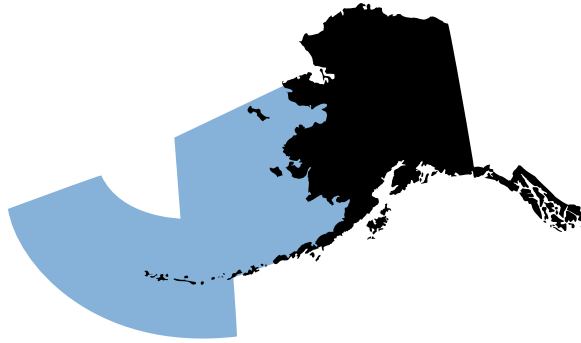
SEABIRDS

- 3:00-3:15 ***Roy Churchwell**, Post-Breeding Shorebird Use of Food Resources at River Deltas Along the Beaufort Sea Coast
- 3:15-3:30 **Douglas Causey** Complex Foodweb Dynamics of the Marine Bird Communities of the High and Low Arctic

MAMMALS

- 3:30-3:45 **Nadine Lysiak** Sixty Years of Bowhead Whale Stable Isotope Geochemistry and Linkages to the Rapidly Changing Arctic
- 3:45-4:00 **David Rugh** Bowhead Whale Feeding Ecology Study (BOWFEST) – Five Years in Review
- 4:00-4:15 **James MacCraken** An Index of Optimum Sustainable Population for the Pacific Walrus
- 4:15-4:30 ***Kalyn MacIntyre** Acoustic Detection of Bearded Seals (*Erignathus barbatus*) in the Bering, Chukchi, and Beaufort Seas 2008 – 2011
- 4:30-4:45 **Josh London** Spatial Use Patterns of Ribbon and Spotted Seals in the Bering and Chukchi Seas
- 4:45-5:00 **Karyn Rode** Variation in the Nutritional and Reproductive Ecology of Two Polar Bear Populations Experiencing Sea Ice Loss

Bering Sea & Aleutian Islands Plenary Session



Wednesday, January 23

7:30-8:00 CONTINENTAL BREAKFAST

ECOSYSTEM PERSPECTIVES

- 8:00-8:30 **Michael Lomas** What Controls Trophic Interconnectivity in the Eastern Bering Sea?
- 8:30-8:45 **Andrew Trites** Declines of Top Predators in the Central Bering Sea: Are Pribilof Seabirds and Fur Seals Living in the Wrong Neighborhood?
- 8:45-9:00 **Jon Warrenchuk** Identifying Important Ecological Areas in the Aleutian Islands
- 9:00-9:15 **John Hocevar** Distribution of Corals and Sponges in Two Large Canyons on the Bering Sea Shelf Break

HUMANS

- 9:15-9:30 **Matthew Reimer** Targeting Ability Under Rights-Based Management: The Amendment 80 Bering Sea/Aleutian Islands Groundfish Fishery
- 9:30-10:00 COFFEE BREAK
- 10:00-10:15 **Marcus Gho** Permit Stacking in Bristol Bay
- 10:15-10:30 **Lily Ray** Using Traditional Knowledge Interviews and Participatory Mapping to Identify Drivers of Habitat Change and Fine-Scale Habitat Features for Ice Seals and Walruses
- 10:30-10:45 ***Jory Stariwat** Lewis Point, A Seasonal Subsistence Fish Camp in Transition: Negotiations in a Mixed Cash/Subsistence Economy 1980-2011

CLIMATE & OCEANOGRAPHY

- 10:45-11:00 **Margaret Sullivan** Ice-Ocean Interactions in the Bering Sea: Observations and Model Simulations
- 11:00-11:15 **Edward Cokelet** Geostrophic Circulation and Water Masses of the SE Bering Sea Shelf
- 11:15-11:30 ***Jessica Cross** Integrated Assessment of the Carbon Budget in the Southeastern Bering Sea: from the Atmosphere to the Sediment
- 11:30-1:00 LUNCH ON YOUR OWN

*Student Presentation

LOWER TROPHIC LEVEL

- 1:00 -1:15 **Mike Sigler** Spring and Fall Phytoplankton Blooms in a Productive Subarctic Ecosystem, the Eastern Bering Sea, during 1995-2011
- 1:15-1:30 **Georgina Gibson** On-Shelf Transport of Oceanic Mesozooplankton Populations in the Eastern Bering Sea
- 1:30-1:45 **Lisa Eisner** Climate-Mediated Changes in Zooplankton Community Structure for the Eastern Bering Sea

FISH & FISH HABITAT

- 1:45-2:00 ***Cody Szuwalski** The Influence of a Changing Climate in Management: a Management Strategy Evaluation for the Fishery for Snow Crab in the Eastern Bering Sea.
- 2:00-2:15 **Sandra Parker-Stetter** Evolving Perceptions of Forage Fish Distributions in the SE Bering Sea
- 2:15-2:30 **Janet Duffy-Anderson** Ecology of Pacific halibut (*Hippoglossus stenolepis*) and Greenland halibut (*Reinhardtius hippoglossoides*) in Canyon and Slope Habitats of the Eastern Bering Sea
- 2:30-3:00 COFFEE BREAK
- 3:00-3:15 **Kristin Holsman** The Influence of Climate Change and Predation on Biological Reference Points Estimated from Multispecies and Single Species Stock Assessment Models.

SEABIRDS

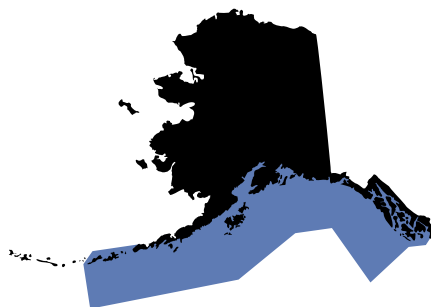
- 3:15-3:30 **George Hunt** Hydrographic Structure and the Distribution of Seabird Communities Across the Southeastern Bering Sea Shelf
- 3:30-3:45 **Robert Suryan** Do Albatrosses Use Molting Areas in the Aleutian Islands? Important Bird Areas within Productive Fishing Grounds
- 3:45-4:00 ***Jill Robinson** Year-Round Spatial and Temporal Distribution of a Small, Diving Seabird, the Crested Auklet (*Aethia cristatella*), Originating from a Breeding Site at Buldir Island, Aleutian Islands.

MAMMALS

- 4:00-4:15 **Lorrie Rea** Some maternal Steller Sea Lion Diets Elevate Fetal Mercury Concentrations in the Western Aleutian Island Area of Decline.
- 4:15-4:30 **Peter Boveng** Winter Site Fidelity of Bearded Seals in the Bering Sea
- 4:30-4:45 ***Yulia Ivashchenko** Soviet Catches of Whales in the North Pacific: Revised Totals
- 4:45-5:00 ***Megan Peterson** Killer Whale (*Orcinus orca*) Depredation Effects on Catch Rates of Six Groundfish Species: Implications for Commercial Longline Fisheries in Alaska
- 5:00-5:15 **Best Student Poster Presentation Winners Announced**

*Student Presentation

Gulf of Alaska Plenary Session



Thursday, January 24

7:30-8:00 CONTINENTAL BREAKFAST

ECOSYSTEM PERSPECTIVES

- 8:00-8:30 **Olav Ormseth** The Gulf of Alaska in 2011: The View from GOAIERP
- 8:30-8:45 ***Kevin Thompson** The Effects of Temperature and Predator Densities on the Consumption of Walleye Pollock (*Theragra chalcogramma*) in Three Groundfish Predators in the Gulf of Alaska

HUMANS

- 8:45-9:00 **Gunnar Knapp** Empirical Measures for Alaskan Fishing Communities
- 9:00-9:15 ***Jason Good** Sensemaking at Sea: Organizing for Self-Management at the Front Line of Alaska's Commercial Fisheries
- 9:15-9:30 **Lisa Busch** Between Pacific Tides: Engaging the Community of Sitka in Science Through Time
- 9:30-10:15 COFFEE BREAK

CLIMATE & OCEANOGRAPHY

- 10:15-10:30 **Phyllis Stabeno** Along-Shelf and Cross-Shelf Flow in the Gulf of Alaska with Some Implications for Primary Production
- 10:30-10:45 **David Musgrave** Seasonal Surface Circulation, Temperature, and Salinity in Prince William Sound, Alaska
- 10:45-11:00 **Russell Hopcroft** Measuring the Pulse of the Gulf of Alaska: Oceanographic Observations along Seward Line, and in Prince William Sound 1997-2012

LOWER TROPHIC LEVEL

- 11:00-11:15 ***Ayla Doubleday** Seasonal and Inter-Annual Patterns of Pteropod and Larvacean Estimates in the Coastal Gulf of Alaska
- 11:15-11:30 **Sonia Batten** Fifty Shades of Green – Phytoplankton Time Series from the Continuous Plankton Recorder Survey.

*Student Presentation

11:30-1:00 LUNCH PROVIDED

1:00 -1:15 **Suzanne Strom** Phytoplankton Communities and Processes in the Coastal Gulf of Alaska: Implications of an Anomalous Year

FISH & FISH HABITAT

1:15-1:30 ***Raphaelle Descoteaux** Effects of Ocean Acidification on Development of Alaskan Crab Larvae

1:30-1:45 **Christopher Siddon** Getting to the Bottom of It: A Critical Look at Stock Assessment Estimates for Red King Crab (*Paralithodes camtschaticus*) in Southeastern Alaska

1:45-2:00 **Craig Faunce** A Field Test of an Observer-Audit Approach to Improve Catch Reporting in Alaska: NPRB Project 1017 Alternative Catch Monitoring of Alaskan Groundfish

2:00-2:15 ***Thomas Farrugia** Movement Patterns of Skates in the Gulf of Alaska and Implications for the Management of a Skate Fishery

2:15-2:30 **Cindy Tribuzio** The Spiny Issue of Ageing Spiny Dogfish: Historical Dogma vs. New Methods

2:30-3:00 COFFEE BREAK

3:00-3:15 **Scott Pegau** Prince William Sound Herring Survey Program

SEABIRDS

3:15-3:30 ***Daniel Cushing** Changes in Mid-Summer Abundance of *Brachyramphus* Murrelets in Prince William Sound, Alaska, 1989-2012.

MAMMALS

3:30-3:45 **Jan Straley** Baleen Whales and Tubenose Seabirds—A Chemosensory Comparison?

3:45-4:00 **Briana Witteveen** Using Acoustic Assessment of Pelagic Backscatter to Assess Prey Use and Niche Separation of Fin and Humpback Whales Near Kodiak Island, Alaska

4:00-4:15 **Benjamin Weitzman** Colonization in Action: Understanding the Impacts of Sea Otters on Soft-Sediment Invertebrate Communities

4:15-4:30 **Sarah Fortune** Overlooked and Underappreciated: The Role of Squids in the Diet of Steller Sea Lions (*Eumetopias jubatus*) in Southeast Alaska

4:30-4:45 **Gregory Walker** Augmenting Steller Sea Lion Surveys in The Western Aleutians with Unmanned Aircraft

4:45-5:00 **BEST STUDENT ORAL PRESENTATIONS WINNERS ANNOUNCED**

5:00-5:15 **CLOSING REMARKS**

*Student Presentation

Workshops

Workshops held at Hotel Captain Cook

Sunday, January 20

PacMARS-SOAR Open Workshop

CONVENERS: JACKIE GREBMEIER AND SUE MOORE

8am-5pm, Aft Deck, Discovery Ballroom

The Pacific Marine Arctic Regional Synthesis (PacMARS) is a project underwritten by the North Pacific Marine Research Institute to assemble by mid-year 2013 up-to-date written documentation that contributes to understanding the Pacific-influenced continental shelf ecosystem of the Arctic Ocean. The objective is to compile the best available knowledge from local communities, peer-reviewed social and natural sciences, as well as less readily available knowledge sources. The overall goal is to provide guidance for scientific research needs in the region. The Synthesis of Arctic Research (SOAR) is a 5-year project supported by the Bureau of Ocean Energy Management (BOEM) and the National Oceanic and Atmospheric Administration (NOAA). SOAR is chartered to synthesize scientific information and local observations to improve understanding of the relationships among oceanographic conditions, benthic organisms, lower trophic prey species (forage fish and zooplankton), seabirds, and marine mammal distribution and behavior for the Pacific Arctic region. The SOAR effort builds on existing interdisciplinary work to develop detailed syntheses to inform management decision-makers and to guide future research studies.

Based on the synergistic objectives of PacMARS and SOAR, we are jointly sponsoring an open community workshop on 20 January 2013, just prior to the 2013 Alaska Marine Science Symposium in Anchorage, Alaska, to provide an update of our activities and to solicit input on themes for future research initiatives in the region. The agenda for the PacMARS-SOAR workshop will include highlight presentations of activities from both synthesis projects, followed by break-out sessions with the workshop participants to identify additional data synthesis activities being undertaken, and to develop a composite of scientific themes for future interdisciplinary and interagency efforts in the Chukchi and Beaufort seas.

Writing Science Creatively: What Inquiring Minds Want to Know

CONVENERS: COSEE-ALASKA, NORTH PACIFIC RESEARCH BOARD, ALASKA OCEAN OBSERVING SYSTEM, UAA CWLA PROGRAM, AND 49 WRITERS

2pm-4pm, Endeavor Room

How can you begin, or continue, writing creatively about science? How do you translate scientific facts and journal articles into engaging and even poetic language and your “scientific voice” into a more personal one? Join this panel discussion by writers whose science writing spans the spectrum from outreach for science institutions and interpretation of natural resources on public lands to creative non-fiction, novels, and poetry. You will receive practical writing advice, a reading list, ideas for places to publish, and an opportunity to participate in a new Alaska science writing blog.

Panel Members: Sherry Simpson, Nancy Lord, and Andromeda Romano-Lax, faculty members, the UAA Creative Writing and Literary Arts Program (CWLA); and Judith Connor, Monterey Bay Aquarium Research Institute.

Monday, January 21

Communicating Ocean Sciences

CONVENERS: ROBIN DUBLIN (COSEE ALASKA), NORA DEANS (NPRB), DARCY DUGAN (AOOS)

8am-11:45am, Fore Deck, Discovery Ballroom

SCHEDULE

- 8:00-8:15 Introductions
- 8:15-9:15 Keynotes (4 presentations, 15 minutes each)
- 9:15-10:15 Breakout Sessions led by keynote presenters (2 sessions, 25 minutes long; attendees can participate in 2 of the 4 sessions)
- 10:15-10:30 Break
- 10:30-11:45 Report out and Open Mic: 3 minutes per person

SPEAKERS

Jennifer Magnusson, Marine Educator: Shipboard outreach and use of web-based communication

Judith Connor, Monterey Bay Aquarium Research Institute: Communicating about ocean acidification and climate change and use of video

Nancy Lord, Author: Artists in research settings and the use of writing

Lisa Busch, Sitka Sound Science Center: Scientist-community connections and the use of radio

Following the keynote presentations the keynote speakers will lead facilitated breakout groups for further discussion on their strategies and methods of communication. The breakout groups report out to the entire group and then an “Open Mic” period will provide an opportunity for audience members to share their current ocean science communication projects and programs (3 minute maximum/speaker).

Tuesday, January 22

Career Tracks at the Alaska Department of Fish and Game

CONVENER: CANDICE BRESSLER, ADFG

12:00pm-1pm, Voyager Room

Calling all students and interested professionals! This is an informal information session, and participants can come and go as they please. The Alaska Department of Fish and Game (ADF&G) will be on site recruiting for current and future openings, and a department recruiter will be providing information about the department’s numerous divisions and current opportunities and answering questions about department careers and internships. ADF&G is a state government agency that is constitutionally mandated to protect, maintain, and improve the fish, game, and aquatic plant resources of Alaska through the sustained yield principle. ADF&G manages approximately 750 active fisheries, 26 game management units, and 32 special areas. Plus, the department has about 1,700 employees and an annual operating budget of almost \$200 million, so there are many opportunities to become part of our team. Session attendees can learn more about ADF&G, pick up an Opportunities Guide, and also sign up for e-mail notifications for new employment opportunities. Alaska is an amazing place to discover a career, and our careers are unlike any other. Come discover Your Career in the Last Frontier™!

Arctic Observing Town Hall

CONVENER: MOLLY MCCAMMON, AOS

5:15pm-6:30pm, Quarter Deck

Town Hall style meeting to present the Alaska Ocean Observing System (AOS) draft conceptual plan for a “core” Alaska Arctic Observing System. This would be a barebones system that could be enhanced with other agency and industry funded efforts to provide a robust monitoring system to meet a host of stakeholder needs, from the navigation community to ecosystem and climate change researchers to subsistence communities. The plan incorporates existing data collection efforts and identifies information gaps. The meeting will also provide an overview of the NOAA-industry data sharing agreements and data soon to be made publicly available on the AOS website.

Wednesday, January 23

Acoustic Modeling and Measurements for Marine Mammal Mitigation: Challenges and Potential Innovations

CONVENERS: BILL STREEVER (BP), LISANNE AERTS (LAMA ECOLOGICAL), CARYN REA (CONOCOPHILLIPS)

11:30am-1pm, Adventure Room

Prior to starting seismic acquisition programs in Alaska, industry is usually required to undertake modeling to predict the extent of the 190, 180, 160, and 120 dB RE 1 μ PA isopleths, each of which has implications for mitigation of potential marine mammal impacts. In addition, industry is usually required to undertake field measurements as soon as airgun use is initiated to confirm or revise model predictions. Over the past decade, numerous models have been evaluated against field measurements, but the degree

Workshops

to which models and field measurements typically agree has not been systematically assessed. Given uncertainties in model inputs and site-specific field conditions during collection of field measurements, the degree to which model predictions should match measurements is not at all clear. Also, which of the two approaches—modeling or measurements—provides values most suited for mitigation is not clear. This workshop will discuss methods currently used as well as innovative methods to model and measure acoustic footprints, possibly identifying steps to improve future efforts.

A vision for stewardship in the Arctic: Integrating the Twin Goals of Enhancing Ecological Resilience and Human Well-Being

CONVENERS: MARTIN SOMMERKORN (WORLD WILDLIFE FUND GLOBAL ARCTIC PROGRAM), MARGARET WILLIAMS (WORLD WILDLIFE FUND US ARCTIC FIELD PROGRAM)

11:30am-1:00pm, Endeavor Room

As global interest in the circumpolar Arctic grows, so does the need for science to contribute to shaping a new era of stewardship in the Arctic. In this workshop, Dr. Martin Sommerkorn will chair a discussion on the application of science to management and conservation in a rapidly changing Arctic. Dr. Sommerkorn will suggest – and solicit insights and ideas on – a method for practitioners that emphasize ecosystem resilience and promotes transparent and participatory, adaptive planning. Panelists will present an overview of current Arctic ecosystem and biodiversity mapping efforts, including a World Wildlife Fund method to integrate biophysical data; identify drivers of biological productivity; and inform processes for prioritizing management and conservation.

VEMCO

5:30pm-7pm, Voyager

Staff will discuss passive and active acoustic technology and how to use the equipment effectively. Potential topics include: Understanding Single Frequency Telemetry, Equipment Overview and Representative Deployments, Detection Performance and Range Limits, VEMCO User Environment (VUE) Software, VR2W Positioning System (VPS,) and Future Product Directions. Participants will help explore deployment methods, experimental design, identifying unknown codes, data management, handling and analysis.

Contact: Nancy Edwards nancy.edwards@vemco.com

Mapping Alaska's Coastal Communities: How to Use CIAP Orthoimagery and Digital Elevation Map Services in Your Desktop GIS or Online Web Map

CONVENER: TOM HEINRICHS (UNIVERSITY OF ALASKA FAIRBANKS)

5:30pm-7:30pm, Quadrant Room

The Coastal Impacts Assistance Program is supporting a number of coastal mapping projects in Alaska. This workshop will first demonstrate then allow, hands-on practice accessing hundreds of thousands of square kilometers of new coastal community high resolution imagery and elevation data. You will learn how to use open standards web services in desktop applications such as ArcMap or QGIS. If you are a web programmer, you will learn how to use cached map tile and REST endpoints to bring this data easily and rapidly into your web maps built with OpenLayers, ESRI ArcGIS Online, Google, Bing, and Yahoo Maps. A laptop is recommended but not required for hands on portion of the workshop. All levels of expertise are welcome.

Presenters: Syliva Kreel with DNR, CIAP Project Coordinator; Tom Heinrichs, Dayne Broderson, and Will Fisher with UAF's Geographic Information Network of Alaska

North Pacific Research Board Town Hall Meeting

5:30pm-7pm, Fore Deck, Discovery Ballroom

The purpose of this open, informational session is to provide the opportunity for attendees to learn more about how NPRB operates. NPRB staff will describe the process by which the organization's annual Request for Proposals is drafted, how topics within themes are prioritized, and ways in which the greater scientific community can contribute ideas. Staff will also share status of new activities and programs planned for the coming year. The session will conclude with time for general questions regarding current and planned NPRB activities.

Interdisciplinary Research in the Gulf of Alaska – What’s all the Rumpus?

CONVENER: OLAV ORMSETH (NMFS ALASKA FISHERIES SCIENCE CENTER)

5:30pm-7pm, Adventure Room

There are currently several large interdisciplinary research programs underway in the Gulf of Alaska (GOA) including NPRB’s Gulf of Alaska Integrated Ecosystem Research Program (GOAIERP) and the Exxon Valdez Oil Spill Trustee Council’s Long Term Monitoring Program (Gulf Watch Alaska). The goal of this workshop is to bring together representatives of these efforts to accomplish the following objectives:

- 1) Showcase the various research activities
- 2) Provide a forum for GOA researchers to interact and compare observations
- 3) Create an opportunity for other individuals and programs to provide input into these two programs, identify potential research gaps, and consider potential opportunities for collaborations and enhancements.

Arctic Research Planning

CONVENER: SHEYNA WISDOM (OLGOONIK FAIRWEATHER ARCTIC PROGRAM MANAGER)

7pm-9pm, Quarter Deck

There are currently several multi-disciplinary research programs being funded through different means in the Arctic. The purpose of this open, informational session is to provide the opportunity for researchers conducting research in the Arctic in 2013 and beyond to share information about planned research, areas of planned operations, and identification of potential collaboration in both field and analyses. This informal session will be facilitated by Olgoonik Fairweather. We ask that researchers be ready with maps of instrument and/or station locations and general planned timing and mission of the cruises. Anyone interested in Arctic research is welcome.

Thursday, January 24

North Pacific Landscape Conservation Cooperative – Implementing the Strategy for Science and Traditional Ecological Knowledge

CONVENER: MARY MAHAFFY (SCIENCE COORDINATOR NORTH PACIFIC LANDSCAPE CONSERVATION COOPERATIVE)

11:30am-1:00pm, Easter Island Room

The North Pacific Landscape Conservation Cooperative (NPLCC) is a partnership that extends from south-central Alaska to northern California. The NPLCC recently adopted a four-year Strategy for Science and Traditional Ecological Knowledge (available at <http://www.fws.gov/nplcc>) and an implementation plan is under development. This workshop will provide an opportunity for resource managers, scientists and other stakeholders to share their views on important management issues, applied science needs, existing efforts underway and gaps that fit within the priorities identified in the NPLCC’s Science and Traditional Ecological Knowledge Strategy.

PCCRC – Annual Meeting and Presentation of Research Results

CONVENER: RUTH POST (UNIVERSITY OF ALASKA FAIRBANKS)

12pm-5pm, Adventure Room

The Pollock Conservation Cooperative Research Center was established in February 2000 through the University of Alaska Fairbanks School of Fisheries and Ocean Sciences to improve knowledge about the North Pacific Ocean and Bering Sea through research and education, focusing on the commercial fisheries of the Bering Sea and Aleutian Islands. The PCCRC Annual Review will include project updates by 12 currently funded researchers examining a variety of topics. The AMSS conference attendees and public are invited to attend and participate in learning more about ongoing research programs. A schedule of presenters will be available at the workshop.

Shorezone – Fly the Coast Online!

CONVENER: MAEVA GAUTHIER (UNIVERSITY OF VICTORIA)

5:30pm-7pm, Quarter Deck

ShoreZone uses oblique aerial photography and high–definition videography as the basis for a coastal habitat classification, inventory and mapping system. Developed over 30 years ago, it is a powerful dataset for use in habitat modeling, oil spill prevention and response, marine debris catchment beaches, and a myriad of other uses. Applied to over 100,000 km of the coastline from the Oregon coast to the North Slope of Alaska, the most recent imagery is from the Kotzebue Sound in Western Alaska. Over 20,000 photos taken last summer! This workshop will focus on describing the Alaska ShoreZone coastal habitat mapping project and its many uses. Application highlights will include oil spill response planning and habitat capability modeling for use in research, invasive species assessment, and essential fish habitat identification. After this workshop, you will be familiar with mapped attributes available, how to download high resolution photos from the ShoreZone website, and how to create simple queries.

Workshops

Tsunami Debris – Information and Actions

CONVENER: PETER MURPHY (NOAA MARINE DEBRIS PROGRAM)

7pm–9pm, Endeavor Room

The NOAA Marine Debris Program will host a workshop to discuss the state of knowledge and potential actions on tsunami debris distribution, movement, impacts, and actions. The workshop will include a basic introduction to the issue, and then a discussion on data needs and potential opportunistic and targeted methods to fill those needs.

Friday, January 25

PCCRC – Annual Meeting and Presentation of Research Results (continued)...

CONVENER: RUTH POST (UNIVERSITY OF ALASKA FAIRBANKS)

8am-12pm, Adventure Room

The Pollock Conservation Cooperative Research Center was established in February 2000 through the University of Alaska Fairbanks School of Fisheries and Ocean Sciences to improve knowledge about the North Pacific Ocean and Bering Sea through research and education, focusing on the commercial fisheries of the Bering Sea and Aleutian Islands. The PCCRC Annual Review will include project updates by 12 currently funded researchers examining a variety of topics. The AMSS conference attendees and public are invited to attend and participate in learning more about ongoing research programs. A schedule of presenters will be available at the workshop.

Arctic Ecosystem Integrated Survey

CONVENER: FRANZ MUETER (UNIVERSITY OF ALASKA FAIRBANKS)

8am-12pm, Easter Island Room

This workshop / meeting is primarily intended for project PIs but is open to anyone interested in the Arctic EIS program, which included a comprehensive fisheries and oceanographic survey in the northern Bering Sea and Chukchi Sea in fall 2012. We will briefly review the successes and shortcomings of the 2012 Arctic EIS field season, discuss plans for the 2013 field season, discuss plans for data sharing and integration, and provide an opportunity to identifying potential collaborations.

Beaufort/Chukchi Meteorology

CONVENER: XIANGDONG ZHANG (IARC/UAF)

8am-12pm, Whitby Room

The major objective of this workshop is to introduce our long-term high-resolution meteorological reanalysis data covering the Beaufort and Chukchi Seas, and to disseminate our scientific findings through modeling, data analysis, and so on. This event will bring together colleagues from the project team, broader scientific and societal communities, government, and industry to better understand weather and climate changes in the Beaufort and Chukchi Seas and to discuss usage of our data products for various application and policy-making processes.

Arctic Cod – Spawning Workshop

CONVENER: KATE WEDEMEYER (BOEM)

8am-12pm, NPRB Conference Room (1007 W 3rd Ave, Suite 100)

Workshop discussions will center upon field methods and potential collaboration to identify Arctic cod spawning times and locations in the US Chukchi and Beaufort Sea, particularly methods for under-ice field surveys along the US continental slope. Several international Arctic cod experts from Norway and Canada will participate by video conference.

Introduction to Metadata Workshop

CONVENER: VIVIAN HUTCHISON (USGS)

8am-12pm, Quadrant Room

This workshop will provide an introduction to metadata for documenting scientific data. The presentation will define the value of metadata, why federal agencies are required to create it, describe the role of metadata in data management and distribution, briefly explain the origin of the Federal Geographic Data Committee (FGDC) metadata standard and the Biological Data Profile, give an update on the status of the suite of ISO standards (19115, etc), illustrate ways in which a metadata program can be implemented,

and how to search and submit records using the US Geological Survey's Core Science Metadata Clearinghouse (<http://mercury.ornl.gov/clearinghouse>) as an example. Metavist, a desktop metadata entry tool available for free download online from the USDA Forest Service (<http://ncrs.fs.fed.us/pubs/viewpub.asp?key=2737>), will be used to teach participants the elements of the FGDC standard and how to create an FGDC-compliant metadata record.

Aleutian and Bering Sea Islands Landscape Conservation Cooperative – Strategic Science Plan

CONVENER: DOUG BURN (USFWS)

9am-12pm, Endeavor Room

The Aleutian and Bering Sea Islands Landscape Conservation Cooperative (ABSI LCC) is a self-directed partnership with a focus on applied science products. The ABSI LCC is in the process of developing a Strategic Science Plan to help guide its activities in the coming years. The structure of the draft plan will be presented at this workshop, and the LCC invites participants to provide constructive feedback on the plan. The workshop will also provide resource managers, researchers, and stakeholders with an opportunity share your perspectives on the pressing management issues and applied science needs for the Aleutian and Bering Sea Islands region.

Alaska Coastal Hazards Response – NOAA Office of Response and Restoration

CONVENER: CELESTE LEROUX (NOAA)

9:30am-12pm, Quarter Deck

All are invited to attend this workshop on the science of responding to coastal hazards following a marine environmental disaster. NOAA's Office of Response and Restoration (OR&R) prepares for, evaluates, and responds to threats to coastal environments, including oil and chemical spills, releases from hazardous waste sites, and marine debris. In this workshop, OR&R scientists and responders will highlight how they access and interpret science to keep communities safe and commerce moving and will weave that into a hypothetical Alaska-based environmental hazard response scenario, walking participants through each step of the response. The scenario will cover: marine debris tracking and impact assessment, oil fate and trajectory forecasting, early Natural Resource Damage Assessment efforts, emergency response information management using the NOAA Environmental Response Management Application, and opportunities for public involvement. There will be many opportunities for engagement and discussion for participants.

Collaborative Research Approaches: Case Studies and Lessons Learned

CONVENER: SARA BOWDEN (IARPC)

10am-12pm, Club Room 1

The value of collaboration among research organizations is broadly recognized and can also be challenging due to organizational differences. While differences are necessary and frequently beneficial, they sometimes function as barriers to partnerships that might otherwise advance science and inform decisions. Nevertheless, there are numerous examples of successful collaboration occurring at different scales. This workshop will feature panelists representing an array of partnerships in the region to discuss workings of their collaboration - underlying factors, their successes, and challenges that they face. The audience will be invited to join the discussion and identify commonalities among case studies – such as broadly successful strategies and also pitfalls to avoid.

Yup'ik Environmental Knowledge: The Natural and Cultural History of the Bering Sea Coast

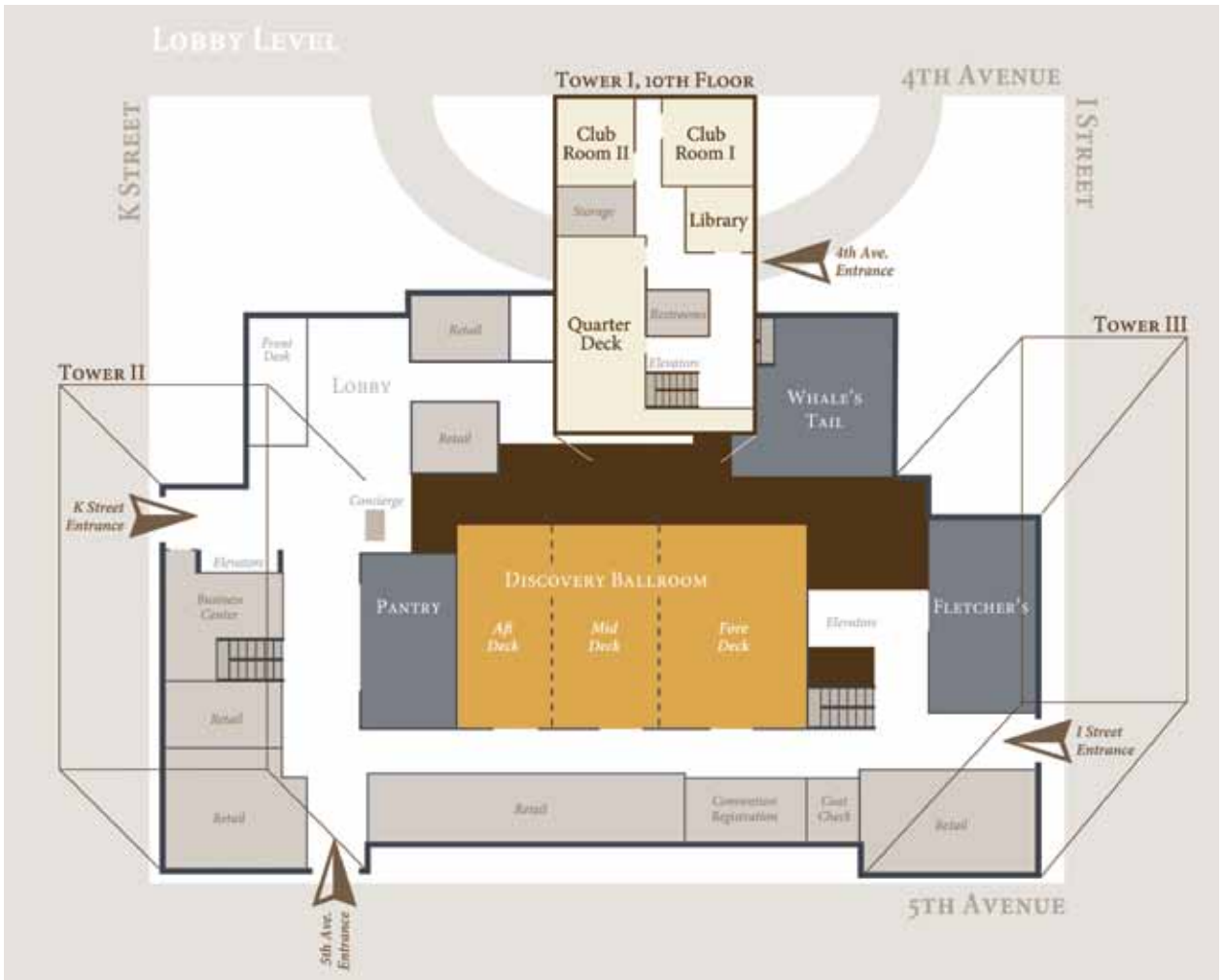
CONVENER: ANN FIENUP-RIORDAN (CALISTA ELDERS COUNCIL)

1:30-5:30pm, Club Room 2

The Yup'ik Environmental Knowledge Project is a major effort in indigenous observation and knowledge documentation initiated by Bering Sea coastal communities in collaboration with the Calista Elders Council. The workshop will introduce conference participants to the project, including an opportunity to meet some of the elders and community members involved. A major project goal is to integrate Yup'ik environmental knowledge with scientific observations to produce a holistic documentation of the unique natural history and cultural geography of the Bering Sea coast. If you have an interest in Yup'ik views of the Bering Sea coastal environment, we welcome your input and participation.

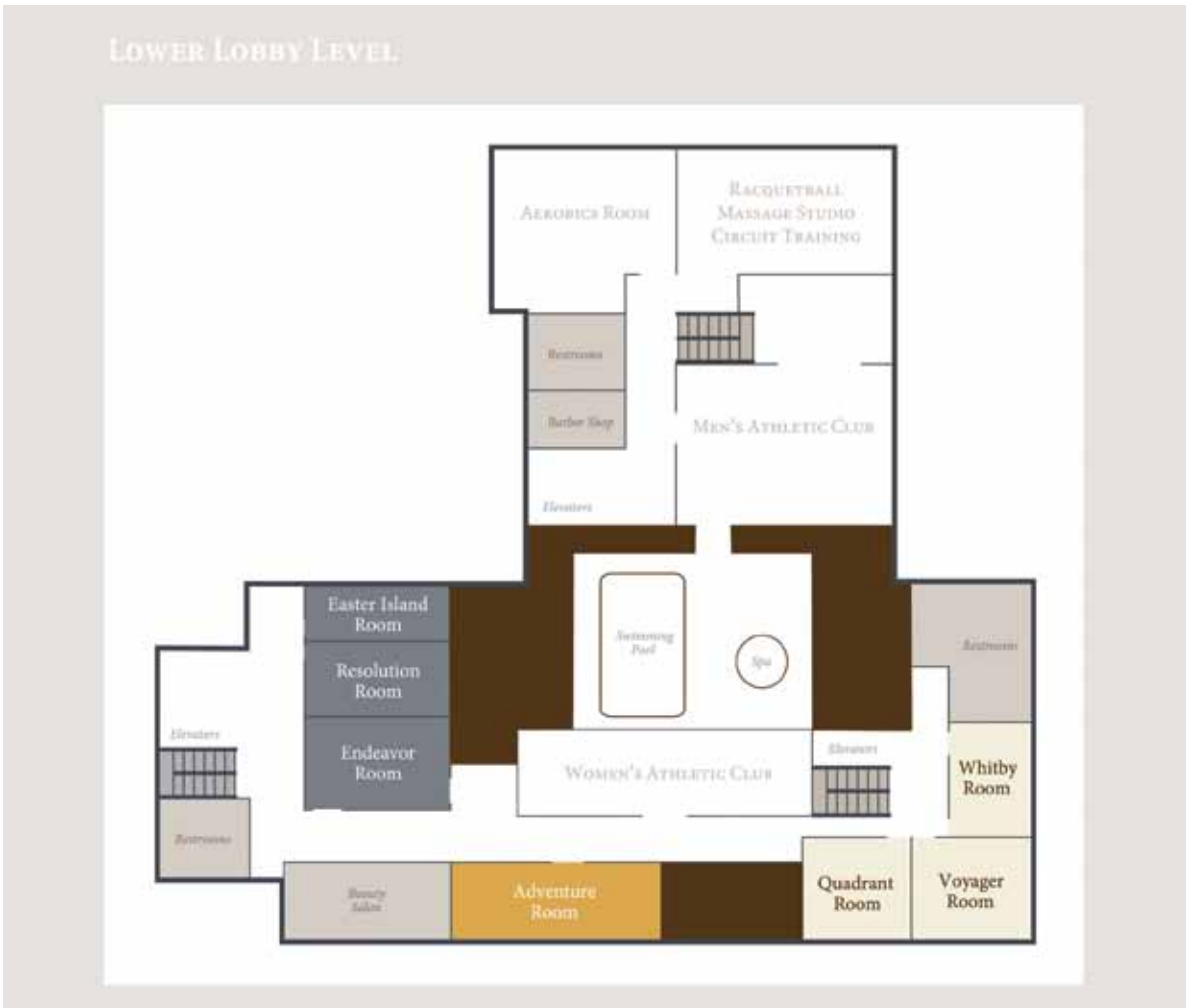
Venue Maps

Hotel Captain Cook, 939 W. 5th Ave Lobby Level and Tower



Shuttle service is provided between the Hotel Captain Cook (939 W. 5th Ave) and the Egan Center (555 W 5th Ave.) from 5:15-9:15pm to assist those needing transportation to the poster sessions.

Hotel Captain Cook, Lower Lobby Level



Shuttle service is provided between the Hotel Captain Cook (939 W. 5th Ave) and the Egan Center (555 W 5th Ave.) from 5:15-9:15pm to assist those needing transportation to the poster sessions.

Venue Maps

Egan Civic & Convention Center, 555 W 5th Ave Explorers Hall

Posters/Exhibits & Receptions

5:45-9:00pm

Wave 1: 5:45-7:15

Wave 2: 7:30-9:00

Monday: Arctic & Bering Sea/Aleutians

Tuesday: Bering Sea/Aleutians & Gulf of Alaska

Shuttle service is provided between the Hotel Captain Cook (939 W. 5th Ave) and the Egan Center (555 W 5th Ave.) from 5:15-9:15pm to assist those needing transportation to the poster sessions.

Exhibitors

Alaska Center for Ocean Science
Education Excellence

Alaska Dept. of Fish & Game

Alaska Ocean Observing System

Alaska Regional Collaboration Team

Alaska SeaLife Center

Bureau of Ocean Energy Management

Cook Inlet RCAC

Entiat River Tech.

Kachemak Bay Research Reserve

Lotek Wireless Inc. / Sirtrack Ltd.

NOAA - Response and Restoration

North Pacific Research Board

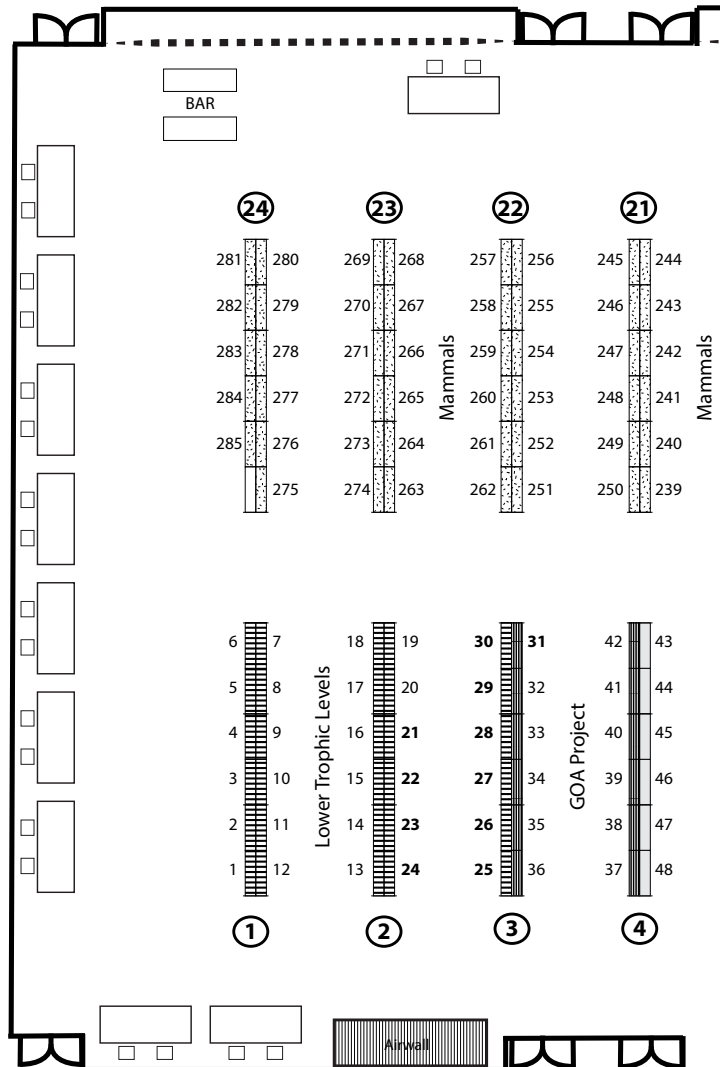
North Slope Borough

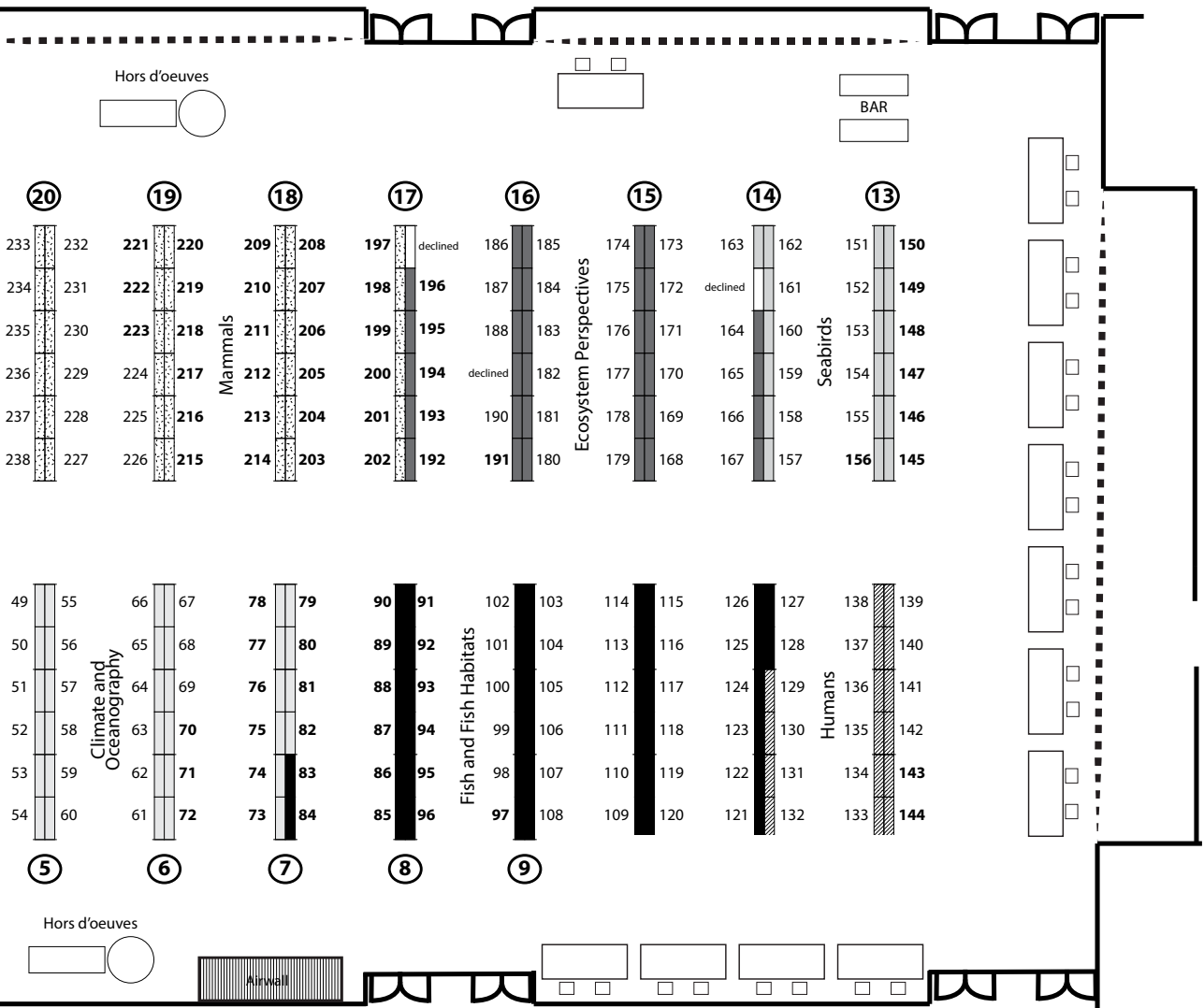
Oil Spill Recovery Institute/
Prince William Sound Science Center

Prince William Sound RCAC
University of Alaska Fairbanks

U.S. Arctic Research Commission

USGS - AK Science Center and Alaska Regional office





15 Row # **bold** = student poster

Mammals
 Ecosystem Perspectives
 Humans
 Seabirds
 Fish and Fish Habitats
 Lower Tropic Levels
 Climate and Oceanography

Thank You!

The Symposium would not have been possible without the help of dedicated volunteers who participated in the organizing committee, reviewed abstracts, and donated their time during the event.

The Organizing Committee

Nancy Anderson (Alaska SeaLife Center), **Crystal Benson-Carlough** (North Pacific Research Board), **Rolf Grading** (University of Alaska Fairbanks), **Nora Deans** (North Pacific Research Board), **Danielle Dickson** (North Pacific Research Board), **Robin Dublin** (Centers for Ocean Sciences Education Excellence), **Janet Duffy-Anderson** (NOAA Alaska Fisheries Science Center), **Darcy Dugan** (Alaska Ocean Observing System), **Carrie Eischens** (North Pacific Research Board), **Jeanette Hanneman** (Alaska SeaLife Center), **George Hart** (Navy Region Northwest), **Warren Horowitz** (Bureau of Ocean Energy Management), **Tara Jones** (Alaska SeaLife Center), **Igor Katrayev** (North Pacific Research Board), **Molly McCammon** (Alaska Ocean Observing System), **Rosa Meehan** (Alaska Ocean Observing System), **John Payne** (North Slope Science Initiative), **Scott Pegau** (Prince William Sound Science Center), **Cheryl Rosa** (U.S. Arctic Research Commission), **Marilyn Sigman** (UAF Marine Advisory Program), **Cynthia Suchman** (North Pacific Research Board), **Terry Thompson** (Kachemak Bay Research Reserve), **Tom Van Pelt** (North Pacific Research Board), **Mary Whalen** (USGS Alaska Science Center), **Francis Wiese** (North Pacific Research Board), **David Witherell** (North Pacific Fishery Management Council)

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Organizing Committee Chair and
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Crystal Benson-Carlough, NPRB

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Janet Duffy-Anderson, NOAA

Exhibits
Terry Thompson, ADF&G

Media
Molly McCammon, AOOS

Non-Plenary Sessions and Workshops
Rosa Meehan, AOOS

Poster Sessions
Mary Whalen, USGS

Student Award Program
Marilyn Sigman, UAF Marine
Advisory Program

AMSS Survey
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Jeanette Hanneman, ASLC

Registration, Time Keeping, Student Judging,
and Poster Volunteers
**We Cannot Thank You Enough for Donating
Your Time!**

Thank You Sponsors!



Alaska Bering Sea Crabbers



Alaska Department of Fish and Game



Alaska Ocean Observing System



Cook Inlet Regional Citizens Advisory Council



Alaska Sea Grant



Alaska Sealife Center



Arctic LCC



Aleutian and Bering Sea Islands LCC



Centers for Ocean Sciences Education Excellence



Exxon Valdez Oil Spill Trustees



International Pacific Halibut Commission



Kachemak Bay Research Reserve



National Park Service



Navy Region Northwest



NOAA Alaska Fisheries Science Center

NOAA Alaska Regional Collaboration Team



North Pacific Fishery Management Council



North Pacific Research Board



North Slope Borough



North Slope Science Initiative



Northwest Aquatic & Marine Educators - Alaska



Oil Spill Recovery Institute



Pollock Conservation Cooperative Research Center



Prince William Sound Science Center



University of Alaska Fairbanks, School of Fisheries and Ocean Sciences



United States Arctic Research Commission



United States Fish and Wildlife Service



U.S. Bureau of Ocean Energy Management, Regulation and Enforcement



**U.S. Geological Survey
U.S. Geological Survey - Alaska Region**



Western Alaska LCC



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