



JANUARY 16-20, 2012

Alaska Marine Science Symposium

HOTEL CAPTAIN COOK & DENA'INA CENTER • ANCHORAGE, ALASKA



James Pfeifferberger



Mandy Lindberg



Micaela Binksteyn



Mandy Lindberg

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

Schedule

	MONDAY, JANUARY 16	TUESDAY, JANUARY 17
Morning Plenary Session 8:00-11:30	<p>Registration Opens, 10:00</p> <p>Workshop, 8:00-noon Communicating Ocean Sciences <i>Fore Deck, Discovery Ballroom</i></p> <p>All day Coastal Impressions: A Photographic Journey along Alaska's Gulf Coast <i>Adventure Room</i></p>	<p>Registration Opens, 8:00</p> <p>Arctic Plenary</p> <p>All day Coastal Impressions: A photographic Journey along Alaska's Gulf Coast <i>Adventure Room</i></p>
Lunch 11:30-1:00	Lunch on your own	Lunch provided in the Discovery Ballroom
Afternoon Plenary Session 1:00-5:00	<p>Symposium Begins</p> <p>Opening Remarks, 1:30-2:30</p> <ul style="list-style-type: none"> Anchorage Mayor Dan Sullivan Alaska Lt Governor Mead Treadwell US Senator Mark Begich US Senator Lisa Murkowski <p>Keynote, 2:30-3:00 Eddy Carmack, Department of Fisheries and Oceans, Canada</p> <p>Keynote, 3:00-3:30 Carin Ashjian, Woods Hole Oceanographic Institute, & Jeff Napp, NOAA Alaska Fisheries Science Center</p> <p>Keynote, 3:30-4:00 Jamal Moss & Olav Ormseth, NOAA Alaska Fisheries Science Center</p> <p>Keynote, 4:00-4:30 Randy Olson, Randy Olson Productions</p>	<p>Arctic Plenary</p> <p>Workshop, 12:30-2:00 drop-in Career Tracks at the Alaska Department of Fish and Game <i>Voyager Room</i></p>
Evening 5:00-9:00	<p>Exhibits and Poster Reception 5:45-9:00</p> <p>Arctic & Bering Sea/Aleutians</p> <ul style="list-style-type: none"> Wave 1 – 5:45- 7:15 <i>See Poster Booklet</i> Wave 2 – 7:30 -9:00 <p><i>Dena'ina Exhibit Hall Room 1</i></p> <p>Appetizers & No-Host Bar</p>	<p>Exhibits and Poster Reception 5:45-9:00</p> <p>Gulf of Alaska</p> <ul style="list-style-type: none"> Wave 1 – 5:45- 7:15 <i>See Poster Booklet</i> Wave 2 – 7:30 -9:00 <p><i>Dena'ina Exhibit Hall Room 1</i></p> <p>Appetizers & No-Host Bar</p> <p>Workshop, 5:30-7:30 Mapping Alaska's Coastal Communities <i>Quadrant Room</i></p>

Posters/Exhibits & Receptions

Dena'ina Center
600 W 7th Ave.
Shuttle Service to and from provided in 15-minute increments, 5:00-9:00

All Other Events

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

WEDNESDAY, JANUARY 18	THURSDAY, JANUARY 19	FRIDAY, JANUARY 20
<p>Registration Opens, 8:00</p> <p>Bering Sea and Aleutian Islands Plenary</p> <p>All day Coastal Impressions: A photographic Journey along Alaska's Gulf Coast <i>Adventure Room</i></p>	<p>Registration Opens, 8:00</p> <p>Gulf of Alaska Plenary</p> <p>All day Coastal Impressions: A photographic Journey along Alaska's Gulf Coast <i>Adventure Room</i></p>	<p>Workshop, 8:00-noon Introduction to Metadata <i>Adventure Room</i></p> <p>Workshop, 8:00-noon Natural Resource Damage Assessment and Restoration 101 <i>Whitby Room</i></p> <p>Meeting, 10:00-noon Aleutian and Bering Sea LCC Listening Session <i>Quadrant Room</i></p>
<p>Lunch on your own</p> <p>Workshop, 11:45-1:00 Cumulative Effects of Sound <i>Endeavor Room</i></p>	<p>Lunch provided <i>in the Discovery Ballroom</i></p>	
<p>Bering Sea and Aleutian Islands Plenary</p> <p>Student Poster Presentation Award Announcements, 4:45-5:00</p>	<p>Gulf of Alaska Plenary</p> <p>Student Oral Presentation Award Announcements and Closing Remarks, 5:00-5:30</p>	<p>Workshop, 1:00-3:00 ShoreZone Training <i>Adventure Room</i></p> <p>Workshop, 1:30-5:30 Yup'ik Environmental Knowledge: The Natural and Cultural History of the Bering Sea Coast <i>Club Room 2</i></p>
<p>Workshop, 5:00-6:30 Introducing the Synthesis of Arctic Research (SOAR) Project <i>Quadrant Room</i></p> <p>Workshop, 7-8:30 North Pacific Research Board Town Hall Meeting <i>Fore Deck, Discovery Ballroom</i></p>	<p>Workshop, 7:00-9:00 The Arctic Mixing Zone: Where Science & Policy Come into Solution <i>Fore Deck, Discovery Ballroom</i></p>	

Keynote Speakers

Monday, January 16

2:30-3:00

ARCTIC | **EDDY CARMACK**, DEPARTMENT OF FISHERIES AND OCEANS, CANADA

Interconnected Roles of the Arctic and Subarctic Oceans in Global Change: Challenges to Observation and Governance



The Arctic Ocean is changing extraordinarily fast, and to fully understand why requires that we examine its two-way interconnection with its neighboring subarctic Pacific and Atlantic domains and joint roles in global-scale hydrological and thermohaline cycles. A changing Arctic also acts back on the global system, with potential impacts on ocean currents and global precipitation patterns. By looking at and understanding the rapid and non-linear changes that are taking place in the Arctic, we may develop potentially powerful tools to manage and cope with emerging global-scale issues.

To demonstrate this point, results from the International Polar Year (IPY)

Canada's Three Oceans project (C3O) and the Canada/U.S Joint Ocean Ice Study (JOIS) are presented as a case study to demonstrate the essential connectivities among the Arctic and subarctic oceans and to explore how changes within this coupled physical system are now impacting marine life and ecosystems, invasive species, ocean acidification and challenges to governance. These changes pose challenges that require cross-scale actions that will both aid in the advance detection of regime shifts and build resilience and transformative capacity within Northern communities coping with rapid change.

3:00-3:30

BERING SEA/ALEUTIANS | **CARIN ASHJIAN**, WOODS HOLE OCEANOGRAPHIC INSTITUTE, & **JEFF NAPP**, NOAA ALASKA FISHERIES SCIENCE CENTER

Understanding Ecosystem Processes for the Bering Sea



In 2007, the North Pacific Research Board (NPRB) and National Science Foundation (NSF) entered into a historic partnership to support a comprehensive \$52 million investigation of the eastern Bering Sea ecosystem to understand how climate change and associated changes in sea-ice are impacting this ecosystem and the consequences of these changes on lower trophic levels for fish, seabirds, marine mammals, and ultimately people.

The partnership is now in its sixth year. The Program's

vertically integrated biophysical model is running and providing interesting results. For example, multi-decadal (1970-2040) hindcasts and forecasts with a 10-layer biophysical (physics/NPZ) model of the Bering Sea indicate a significant negative correlation between the springtime water temperature and the fall biomass of large zooplankton. Another model product is the first Bering Sea Project predictions for the seasonal and interannual distribution and growth of fish species based on daily oceanographic and production conditions. Both our model output and our observational program are providing new insights into the role of sea ice at many different trophic levels. Bering Sea Project is also modeling how changing climate may affect how humans assess and use living marine resources. Climate scenarios for a management strategy evaluation (MSE) have been chosen and will be discussed. Our series of vignettes will showcase and build upon recent results from the Program, including those from the soon-to-be-released special issue in *Deep-Sea Research II*. They will also demonstrate how the program has migrated from observation to synthesis.

3:30-4:00

GULF OF ALASKA | **JAMAL MOSS & OLAV ORMSETH**, NOAA ALASKA FISHERIES SCIENCE CENTER

The Gulf of Alaska Project: An Integrated Ecosystem Research Program



The Gulf of Alaska Project is focusing on identifying and quantifying the key processes that regulate the recruitment of five commercially and ecologically important groundfish species. This study will investigate regional differences in ecological processes from southeast Alaska to Kodiak Island during spring, summer, and fall with comprehensive field sampling in 2011 and 2013. Field observations and laboratory analyses are being integrated through modeling and retrospective analyses.

Preliminary findings of species distribution, biophysical conditions in the Gulf of Alaska, and preliminary results from modeling and retrospective analyses will be presented.

4:00-4:30

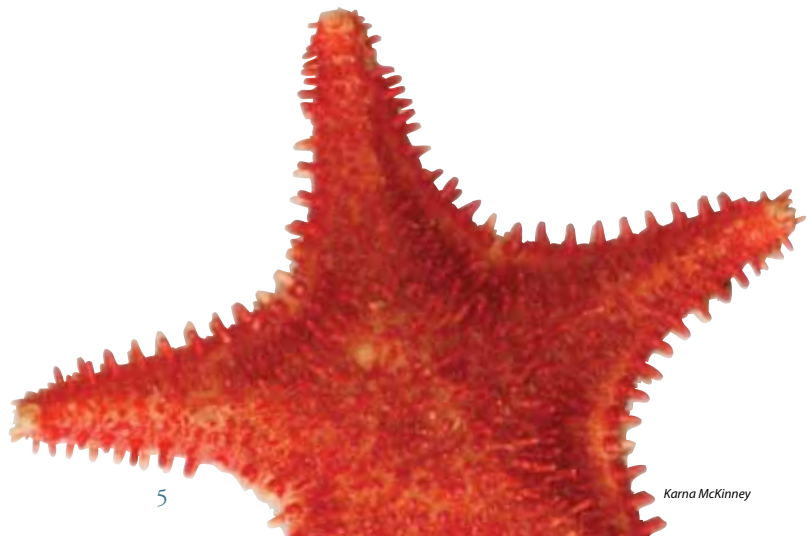
EDUCATION & OUTREACH | **RANDY OLSON**, RANDY OLSON PRODUCTIONS

Storytelling - Clear Proof that Scientists Descended from Humans



Last year I spoke at a major scientific institution where one of the communicators said, "Our scientists constantly say they want us to "Tell the story of our institution," but when we ask them "What IS the story of our institution?" they say, "You know, it's all the studies we do, the people who work here, the results we publish ..." That is not a story. That is exposition. Scientists have a hard time with the idea of storytelling. Many even suffer from "storyphobia," which is the irrational fear of "bending the science to tell a better story." And yet storytelling is at the core of how they, like everyone else, communicate most effectively. In fact, recent studies show that scientists descended from

humans and still have the vestiges of the literary world in their modes of communication. In this talk I will explore what the structure of a story is, why it is such a crucial aspect of communication, and how you can do it better at all scales from five seconds to five hours.



Arctic Plenary Session



Tuesday, January 17

ECOSYSTEM PERSPECTIVES

- 8:00-8:15 **Lisanne Aerts** The offshore northeastern Chukchi Sea: A complex high-latitude ecosystem
- 8:15-8:30 **Ken Dunton** An integrated chemical and biological study of the benthos of the Chukchi Sea: Highlights from the COMIDA Program
- 8:30-8:45 ***George Whitehouse** Modeling the eastern Chukchi Sea food web with a mass-balance approach
- 8:45-9:00 **Amy Merten** Using web-mapping technologies to improve oil spill preparedness and response in the Arctic

HUMANS

- 9:00-9:15 **Leah Cuyno** Updating the MAG-PLAN Alaska economic model
- 9:15-9:30 ***Carolina Behe** Building a framework on how to assess food security in the Alaskan Arctic
- 9:30-10:00 COFFEE BREAK
- 10:00-10:15 **Courtney Carothers** Climate change and subsistence fisheries in northern Alaska

CLIMATE & OCEANOGRAPHY

- 10:15-10:30 **Philip McGillivray** First results and future needs for small unmanned aircraft operations from icebreakers in the high Arctic
- 10:30-10:45 **Jeremy Krieger** Toward producing a Beaufort/Chukchi Seas regional reanalysis
- 10:45-11:00 **Thomas Weingartner** Circulation in the northeast Chukchi Sea depicted by oceanographic moorings and HF radar
- 11:00-11:15 **Phyllis Stabeno** Chukchi Acoustics, Oceanography, and Zooplankton (CHAOZ): Observations on Chukchi Sea

LOWER TROPHIC LEVEL

- 11:15-11:30 ***Elizaveta Ershova** A long-term census of the zooplankton communities in the Pacific Arctic
- 11:30-1:00 LUNCH PROVIDED IN DISCOVERY BALLROOM
- 1:00 -1:15 ***Jennifer Questel** Inter-annual variability of the planktonic communities in the Northeastern Chukchi Sea: 2008-2010
- 1:15-1:30 **Ann Knowlton** Benthic fauna of the northeastern Chukchi Sea, 2008-2010
- 1:30-1:45 ***Alexandra Ravelo** Epifaunal communities in the Alaskan Beaufort Sea

FISH & FISH HABITAT

- 1:45-2:00 **John Nelson** Genetic investigation of the population structure of Arctic Cod

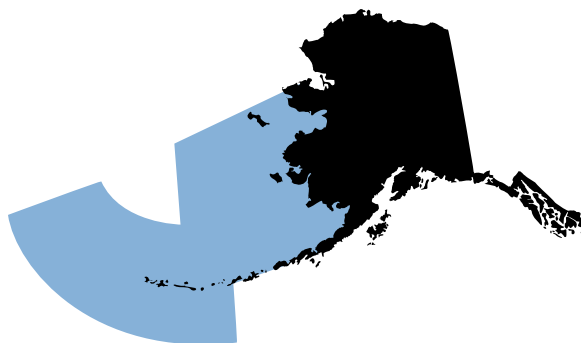
SEABIRDS

- 2:00-2:15 **Melanie Smith** A standardized method for identifying Important Bird Areas for marine birds using at-sea survey data
- 2:15-2:30 ***Adrian Gall** Influence of water masses on the seabird community of the northeastern Chukchi Sea
- 2:30-3:00 COFFEE BREAK
- 3:00-3:15 **George Divoky** Shifting prey in a melting Arctic: breeding seabirds adapt to the loss of summer ice

MAMMALS

- 3:15-3:30 **Lori Quakenbush** Ringed and bearded seal populations in Alaska are not showing signs of decline
- 3:30-3:45 **Kathy Burek Huntington** Histopathological and ancillary diagnostic findings from seals and walrus in the 2011 disease outbreak in the Arctic
- 3:45-4:00 **Sue Moore** Marine mammals and sea ice loss in the Pacific Arctic: tracking ecosystem responses to the “New Normal” during a period of rapid change
- 4:00-4:15 **David Hannay** Acoustic detections of Pacific walrus in the northeastern Chukchi Sea, September 2007 to July 2011
- 4:15-4:30 ***Teresa Baldwin** Acoustic presence of bowhead whales at an offshore site in the Chukchi Sea compared with nearshore visual observations of the spring migration past Point Barrow, Alaska
- 4:30-4:45 ***Frances Robertson** Exposure to seismic operations affects bowhead behavior and sightability in the Alaskan Arctic
- 4:45-5:00 **Craig George** Western Arctic bowhead whale movements and habitat use throughout their range: 2006–2011 satellite telemetry results

Bering Sea Plenary Session



Wednesday, January 18

ECOSYSTEM PERSPECTIVES

- 8:00-8:15 **Herbert Maschner** Shifting baselines through a 5000 year history of the North Pacific / Bering Sea marine ecosystem
- 8:15-8:30 **Kerim Aydin** Climate to Fisheries: 40-year hindcast of vertically integrated model for the eastern Bering Sea
- 8:30-8:45 **Matthew Baker** Spatial considerations for analyses of trophic stability in marine ecosystems
- 8:45-9:00 **Lee Cooper** New insights on the northern Bering Sea ecosystem from early seasonal sampling in March 2008, 2009 and 2010

HUMANS

- 9:00-9:15 **Elizabeth Moffitt** Definition of multi-species control rules for the Bering Sea management strategy evaluation
- 9:15-9:30 **Katherine Reedy-Maschner** Networks of sustainability in North Aleutian Basin communities
- 9:30-10:00 COFFEE BREAK
- 10:00-10:15 **Edward Glazier** Critical human dimensions of maritime oil spills
- 10:15-10:30 **Alan Haynie** Evaluating the effectiveness of rolling hotspot closures for salmon bycatch reduction in the Bering Sea pollock fishery

CLIMATE & OCEANOGRAPHY

- 10:30-10:45 **Mike Litzow** Four decades of climate-biology covariation in Alaska
- 10:45-11:00 ***Jonathan Whitefield** Bering Strait throughflow from a global ocean model
- 11:00-11:15 **James Overland** Black Swans in the Bering Sea: Physical and biological uncertainty

LOWER TROPHIC LEVEL

- 11:15-11:30 **Lisa Eisner** Phytoplankton biomass and size structure during late summer / early fall in the eastern Bering Sea

*Student Presentation

11:30-1:00 LUNCH ON YOUR OWN

1:00 -1:15 **Georgina Gibson** Predicting the impacts of changing environmental conditions on lower trophic level ecosystem dynamics in the Bering Sea

1:15-1:30 **Pamela Jensen** Development of a quantitative PCR assay for detection of planktonic red king crab (*Paralithodes camtschaticus*) larvae

FISH & FISH HABITAT

1:30-1:45 **Katherine Swiney** Interannual and seasonal variability in the size-fecundity relationship for red king crab (*Paralithodes camtschaticus*), with considerations of maternal size effects on embryo and larval quality

1:45-2:00 **M. Elizabeth Conners** Studying Giant Pacific octopus in Alaska

2:00-2:15 **Phillip Mundy** Applying ocean observations to support fishery management during climate change

2:15-2:30 **Susanne McDermott** Small scale abundance and movement of Atka mackerel in the Aleutian Islands

2:30-3:00 COFFEE BREAK

SEABIRDS

3:00-3:15 **Kathy Kuletz** Seasonal spatial relationships between seabirds and their prey – a moveable feast in the southeastern Bering Sea

3:15-3:30 **Rosana Paredes** Interannual variability in foraging behavior and diet of black-legged kittiwakes nesting at the Pribilof Islands: the role of mesoscale eddies

3:30-3:45 **Hector Douglas** Integrative approaches to marine ecology utilizing fatty acids, stable isotopes, and spectroscopy

MAMMALS

3:45-4:00 ***Chad Nordstrom** Boundary bound: fur seal foraging hotspots are related to thermoclines and fine-scale fronts

4:00-4:15 **Colleen Duncan** *Coxiella burnetii* in Northern fur seal (*Callorhinus ursinus*) placentas from St. Paul Island, Alaska

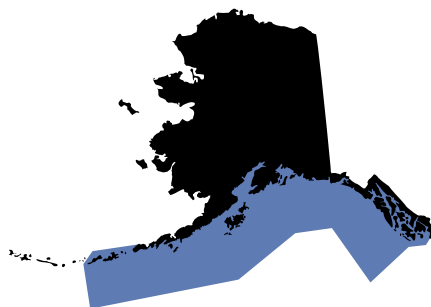
4:15-4:30 **David Withrow** Freshwater harbor seals of Lake Iliamna, Alaska: Seasonal haulout and pupping patterns with possible covariates influences

4:30-4:45 **John Citta** Does the winter range of bowhead whales overlap commercial fisheries in the Bering Sea?

4:45-5:00 **Best Student Poster Presentation Winners Announced**

*Student Presentation

Gulf of Alaska Plenary Session



Thursday, January 19

ECOSYSTEM PERSPECTIVES

- 8:00-8:15 **Kris Holderied** Long-term monitoring of marine conditions and *Exxon Valdez* oil spill-injured resources and services
- 8:15-8:30 ***Kray Van Kirk** Multispecies age-structured assessment in the Gulf of Alaska: predation, parameter precision and variance, and implications for fisheries management
- 8:30-8:45 **Shareen Ali** Quantifying phthalates in Alaska marine organisms
- 8:45-9:00 **Franz Mueter** Can rising variance predict sudden shifts in populations and ecosystems? A test using Alaskan crustacean data

HUMANS

- 9:00-9:15 **Nora Deans** The Gulf of Alaska Ecosystem Workshop – Extending a model for transforming ecosystem science into educational resources
- 9:15-9:30 **Raymond RaLonde** Using blue mussels as an indicator species for testing domoic acid toxicity in subsistence bivalve harvest
- 9:30-10:00 COFFEE BREAK
- 10:00-10:15 **Philip Loring** Vulnerability of Alaska’s coastal communities to climate change in the Kenai Peninsula
- 10:15-10:30 **Craig Faunce** Alternative catch monitoring of Alaskan groundfish

CLIMATE & OCEANOGRAPHY

- 10:30-10:45 **Igor Belkin** Advection of SST anomalies along the North Pacific Polar Front and their impact on the Gulf of Alaska, Aleutians, and Bering Sea ecosystems
- 10:45-11:00 **Carol Ladd** Characteristics of “Gap Winds” in the Gulf of Alaska and their effects on regional oceanography
- 11:00-11:15 **Christopher Paternostro** Bathymetric effects on the circulation of Cross Sound, Alaska

LOWER TROPHIC LEVEL

- 11:15-11:30 **Jason Waite** Spatio-temporal analysis of Chlorophyll-a concentrations in the coastal Gulf of Alaska, 1998-2010

*Student Presentation

- 11:30-1:00 LUNCH PROVIDED IN DISCOVERY BALLROOM
- 1:00 -1:15 **Wayne Litaker** Identifying the organisms responsible for causing paralytic shellfish poisoning in Alaska
- 1:15-1:30 **Christopher Hein** Sediment organization in the heterogeneous, coarse-grained beaches of western Prince William Sound: Long-term effects of post-oil spill beach washing

FISH & FISH HABITAT

- 1:30-1:45 **John Harper** Completion of 30,000 kilometers of ShoreZone coastal habitat mapping in Southeast Alaska
- 1:45-2:00 **Jacek Maselko** Ghost fishing in the Southeastern Alaska commercial Dungeness crab fishery
- 2:00-2:15 **JJ Vollenweider** Overwinter bioenergetic mechanisms for recruitment variability of Pacific herring (*Clupea pallasii*)
- 2:15-2:30 **Lorenz Hauser** Population structure and sex identification in Pacific halibut (*Hippoglossus stenolepis*) from genomic and gene-linked microsatellites
- 2:30-3:00 COFFEE BREAK

SEABIRDS

- 3:00-3:15 **Erica Madison** Post-breeding movements of Kittlitz's murrelet from the Gulf of Alaska and Aleutian Islands to the Arctic
- 3:15-3:30 **Michelle Kissling** Estimating demographic parameters to understand trend of the Kittlitz's murrelet
- 3:30-3:45 ***Jenna Cragg** Technical innovations for the census and monitoring of non-colonial seabirds (*Brachyramphus* murrelets) in Alaska

MAMMALS

- 3:45-4:00 ***Zachary Hoyt** Recolonization by sea otters, *Enhydra lutris*, in southern Southeast Alaska and implications for shellfish fisheries
- 4:00-4:15 ***Jamie Womble** Unraveling the mystery of harbor seal migration from a glacial fjord in southeastern Alaska
- 4:15-4:30 ***Delphine Mathias** Depth and range tracking of sperm whales in the Gulf of Alaska using a two-element vertical array, satellite and bioacoustic tags
- 4:30-4:45 **Keri Lestyk** Is real-time acoustic monitoring an effective mitigation measure for Cook Inlet beluga whales?

MARINE OBSERVATION FRAMEWORK

- 4:45-5:00 **Molly McCammon** Designing an ocean observing system for the future
- 5:00-5:15 **BEST STUDENT ORAL PRESENTATIONS WINNERS ANNOUNCED**
- 5:15-5:30 **CLOSING REMARKS**

*Student Presentation

Workshops

All Workshops held at Hotel Captain Cook

Monday, January 16

Communicating Ocean Sciences

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

8:00 am-1:00 pm, Fore Deck, Discovery Ballroom

The 2012 Communicating Ocean Science Workshop will provide a special opportunity to ocean scientists, graduate students and outreach specialists to consider how they tell the story of their scientific research in a manner that is compelling and informative. Randy Olson, author of *Don't Be Such a Scientist: Talking Substance in an Age of Style* will lead a two-hour session on communicating through story. You will learn the keys to capturing audience attention and creating a compelling story based on the scientific work you do every day. Participants will be invited to present a short story of their work to the audience and Randy will use these examples to bring to light key aspects of powerful communication.

The second section of the workshop will be dedicated to practical applications of effective storytelling to bring your science to broader audiences. These sessions include how to use basic video that you can take yourself to reach the masses; how to create powerful radio pieces; and how to develop virtual field trips as a way to reach thousands of students. Presenters include Molly McCammon and Darcy Dugan (AOOS), Elizabeth Arnold (Journalism Professor at UAA and Senior Reporter for *Encounters* with Richard Nelson) and Darin Trobaugh (Alaska SeaLife Center).

Finally, participants will have another opportunity to share their work with each other through short storytelling that will provide a great kick off to networking opportunities at the AMSS.

Registration required (email robindublin@coseealaska.net)

Coastal Impressions: A Photographic Journey along Alaska's Gulf Coast

CONVENER: SUE SAUPE (CIRCAC)

8 am-5 pm, Adventure Room

Alaska's shores are incredibly diverse, as are the processes that shape them and the habitats they support. Come see a gallery of vivid large-format prints and narratives of these extraordinary places, sponsored by the Cook Inlet Regional Citizens Advisory Council (RCAC). The exhibit will present a small selection of the tens of thousands of photographs collected by the ShoreZone Alaska Partnership during surveys along the Gulf of Alaska coast. From the extensive salt marshes and wave-cut platforms of lower Cook Inlet to recently uncovered bedrock from glacial retreat in southeast Alaska; from quiescent habitats inside Prince William Sound to wave-exposed rocky headlands on Kodiak Island; from coastal lagoons to coastal spits to massive river deltas—the images were chosen to reflect the diverse and dynamic and often rugged and remote margins where land meets the sea. The exhibit will be open during the day at the Alaska Marine Science Symposium at the Hotel Captain Cook. Make time to view at your leisure (coffee and tea provided). The collection will leave you with new impressions of the complexity and beauty of our wild coast.

Tuesday, January 17

Arctic Cod - Assessment and Coordination of Research on Genetics, Biogeography and Ecology

CONVENER: JOHN NELSON (UNIVERSITY OF VICTORIA)

noon-1:00 pm, Club Room 2

At present there are fundamental gaps in our knowledge of population size, stock structure, life-history, and the characteristics of critical habitat for Arctic Cod. A range of ongoing and planned research initiatives are targeting these gaps. This workshop aims to bring together people involved in Arctic Cod research so that we are best able to coordinate our activities, identify complementarities and facilitate collaboration. All parties interested in Arctic Cod are invited to attend. Those with ongoing or planned research are asked to briefly describe their research to provide information regarding the nature of the research and the geographical region of focus. A LCD projector will be provided for those who would like to show a few slides. The output from this workshop will be a summary spreadsheet and map of ongoing and planned Arctic Cod research.

Career Tracks at the Alaska Department of Fish and Game

CONVENER: CANDICE BRESSLER (ADF&G)

12:30-2:00 pm drop-in, 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™!

Coastal Impressions: A Photographic Journey along Alaska's Gulf Coast

CONVENERS: SUE SAUPE (CIRCAC)

8 am-5 pm, Adventure Room

See details on page 12.

Workshops

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 (UAF)

5:30-7:30 pm, 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; Tom Heinrichs, Dayne Broderson, and Will Fisher with UAF's Geographic Information Network of Alaska and Alaska Statewide Digital Mapping Initiative

Wednesday, January 18

Cumulative Effects of Sound

CONVENER: BILL STREEVER (BP / NSSI)

11:45 am-1:00 pm, Endeavor Room

Most assessments of cumulative effects, including those of underwater sound, rely on narrative summaries rather than quantitative or even systematic qualitative evaluations. An expert committee sponsored by BP through the University of California has developed a method based on (1) acoustic modeling to define an acoustic footprint of multiple sound sources and (2) simulation modeling of the movement of marine mammals through that footprint. Outputs include measures of aggregate sound exposure (both sound exposure level [SEL] and sound pressure level [SPL]) and an estimate of occurrences of aversive behavior. In an additional step, masking, or loss of acoustic habitat, will be assessed. A trial of the method with data from the Alaskan Beaufort Sea in 2008 has been undertaken. The work is a first step toward development of more sophisticated approaches that will improve understanding of the cumulative effects of sound on marine mammals. In this workshop, the method will be presented and workshop participants will be encouraged to contribute ideas for improvements and additional work, such as ways to address oversimplifications in the method, stress responses, and hearing damage from chronic exposure to elevated sound levels.

Coastal Impressions: A Photographic Journey along Alaska's Gulf Coast

CONVENER: SUE SAUPE (CIRCAC)

8 am-5 pm, Adventure Room

See details on page 12.

Introducing the Synthesis of Arctic Research (SOAR) Project

CONVENERS: SUE MOORE (NOAA FISHERIES) AND PHYLLIS STABENO (NOAA PMEL)

5:00-6:30 pm, Quadrant Room

The Bureau of Ocean Energy Management (BOEM) Alaska Region and the NOAA Pacific Marine Environmental Laboratory (PMEL) established an interagency agreement (IAA) in May 2011 to support the Synthesis of Arctic Research (SOAR) project (<http://www.arctic.noaa.gov/soar/>). The overarching goal of the 5-year project is to increase scientific understanding of the inter-relationships among oceanographic conditions, lower trophic benthic and pelagic species (zooplankton and forage fish), seabirds, and marine mammals in the Pacific Arctic region. The project seeks to foster cross-disciplinary collaboration among scientists working in the northern Bering, Chukchi and Beaufort seas and will support analytical projects leading to synthesis of data from research programs funded by the BOEM, as well as other federal and state agencies and industry. It is anticipated that analytical results from the SOAR will result in a series of peer-reviewed scientific publications that will enhance capability to understand and predict inter-relationships among oceanographic features (e.g. currents, upwelling, sea ice) and responses in the biological system, including variability in the distribution and relative abundance of seabirds, marine mammals and their prey.

Since the initiation of the IAA, an eleven-member Science Steering Committee (SSC) has met via teleconference and at a 3-day workshop to establish draft Science Themes and questions, as a foundation for an invitational Science Workshop to be held in Anchorage 14-16 March 2012. The Town Hall meeting at the AMSS is meant to introduce the SOAR project to any and all interested parties, to provide a forum to address questions regarding the project's anticipated milestones and timelines, and to suggest opportunities for collaboration with other research and synthesis efforts in the Pacific Arctic region.

North Pacific Research Board Town Hall Meeting

CONVENER: CYNTHIA SUCHMAN (NPRB)

7:00-8:30 pm, 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. They will also present an overview of the proposal review process. The session will conclude with time for general questions regarding current and planned NPRB activities.

Workshops

Thursday, January 19

Coastal Impressions: A Photographic Journey along Alaska's Gulf Coast

CONVENER: SUE SAUPE (CIRCAC)

8 am-5 pm, Adventure Room

See details on page 12.

The Arctic Mixing Zone - Where Science & Policy Come into Solution

CONVENER: AMY HOLMAN (NOAA)

7:00-9:30 pm, Fore Deck, Discovery Ballroom

This workshop will provide information and a context on new Arctic policies and collaborative science activities. The policy component will include the Interagency Arctic Permitting Working Group, the National Ocean Policy Strategic Action Plan, the International Arctic Research Policy Committee, and the Northern Waters Task Force. The collaborative science component will cover new collaborative science/data sharing endeavors including the North Pacific Research Board's Arctic Synthesis/RFP; Shell- North Slope Borough MOA; NOAA-Shell/ConocoPhillips Data Sharing MOA; NOAA-BOEM MOA; and the UAF Arctic Oil Spill Research and Development Center. Attending this workshop will enable participants to understand how these efforts will impact their current and future research.

Friday, January 20

Natural Resource Damage Assessment and Restoration 101

CONVENER: ERIKA AMMANN (NOAA)

8:00 am-noon, Whitby Room

This workshop aims to give an introduction to Natural Resource Damage Assessment and Restoration (NRDAR) which may occur after an oil spill or hazardous substance release. The workshop will cover the three phases of NRDAR: 1) Preassessment, 2) Restoration Planning (Injury Assessment), and 3) Restoration Implementation. The workshop is open to all persons interested in learning more about this process and those considering or interested in participating in potential future responses.

Introduction to Metadata Workshop

CONVENER: VIV HUTCHISON (USGS)

8:00 am-noon, Adventure 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. *Registration required (email francis.wiese@nprb.org)*

Aleutian and Bering Sea LCC Listening Session

CONVENER: DOUG BURN (USFWS)

10:00 am-noon, Quadrant Room

The Aleutian and Bering Sea Islands Landscape Conservation Cooperative (ABSI LCC) is the third LCC to be established in Alaska. LCCs are applied conservation partnerships focused on a defined geographic area that inform on-the-ground strategic conservation efforts at landscape scales, with an emphasis on climate change. The ABSI LCC will not duplicate or assume the authority of any of the existing partnerships - rather, it will seek to find efficiencies through collaboration and through the collection of additional science products to address conservation concerns shared by the cooperative's partners. This "Listening Session" is an opportunity for interested parties to share thoughts and ideas with the Steering Committee about how the LCC can help bring added value to science activities in the Aleutian and Bering Sea Islands region.

ShoreZone Training

CONVENER: CINDY HARTMAN-MOORE (NOAA)

1:00-3:00 pm, Adventure Room

This workshop will focus on describing the Alaska ShoreZone coastal habitat mapping project and its many uses. The workshop will provide hands-on examples with the ShoreZone web-based and GIS datasets for marine scientists, GIS specialists, coastal managers, and other users. The workshop will also provide a venue for feedback and discussion on needs or ideas for future development of ShoreZone and for new partnership opportunities.

Registration is preferred (email maeva@coastalandoceans.com)

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

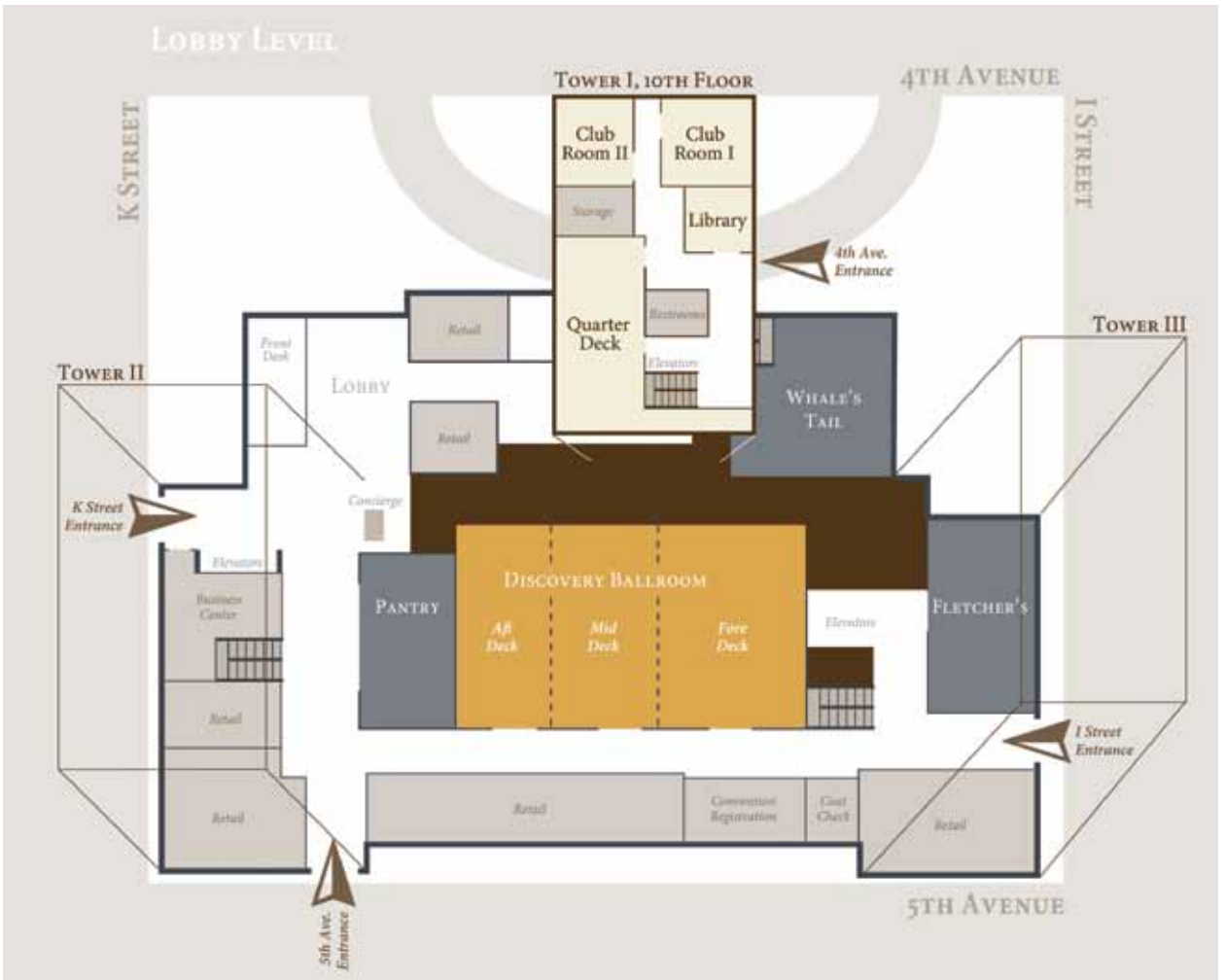
CONVENER: ANN FIENUP-RIORDAN (NPRB)

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

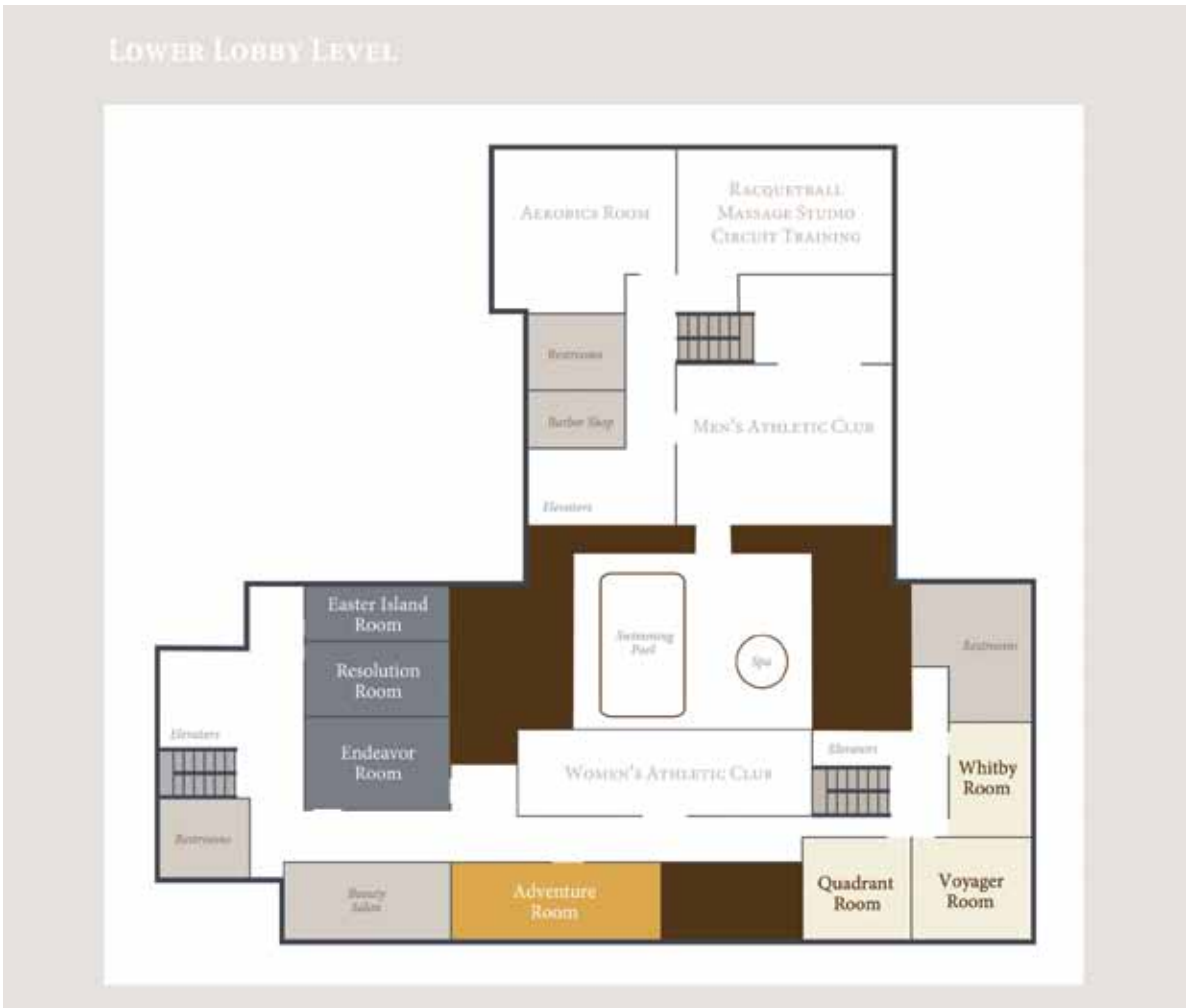
The Yup'ik Environmental Knowledge Project is a major effort in indigenous observation and knowledge documentation initiated by Bering Sea coastal communities in collaboration with the Calista Elders Council. The workshop will introduce conference participants to the project, including an opportunity 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



Hotel Captain Cook, Lower Lobby Level



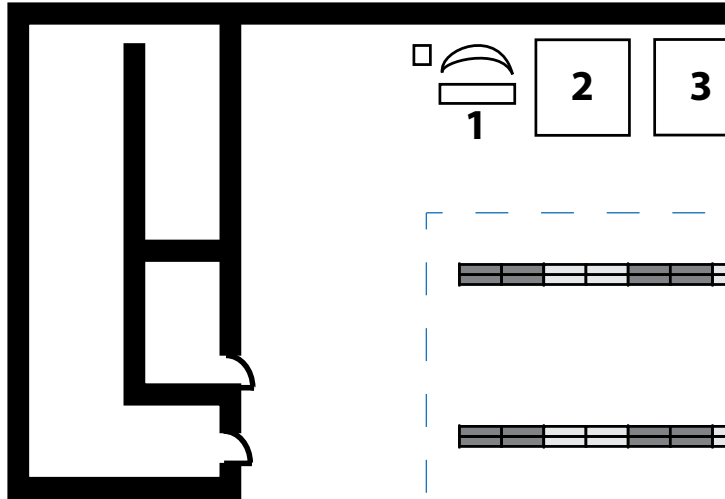
Venue Maps

Dena'ina Civic & Convention Center, 600 W 7th Ave Ildlughet (Eklutna) Exhibit Hall, Room 1

Posters/Exhibits & Receptions 5:45-9:00pm

Wave 1: 5:45-7:15 *See poster book for wave information, available at registration desk and at the Dena'ina center*
Wave 2: 7:30-9:00

Monday: Arctic, Bering Sea
Tuesday: Gulf of Alaska & Aleutians
Shuttle Service to and from provided in 15-minute increments, 5:00-9:00

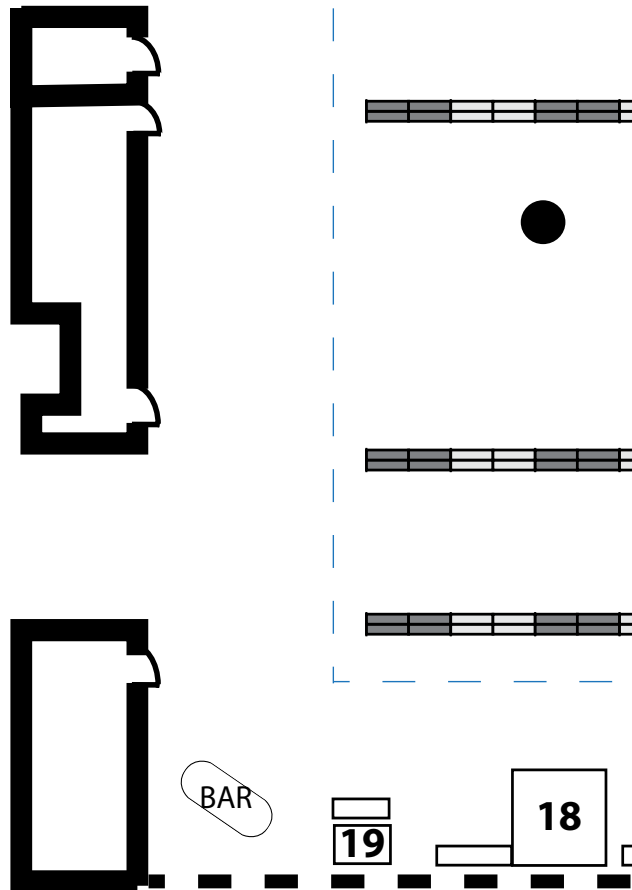


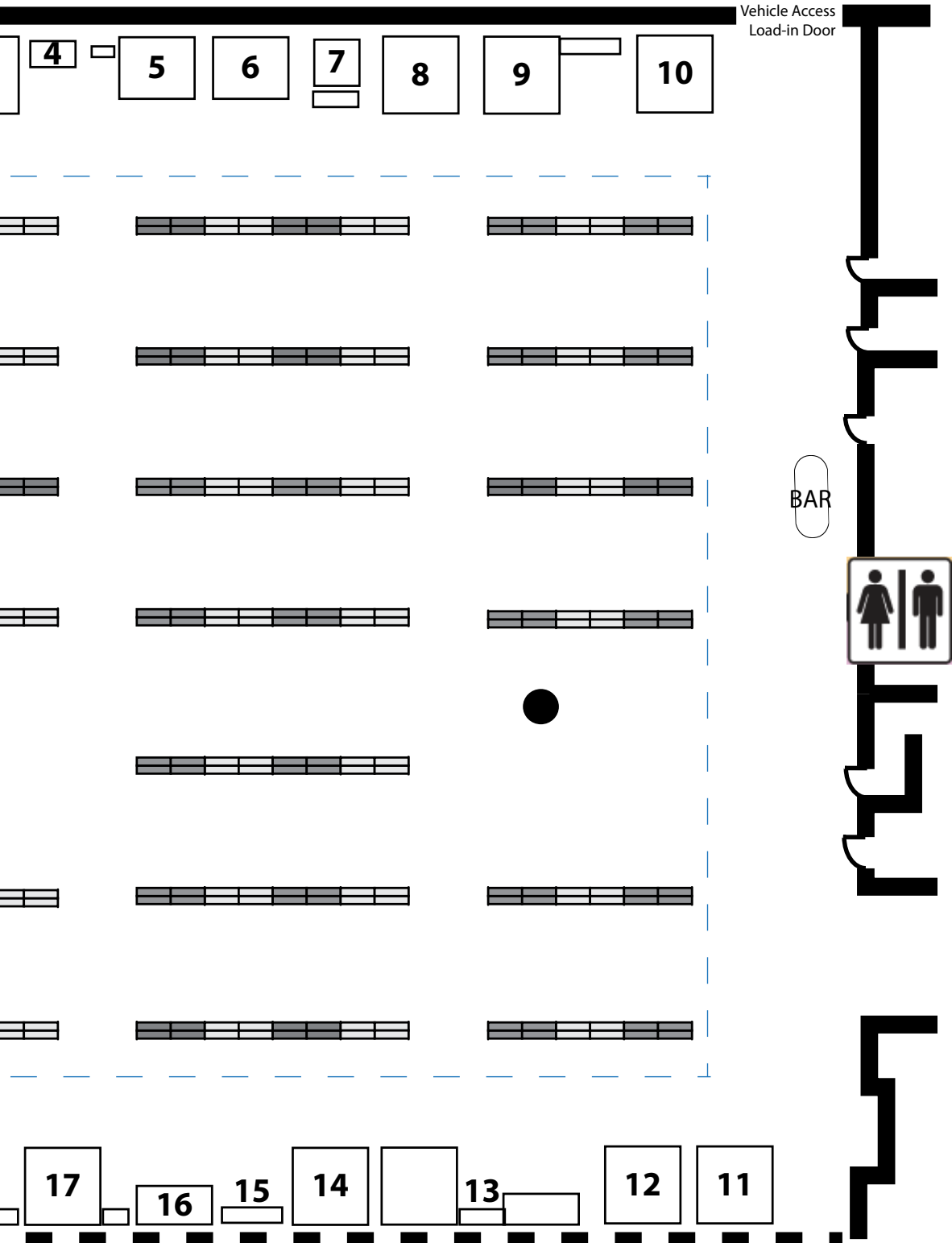
7th Avenue

Lobby

Exhibitors

- 1 Alaska Regional Collaboration Team
- 2 Sitka Sound Science Center
- 3 Shell
- 4 US Arctic Research Commission
- 5 Bureau of Ocean Energy Management
- 6 Alaska Ocean Observing System
- 7 Alaska Pacific University
- 8 Alaska Sea Grant
- 9 Alaska Department of Fish and Game
- 10 Prince William Sound Regional Citizens' Advisory Council
- 11 ENRI – UAA Environmental and Natural Resources
- 12 NOAA – Response and Restoration
- 13 Prince William Sound Science Center and Oil Spill Recovery Institute
- 14 Government of Canada
- 15 Alaska Center for Ocean Science Education Excellence
- 16 National Park Service
- 17 North Pacific Research Board
- 18 U.S. Geological Survey – includes Alaska Science Center, Alaska Region and Alaska Volcano Observatory
- 19 EcoAnalysts, Inc.





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** (North Pacific Research Board), **Lawson Brigham** (University of Alaska Fairbanks), **David Christie** (Alaska Sea Grant), **Leslie Cornick** (Alaska Pacific University), **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), **Ian Dutton** (Alaska SeaLife Center), **Carrie Eischens** (North Pacific Research Board), **John Farrell** (U.S. Arctic Research Commission), **Jeanette Hanneman**, (Alaska SeaLife Center), **George Hart** (Navy Region Northwest), **Warren Horowitz** (Bureau of Ocean Energy Management), **Igor Katrayev** (North Pacific Research Board), **Molly McCammon** (Alaska Ocean Observing System), **Heather McCarty** (McCarty and Associates), **John Payne** (North Slope Science Initiative), **Scott Pegau** (Prince William Sound Science Center), **David Scheel** (Alaska Pacific University), **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), **Cherri Womac** (Exxon Valdez Oil Spill Trustee Council), **Doug Woodby** (Alaska Department of Fish & Game)

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Organizing Committee Chair

Crystal Benson, NPRB

Abstract Review Committee Co-Chairs

Carrie Eischens & Francis Wiese, NPRB

Abstract Book Editor and Production

Janet Duffy-Anderson, NOAA

Exhibits

Terry Thompson, ADF&G

Media

Molly McCammon, AOOS

Non-Plenary Sessions and Workshops

Darcy Dugan, AOOS

Poster Sessions

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Student Award Program

Carrie Eischens, NPRB

Volunteer Coordination

Thomas Van Pelt, NPRB

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NAVY REGION NORTHWEST



NOAA ALASKA FISHERIES SCIENCE CENTER
NOAA Alaska Regional Collaboration Team



NORTH PACIFIC FISHERY MANAGEMENT COUNCIL



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